OLIVE AVENUE ROADWAY AND DRAINAGE IMPROVEMENTS PROJECT

DRAFT
Initial Study/Proposed Mitigated Negative Declaration

Prepared for:

THE CITY OF NOVATO CALIFORNIA

922 Machin Avenue
Novato, CA 94945

GHD Inc.
505 Montgomery St, Suite 2300
San Francisco, CA 94111

February 25, 2015

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1. Project Information

1. Project Title	Olive Avenue Roadway and Drainage Improvements Project
2. Lead Agency Name & Address	City of Novato Public Works Department 922 Machin Avenue Novato, CA 94945
3. Contact Person & Information	Petr Skala, Civil Engineer II (415) 899-8237 pskala@novato.org
4. Project Location	The Project would be located in Novato, California. Project work would occur along Olive Avenue between Redwood Boulevard and Railroad Avenue, and parallel to the railroad corridor, between Olive Avenue and Sweetser Avenue.
5. Project Sponsor's Name & Address	City of Novato Public Works Department 922 Machin Avenue Novato, CA 94945
6. Description of Project	Install existing aboveground utilities in an underground joint utility trench, widen and improve Olive Avenue, replace an existing culvert under Olive Avenue, and enclose two open drainage ditches (Olive Ditch and Railroad Ditch), into a pipeline and culvert.
7. General Plan Designation	Olive Avenue has no specific General Plan designation. The Olive Ditch area is designated as General Commercial. The Railroad Ditch area has no specific General Plan designation but is adjacent to General Commercial and Commercial/Industrial.
8. Zoning	Olive Avenue does not have a zoning designation. The area surrounding the Olive Avenue area is zoned as General Commercial. The area surrounding the Railroad Ditch area is zoned as Commercial/Industrial.
9. Surrounding Land Uses and Setting	Olive Avenue is a two-lane major collector roadway running east-west. Nearby land uses include a commercial shopping center, commercial businesses, industrial warehouses, and a gas station. Single- and multi-family residences are east of the railroad corridor.
10. Other Public Agencies Whose Approval may be Required	Please refer to Section 1.7 for a list of the regulatory agencies that may have permitting or approval authority over certain aspects of the Project.

1.1 Project Background

In 1998, the City of Novato (City) requested that the U.S. Army Corps of Engineers (Army Corps) conduct a flood control study of the Rush Creek basin to address chronic flooding problems in the downtown area. The Army Corps study, completed in 2001, evaluated the capacity of Olive Ditch and Railroad Ditch, which are open, constructed drainage ditches running east-west along Olive Avenue and north-south along the Northwestern Pacific Railroad corridor (now the Sonoma-Marin Area Rail Transit [SMART] corridor), to convey storm water during 10-year, 25-year, and 100-year storm events. The study determined that Olive Ditch and Railroad Ditch are undersized. This results in periodic flooding of adjacent properties, including an undeveloped commercial property north of Olive Avenue, and the lumberyard west of Railroad Ditch during 25-year storm events (Army Corps 2001). Additionally, improvements to the City storm drain system upstream of the study area from 10-year to 25-year storm conveyance have increased the potential for downstream flooding at Olive Ditch and Railroad Ditch (Army Corps 2001). The Army Corps report included recommendations for alleviating flooding in the study area; however no projects were implemented at the time.

In 2004, an application was submitted to the City for the construction of a mixed-use development project, the Village at Novato, on parcels 143-011-07, 143-011-08 and 143-011-05, east of Redwood Boulevard, and north of Olive Avenue and Olive Ditch (shown on Figure 2). A commercial center anchored by Trader Joe's was constructed on parcel 143-011-07, which is immediately adjacent to Olive Ditch and Olive Avenue. At that time, storm water flow in Olive Ditch was further evaluated, and an elliptical 69-foot long, 38-inch by 60-inch reinforced concrete pipe (RCP) culvert was installed to convey storm water flow under the Trader Joe's driveway and through Olive Ditch. While the application also proposed mixed-use development on parcels 143-011-08 and 143-011-05, as well as improvements to Olive Avenue (e.g., roadway widening, addition of bike lanes and sidewalks, drainage improvements, and enclosure of Olive Ditch in a pipeline), the application was withdrawn, and no new development proposals have been submitted to the City since that time.

Because inadequate drainage and flooding are still issues of concern, the City is proposing to complete the roadway and drainage improvements to Olive Avenue and Olive Ditch. Additionally, the City is proposing to conduct other two other capital improvement projects (CIPs) included in the current CIP list in the same geographic area: placing existing aboveground utilities along Olive Avenue in an underground joint utility trench; and enclosing a segment of Railroad Ditch into a culvert. These improvements would provide additional width for safety improvements to the street, such as improving site distance and installing sidewalks and bicycle lanes, and would prepare the site for future anticipated SMART multi-use path (MUP) improvements along the railroad corridor. Together these components comprise the Olive Avenue Roadway and Drainage Improvements Project (Project).

1.2 Project Objectives

Project objectives identified by the City include:

- Place existing overhead utilities underground along Olive Avenue between Redwood Boulevard and Railroad Avenue.
- Replace approximately 1,490 feet of undersized storm water drainage facilities along Olive Avenue and the SMART rail corridor (i.e., Olive Ditch and Railroad Ditch) to convey storm flows during 25-year storm events to alleviate localized flooding near Olive Ditch and Railroad Ditch.

- Replace the undersized culvert under Olive Avenue parallel to the railroad crossing to convey 25-year storm flows.
- Improve and widen Olive Avenue to accommodate a center turn lane and parking along the north side of the roadway; add bike lanes and sidewalks to improve public safety; rehabilitate the existing pavement along Olive Avenue; and improve sight distance approaching the railroad crossing.

1.3 CEQA Requirements

This Project is subject to the requirements of the California Environmental Quality Act (CEQA). The City of Novato Public Works Department is the CEQA lead agency. Prior to making a decision to approve the Project, the City must identify and document the potential significant environmental effects of the Project in accordance with CEQA. This Initial Study/Proposed Mitigated Negative Declaration (IS/Proposed MND) has been prepared under the direction of the City to fulfill the CEQA requirements.

This IS/Proposed MND will be circulated for public and agency comment for 30 days. Written comments may be emailed, delivered, or mailed to the following address until close of the comment period:

Petr Skala
City of Novato
922 Machin Avenue
Novato, CA 94945
(415) 899-8237
pskala@novato.org

This IS/Proposed MND is intended to satisfy the requirements of CEQA (Public Resources Code, Div 13, §21000-21177), the State CEQA Guidelines (California Code of Regulations, Title 14, §15000-15387), and the City of Novato Environmental Review Guidelines. CEQA encourages lead agencies and applicants to modify their projects to avoid significant adverse impacts.

Section 15063(d) of the State CEQA Guidelines states the content requirements of an Initial Study as follows:

15063(d) Contents. An Initial Study shall contain in brief form:

(1) A description of the Project including the location of the Project;
(2) An identification of the environmental setting;
(3) An identification of environmental effects by use of a checklist, matrix, or other method, provided that entries on a checklist or other form are briefly explained to indicate that there is some evidence to support the entries;
(4) A discussion of the ways to mitigate the significant effects identified, if any;
(5) An examination of whether the Project would be consistent with existing zoning, plans, and other applicable land use controls;
(6) The name of the person or persons who prepared or participated in the Initial Study.

1.4 Project Location and Existing Conditions

The proposed Project would be located within the City of Novato, Marin County, California (see Figure 1, Vicinity Map and Figure 2, Project Overview) between Redwood Boulevard and Railroad Avenue, and along the railroad corridor between Olive Avenue and Sweetser Avenue. Currently Olive Avenue between Redwood Boulevard and Railroad Avenue is a two-lane major collector roadway with a sidewalk and parking spaces on the south side of the street, no parking or sidewalk on the north side, and no bicycle lanes on either side of the street. An existing driveway on the north side of the street leads into the Trader Joe's shopping center and several driveways lead into various businesses on the south side. Electrical power, cable, and telephone lines run aboveground through the Project area, parallel to Olive Avenue. Existing utilities running underground parallel to Olive Ditch include water, telephone, and electrical. SMART owns the railroad corridor in Novato and will provide passenger rail service in the future, and the North Coast Railroad Authority (NCRA) is responsible for the operation of freight service. The rail corridor is currently active for freight rail service. SMART passenger train service is not currently in operation but may be active in 2016 (SMART 2014).

Olive Ditch is an approximately 660 linear feet (LF) unlined and manmade ditch. In a 25-year storm event, Olive Ditch has a peak flow of 50 cubic feet per second (cfs), but overtops its northern bank at 25 cfs (Army Corps 2001). Upstream (i.e., west) of Redwood Boulevard, the Olive Avenue drainage basin has been buried up to the intersection of Redwood Boulevard and Olive Avenue, at which point storm flow discharges through a 30-inch by 48-inch elliptical-shaped pipe to Olive Ditch (Army Corps 2001). Olive Ditch also receives flows from the Trader Joe's parking lot and from Railroad Ditch. An elliptical 69-foot long, 38-inch by 60-inch RCP conveys storm water flow under the Trader Joe's driveway. A 72-inch by 48-inch elliptical corrugated metal pipe (CMP) conveys flow from Olive Ditch east under the SMART railroad tracks. An existing 36-inch RCP conveys flows north-south under Olive Avenue.

Railroad Ditch is approximately 830 LF in the Project area. It is an unlined, manmade ditch between Olive Avenue and Sweetser Avenue. Railroad Ditch has a capacity of 30 cfs, which translates to a seven-year-flood event; in a 25-year storm event peak flow is 72 cfs (Army Corps 2001). Railroad Ditch receives flow from the City's downtown area via a 3-foot by 5-foot reinforced concrete box culvert and discharges into the existing 36-inch RCP that crosses north-south under Olive Avenue.

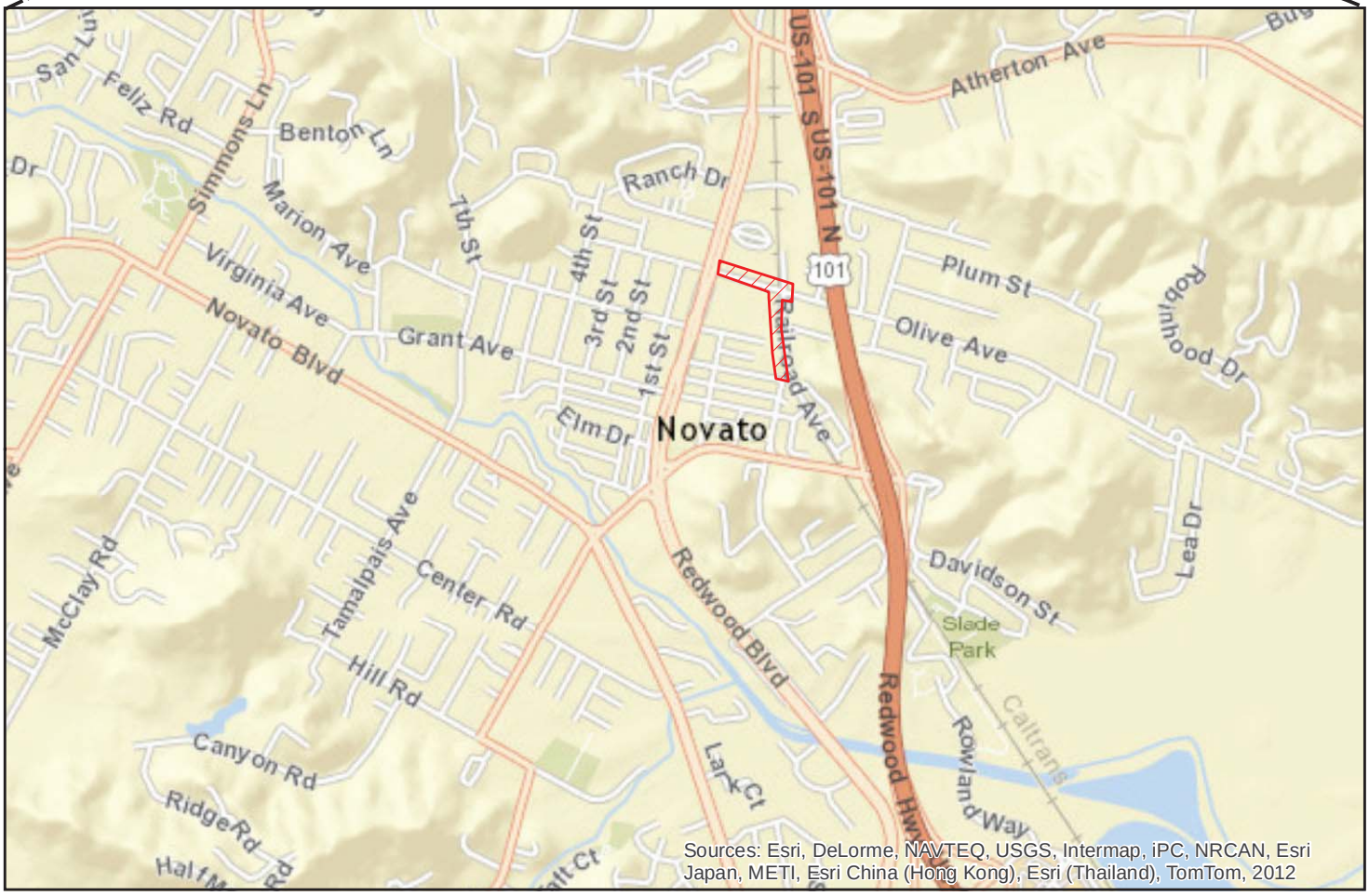
Storm flow from the Project area eventually drains to Rush Creek to the north.

1.5 Project Components

The Project consists of three components:

- Olive Avenue utility undergrounding;
- Olive Avenue roadway widening, Olive Ditch pipeline installation, Olive Avenue culvert installation, and;
- Railroad Ditch box culvert installation.

Two roadway configurations, Concept Plan CP-1 (i.e, the proposed Project), and Alternate 1, are under consideration by the City for the Olive Avenue widening component. The three components are discussed in detail as follows.



LEGEND

Project Area

Paper Size 8.5" x 11" (ANSI A)

0 600 1,200 1,800 2,400

Feet

Map Projection: Mercator Auxiliary Sphere
Horizontal Datum: WGS 1984
Grid: WGS 1984 Web Mercator Auxiliary Sphere

N

City of Novato
Olive Avenue Roadway
and Drainage Improvements

Job Number 8410702
Revision A
Date 17 Sep 2014

Vicinity Map

Figure 1

2235 Mercury Way Suite 150 Santa Rosa CA 95407 USA T 707 523 1010 F 707 527 8679 E santarosa@ghd.com W www.ghd.com

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LEGEND

- Utility Undergrounding Construction Area
- Olive Avenue Widening & Olive Ditch Pipeline Construction Area
- Railroad Ditch Culvert Installation Construction Area
- Staging Areas

City of Novato
Olive Avenue Roadway and
Drainage Improvements

Job Number	8411202
Revision	A
Date	Sep 2014

Project Overview

Figure 2

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1.5.1 Olive Avenue Utility Undergrounding

This component of the Project consists of undergrounding existing PG&E electrical power, Comcast cable, and Verizon phone lines between Redwood Boulevard and Railroad Avenue into an approximately 775 LF utility trench on the north side of Olive Avenue under the proposed sidewalk, as shown on Figure 3. Some trenching across Olive Avenue would also be required.

The majority of the utility undergrounding would be installed via open trench construction methods. However, trenchless construction (i.e., jack and bore construction methods) would be utilized to install an electrical conduit underneath the SMART railroad corridor which would then connect to an existing PG&E vault in Railroad Avenue. Typically the joint trench would be approximately 36-inches wide and 4- to 5-feet deep and would contain a 6-inch Comcast, a 4-inch PG&E, and a 4-inch Verizon conduit. The trench would be backfilled with native material to a compaction of 90 percent. An existing utility pole located on the south side of Olive Avenue near the railroad corridor would also be relocated approximately 30 feet south along the railroad corridor.

Construction would also include installation of several subsurface junction boxes, vaults, and associated appurtenances for the various utilities. One subsurface transformer would be installed in a 4.5-foot by 8.5-foot by 6-foot deep enclosure. All work would occur within the City's right-of-way (ROW). The utility undergrounding Project component would result in a marginal increase in impervious surface, and would resurface approximately 210 square feet (SF) of existing impervious surfaces.

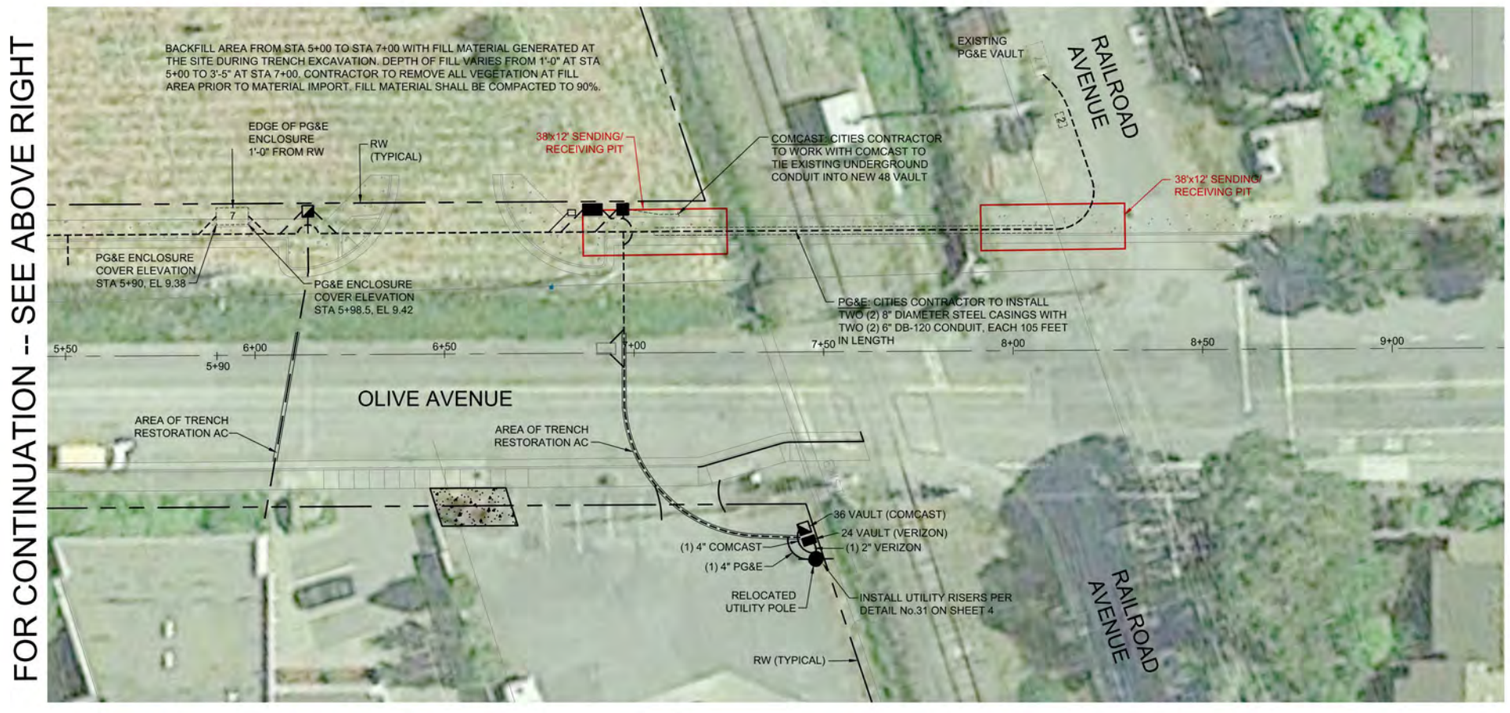
1.5.2 Olive Avenue Widening and Olive Ditch Pipeline Installation

As a component of the proposed Project (Concept Plan CP-1), Olive Avenue would be widened from approximately 40.5 feet to approximately 80 feet, and improved to accommodate sidewalks (5-feet wide on the north side and 10-feet wide on the south side), curb and gutter, 8-foot parking lanes, 5-foot wide Class II bike lanes, and 12-foot travel lanes on both sides of the street, with a center 11-foot two-way left turn lane (typical widths), as shown on Figures 4 and 5. The existing roadway would be elevated to improve sight distance. Approximately 10 parking spaces would be added to the north side of the street, while parking on the south side would remain the same as existing conditions. The existing sidewalk on the south side would be removed and new sidewalk would be installed to conform to the roadway elevation. The existing Trader Joe's driveway would be relocated approximately 50 feet west. One new driveway would be constructed along the north side of the street into the undeveloped commercial property east of Trader Joe's (APN 143-011-08). The undeveloped commercial property may be developed in the future, but no development of said parcel is included in the proposed Project.

The Olive Avenue sidewalk, curb, and gutter would be extended east across the railroad corridor through the intersection of Olive Avenue and Railroad Avenue, to provide a connection between the existing sidewalk to the east and the Project improvements. The railroad crossing surface would consist of concrete panels. A junction box would be constructed within approximately 105 SF of an unnamed drainage ditch to receive flow from two existing culverts; flow would continue to be directed north in the ditch. Once the roadway widening work is complete, the road would be repaved. The crossing would be constructed in conformance with California Public Utilities Commission (CPUC) General Order 88-B, 72-B, and 75-D for at-grade railroad crossings.

1 OLIVE AVENUE UTILITY UNDERGROUNDING

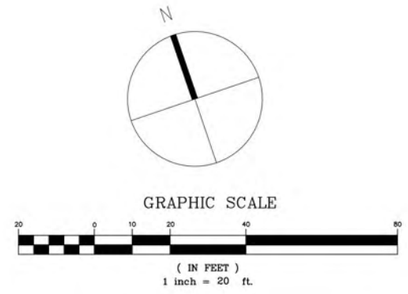
1"=20'



2 OLIVE AVENUE UTILITY UNDERGROUNDING

1"=20'

NOTE: OLIVE AVENUE IMPROVEMENTS SHOWN FOR REFERENCE.



Source: *City of Novato, Rule 2B Underground Utility District B-6 Olive Avenue from Redwood Boulevard to Railroad Avenue, September 2013*

PRELIMINARY PLANS
NOT FOR CONSTRUCTION

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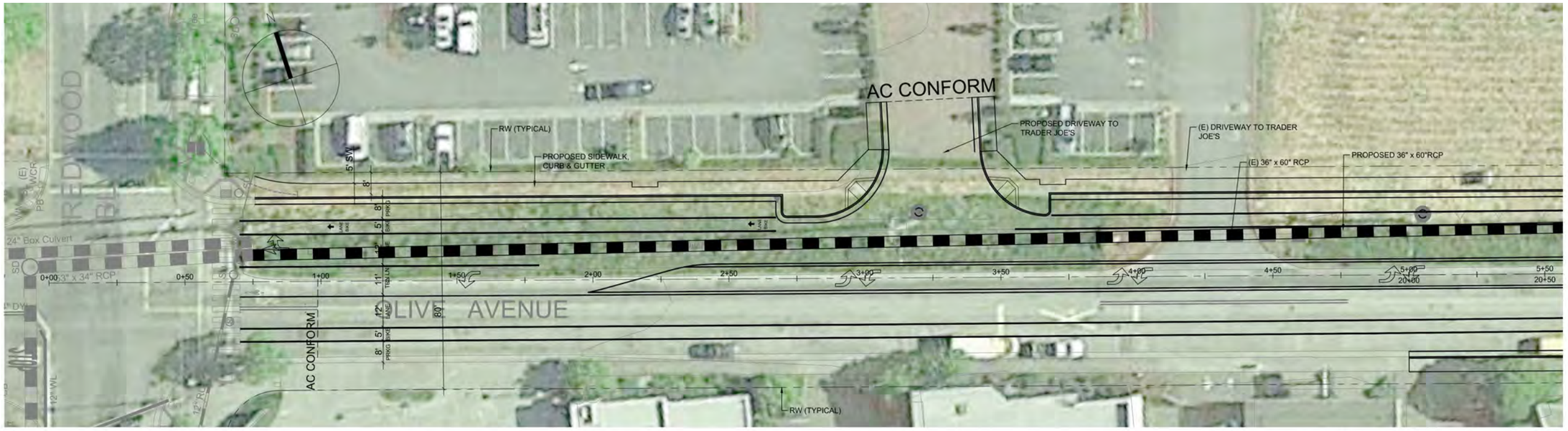


SEE FIGURE 5 FOR CONTINUATION

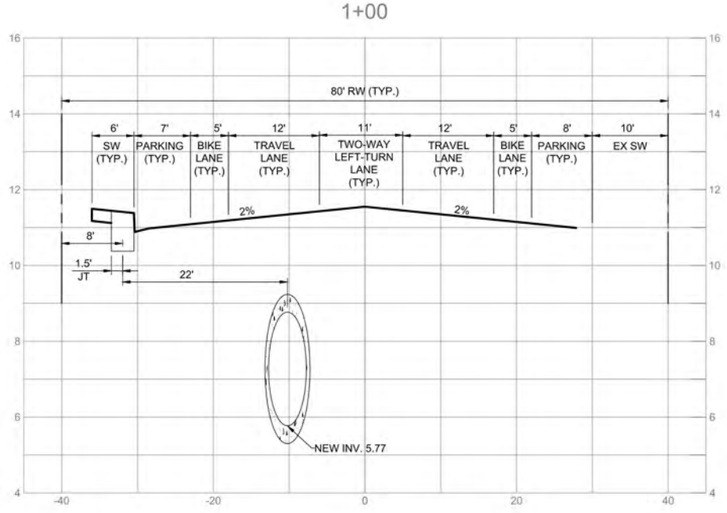
1 / 1 OLIVE AVENUE IMPROVEMENT
PROPOSED CONSTRUCTION

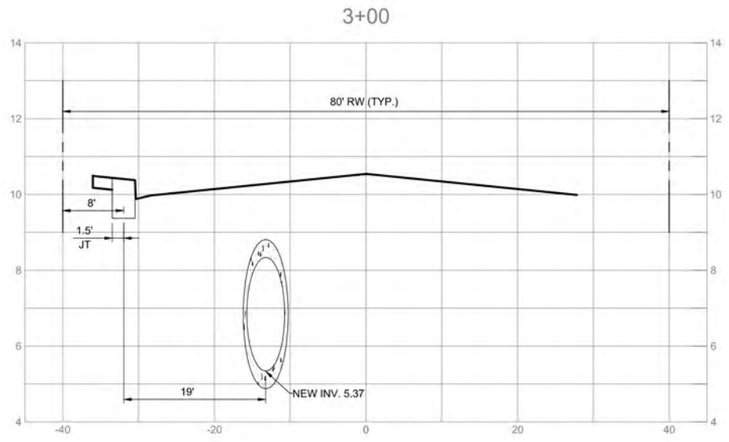
1"=20'

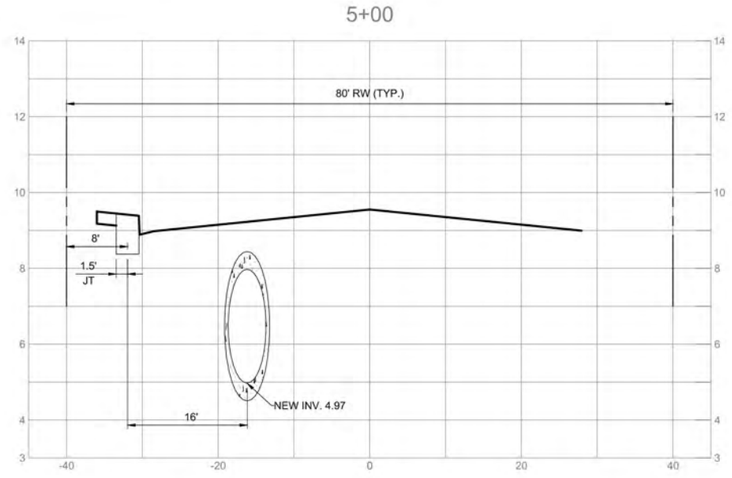
GRAPHIC SCALE

20 0 10 20 40 80

(IN FEET)
1 inch = 20 ft.







H: 1"=10'
V: 1"=2'

Source: City of Novato, Olive Avenue Improvement, Phase III, Between Redwood Boulevard and Railroad Avenue, May 2014

PRELIMINARY PLANS
NOT FOR CONSTRUCTION

Plot Date: 30 September 2014 - 1:46 PM Cad File No: G:\02501 - City of Novato\02501-8411202 - Olive Ave Improvements\08-CAD\Figures\PDF\Figure 04 to 05 - Olive Ave.dwg

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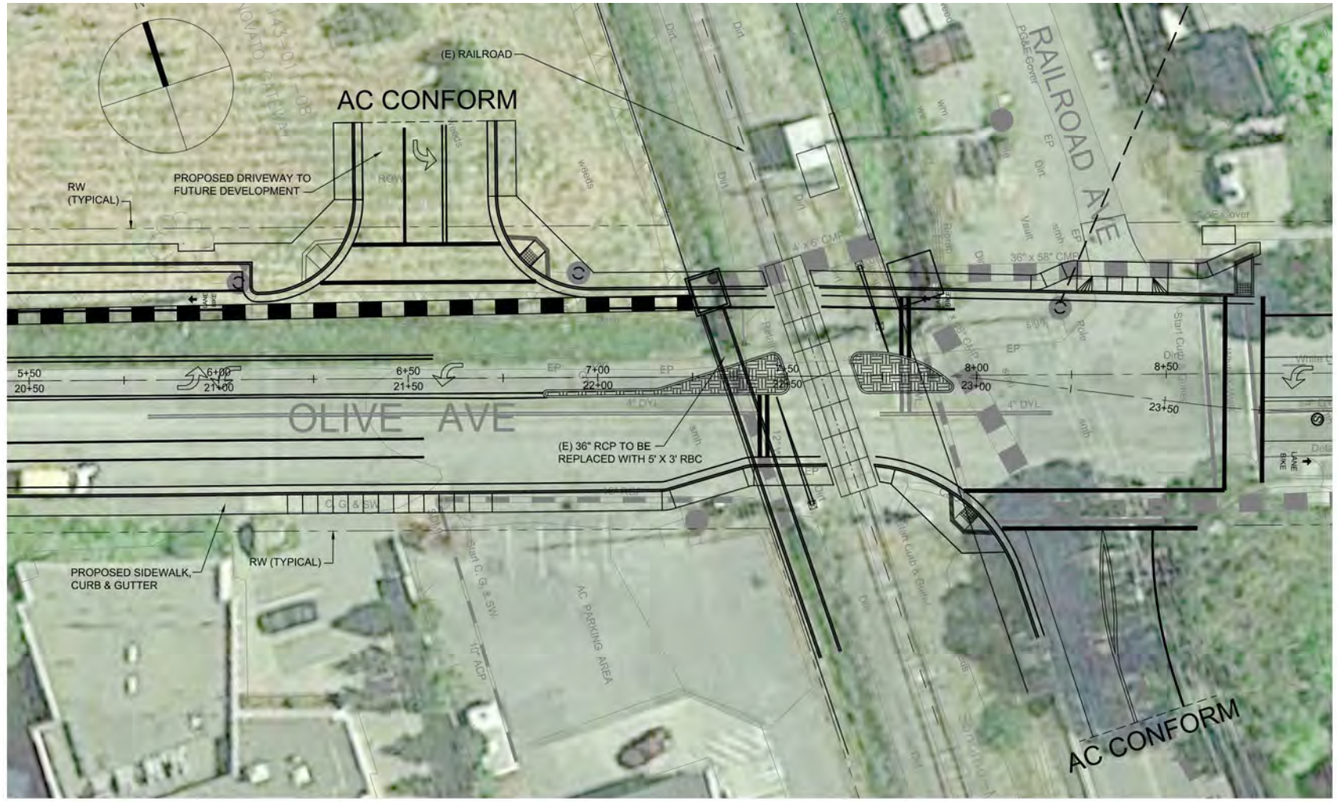
City of Novato
Olive Avenue Roadway and Drainage Improvements
Olive Avenue Widening and
Olive Ditch Pipeline Installation - 1

Job Number 8411202
Revision
Date Sept 2014

Figure 4

SEE FIGURE 4 FOR CONTINUATION



1 OLIVE AVENUE IMPROVEMENT
1 PROPOSED CONSTRUCTION

1"=20'

GRAPHIC SCALE

20 0 10 20 40 80

(IN FEET)
1 inch = 20 ft.

Source: City of Novato, Olive Avenue Improvement, Phase III, Between Redwood Boulevard and Railroad Avenue, May 2014

PRELIMINARY PLANS
NOT FOR CONSTRUCTION

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City of Novato
Olive Avenue Roadway and Drainage Improvements
Olive Avenue Widening and
Olive Ditch Pipeline Installation - 2

Job Number 8411202
Revision
Date Sept 2014
Figure 5

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Olive Ditch would be enclosed into an approximately 650 LF 38-inch by 60-inch reinforced elliptical RCP as shown on Figures 4 and 5. On the west end, the pipeline would connect to the existing pipeline under Redwood Boulevard. On the east end, the pipeline would terminate at the railroad corridor into a new junction box in Railroad Ditch north of Olive Avenue. The existing 38-inch by 60-inch culvert under the Trader Joe's driveway may be removed (or may remain in place) and drainage inlets located along Olive Avenue would be connected to the new Olive Ditch pipeline. The new pipeline would be designed to convey flow from a 25-year storm event, including any new flow that may result from the widening of Olive Avenue.

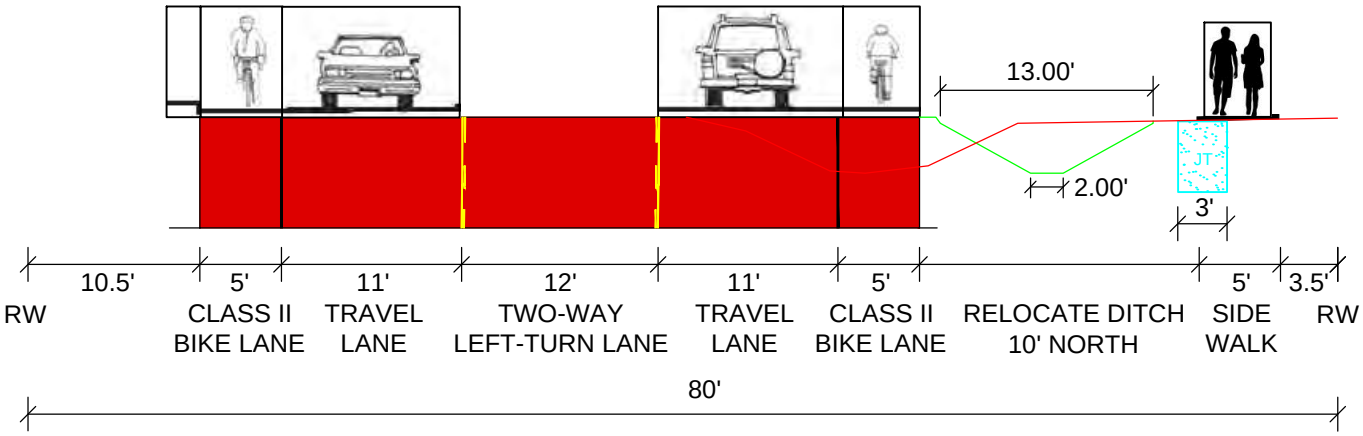
Under Alternate 1, Olive Avenue would be reconfigured to include 5-foot Class II bike lanes, 11-foot-wide travel lanes on both sides of the street, with a center 12-foot two-way left-turn lane (typical widths), as shown on Figure 6. On the south side of the street, the existing 10.5-foot sidewalk would remain, and the existing 10 parking spaces would be removed. On the north side of the street, Olive Ditch would be relocated approximately 10 feet north and would be 13-feet wide (compared to existing 20.5-foot width) to accommodate the westbound vehicle and bike lanes. The reconfigured Olive Ditch would have a cross slope of approximately 1:1.8 and a running slope of 0.34 percent, with an approximate flow capacity of 65 cfs, accommodating a 25-year storm event. North of the relocated drainage ditch, a 5-foot wide sidewalk would be constructed. The joint utility trench design would remain the same as described under the proposed Project.

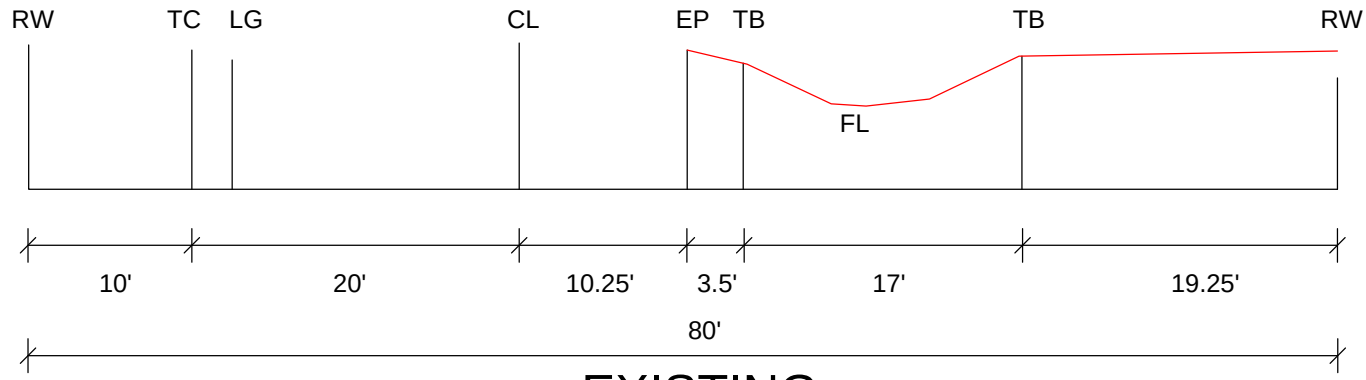
Under both the proposed Project and Alternate 1, the existing north-south oriented 36-inch RCP under Olive Avenue would be removed and replaced with a new approximately 56 LF segment of 5-foot by 3-foot concrete box culvert, which would connect to the new box culvert installed in Railroad Ditch. The new culvert is designed to convey flow from a 25-year storm event. Under the proposed Project, improvements to Olive Avenue, the Olive Ditch pipeline installation, and Olive Avenue culvert installation would result in approximately 0.67 acre of new impervious surface (1.4 acre for new and resurfaced existing impervious surfaces combined). Under Alternate 1, this component would result in slightly less acreage of new impervious surface, because Olive Ditch would be reduced in width, but would remain unpaved and pervious.

This component of the Project would mostly occur within the City's ROW, but would require an encroachment permit from SMART for the railroad crossing.

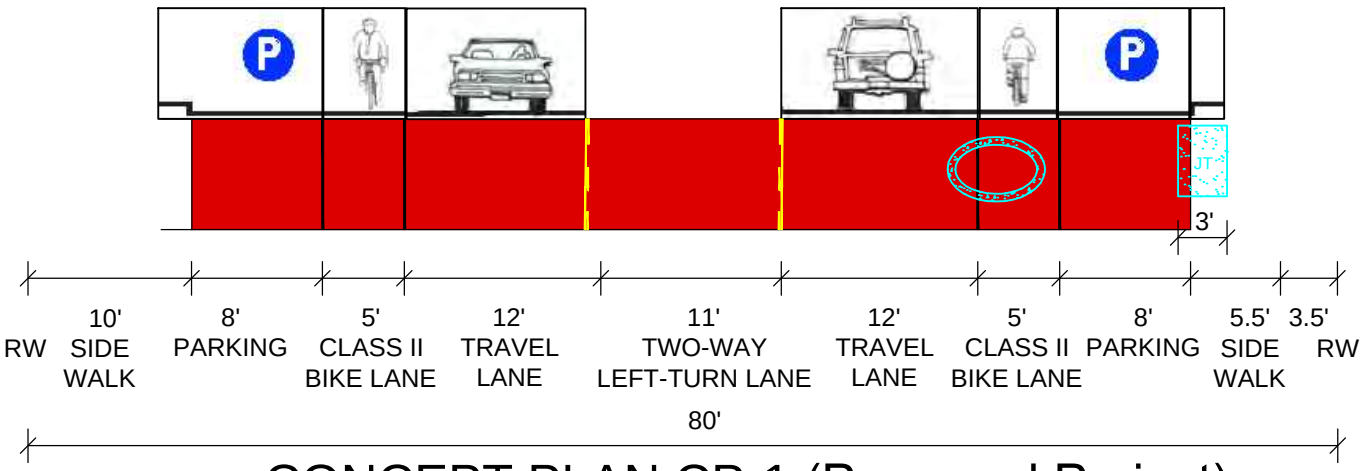
The City would also incorporate permanent "green infrastructure" storm water source control measures as part of the Olive Avenue widening improvements to limit the transport of pollutants into the storm water system and to promote infiltration and retention of storm water. The storm water control measures would be in accordance with the design guidelines in *Managing Wet Weather with Green Infrastructure, Municipal Handbook* (U.S. EPA 2008). At a minimum, tree-box biofilters or equivalent bio-treatment facilities, an approximate area of 2,000 square feet, would be installed along the two driveways into the commercial properties north of Olive Avenue.

ALTERNATE 1





EXISTING



CONCEPT PLAN CP-1 (Proposed Project)

City of Novato
Olive Avenue Roadway and Drainage Improvements

Olive Ave. Widening
Proposed Project and Alternative

Job Number 8411202
Revision A
Date Jul 2014

Figure 6

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1.5.3 Railroad Ditch Box Culvert Installation

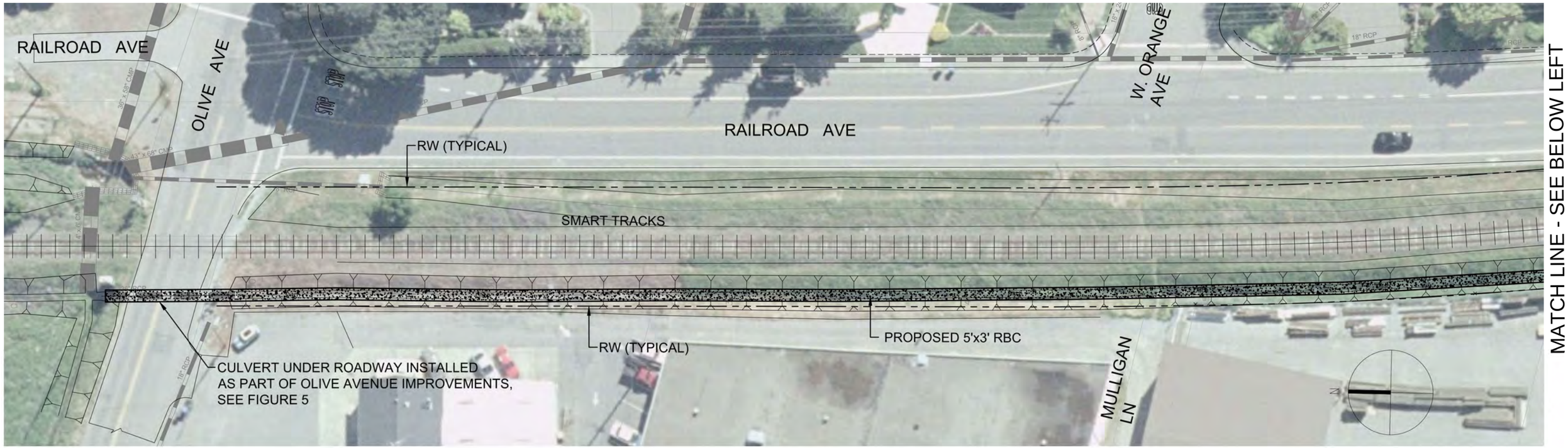
The Railroad Ditch component would include installation of a 5-foot by 3-foot concrete box culvert installed in approximately 830 LF of Railroad Ditch from Sweetser Avenue to Olive Avenue, as shown on Figure 7. The new box culvert would connect to the existing 30-inch pipeline and headwall on the southern end. The northern end of the new box culvert would terminate just south of Olive Avenue, connecting to the new 5-foot by 3-foot culvert segment installed under Olive Avenue as described above. The new box culvert is designed to convey flow from a 25-year storm event. Construction of the Railroad Ditch box culvert would require an encroachment permit for work within the SMART ROW. It is anticipated that some local area drains would be connected to the new culvert.

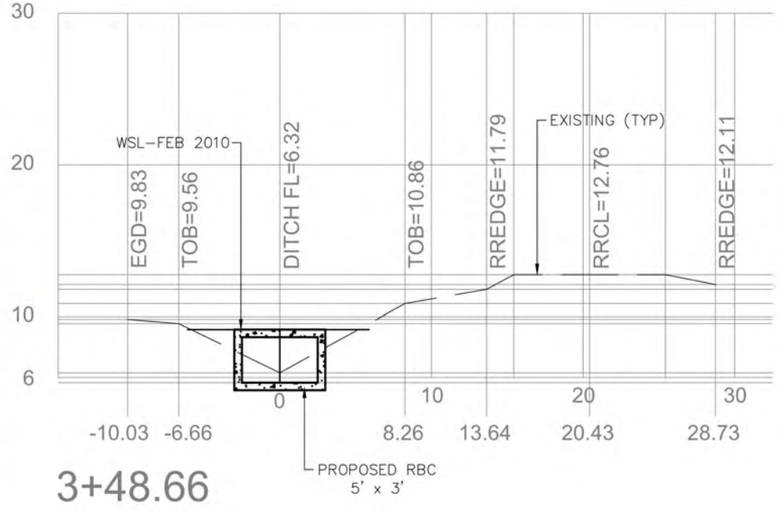
Following installation, the work area (approximately eight feet) would be paved to prepare for the future SMART multi-use path, resulting in approximately 0.27 acre of new impervious surface. As described above, at a minimum, the Project would include tree-box biofilters or equivalent bio-treatment facilities, an approximate area of 2,000 square feet, along the two driveways into the commercial properties north of Olive Avenue. Tree species would be consistent with the City's Approved Street Tree list. The City may also incorporate additional permanent green infrastructure into the Railroad Ditch box culvert design in accordance with the design guidelines in *Managing Wet Weather with Green Infrastructure, Municipal Handbook* (U.S. EPA 2008). Any additional green infrastructure would be located within the construction area boundary evaluated in this Initial Study. If located outside of the construction area boundary evaluated in this Initial Study, the City will conduct further CEQA evaluation and obtain required permits and approvals as necessary.

1.5.4 Project Construction

Construction of the utility undergrounding component of the Project is anticipated to tentatively commence in spring 2015 or 2016 and require approximately eight months for construction of all three Project components: one month for utility undergrounding; four months for Olive Avenue widening, Olive Ditch pipeline installation and Olive Avenue culvert installation; and three months for Railroad Ditch box culvert installation. Depending on Project funding, it is possible that the three Project components may be constructed separately. Construction activities within the banks of the drainage ditches would be performed between the months of June 15 and October 15 when flow would be lowest. Typical daily construction hours would be in conformance with the Novato Municipal Code, Section 19.22.070; and may occur between 7:00 a.m. and 6:00 p.m. on weekdays, and between 10:00 a.m. and 5:00 p.m. on Saturdays.

The majority of the Project would be located within the City ROW; however some work, including roadway widening and box culvert installation would be required within the SMART ROW. Because the rail corridor may be active for passenger and freight train service during the construction period, construction work windows and agreements would require coordination with SMART and the NCRA to minimize conflicts. The City would obtain an encroachment permit from SMART for work within their ROW.





Source: City of Novato, Rush Creek Drainage Improvements, May 2014

PRELIMINARY PLANS
NOT FOR CONSTRUCTION

GRAPHIC SCALE
20 0 10 20 40 80
(IN FEET)
1 inch = 20 ft.

City of Novato
Olive Avenue Roadway and Drainage Improvements
Railroad Ditch Culvert Installation

Job Number 8411202
Revision
Date Sept 2014
Figure 7

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Plot Date: 30 September 2014 - 1:46 PM Cad File No. G:\02591 - City of Novato\02591-8411202 - Olive Ave Improvements\06-CAD\Figures\PDF\Figure 07 - Railroad Ditch.dwg

1.5.4.1 Construction Zone, Access, and Staging Areas

The Project's construction area is shown on Figure 2. The construction disturbance area would be approximately four acres. During construction, worker vehicles and haul trucks would access the Project area from U.S. Highway 101 and local City streets, including Olive Avenue, Redwood Boulevard, Railroad Avenue, and potentially Sweetser Avenue.

A staging area for construction equipment and supplies would be located in the empty parcel to the east of the Trader Joe's shopping center, or along the incomplete portion of Railroad Avenue, as shown on Figure 2. The staging area would be used by contractors for construction-related equipment, materials storage, and stockpiling and would be fenced for security. After the Project is completed, the staging area would be restored and/or revegetated as necessary to return the site to at or near pre-construction conditions.

1.5.4.2 Pedestrian Access and Traffic Detours

Partial lane closures would be required along Olive Avenue between Redwood Boulevard and Railroad Avenue during construction. During construction, parking along Olive Avenue in the Project area would be unavailable. The existing sidewalk on the southern side of Olive Avenue would remain open to pedestrian access during the majority of construction, except during construction of the new sidewalk. Local businesses on the south side of Olive Avenue would utilize access points along Mulligan Lane when possible. Trader Joe's and other shopping center traffic would remain accessible via the driveway at Redwood Boulevard. Access to businesses in the Project construction area would be maintained at all times during business hours.

1.5.4.3 Dewatering

Construction activities within the drainage ditches would be performed between June 15 and October 15, which would correspond to times when there is little or no precipitation and when flow would be lowest. If water is present in the ditches, the flow would be diverted by placing coffer dams upstream and downstream of the active construction areas using sand bags, and directing flow through a pipe to discharge downstream of the Project areas. The face of the sand bag coffer dams would be lined with 10-mil poly sheeting to prevent seepage.

Because the ditches are relatively flat, bypass flows would be piped around the construction areas by pumping using a 50 horsepower, noise-attenuated diesel powered pump or an electric sump pump with a diesel generator staged away from the ditches.

The length of the bypass pipe would be the minimum necessary to safely convey the flow through the construction site, and would be placed in the bed of the ditches at natural grade. Diverted flows would be returned to the ditches immediately downstream of the work area. Once any upstream flow is diverted, any standing water within the construction area would be pumped out of the ditch and discharged nearby (e.g., undeveloped commercial parcel, Railroad Ditch north of Olive Avenue) to the ground to allow for infiltration into the ground, or the local storm drain system. Upon completion of the Project component, the diversion pipe and coffer dam material would be removed from the channel and areas of the channel not scheduled for pipeline installation would be restored to pre-construction condition

Groundwater dewatering may also be required to provide a dry work area if groundwater is encountered during excavation activities, as groundwater depths in the Project area are estimated at three to seven feet below ground surface, which corresponds with the depths of trenching and excavation for the Project.

Temporary groundwater dewatering would involve the pumping of groundwater in a localized area to lower the water level to just below the bottom of the excavation. Any groundwater encountered would be held in a Baker tank or a similar water storage system and allowed to infiltrate into the ground or discharged in the local storm drain system.

All discharges would be performed in conformance with San Francisco Bay Regional Water Quality Control Board (RWQCB) and applicable local discharge requirements.

1.5.4.4 Tree Protection, Revegetation, and Site Restoration

Tree removal is not anticipated for this Project; there are no trees along Olive Ditch or Railroad Ditch, and the one street tree along the south side of Olive Avenue would remain and be protected during construction. During construction of the Olive Avenue widening (proposed Project and Alternate 1), after removal of existing sidewalk concrete, root protective fabric would be installed prior to installation of new concrete, to protect existing street and landscaping trees.

Clearing and grubbing would be required prior to utility undergrounding, pipeline and culvert installation and roadway widening. Following completion of construction, any areas within the construction zone altered by construction activities would be restored to at or near pre-construction conditions. Pavement over disturbed areas would be replaced, and soil would be revegetated with hydroseeding.

1.5.4.5 Joint Utility Trench Construction

Open Trench Construction

The majority of the joint utility trench would be constructed using open trench construction. The open trench construction method involves clearing the ground of vegetation within the work area; grading or pavement cutting; excavation and potential shoring of the trench; installation of the pipe bedding, pipeline, valves and appurtenances; backfilling of the trench; and restoration of the ground surface.

Installation of underground utilities would require a typically 3-foot wide by 4- to 5-foot deep trench. Dewatering of the trench would be required in areas where groundwater is encountered (as described above in Section 1.5.4.3). Once the trench is excavated, shored (if necessary), and dewatered (if necessary), bedding material would be placed in the bottom of the trench, and the conduit sections would be installed. Native material would be reused to backfill the trench where feasible. Engineered aggregate base material would also be used for backfill. Following compaction, the work surface area would be restored to its preconstruction or close to preconstruction condition.

Trenchless Construction

Trenchless construction would be utilized to install the utility conduit under the railroad corridor. Jack and bore installation is a tunneling process that would install the conduit simultaneously with the excavation process in sending and receiving pits located on either side of the railroad tracks, within the City ROW. Sending and receiving pits are anticipated to be approximately 38 feet by 12 feet, and up to 10 feet deep. Approximate locations of sending and receiving pits are shown on Figure 3.

A temporary horizontal jacking platform and a starting alignment track in an entrance pit would be constructed in the sending pit at the desired elevation. A steel casing pipe would then be jacked by manual control along the starting alignment track with simultaneous excavation of the soil being

accomplished by a rotating cutting head. This process may require the use of drilling slurry[1]. The ground up soil (spoil) would be transported back to the entrance pit by a drill rotating inside the pipe. After the casing pipe is installed, the new conduit would be installed through the casing and the ends of the casing would be sealed.

1.5.4.6 Utility Disruption

The City would notify affected utility service providers in advance of utility undergrounding (and other ground-disturbing construction activities, as necessary) and coordinate with the appropriate utility service provider to plan for any temporary utility service disruption. No utility disruption or relocation is anticipated beyond the utility undergrounding work included in the Project.

1.5.4.7 Pipeline and Culvert Installation

To install the Olive Ditch pipeline, the drainage ditch would be cleared of vegetation and graded for level placement of the pipeline. Prefabricated 35-foot concrete sections would be placed into the drainage ditch using a small crane. Once the pipeline is installed, the ditch would be backfilled with native soil or engineered material, graded to conform to the new roadway surface, and paved.

The existing north-south culvert running under Olive Ditch would be replaced when the roadway improvements are under construction. After removing the existing culvert, if a prefabricated concrete culvert section is utilized, it would be installed using a small crane located on the railroad tracks. Alternatively, the culvert could be cast-in-place concrete. Once the culvert is installed, the ditch would be backfilled with native soil, graded to conform to the new roadway surface, and paved.

The Railroad Ditch box culvert would consist of either prefabricated approximately 25-foot concrete sections or cast-in-place concrete. Prior to box culvert installation, the drainage ditch would be cleared of vegetation and graded as necessary for level placement of the box culvert. If prefabricated box culvert sections are utilized, the sections would be installed using a small crane located on the railroad tracks. If cast-in-place concrete is utilized, the concrete would be deposited in forms onsite and concrete would be transported to the site as a ready-mix product or may be mixed onsite. Once the box culvert is installed, the ditch would be backfilled with native soil or engineered material to conform to surrounding grade of the adjacent industrial lots to the west. In areas with existing pavement, the box culvert would be backfilled with native soil, Class II aggregate base, and paved to match the existing roadway section.

1.5.4.8 Haul Volumes and Truck Trips

The number of construction-related vehicles traveling to and from the Project would vary on a daily basis. As shown in Table 1-1 below, it is estimated that Project construction would result in the demolition and off-haul of approximately 250 cubic yards (CY) of construction waste, including concrete, asphalt concrete, and miscellaneous waste including vegetation, and any soil unsuitable for re-use as fill. In addition, approximately 2,650 CY of imported construction materials would be required for the Project, including concrete, asphalt concrete, aggregate base, and fill material. Based on the estimated demolition and construction volumes, the Project is estimated to require approximately 24 haul trips during the demolition process (assuming the use of 12 CY capacity haul trucks) and approximately 284 delivery truck trips during construction process (assuming the use of 8 CY haul trucks for concrete and 12 CY capacity haul trucks for other materials). It is anticipated that cut/fill quantities would be balanced and soil

1 Drilling slurry is sometimes used to facilitate the drilling process by controlling pressure, cooling and lubricating the bore hole, and suspending cuttings. Drilling slurry can be water-, oil- or synthetic-based. The slurries most commonly used are bentonite based, which is a naturally-occurring clay known for its hydrophilic characteristics.

off-haul would not be required. However, if necessary, any remainder of excavated soil would be disposed of at the Redwood Landfill in Novato, or another approved landfill or disposal area.

Table 1-1: Estimated Haul Volumes and Truck Trips

Material	Cubic Yards (CY)	Estimated Haul Truck Trips (Assuming 12 CY Truck and 8 CY concrete truck)
Demolition (Utility Undergrounding, Olive Avenue Widening and Olive Avenue and Olive Ditch Pipeline Installation + Railroad Ditch Box Culvert Installation)		
Concrete	100 + 0	9 + 0
Asphalt/Concrete	50 + 0	5 + 0
Miscellaneous Demolition Waste	50 + 50	5 + 5
Total	***200 + 50***	***19 + 5***
Construction (Utility Undergrounding, Olive Avenue Widening and Olive Avenue and Olive Ditch Pipeline Installation + Railroad Ditch Box Culvert Installation)		
Concrete	200 + 300	25 + 38
Asphalt Concrete	850 + 50	107 + 7
Aggregate Base (fill)	800 + 50	67 + 5
Pipeline Conduits and Appurtenances	50 + 0	5 + 0
Culverts and Pipelines	350 + 0	30 + 0
Total	***2,250 + 400***	***234 + 50***

1.5.4.9 Construction Workers and Equipment

The estimated size of the construction workforce at any one time during construction is anticipated to range between 6 to 10 workers per day. Generally, construction equipment required to construct the Project would include the following:

- On-road hauling truck (8)
- Large excavator (2)
- Medium-sized front loader (2)
- Water truck (1)
- Sweeper (1)
- Traffic control message boards (2)
- Sheep's foot compactor (1)
- Smooth drum roller (1)
- Backhoe (small) (1)
- Paving machine (1)
- Paving roller (2)

- Jack and bore machine (1)

1.6 Project Measures

Project Measure 1 – Implement Air Quality Control Measures during Construction

The proposed Project will include the following Bay Area Air Quality Management District (BAAQMD) recommended Basic Construction Measures in contract specifications to limit dust, criteria pollutants, and precursor emissions associated with construction:

- All exposed surfaces (e.g., parking areas, staging areas, soil piles, graded areas and unpaved access roads) shall be watered two times per day;
- All haul trucks transporting soil, sand, or other loose material off-site shall be covered;
- All visible mud or dirt tracked-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 shall be prohibited;
- All vehicle speeds on unpaved areas shall be limited to 15 miles per hour;
- All paving shall be completed as soon as possible after work is finished;
- Idling times shall be minimized either by shutting equipment off when not in use or reducing the maximum idling time to five minutes (as required by the California airborne toxics control measure Title 13, Section 2485 of California Code of Regulations). Clear signage shall be provided for construction workers at all access points;
- All construction equipment shall be maintained and properly tuned in accordance with manufacturer's specifications, and/or certified by California Air Resources Board (CARB) for on- and off-road diesel engines. All equipment shall be checked by a certified mechanic and determined to be running in proper condition prior to operation; and
- Post a publicly visible sign with the telephone number and 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 phone number shall also be visible to ensure compliance with applicable regulations.

Project Measure 2 – Manage Construction Storm Water

If the proposed Project components are constructed together, thereby disturbing more than one acre of soil, the City will obtain coverage under State Water Resources Control Board Order No. 2009-0009-DWQ, Waste Discharge Requirements for Discharges of Storm Water Runoff Associated with Construction and Land Disturbance Activities, as amended by Order No. 2012-0006, as required by regulation. The City will submit permit registration documents (notice of intent, risk assessment, site maps, Storm Water Pollution Prevention Plan [SWPPP], annual fee, and certifications) to the State Water Resources Control Board. The SWPPP will address pollutant sources, non-storm water discharges resulting from construction dewatering, best management practices, and other requirements specified in the above-mentioned Order. The SWPPP will also include dust control practices to prevent wind erosion, sediment tracking, and dust generation by construction equipment. A Qualified Storm Water Pollution Prevention Plan Practitioner will oversee implementation of the SWPPP, including visual inspections, sampling and analysis, and ensuring overall compliance.

If Project components are constructed separately and disturb less than one acre of soil, the City will require its Contractor to develop an Erosion Control Plan prior to construction to prevent or minimize soil erosion and sedimentation during construction. The Plan will address how the Contractor would manage erosion and sediment control measures, general site and materials management, and inspection and maintenance. Below are examples of the measures that would be incorporated into Project construction to reduce soil erosion and protect water quality:

- Erosion and sediment control measures will be in effect and maintained by the Contractor on a year-round basis until all disturbed areas are stabilized.
- Stockpiled material will be covered or watered daily sufficient to eliminate dust.
- Fiber rolls, straw waddles, silt dams, or similar products will be utilized to reduce sediment runoff from disturbed soils.
- A stabilized construction entrance will be maintained to minimize tracking of mud and dirt from construction vehicles onto public roads.
- Storm drain inlets receiving storm water runoff will be equipped with inlet protection.

1.7 City Entitlements and Other Public Agencies Whose Approval Is Required

Construction and operation of the Project would be conducted to meet applicable regulations. Table 1-2 lists the federal, State, local, and regional regulatory/permitting agencies that may have permitting or approval authority over certain aspects of the Project.

Table 1-2: Regulatory/Permitting Agencies

Regulatory/Permitting Agency	Potential Permit/Approval
Federal Regulatory/Permitting Agencies	
United States Army Corps of Engineers	Section 404 permit pursuant to the federal Clean Water Act for work within the channel of Olive Ditch and Railroad Ditch
United States Fish and Wildlife Service	Consultation, if required, by the Corps under Section 7 of the federal Endangered Species Act for listed species that may be affected by the Project
State Regulatory/Permitting Agencies	
Regional Water Quality Control Board	Section 401 water quality certification pursuant to the federal Clean Water Act for work within the channel and banks of Olive Ditch and Railroad Ditch

Table 1-2: Regulatory/Permitting Agencies

Regulatory/Permitting Agency	Potential Permit/Approval
California Department of Fish and Wildlife	1602 Streambed and Lake Alteration Agreement, pursuant to the Fish and Game Code, for work within the channel and banks of Olive Ditch and Railroad Ditch Approval of any future potential take of State-listed wildlife and plant species covered under the California Endangered Species Act
State Water Resources Control Board	General Construction Permit, as required for projects that disturb one or more acres of soil
California Public Utilities Commission	General Order 88-B to modify existing railroad crossing
Other Approvals	
Sonoma-Marin Area Rapid Transit (SMART)	Encroachment permit for work within the SMART right-of-way

2. Determination

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

☐ Aesthetics	☐ Agriculture Resources	☐ Air Quality
☒ Biological Resources	☒ Cultural Resources	☐ Geology /Soils
☒ Hazards & Hazardous Materials	☐ Hydrology / Water Quality	☐ Land Use / Planning
☐ Mineral Resources	☒ Noise	☐ Population / Housing
☐ Public Services	☐ Recreation	☒ Transportation/Traffic
☐ Utilities / Service Systems	☒ Mandatory Findings of Significance	

On the basis of this initial evaluation:

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

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

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

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

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

Per Skala, Engineer II

Date 2/23/2015

3. Environmental Effects of the Project

This Initial Study/Proposed MND analyzes the potential impacts of the Project on the environment under the applicable environmental resource topics contained in Appendix G of the current CEQA Guidelines. Each environmental resource area potentially impacted by the Project is addressed in its own section, numbered as follows:

3.1 Aesthetics
3.2 Agriculture and Forestry Resources
3.3 Air Quality
3.4 Biological Resources
3.5 Cultural Resources
3.6 Geology and Soils
3.7 Greenhouse Gas Emissions
3.8 Hazards and Hazardous Materials
3.9 Hydrology and Water Quality
3.10 Land Use and Planning
3.11 Mineral Resources
3.12 Noise
3.13 Population and Housing
3.14 Public Services
3.15 Recreation
3.16 Transportation/Traffic
3.17 Utilities and Service Systems
3.18 Mandatory Findings of Significance

The significance thresholds for each environmental resource topic are presented in each section of Chapter 3. For the impact analyses, the following categories are used to identify impact significance:

No Impact. This determination is made if a resource is absent or if a resource exists within the project area, but there is no potential that the project could affect the resource.

Less than Significant. This determination applies if there is a potential for some limited impact on a resource, but the impact is not significant under the significance threshold.

Less than Significant with Mitigation. This determination applies if there is the potential for a substantial adverse impact in accordance with the significance threshold, but mitigation is available to reduce the impact to a less-than-significant level.

Significant Impact. This determination applies to impacts that are significant, and mitigation has been incorporated, but the mitigation does not reduce the impact to a less-than-significant level.

3.1 Aesthetics

	Potentially Significant Impact	Less-Than-Significant With Mitigation Incorporation	Less-Than-Significant Impact	No Impact
Would the Project:				
a. Have a substantial adverse effect on a scenic vista?				✓
b. Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?				✓
c. Substantially degrade the existing visual character or quality of the site and its surroundings?			✓	
d. Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?				✓

a) Adverse Effect on a Scenic Vista – No Impact

The Project site is located in an urban area developed with commercial, industrial, and residential uses. The Project site and the surrounding area are predominately flat and urbanized, and mid- and long-range views are limited. The Project consists of at-grade and subsurface improvements, and would not construct new buildings or structures that would obstruct existing vistas. According to the City's General Plan, the Project would not be located within a designated scenic vista or area (Novato 2000). Therefore, no impact would occur.

b) Damage Scenic Resources within a State Scenic Highway – No Impact

There are no officially-designated State scenic highways in Marin County (Caltrans 2014). Segments of Highway 37 and Highway 101 in Marin County are listed as "eligible" for designation as scenic highways; however, the Project site is not visible from these segments. No impact would occur.

c) Substantially Degrade the Existing Visual Character or Quality of the Site and its Surroundings – Less than Significant

The Project site is located within an urbanized area, including commercial and industrial land uses. During construction, activities would result in temporary changes in the visual character of the area. Construction activities and disturbed areas would be visible from adjacent businesses and residences. However, because the construction activities would be temporary and limited to the construction sites, the impact to the existing visual character and quality would be less than significant.

Following construction, the Project improvements, including the new bike lanes and sidewalks and relocation of the existing aboveground utilities to an underground joint utility trench would enhance the visual quality of the Project site and the surrounding area. The Project would not remove trees or create features that would substantially degrade the surrounding visual character. The biotreatment areas along the two driveways north of Olive Avenue would improve the existing visual character by adding new trees (consistent with the City's approved Street Tree List) or other green treatment areas. Therefore, the operational impact would be beneficial.

d) New Source of Light or Glare – No Impact

As stated in the Project Description, typical daily construction hours would be between 8:00 a.m. and 5:00 p.m., Monday through Friday. Therefore, construction activities would not result in a source of substantial light or glare that would adversely affect nighttime views in the area. No impact would occur during construction. Following construction, the Project would not include new sources of daytime glare or change nighttime lighting and illumination levels in the area. No new sources of lighting or structures with reflective surfaces are proposed. No impact would occur.

3.2 Agriculture and Forest Resources

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

a - e) Convert or Conflict with Agricultural and Forest Resources – No Impact

The Project site is located within the City limits and is categorized as "Urban and Built-Up Land" (CDC 2014). The Project site is not designated by the Farmland Mapping and Monitoring Program as Prime Farmland, Unique Farmland, or Farmland of Statewide importance (CDC 2014). The Project site is not held under a Williamson Act contract (CDC 2013), and is not located on land zoned or used for agricultural, forestland, or timberland. Therefore, the proposed Project would not convert designated farmland to non-agricultural use, would not conflict with agriculture-related zoning or Williamson Act contracts, and would not result in conversion of farm or forest lands. No impact would occur.

3.3 Air Quality

	Potentially Significant Impact	Less-Than-Significant With Mitigation Incorporation	Less-Than-Significant Impact	No Impact
Would the Project: (Where available, the significance criteria established by the applicable air quality management or air pollution control district may be relied upon to make the following determinations.)				
a. Conflict with or obstruct implementation of the applicable air quality plan?				✓
b. Violate any air quality standard or contribute substantially to an existing or projected air quality violation?			✓	
c. Result in a cumulatively considerable net increase of any criteria pollutant for which the Project region is nonattainment under an applicable federal or state ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors)?			✓	
d. Expose sensitive receptors to substantial pollutant concentrations?			✓	
e. Create objectionable odors affecting a substantial number of people?				✓

The Project is located in Marin County, which is in the San Francisco Bay Area Air Basin. The Bay Area Air Quality Management District (BAAQMD) is the regional agency tasked with managing air quality in the region. At the State level, the California Air Resources Board (CARB), a part of the California Environmental Protection Agency oversees regional air district activities and regulates air quality at the State level. The BAAQMD has published the CEQA Air Quality Guidelines that are used in this assessment to evaluate air quality impacts of projects.

a) Conflict with or Obstruct Applicable Air Quality Plan – No Impact

Per the BAAQMD Guidelines (May 2011), the BAAQMD considers a project consistent with the Clean Air Plan (Plan) if it: 1) can be concluded that a project supports the primary goals of the Plan (by showing that the project would not result in significant and unavoidable air quality impacts); 2) includes applicable control measures from the Plan, and; 3) does not disrupt or hinder implementation of any Plan control measure.

The primary goals of the 2010 Clean Air Plan are to protect air quality, public health, and the climate. Because the Project would not result in a significant and unavoidable air quality impact (refer to Impacts b, c, and d below), the Project would not conflict with any goals of the Plan. The Plan includes 55 Control Measures in five categories: stationary and area source; mobile source; transportation control; land use and local impact; and energy and climate. The Project does not include new permanent mobile sources, does not introduce a new land use, and would not use a substantial amount of energy during operation. In addition, the magnitude and nature of this Project are too small to affect air quality or implementation of

control measures. The Project would not conflict with or obstruct the air quality plan; therefore, there would be no impact.

b, c) Violate Air Quality Standard or Contribute to Violation resulting in Cumulatively Considerable Increase in Criteria Pollutant – Less than Significant

By its very nature, air pollution is largely a cumulative impact. No single project is sufficient in size to, by itself, result in nonattainment of ambient air quality standards. Instead, a project‘s individual emissions contribute to existing cumulatively significant adverse air quality impacts. In developing thresholds of significance for air pollutants, BAAQMD considered the emission levels for which a project‘s individual emissions would be cumulatively considerable. If a project exceeds the identified significance thresholds, its emissions would be cumulatively considerable, resulting in significant adverse air quality impacts to the region‘s existing air quality conditions.

Construction of the Project would result in emissions of dust from equipment and vehicle exhaust. The BAAQMD CEQA Air Quality Guidelines provide preliminary screening criteria for a lead agency to consider in making a conservative determination of a project’s construction-related impacts on criteria air pollutants.

The first screening criterion is a land-use based screening (i.e., residential, commercial, and industrial). According to the Guidelines, if a project’s characteristics (i.e., square footage, acreage, number of dwelling units) are less than associated screening criteria, then the lead agency does not need to perform a detailed air quality assessment of the project’s air pollutant emissions and a less-than-significant impact would occur. The BAAQMD CEQA thresholds do not include specific screening criteria for infrastructure projects such as this, however, when compared to the screening criteria established for the types of projects described above, it is reasonable to assume that the areal extent of construction activities associated with the roadway and drainage improvements would be substantially less and also would not warrant a detailed air quality assessment. For example, detailed air quality assessments are not required for construction of projects such as single-family residential developments comprised of less than 114 dwelling units, City parks that are less than 67 acres in size, industrial facilities that are less than 11 acres, and construction of office and commercial buildings that are less than 277,000 square feet (BAAQMD 2011). In comparison, Project construction activities would not involve a larger fleet of earthmoving activities or substantial off-hauling as traditional land use project would, does not include the construction of buildings, and the total construction disturbance area is estimated to be 4.0 acres, well below screening criteria for other types of land use projects. In addition, Project construction would be short in duration, lasting approximately eight months.

The second screening criterion is that all applicable Basic Construction Mitigation Measures developed by BAAQMD be included in the Project design and implemented during construction. The applicable Basic Construction Measures would be included in the Project design as Project Measure 1, Implement Air Quality Control Measures during Construction (refer to Section 1.6, Project Measures, in the Project Description).

Because the Project would be below the screening criteria and the Basic Construction Mitigation Measures would be incorporated into the Project, the impact to air quality would not be cumulatively considerable, and therefore would be less than significant.

d) Expose Sensitive Receptors to Substantial Pollutant Concentrations – Less than Significant

As described above, Project construction would result in temporary emissions of air pollutants. There would also be temporary emissions of toxic air contaminants (TACs) in the form of construction equipment exhaust emissions of diesel particulate matter. The primary concern with exposure to diesel particulate matter is cancer risk. BAAQMD assesses cancer risk in terms of contracting cancer over a 70-year exposure period (i.e., lifetime exposure). However, the magnitude and nature of this Project is such that only a few pieces of equipment would be required for construction and the construction duration would be relatively short. Project construction activity involving the use of heavy-duty construction equipment would last less than eight months, and therefore, would not have an adverse long-term impact on nearby sensitive receptors (i.e., nearby residences). The impact would be less than significant.

Project operation would not change vehicular traffic conditions such that there would be a measureable or modeled increase in air pollutant or TACs emissions from Project operation. The operational impact would be less than significant.

e) Create Objectionable Odors – No Impact

Facilities that typically are considered to potentially create objectionable odors include such uses as wastewater treatment plants, landfills, asphalt plants, coffee roasters, and food processing. Operation of the project would not create a new source of objectionable odors nor would it create a new receptor. Therefore, there would be no impact from odors.

3.4 Biological Resources

	Potentially Significant Impact	Less-Than-Significant With Mitigation Incorporation	Less-Than-Significant Impact	No Impact
Would the Project:				
a. Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife 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) Adverse Effect on Special-Status Species– Less than Significant with Mitigation

A habitat assessment (Wildlife Research Associates 2014) was prepared for the Project, and a reconnaissance-level site assessment of the habitats at and within one mile of the Project site was conducted in July 2014. The analysis provided below is derived from the information and conclusions presented in the habitat assessment. The habitat assessment is included as Appendix.

Special-status Plant Species

A total of 29 special-status plant species have been reported occurring on the Novato and Petaluma River topographic quadrangles. Refer to Appendix A for a list of these species and their potential for occurrence. Many species were considered to have no potential to occur in the Project area either because these species are restricted to areas with serpentinite-derived, volcanic, rocky, sandy or clay soils, which are lacking within the Project area, or the species occurs in habitats not present within the Project area such as chaparral, lower montane coniferous forest, North Coast coniferous forest, coastal

bluff scrub, coastal prairie, coastal scrub and vernal pools. No special-status plants were noted during the plant surveys conducted in July 2014. Plant species that have the potential to occur, based on the presence of potential grassland and emergent marsh habitat, are not expected or likely to occur at the Project site given the ruderal, urban, and disturbed nature of the plant communities being dominated by non-native and weedy species. Therefore, there would be no impact to special-status plant species.

Special-status Wildlife Species and Wildlife Nursery Sites

A total of 26 special-status wildlife species were identified as potentially occurring within a three-mile radius of the Project area. An additional four species were evaluated for their potential to occur within the Project area, based on: 1) review of the California Natural Diversity Database, 2) the California Department of Fish and Wildlife's (CDFW's) "Special Animals" list that includes those wildlife species whose breeding populations are in serious decline, and 3) the habitat present on site. See Appendix A for a list of the 30 species evaluated. The habitat assessment specifically discussed the potential for the Project to adversely impact Central California Coast steelhead (*Oncorhynchus mykiss irideus*), California red-legged frog (*Rana draytonii*), western pond turtle (*Emys marmorata*) and nesting passerines, because these species have the potential occur in or near the Project area. The habitat assessment determined that no impact would occur to steelhead, California red-legged frog, or western pond turtle due to lack of suitable habitat on site (e.g., cool water with sufficiently dissolved oxygen for steelhead; semi-permanent and permanent stream pools, ponds and creeks with emergent and/or riparian vegetation for California red-legged frog and western pond turtle).

Several passerine (perching birds) species were observed on site during the reconnaissance survey, such as Anna's hummingbird. Disturbance to trees and shrubs during the nesting season (February 15-August 15) may result in the potential nest abandonment and mortality of young. There is a low potential that passerines may nest in the trees and shrubs located in and adjacent to the vacant parcel and along the northern portion of Railroad Avenue that is proposed for construction staging. Although the potential is low, potential nest abandonment due to disturbance from Project construction activities, primarily from construction noise or dust, would be significant.

Mitigation Measure BIO-1: Protect Nesting Birds

The City's contractor shall implement measures to protect nesting passerines that may potentially nest in trees in and adjacent to the Project construction area prior to, or during construction:

- Grading or removal of shrubs shall be conducted outside the passerine nesting season, which occurs between approximately February 15 and August 15, to the extent feasible.
- If grading between August 15 and February 15 is infeasible and groundbreaking must occur within the nesting season, a pre-construction nesting bird (passerine) survey of the grasslands and adjacent trees and shrubs shall be performed by a qualified biologist within seven days of ground breaking. If no nesting birds are observed no further action is required and grading shall occur within one week of the survey.
- If active bird nests are observed during the pre-construction survey, a disturbance-free buffer zone shall be established around the nest tree(s) until the young have fledged, as determined by a qualified biologist. The radius of the required buffer zone can vary depending on the species, (i.e., 75-100 feet for passerines and 200-300 feet for raptors), with the dimensions of any required buffer zones to be determined by a qualified biologist in consultation with the California Department of Fish and Wildlife (CDFW).

- To delineate the buffer zone around any trees with an active passerine nest in it orange construction fencing shall be placed at the specified radius from the base of the tree within which no machinery or workers shall intrude.
- After the fencing is in place there will be no restrictions on grading or construction activities outside the prescribed buffer zones.

Implementation of Mitigation Measure BIO-1 would reduce impacts to nesting passerines to a less-than-significant level by requiring pre-construction surveys to identify the presence of active bird nests and implementation of protection measures designed to protect nests until the young have fledged.

b, c) Impact to Riparian Habitat or other Sensitive Natural Communities, Jurisdictional Wetlands and Waters of the U.S. / State, or Wildlife Corridors – Less than Significant with Mitigation

A habitat assessment (WRA 2014) and preliminary wetland delineation (Valerius 2014) were prepared for the Project and are included as Appendices A and B to this Initial Study, respectively. The analysis below is derived from the information and conclusions presented in these studies.

Three vegetation communities are present in the Project area. One vegetation community, freshwater emergent wetland, is potentially jurisdictional under the Clean Water Act. In the Project area it is found throughout the entire length of Olive Ditch, the southern portion of Railroad Ditch between Sweetser and Vallejo Avenues, and a portion of an unnamed ditch north of Olive Avenue and east of the SMART railroad corridor. Riparian habitat was identified to the north, outside of the Project construction and staging area limits (WRA 2014). The Project would not impact this riparian habitat. The preliminary wetland delineation map prepared for the Project is included as Figure 2 in Appendix B. In total, the preliminary wetland delineation identified approximately 0.146 acre of wetland and 0.067 acre of other waters onsite.

Construction of the joint utility trench would not result in temporary or permanent impacts to wetlands or other waters because the limits of open trench construction would not encroach into potentially jurisdictional wetlands or waters; trenchless construction methods would also be utilized to cross under the railroad corridor, thereby also avoiding impacts to potentially jurisdictional features.

The widening of Olive Avenue, Olive Ditch pipeline installation, and replacement of the culvert under Olive Avenue, would permanently fill Olive Ditch and a portion of the unnamed ditch. Under Alternate 1, Olive Ditch would be relocated and resized, and the existing ditch would be filled to accommodate the westbound vehicle travel and bike lanes; the unnamed ditch would still be partially filled to accommodate the replacement box culvert under Olive Avenue, as well as new sidewalk, curb and gutter. Under both the proposed Project and Alternate 1, approximately 0.106 acre of wetland and 0.002 acre of other jurisdictional waters would be permanently filled, and 0.006 acre of wetland and 0.004 acre of other jurisdictional waters would be temporarily impacted (e.g., within the construction disturbance area and therefore potentially disturbed, but not permanently filled) during construction activities.

Construction of the Railroad Ditch box culvert would permanently fill 0.034 acre of wetland and 0.061 acre of other waters. Project impacts are summarized in Table 3.4-1 below.

Table 3.4-1: Summary of Impacts to Potentially Jurisdictional Wetlands and Other Waters

Jurisdictional Features	Temporary Impacts (Acres)	Permanent Impacts (Acres)
Emergent Wetlands		
Olive Ditch	0	0.106
Unnamed Ditch	0.006	0
Railroad Ditch	0	0.034
Total wetlands	0.006	0.14
Non-wetland Other Waters		
Olive Ditch	0	0
Unnamed Ditch	0.004	0.002
Railroad Ditch	0	0.061
Total other waters	0.004	0.063
Total Wetlands and Waters	0.01	0.203

Source: Valerius 2014

Temporary and permanent impacts to potentially jurisdictional wetlands would be a significant impact and mitigation is required.

Mitigation Measure BIO-2a: Avoid or Restore Jurisdictional Waters and Wetlands Temporarily Affected by Construction

The City shall implement avoidance and minimization measures, including best management practices (BMPs), to protect jurisdictional wetlands and waters during construction that would not be permanently filled as part of the Project. Examples of such measures include:

- Materials and fluids generated by construction activities shall be placed at least 25 feet away from wetland areas or drainages until they can be disposed of at a permitted site.
- Minimize construction work area to the extent feasible. All wetlands and waters areas that will not be filled, but area located adjacent to the construction zone, shall be temporarily fenced off and designated as environmentally sensitive areas to prevent accidental intrusion by workers and equipment.
- All wetlands and waters areas temporarily disturbed by construction shall be revegetated and restored to original contours and drainage patterns.
- Sending and receiving pits for jack and bore operations shall be situated outside of wetlands and other waters.

Mitigation Measure BIO-2b: Compensate for the Loss of Wetlands and Other Waters

The City shall compensate for the permanent loss of wetlands and other waters by developing a Wetlands and Waters Mitigation Plan (Plan) to ensure no net loss. The Plan shall compensate for permanent impacts through the purchase of mitigation credits from an approved mitigation bank or creation, restoration, re-establishment, or preservation of wetlands. The Plan shall be submitted to the resource permitting agencies, including the U.S. Army Corps of Engineers, the San Francisco Bay Regional Water Quality Control Board, and the California Department of Fish and Wildlife, for review and approval as part of the permitting process. The Plan, if needed, shall address restoration or re-establishment needs, success criteria, annual monitoring requirements, and reporting requirements. The mitigation ratio and success criteria shall be determined in coordination with the resource permitting agencies but shall be no less than 1:1. If required by permitting agencies, compensation shall also be required for temporary impacts to wetlands and other waters.

Compensatory wetlands or other waters shall be in-kind, if practicable and, if feasible, compensatory wetlands or other waters shall be located within the same watershed as the impacted waters. Out-of-kind compensatory wetlands or other waters, if constructed, shall provide equal or greater wetland function and value than impacted waters.

Wetland creation shall be monitored for a minimum of two years for hydrological functions and restoration or re-establishment of herbaceous wetlands, to achieve a minimum 70 percent survival rate, or as otherwise determined by the permitting agencies. If restoration or re-establishment objectives are not achieved within the monitoring period, restoration or re-establishment activities shall continue until performance standards and success criteria are met.

If the City pursues the construction of Alternate 1 that includes relocation and resizing of Olive Ditch, the City shall include re-establishment, restoration and vegetation of the ditch in the Wetlands and Waters Restoration and Mitigation Plan.

With implementation of Mitigation Measures BIO-2a and BIO-2b, the City would avoid impacts to wetlands and other waters to the extent feasible by implementing BMPs and compensating for permanent impacts to wetlands and other waters such that no net loss of wetlands is achieved. With mitigation, these impacts would be less than significant.

d) Adverse Effect on Migratory Corridors – Less than Significant

The analysis provided below is derived from the information and conclusions presented in the habitat assessment. The habitat assessment is included as Appendix A.

The Project area is located within the Central Coast Ecoregion of the California Essential Habitat Connectivity Project. No Natural Landscape Blocks (i.e., large, relatively natural habitat blocks that support native biodiversity), or Essential Connectivity Areas (i.e., areas essential for ecological connectivity between Natural Landscape Blocks) are identified in the Project area. Rush Creek is not identified as a Key Riparian Corridor. The Project area provides connectivity to other nearby open land for common animals that live in urban and semi-urban habitats, such as raccoon and opossum. Major barriers to movement of small wildlife species are Highway 101 on the east and Redwood Boulevard on the west. Olive Ditch and Railroad Ditch have a hydrological connection to Rush Creek, with no barriers to movement along this corridor. However, further north, Rush Creek is enclosed in a pipeline culvert before it becomes a saline emergent wetland. Additionally, both Olive Ditch and Railroad Ditch receive flow from

storm water pipelines upstream. As a result, there is no suitable habitat for aquatic species potentially migrating from nearby wetlands (e.g., John Slough), and no habitat in Jack Slough for freshwater aquatic species. Significant urbanization between Rush Creek and other creeks in the vicinity, such as Novato Creek, also impede the Project area as a movement corridor for aquatic wildlife.

The Project would not impede the movement of urban mammals, because Project components would be subsurface or at-grade. Olive Ditch and Railroad Ditch are not suitable migratory corridors for aquatic wildlife, based on insufficient water in the drainage ditches. Therefore, enclosure of the ditches in a pipeline and culvert would not substantially interfere with migration corridors. The impact would be less than significant.

e) Conflict with Local Policies or Ordinances – Less than Significant with Mitigation

The Project's potential impacts to biological resources addressed in the City's General Plan and Zoning Ordinance are primarily addressed in Section 3.10, Land Use and Planning. The City's Community Strategic Plan includes a Sustainable Community section which presents a vision of "a community which values its ridgetops, hillsides, open space, *wetlands and waterways*, and nurtures biodiversity. Objectives to achieve this vision call for the city to protect *native habitat*, maintain and restore open space, and *restore creeks, wetlands, and other water bodies*" (emp. added). Given the wetland and waters resources potentially impacted by the Project, Mitigation Measures BIO-2a and BIO-2b would be required to support this community vision.

> ***Mitigation Measure BIO-2a: Avoid or Restore Jurisdictional Waters and Wetlands Temporarily Affected by Construction***
> See discussion in Impact "a" above for a description of this mitigation measure.
>
> ***Mitigation Measure BIO-2b: Compensate for the Permanent Loss of Wetlands and Other Waters***
> See discussion in Impact "a" above for a description of this mitigation measure.

With implementation of Mitigation Measures BIO-2a and BIO-2b, impacts related to local policies protecting biological resources such as wetlands and waterways would be less than significant with mitigation.

The City regulates trees in Chapter 17 of its Municipal Code. The Project is not anticipated to require the removal of any trees. No trees are located along Olive Ditch, Railroad Ditch, or the unnamed ditch in the Project construction area. One street tree is located on the south side of Olive Avenue within the Project construction limits, but would not be removed for construction of the proposed Project or Alternate 1. Several landscaping trees are located adjacent or near the sidewalk along the south side of Olive Avenue, and with the exception of one tree, are outside of the City's ROW. During construction of the Olive Avenue widening (proposed Project and Alternate 1), after removal of existing sidewalk concrete, root protective fabric would be installed prior to installation of new concrete. If new trees are installed as part of the green infrastructure improvements, tree species would be consistent with the City's Approved Street Tree list. Therefore, the Project would have a less-than-significant impact with regard to local policies or ordinances protecting trees.

f) Conflict with Habitat or Conservation Plan – No Impact

No adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or State habitat conservation plan exists for the City or Marin County (USFWS 2014; CDFW 2014). Therefore, no impact would occur.

3.5 Cultural Resources

	Potentially Significant Impact	Less-Than-Significant With Mitigation Incorporation	Less-Than-Significant Impact	No Impact
Would the Project:				
a. Cause a substantial adverse change in the significance of a historical resource as defined in Section 15064.5?			✓	
b. Cause a substantial adverse change in the significance of an archaeological resource pursuant to Section 15064.5?		✓		
c. Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?		✓		
d. Disturb any human remains, including those interred outside of formal cemeteries?		✓		

a) Substantial Adverse Change in Significance of a Historical Resources – Less than Significant

Given the nature of the Project as an infrastructure improvement project in a previously disturbed area, a specific analysis of historical resources was not conducted. However, a number of current information resources were consulted to determine the potential for historical resources, as defined in CEQA Guidelines Section 15064.5, to be adversely affected by the Project.

A records search of the California Historical Resources Information System (CHRIS) at the Northwest Information Center (NWIC) listed no recorded buildings or structures within the Project area. However, the NWIC response indicated that the Northwestern Pacific Railroad (i.e., SMART tracks) crossing Olive Avenue and paralleling Railroad Ditch is an unrecorded structure of over 45 years in age and may be of historical value.

SMART evaluated the potential historical value of the railroad tracks and corridor in their Draft EIR for passenger rail service. Their study area included the Northwestern Pacific Railroad ROW (i.e., now the SMART ROW in the proposed Project area), including the segment of the railroad located at the Project site. The SMART Draft EIR identified a segment of the railroad line from the Burdell Siding MP 31.3 to the Haystack Landing Swing Bridge MP 36.7 as potentially eligible for the National Register of Historic Places at the local level due to its intact setting, materials, and design. The proposed Project site is not within the potentially eligible segment of the railroad identified in the SMART Draft EIR. (SMART 2008)

The City's Existing Conditions Report (2014) provided an inventory of historical resources within its General Plan Sphere of Influence (SOI). The cultural resources section of the report did not identify any historical resources within the Project area (Novato 2014a). Finally, because the proposed staging area was identified as an Affordable Housing Overlay (AHO) site in the City's most recent Housing Element update (2014), the update EIR was also reviewed. It did not report any such sites within the Project area (Novato 2014b).

Review of historical literature and maps gave no indication of the possibility of historic-period archaeological resources within the Project area. NWIC determined that there is a low potential of identifying unrecorded historic-period archaeological resources in the proposed Project area.

Based on the above analysis, the Project would have a less-than-significant impact to known historical resources.

b) Substantial Adverse Change in the Significance of an Archaeological Resources – Less than Significant with Mitigation

For the evaluation of the Project's potential impact on archaeological resources, a records search of CHRIS and the Native American Heritage Commission (NAHC) Sacred Land File was conducted in September and October 2014, respectively (NWIC 2014; NAHC 2014). The results of the NWIC records search of CHRIS indicate that seven cultural resource studies covering approximately 90 percent of the Project area have been conducted since 1977, none of which uncovered or recorded archaeological resources. It should be noted, however, that no subsurface investigations have been recorded in the area.

NWIC reported no Native American resources in or adjacent to the proposed Project area referenced in the ethnographic literature. Based on an evaluation of the environmental setting and features associated with known sites, Native American resources in this part of Marin County have been found on the banks, flats and mid-slope terraces in the vicinity of seasonal and perennial waterways and marshes, and within Holocene age landforms. The Project area contains a flat, Holocene age alluvial plain less than 0.5 mile from Novato Creek and 0.12 mile from a former salt marsh. Given the similarity of one or more of these environmental factors, there is a high potential of identifying unrecorded buried Native American resources in the Project area.

The City's Existing Conditions Report (Novato 2014a) and Housing Element update EIR (2013) did not identify any recorded or otherwise known archaeological sites within the Project area. This includes the Project's proposed staging area which was identified in the Housing Element update as an AHO site.

The results of the records search of the NAHC Sacred Land File did not indicate the presence of Native American cultural resources in the immediate Project area. In addition to the Sacred Land File search, NAHC provided a list of Native American individuals and organizations in the North Bay who may have knowledge of cultural resources in the area, who were subsequently notified by mail regarding the Project. A response was received from the Federated Indians of Graton Rancheria on October 15, 2014 and additional Project information was provided to the tribe. The tribe indicated that significant archaeological resources may be present in or near the Project area.

Based on the results of the record searches performed for the Project and correspondence with the Federated Indians of Graton Rancheria, even though the Project site has been highly disturbed, it is possible that previously unknown archaeological resources could be discovered during construction. Therefore, the potential impact to the archaeological resources could be significant. Implementation of Mitigation Measure CR-1 below would reduce potential impacts to archaeological resources, if present, to a less-than-significant level.

> ***Mitigation Measure CR-1: Protect Archaeological Resources Discovered During Construction***
>
> The City shall obtain a qualified archaeologist to serve as an onsite monitor during Project ground-disturbing construction activities. The qualified archaeologist shall observe ground-disturbing activities to identify and alert the construction crew to the presence of archaeological resources, such as chert, obsidian flakes, projectile points, mortars, pestles, dark friable soil containing shell and bone dietary debris, heat-affected rocks, or human burials, if encountered during construction activities. If archaeological resources are encountered, the City shall temporarily halt construction

in the vicinity of the resource. Workers shall avoid altering the materials and their context and shall not collect cultural materials. The City's qualified professional archaeologist shall evaluate the find and provide appropriate recommendations. If the archaeologist determines that the find potentially qualifies as a unique archaeological resource for purposes of CEQA (CEQA Guidelines Section 15064.5[c][3]), all work must remain stopped in the immediate vicinity to allow the archaeologist to evaluate any materials and recommend appropriate treatment. The City shall notify interested Native American tribes of such discoveries and consult with the tribe from which the resources originated, according to the Native American Heritage Commission. Such treatment and resolution shall include either modifying the Project to allow the materials to be left in place or undertaking data recovery of the materials in accordance with standard archaeological methods. The preferred treatment of the resource is protection and preservation.

Implementation of Mitigation Measure CR-1 would reduce potentially significant impacts to less-than-significant levels by protecting, preserving, or recovering any significant cultural resources, including historical resources, affected by Project construction.

c) Destroy Paleontological or Unique Geological Resources – Less than Significant with Mitigation

Paleontological resources are the remains or traces of prehistoric animals and plants. The fossil yielding potential of a particular area is dependent on the geologic age and origin of the underlying rocks.

The Existing Conditions Report (Novato 2014a) reports that there are no records of invertebrate, vertebrate, microfossil, and paleobotanical fossils located within Novato. The nearest identified fossils were found in the Petaluma Formation, which is outside the Novato's city limits. However, the report also noted that the tuffaceous sandstone unit beneath the volcanic rocks of Mt. Burdell contains fossils and that this unit may occur within the northernmost portion of the Novato city limits.

Because the Project is located within the northern portion of the City in proximity to Mt. Burdell, and with the absence of site specific data ruling out the potential for paleontological resources, the impact to a unique paleontological resource is considered potentially significant.

Mitigation Measure CR-2: Protect Paleontological Resources During Construction Activities

If a suspected paleontological resource is discovered during construction, the City shall temporarily halt all ground disturbing activities within 50 feet of the find, and a qualified paleontologist shall be notified to document the discovery as needed, evaluate the potential resource, and assess the nature and significance of the find. Based on the scientific value or uniqueness of the find, the paleontologist may record the find and allow work to continue, or recommend salvage and recovery of the material, if it is determined that the find cannot be avoided. The paleontologist shall make recommendations for any necessary treatment that is consistent with currently accepted scientific practices.

Implementation of Mitigation Measure CR-2 would reduce potentially significant impacts to less-than-significant levels by protecting, preserving, or recovering any significant paleontological or unique geologic resources affected by the Project.

d) Disturb Human Remains – Less than Significant with Mitigation

No indication of human remains was identified in record searches performed for the Project, and it is unlikely that the Project site, which has been disturbed by previous development, would yield human

remains. However, the possibility of encountering human remains cannot be completely discounted. Therefore, the impact related to disturbance of human remains during construction is considered potentially significant.

Implementation of Mitigation Measures CR-1 and CR-3 would reduce potential impacts on any buried human remains and associated or unassociated funerary objects that may be accidentally discovered during Project construction to a less-than-significant level.

> ***Mitigation Measure CR-1: Protect Archaeological Resources Discovered During Construction***
>
> See discussion in Impact "b" above for a description of this mitigation measure.
>
> ***Mitigation Measure CR-3: Procedures for Encountering Human Remains***
>
> The City shall immediately notify the Marin County Coroner should human remains, associated grave goods, or items of cultural patrimony be encountered during construction, and the following procedures shall be followed as required by Public Resources Code § 5097.98 and Health and Safety Code § 7050.5. In the event of the coroner's determination that the human remains are Native American, notification of the Native American Heritage Commission, which would appoint a Most Likely Descendant (MLD). A qualified archaeologist, the City and the MLD shall make all reasonable efforts to develop an agreement for the treatment, with appropriate dignity, of any human remains and associated or unassociated funerary objects. The agreement would take into consideration the appropriate excavation, removal, recordation, analysis, custodianship, and final disposition of the human remains and associated or unassociated funerary objects.

Implementation of Mitigation Measures CR-1 and CR-3 would reduce potentially significant impacts unanticipated human remains to less-than-significant levels by providing an on-site monitor during construction to identify and coordinate protection, preservation or recovery of any significant remains or funereal objects affected by the Project.

3.6 Geology and Soils

	Potentially Significant Impact	Less-Than-Significant With Mitigation Incorporation	Less-Than-Significant Impact	No Impact
Would the Project:				
a. Expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving:				
i. Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? Refer to Division of Mines and Geology Special Publication 42.			✓	
ii. Strong seismic ground shaking?				✓
iii. Seismic related ground failure, including liquefaction?				✓
iv. Landslides?				✓
b. Result in substantial soil erosion or the loss of topsoil?			✓	
c. Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the Project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction or collapse?				✓
d. Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial risks to life or property?				✓
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?				✓

a (i) Expose People to Substantial Adverse Effects Involving Fault Rupture - Less than Significant

The Project site is not located on or within an active or potentially active fault zone (Novato 2014a). The nearest potentially active fault is the Burdell Mountain fault, which is approximately three miles northeast of the Project site (Novato 2014a). Because the Project site is not located on or within an active or potentially active fault zone, the potential for surface fault rupture is considered low. Therefore, the potential impact from fault rupture is considered less than significant.

a (ii) (iii) Expose People to Substantial Adverse Effects Involving Strong Ground Shaking or Liquefaction – No Impact

The Project would underground existing electrical, cable and telephone utilities, widen Olive Avenue, and construct underground storm water drainage improvements. The Project does not include above-ground structures that would introduce a significant risk to life or property due to seismic ground shaking or liquefaction. The Project does not include potable water or gas utility lines that could introduce risk to life

or property if ruptured during groundshaking or if installed in potentially liquefiable soils. No impact would occur.

a (iv) Expose People to Substantial Adverse Effects Involving Landslides – No Impact

The Project site is located on, and surrounded by, flat land. According to the City of Novato Existing Conditions Report, Figure 10-3 (Landslide Hazard Areas), the Project site has no to low potential for landslides (Novato 2014a). There would be no impact related to landslides and slope stability.

b) Result in Substantial Soil Erosion and Loss of Top Soil – Less than Significant

Construction of the proposed Project would involve excavation, grading, and trenching, which would temporarily disturb soils at the Project site. Project Measure 2, Manage Construction Storm Water, would implement best management practices during construction to manage the potential for erosion and sedimentation during construction. With incorporation of Project Measure 2, the potential for Project construction to result in substantial soil erosion would be less than significant. Following construction, the Project site would be developed with paved areas and landscaping, and would not be susceptible to substantial erosion.

The Project site is highly urbanized and previously disturbed. Because of the highly disturbed nature of the site, the Project would not result in substantial loss of top soil. No impact would occur.

c) Be Located on Unstable Soils – No Impact

For discussion regarding landslides and liquefaction, please refer to impact statement “a” evaluated above.

Lateral Spreading

Lateral spreading is the lateral movement of gently to steeply sloping, saturated soil deposits caused by earthquake-induced liquefaction. Because the Project site would be located on relatively flat land, there would be no impact related to lateral spreading.

Subsidence

Subsidence is defined as the sinking of a large area of ground surface where the material is displaced vertically downward, with little or no horizontal movement (Novato 2014a). Land subsidence is most often caused by human activities such as the removal of subsurface water. The principal causes are aquifer-system compaction, drainage of organic soils, underground mining, hydrocompaction, natural compaction, sinkholes, and thawing permafrost (USGS 2014).

The Project would include widening of an existing roadway as well as drainage improvements. It would not require the removal of subsurface water or the construction of large inhabited buildings. In addition, the soils within the Project site would be compacted before construction, eliminating the possibility of shallow subsidence. Therefore, there would be no impact related to subsidence.

d) Be Located on Expansive Soil – No Impact

Expansive soil occurs when clay particles interact with water causing volume changes in the clay soil. The clay soil swells when saturated and contracts when dried. These volume changes may damage lightly loaded foundations, retaining walls and shallow improvements. According to the City of Novato Existing Conditions Report, Figure 10-4 (Expansive Soils), the Project site has no potential for soil expansion (Novato 2014a). Therefore, no impact would occur.

e) Soils Inadequate of Supporting Septic Tanks – No Impact

The Project would not involve the construction or operation of septic tanks or an alternative wastewater disposal system. Therefore no impact would occur.

3.7 Greenhouse Gas Emissions

	Potentially Significant Impact	Less-Than-Significant With Mitigation Incorporation	Less-Than-Significant Impact	No Impact
Would the Project:				
a. Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?			✓	
b. Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?				✓

In May 2014, the California Air Resources Board (CARB) released the First Update to the Climate Change Scoping Plan which describes the progress made to meet the near-term (2020) objectives of Assembly Bill (AB) 32 (Global Warming Solutions Act) and defines California's climate change priorities and activities for the next several years (CARB 2014). While the first Scoping Plan provided strategies for meeting the near-term 2020 greenhouse gas emission reduction goals in AB 32, the update provides recommendations for establishing a mid-term emissions limit that aligns with the long-term (2050) goals of Executive Order S-3-05. The recommendations cover the energy, transportation, agriculture, water, waste management, natural and working lands, short-lived climate pollutants, green building, and cap-and-trade sectors, and are to be implemented by a variety of State agencies.

The BAAQMD CEQA Air Quality Guidelines (May 2011) have established greenhouse gas thresholds of significance in order to meet the goals of AB 32. The BAAQMD Guidelines contain operational thresholds for land-use based projects but not infrastructure-related projects.

The BAAQMD Guidelines do not provide a threshold for construction-related greenhouse gas emissions, but do suggest determining whether construction emissions would impede meeting AB 32 greenhouse gas emission reduction goals. Therefore, the analysis of construction-related greenhouse gas emissions uses a qualitative approach in accordance with Section 15064.4(a)(2) of the CEQA Guidelines.

The City of Novato's 2009 Climate Change Action Plan (CCAP) presents goals and implementation measures identifying how the City will achieve (or exceed) its GHG emissions reduction target. The CCAP goals and associated measures, also referred to as climate change mitigation measures, are divided into the sectors of energy use, green building, water conservation, transportation, land use, and waste. In addition, the CCAP provides goals and measures for climate change adaptation and plan implementation. Many of these goals and measures echo those of the City's General Plan.

a) Generate Greenhouse Gas Emissions – Less than Significant

Project construction activities would result in a temporary increase in greenhouse gas emissions, including exhaust emissions from on-road haul trucks, worker commute vehicles, and off-road heavy duty equipment. Project construction activities would be less intensive than traditional land use development that requires a larger fleet of earthmoving activities. Activities include trenching for utilities, pipeline and culvert installation, and road widening. Construction would last approximately eight months. Project emissions during construction would not be a considerable contribution to the cumulative greenhouse gas impact, given that construction would be temporary and would not require a large fleet of earthmoving

equipment and soil off hauling. Construction of this infrastructure project would not impede implementation of AB 32 or the framework outlined in the First Update to the Climate Change Scoping Plan (the implementing tool for AB 32). Although Project construction may benefit from implementation of some of the State-level regulations and policies that will be implemented, such as the Phase 2 heavy-duty truck greenhouse gas standards proposed to be implemented within the transportation sector, the Project would not impede the State in meeting the AB 32 greenhouse gas reduction goals. The impact of construction greenhouse gas emissions would be less than significant.

Operation of the Project would not involve any new use of energy or otherwise emit greenhouse gases. Therefore there would be no impact to greenhouse gases from operation of the Project.

b) Conflict with an Applicable Plan, Policy, or Regulation Adopted for Purpose of Reducing Emissions of Greenhouse Gases – No Impact

First Update Climate Change Scoping Plan

The Project does not conflict with the First Update to the Climate Change Scoping Plan. The recommended next steps in the First Update Climate Change Scoping Plan are broad policy and regulatory initiatives that will be implemented at the State level and do not relate to the construction and operation of small individual infrastructure projects such as the proposed Project. Although the State is implementing regulations that would reduce emissions from light and heavy-duty vehicles, similar to those that would be used during construction, the Project would not conflict with these regulations and would benefit from them.

Climate Change Action Plan

As noted above, the City's CCAP includes measures to reduce greenhouse gas emissions covering energy use, green building, water conservation, transportation, land use, and waste reduction. These measures are applicable to land-use based projects and City policies and programs. There are no measures that relate to construction of a small infrastructure project. The Project would not conflict with the City's CCAP, and there would be no impact.

3.8 Hazards and Hazardous Materials

	Potentially Significant Impact	Less-Than-Significant With Mitigation Incorporation	Less-Than-Significant Impact	No Impact
Would the Project:				
a. Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?			✓	
b. Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?			✓	
c. Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?				✓
d. Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?		✓		
e. For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the Project result in a safety hazard for people residing or working in the Project area?				✓
f. For a project within the vicinity of a private airstrip, would the project result in a safety hazard for people residing or working in the project area?				✓
g. Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?			✓	
h. Expose people or structures to a significant risk of loss, injury or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands?				✓

a, b) Hazardous Materials and Accident Conditions – Less than Significant

Hazardous Materials

Project construction activities would include the use of hazardous materials such as fuels, lubricants, paints, and solvents associated with construction equipment and haul trucks. These materials are commonly used during construction, are not acutely hazardous, and would be used in small quantities. Routine transport of such materials to and from the Project site during construction could result in an incremental increase in the potential for accidents. However, numerous laws and regulations ensure the safe transportation, use, storage and disposal of hazardous materials. For example, Caltrans and the California Highway Patrol regulate the transportation of hazardous materials and wastes, including

container types and packaging requirements, as well as licensing and training for truck operators, chemical handlers, and hazardous waste haulers. Worker safety regulations cover hazards related to the prevention of exposure to hazardous materials and a release to the environment from hazardous materials use. Because contractors would be required to comply with existing and future hazardous materials laws and regulations covering the transport, use and disposal of hazardous materials, the impacts related to hazardous materials used during Project construction would be less than significant.

Following construction, the Project would not store, contain, or require the routine use of hazardous materials or wastes, and no operational impact would occur.

Naturally Occurring Asbestos

The potential to encounter naturally occurring asbestos during construction was analyzed by reviewing regional geologic mapping. The general geology underlying the City has been mapped as Franciscan rocks, gravel, sand, and mud deposits (CDC 1975). Mapping does not show ultramafic rock areas, such as serpentinite and metaphoric rocks in the Project area (CDC 1975, 2000). Therefore no impact would occur.

c) Emit Hazardous Emissions within One-quarter Mile of a School – No Impact

There are no existing schools within one-quarter mile of the Project site. The nearest school is Olive Elementary School approximately 0.60 mile east of the Project site. Therefore, the proposed Project would not emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school. No impact would occur.

d) Included on a List of Hazardous Materials Sites – Less than Significant with Mitigation

The provisions in Government Code Section 65962.5 are commonly referred to as the "Cortese List." A search of the Cortese List was completed to determine if any known hazardous waste sites have been recorded on or adjacent to the Project site. The results of the search indicate that no hazardous materials sites are located within the Project construction limits (SWRCB 2014a, 2014b, 2014c; DTSC 2011, 2014).

The nearest recorded open hazardous waste cleanup site is a corporation yard owned by the Novato Unified School District approximately 100 feet northeast of the Project site (across the intersection of Olive Avenue and Railroad Avenue) (SWRCB 2014a, 2014b, 2014c; DTSC 2011, 2014). Two other open cleanup sites are located within 0.25 miles of the Project site. Summaries of these sites and the potential to expose construction workers and the community to hazardous materials are provided below.

Novato Unified School District – 819 Olive Street

This site is a leaking underground storage tank (LUST) cleanup site for diesel contamination (SWRCB 2014a). According to information available on the State Water Resources Control Board's GeoTracker database, the site is characterized as "Category 1," indicating that the site soil or groundwater contamination does not pose an immediate human health threat and does not extend off-site onto neighboring properties. Because the contamination at this nearby facility is confined to the site itself and because soil boring results indicated low concentrations of contamination (ACC 2004), exposure to contamination from this site during Project construction activities is not anticipated. The impact would be less than significant.

Former Unocal/Chevron Station – 7455 Redwood Boulevard

This site is listed as a LUST cleanup site for gasoline and waste oil (SWRCB 2014a). Similar to the first case, this site is also characterized as "Category 1" (SWRCB 2014a). The impact would be less than significant. Because the contamination at this nearby facility is confined to the site itself, exposure to contamination from this site during Project construction activities is not anticipated. The impact would be less than significant.

Thorsson's Auto Center – 862 Vallejo Street/Arnold's Dismantlers – 864 Vallejo Street

This site is listed as a cleanup site on the State Water Resources Control Board GeoTracker database. However, there has been little to no investigation or remedial work on this property as well as no cleanup actions. The case was opened in December 1993, and potential contaminants of concern include heavy metals, and petroleum and oil products. Cleanup status is open and inactive since April 17, 2009. Because the extent of historical contamination at the site is unknown, it is conservatively assumed that contaminants such as heavy metals, and petroleum and oil products could be encountered during construction. If contamination is encountered and accidentally released during construction, the potential impact to construction workers, the public, and the environment could be potentially significant.

Mitigation Measure HAZ-1: Health and Safety Plan

Prior to construction, the City shall require the contractor to prepare a site-specific health and safety plan in accordance with federal OSHA regulations (29 CFR 1910.120) and Cal-OSHA regulations (8 CCR Title 8, Section 5192) to address potential worker health and safety issues during construction. The health and safety plan shall identify the potentially present chemicals, health and safety hazards associated with those chemicals, all required measures to protect construction workers and the general public from exposure to harmful levels of any chemicals identified at the site (e.g., engineering controls, monitoring, and security measures to prevent unauthorized entry to the work area), appropriate personal protective equipment, and emergency response procedures. The health and safety plan shall designate qualified individuals responsible for implementing the plan and for directing subsequent procedures in the event that unanticipated contamination is encountered.

Mitigation Measure HAZ-2: Hazardous Materials Management Plan

Prior to construction, the City shall require the contractor to prepare a hazardous materials management plan that specifies the method for handling and disposal of both chemical products and hazardous materials during construction and contaminated soil and groundwater, should any be encountered during construction. Contract specifications shall mandate full compliance with all applicable local, State, and federal regulations related to identifying, transporting, and disposing of hazardous materials, including any hazardous wastes encountered in excavated soil or groundwater.

If contaminated soil or groundwater is encountered, the City shall require the construction contractor to prepare and implement a construction Soil and Groundwater Management Plan. The contractor shall submit the Plan to the City for review and approval. Elements of the plan shall include:

- Measures to address hazardous materials and other worker health and safety issues during construction, including the specific-level of protection required for construction

workers (e.g., protective gear, engineering controls, monitoring, and security measures to prevent unauthorized entry to the work area).

- Provisions for excavation of soil, stockpiling, and dust control measures.
- Measures to prevent off-site migration of contaminated soil and groundwater.
- Location and final disposition of all soil and groundwater removed from the site.
- All other necessary procedures to ensure that excavated materials are stored, managed, and disposed of in a manner that is protective of human health and in accordance with applicable laws and regulations.

Mitigation Measures HAZ-1 and HAZ-2 require preparation of a site health and safety plan to protect construction worker health and safety, and a hazardous materials management plan to ensure that appropriate procedures are followed in the event that unanticipated hazardous materials are encountered during project construction, and to ensure that hazardous materials are transported and disposed of in a safe and lawful manner. With implementation of these mitigation measures, potential risk to construction workers, the public, and the environment from accidental release of hazardous materials during construction of the Project would be less than significant.

Following construction, no additional ground disturbing activities would be required, and no operational impact would occur.

e, f) Safety Hazard for People Residing or Working Within Two Miles of an Airport – No Impact

The Project site is located within the two-mile referral area boundary for the Marin County Airport at Gnoss Field (Marin County ALUC 1991). However, the Project is subsurface, and the construction and operation of the Project would not include buildings intended for human occupancy or other aboveground structures. In addition, the Project would not conflict with the Marin County Airport Land Use Plan. Therefore, there would be no impact.

g) Impair or Interfere with Adopted Emergency Response/Evacuation Plan – Less than Significant

The City of Novato Emergency Operations Plan (EOP) establishes policies and procedures and assigns responsibilities to ensure the effective management of emergency operations within the City. The City and the Novato Fire Protection District operate a joint emergency operations center (EOC) in the Novato Fire Administration Building. The EOP does not designate specific evacuation routes within the City. (Novato 2009)

Construction of the improvements to Olive Avenue would require temporary partial lane closures along the roadway. During construction, the Project area would be maintained to allow traffic flow in both directions, including emergency vehicles. Because Olive Avenue would remain partially open during construction, and because the EOP does not designate specific evacuation routes within the City, the construction-related impact would be less than significant.

Operation of the proposed Project would result in widening and improving Olive Avenue and would not impair or interfere with the adopted EOP. In addition, the Project would not impact the Novato Fire Administration Building, where the EOC is located. No operational impact would occur.

h) Exposure to Wildland Fires – No Impact

The Project site is located in an urbanized area and is not adjacent to wildlands. The Project site is designated as a Non-Very High Fire Hazard Severity Zone, as classified by the California Department of Forestry and Fire Protection (CAL FIRE 2008). The Project site is located outside of the Wildland Urban Interface (WUI) as delineated by the Novato Fire Protection District. Therefore, no construction or operational impact related to wildfires would occur.

3.9 Hydrology and Water Quality

	Potentially Significant Impact	Less-Than-Significant With Mitigation Incorporation	Less-Than-Significant Impact	No Impact
Would the Project:				
a. Violate any water quality standards or waste discharge requirements?			✓	
b. Substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g., the production rate of pre-existing nearby wells would drop to a level which would not support existing land uses or planned uses for which permits have been granted)?			✓	
c. Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner which would result in substantial erosion or siltation on- or off- site?			✓	
d. Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off- site?			✓	
e. Create or contribute runoff water which would exceed the capacity of existing or planned storm water drainage systems or provide substantial additional sources of polluted runoff?			✓	
f. Otherwise substantially degrade water quality?			✓	
g. Place housing within a 100-year flood hazard area as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map?				✓
h. Place within a 100-year flood hazard area structures which would impede or redirect flood flows?			✓	
i. Expose people or structures to a significant risk of loss, injury or death involving flooding, including flooding as a result of the failure of a levee or dam?			✓	
j. Inundation by seiche, tsunami, or mudflow?				✓

a, f) Violate Water Quality Standards, Waste Discharge Requirements, or Substantially Degrade Water Quality – Less than Significant

Storm water runoff from the Project area ultimately flows to Rush Creek, Black John Slough, and the Petaluma River. Rush Creek and Black John Slough are not currently listed as impaired water bodies by the United States Environmental Protection Agency (USEPA), however, the Petaluma River is listed as impaired for several pollutants, including diazinon, nutrients, pathogens, sedimentation/siltation, and trash (USEPA 2010). The tidal portion of the Petaluma River is also listed as an impaired water body for nickel (USEPA 2010).

Construction activities such as grading, excavation and trenching would temporarily disturb soils at the Project site. Construction activities could also be a source of chemical contamination from use of alkaline construction materials (e.g., concrete, mortar, hydrated lime) and hazardous or toxic materials, such as fuels. The Project includes Project Measure 2, Manage Construction Storm Water, which would implement best management practices during construction to manage the potential for erosion and avoid or minimize the potential for water quality degradation during construction. Under Project Measure 2, the City would either obtain coverage under a SWPPP, if required, or the City's Contractor would develop an Erosion and Sediment Control Plan. Construction-related impacts to water quality and water quality standards would be less than significant.

Regarding Project operation, the City has determined that the Project is exempt from the Low Impact Development (LID) Standards contained in its Municipal Storm Water National Pollutant Discharge Elimination System (NPDES) Permit. Nevertheless, as described in the Project Description, the City would incorporate storm water source control measures into the Olive Avenue improvements component (and potentially Railroad Ditch box culvert installation) to limit transport of pollutants into the storm water system and to promote infiltration and retention of storm water. The storm water control measures would be in accordance with the design guidelines in *Managing Wet Weather with Green Infrastructure, Municipal Handbook* (U.S. EPA 2008). At a minimum, tree-box biofilters or equivalent bio-treatment facilities, an approximate area of 2,000 square feet, would be installed along the two driveways into the commercial properties north of Olive Avenue. Therefore, the operational impact of storm water discharges on water quality standards, waste discharge requirements, and overall water quality would be less than significant.

b) Substantially Deplete Groundwater Supplies or Interfere with Recharge – Less than Significant

Based on the depth to groundwater recorded at a nearby groundwater cleanup site, groundwater levels in the area generally range between three and seven feet below ground surface (bgs) (Edd Clark & Associates 2009). During construction, excavations up to 10 feet bgs may be required for installation of the joint utility trench beneath the SMART rail corridor, and excavations up to five feet bgs may be required for the portion of the joint utility trench to be installed using open trench construction methods. Therefore, construction of the proposed Project is anticipated to require temporary groundwater dewatering.

As described in Section 1.5.4.3, temporary groundwater dewatering may be required during construction. Dewatering would result in localized decreases in the water table in the immediate vicinity of the excavation, representing a minor percentage of the overall surrounding aquifer. Such temporary dewatering would have, at most, a very small effect on localized water levels in the immediate vicinity of the excavation, and no substantial deficit in aquifer volume or lowering of water levels would occur.

Therefore, the temporary impact of groundwater dewatering during construction would be less than significant.

Following construction, the proposed Project would not include the pumping of groundwater, and would not result in substantial amounts of new impervious surfaces that would interfere with groundwater recharge. Therefore, operation of the Project would have a less than significant impact on groundwater supplies and groundwater recharge.

c) Substantially Alter Drainage Patterns Resulting in Erosion or Siltation - Less than Significant

Construction activities such as grading, excavation, and trenching would temporarily disturb soils at the Project site. As described in the Project Description, construction activities within Olive Ditch and Railroad Ditch are planned to occur between June 15 and October 15, which generally coincides with the season when rainfall is unlikely and base flows are lowest. Scheduling the work to be performed within the drainage ditches during the dry season would minimize the potential for erosion to occur during construction. The Project also includes Project Measure 2, Manage Construction Storm Water, which includes best management practices to manage the potential for erosion and siltation during construction. Under Project Measure 2, the City will either obtain coverage under a SWPPP, if required, or the City's Contractor will develop an Erosion and Sediment Control Plan. The Project would not substantially alter drainage patterns resulting in erosion or siltation, and the impact would be less than significant.

Following construction, the areas of disturbed soil vulnerable to erosion or siltation would not be present, and storm water flows would not be increased in a manner that would result in downstream erosion. Therefore, the operational impact would be less than significant.

d) Substantially Alter Drainage Patterns Resulting in Flooding – Less than Significant

As described in the Project Description, construction activities within Olive Ditch and Railroad Ditch are planned to occur between June 15 and October 15, which generally coincides with the season when rainfall is unlikely and base flows are lowest. Scheduling the work to be performed within the drainage ditches during the dry season would minimize the potential for Project construction activities to result in flooding on- or off-site. Therefore, the construction-phase impact on flooding would be less than significant.

Following construction, the proposed improvements to the Olive Ditch and Railroad Ditch would reduce existing localized flooding that occurs in the Project area, thereby resulting in a beneficial effect on flooding. The drainage improvements would be sized to convey the 25-year storm event flows (including the open Olive Ditch under the Alternate 1 design), including flows resulting from new impervious surfaces associated with the Project. As described in the Project Description, the City would at a minimum, construct tree-box biofilters or equivalent bio-treatment facilities (approximately 2,000 square feet) along the two driveways north of Olive Avenue to promote infiltration and retention of storm water. Therefore, the potential to increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site would be less than significant.

e) Create or Contribute Runoff Water Exceeding Capacity of Drainage Systems, or Provide Substantial Sources of Polluted Runoff – Less than Significant

As described in impact "d" above, following construction, the drainage improvements would be sized to convey the 25-year storm flows, including flows resulting from new impervious surfaces associated with the Project. As described in the Project Description, the City would at a minimum, construct tree-box

biofilters or equivalent bio-treatment facilities (approximately 2,000 square feet) along the two driveways north of Olive Avenue to promote infiltration and retention of storm water. The Project also includes Project Measure 2, Manage Construction Storm Water, in which the City will either obtain coverage under a SWPPP, if required, or develop an Erosion and Sediment Control Plan. Project Measure 2 requires best management practices for controlling non-storm water flows and minimizing the transport of pollutants to the local storm drain system. The potential impact on water quality related to the discharge of groundwater from excavation dewatering would be less than significant.

g) Place Housing within a 100-Year Flood Zone – No Impact

The proposed Project does not include housing. Therefore, no impact would occur.

h) Place Structures within a 100-Year Flood Zone – Less than Significant

According to local Flood Insurance Rate Maps prepared by the Federal Emergency Management Agency (FEMA), the Project site is located within a 100-year floodplain with average flood depths of less than one foot (FEMA 2009). As described in the Project Description, construction activities within Olive Ditch and Railroad Ditch are planned to occur between June 15 and October 15, which generally coincides with the season when rainfall is unlikely and base flows are lowest. Scheduling the work to be performed within the drainage ditches during the dry season would minimize the potential for impeding or redirecting flood flows during construction to a less than significant level.

Following construction, the improvements to the Olive Ditch and Railroad Ditch would reduce localized flooding in the Project area, thereby resulting in a beneficial effect on flooding. Although the Project site would still be subject to flooding during a 100-year storm event, the Project itself does not include features that would impede or redirect flood flows, and the drainage improvements proposed as part of the Project would work to more efficiently convey flood flows as opposed to impede them. Therefore, the operational impact related to impeding or redirecting flood flows would be less than significant.

i) Flooding from a Levee or Dam – Less than Significant

The Project site is located within an area that would be inundated in the hypothetical event of a sudden failure of the Novato Creek Dam at Stafford Lake (Novato 2014a). The potential for flooding as a result of failure of the Novato Creek Dam, which is designed to withstand an 8.25 magnitude earthquake on the San Andreas Fault, is minimal. The dam is constructed under the jurisdiction of the Division of Safety of Dams (DSOD), which imposes strict standards for the design, maintenance, and ongoing monitoring. All dams are annually inspected by the DSOD engineers to ensure they are performing and being maintained in a safe manner. When determined to be structurally inadequate to withstand anticipated groundshaking, dams under the jurisdiction of DSOD are required to undergo seismic retrofitting. Therefore, given the existing DSOD inspections and oversight, the potential for catastrophic failure of the Novato Creek Dam is considered to be low and the impact from flooding as a result of a levee or dam failure would be less than significant.

j) Inundation by Seiche, Tsunami, or Mudflow – No Impact

The Project site is not located adjacent to an isolated body of water that would be affected by a seiche, is not located within a tsunami inundation area (Cal EMA 2009), and is not located within a debris-flow source area based on landslide mapping prepared by the USGS (USGS 1997). Therefore, the Project would not be at risk from inundation by seiche, tsunami, or mudflow. No impact would occur.

3.10 Land Use and Planning

	Potentially Significant Impact	Less-Than-Significant With Mitigation Incorporation	Less-Than-Significant Impact	No Impact
Would the Project:				
a. Physically divide an established community?				✓
b. Conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the Project (including, but not limited to the general plan, specific plan, local coastal program, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect?				✓
c. Conflict with any applicable habitat conservation plan or natural community conservation plan?				✓

a) Physically Divide an Established Community – No Impact

The Project area consists of commercial and industrial land uses west of the railroad corridor, and residential land uses east of the railroad corridor. The proposed Project includes roadway and drainage improvements. The Project would not introduce new building or structures that would physically divide an existing community. The existing railroad crossing would still function to provide vehicular, pedestrian and bicycle connections between the land uses on either side of the railroad corridor. There would be no impact related to physical division of an established community.

b) Conflict with Applicable Land Use Plans, Policies or Regulations – No Impact

Applicable land use plans and regulations include the City of Novato General Plan and the City's Zoning Code. The Project would be located along Olive Avenue between Redwood Boulevard and Railroad Avenue, and west of Railroad Avenue, parallel to the railroad corridor, between Olive Avenue and Sweetser Avenue. The area surrounding the Project site is zoned as General Commercial and Commercial/Industrial. Because the Project is a roadway widening and drainage improvement project within the City and SMART ROW, the Project site does not have a zoning designation or a specific General Plan designation and would not conflict with a general plan land use designation or zoning. No impact would occur.

Land use policies identified in the City's General Plan are not applicable to the Project as they are not applicable to the construction and operation of underground utilities, roadway widening and storm water pipelines or the Project's geographic area. Therefore, the Project would not conflict with General Plan land use policies adopted for the purpose of avoiding or mitigating and environmental effect. No impact would occur.

c) Conflict with Applicable Conservation Plans – No Impact

No adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or State habitat conservation plan exists for the City or Marin County (USFWS 2014; CDFW 2014). Therefore, no impact would occur.

3.11 Mineral Resources

	Potentially Significant Impact	Less-Than-Significant With Mitigation Incorporation	Less-Than-Significant Impact	No Impact
Would the Project:				
a. Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state?				✓
b. Result in the loss of availability of a locally-important mineral resource recovery site delineated on a local general plan, specific plan or other land use plan?				✓

a, b) Loss of Mineral Resource Availability – No Impact

No known mineral resources or locally-important mineral resources occur at the Project site or in the immediate Project area (Novato 1996). No impact would occur.

3.12 Noise

	Potentially Significant Impact	Less-Than-Significant With Mitigation Incorporation	Less-Than-Significant Impact	No Impact
Would the Project result in:				
a. Exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?			✓	
b. Exposure of persons to or generation of excessive ground borne vibration or ground borne noise levels?			✓	
c. A substantial permanent increase in ambient noise levels in the Project vicinity above levels existing without the Project?			✓	
d. A substantial temporary or periodic increase in ambient noise levels in the Project vicinity above levels existing without the Project?		✓		
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 expose people residing or working in the Project area to excessive noise levels?				✓
f. For a project within the vicinity of a private airstrip, would the Project expose people residing or working in the project area to excessive noise levels?				✓

a) Exposure to Noise Levels in Excess of Standards – Less than Significant

Construction Noise

Novato Municipal Code Section 19.22.070 (Noise and Construction Hours) exempts construction activities from the exterior noise level limits between the hours of 7:00 a.m. and 6:00 p.m. Monday through Friday, and between 10:00 a.m. and 5:00 p.m. on Saturdays. As stated in the Project Description, the project would comply with the allowable hours for construction. Therefore the temporary impact during construction would be less than significant.

Operational Noise

Following construction, the Project does not include the operation of mechanical equipment that would result in new noise sources. The future noise environment in the Project area would result primarily from vehicular traffic along Olive Avenue. The roadway improvements would widen Olive Avenue approximately 40 feet closer to the existing commercial center properties that are located on the north side of the street, but the westbound vehicular travel lane would be relocated up to approximately 12 feet closer to the commercial properties under the proposed Project and Alternate 1. The Novato General Plan and Novato Municipal Code Section 19.22.070 establish acceptable community noise exposures limits and allowable exterior noise levels for certain land use types, and the threshold of normally acceptable levels for commercial properties is 70 L_{dn} (i.e., day/night average sound level). According to a 2008 noise survey conducted within the City of Novato, vehicular noise levels along Olive Avenue in the Project area ranges from 65 to 70 dBA (Novato 2014a). The proposed Project would not include new development that

would result in an increase in traffic levels in the area, and the improvements to the roadway would not result in additional travel lanes that would increase the corridor capacity of Olive Avenue. The widening of the roadway would not appreciably increase the existing ambient noise level along Olive Avenue. Therefore, the Project would not result in an increase in traffic levels that would have an appreciable effect on future noise levels in the Project area. The operational impact would be less than significant.

b) Exposure to Groundborne Vibration or Noise – Less than Significant

Construction Noise

Novato Municipal Code Section 19.22.090 (Vibration) exempts temporary construction activities from vibration limits. Therefore, for the purpose of analysis, based on California Department of Transportation (Caltrans) general guidance, this study establishes 0.3 inches per second peak particle velocity (in/sec PPV) as a significance threshold for groundborne vibration, which is the level that would avoid damage to structurally sound buildings from vibration sources.

Common sources of groundborne vibration during construction include activities such as blasting, pile-driving and operating heavy earth-moving equipment. Construction of the Project would not require blasting or pile driving. Earth-moving and paving equipment, such as excavators, backhoes, loaders, jack and bore systems, compactors, pavers and paving rollers would be required during roadway widening, utility undergrounding, and culvert and pipeline installation. Of the construction equipment that would be required during construction, the highest level of groundborne vibration would be associated with use of vibratory roller during the paving process, which may generate up to 0.210 in/sec PPV at a distance of 25 feet (FTA 2006). This level of groundborne vibration is less than the vibration threshold of 0.3 in/sec PPV (FTA 2006), and therefore, construction activities would not generate vibration levels that would damage surrounding buildings. The construction-related impact would be less than significant.

Operational Noise

Following construction, groundborne vibration in the Project area would result primarily from vehicular traffic along Olive Avenue. The proposed Project would not include new development that would result in an increase in traffic levels in the area, and the improvements to the roadway would not result in additional travel lanes that would increase the corridor capacity of Olive Avenue. Therefore, the Project would not result in an increase in traffic levels that would have an effect on future vibration levels in the Project area. The operational impact would be less than significant.

c) Substantial Permanent Increase in Ambient Noise Levels – Less than Significant

According to a 2008 noise survey conducted within the City of Novato, vehicular noise levels along Olive Avenue in the Project area ranges from 65 to 70 dBA (Novato 2014a). Following construction, the future noise environment in the Project area would continue to result primarily from vehicular traffic along Olive Avenue, as it does under existing conditions. The proposed Project would not include new development that would result in an increase in traffic levels in the area, and the improvements to Olive Avenue would not result in additional travel lanes that would increase the corridor capacity of the roadway. The widening of the roadway would not appreciably increase the existing ambient noise level along Olive Avenue. Therefore, the Project would not result in an increase in traffic levels that would have an effect on future ambient noise levels in the Project area. In addition, the Project does not include the operation of mechanical equipment that would result in new noise sources. The impact related to permanent increases in ambient noise levels would be less than significant.

d) Substantial Temporary Increase in Ambient Noise – Less than Significant with Mitigation

Table 3.12.1 summarizes the maximum instantaneous noise levels expected during construction of the Project. Based on the equipment to be used, noise levels expected during construction would range from 74 to 85 dBA L_{max} at 50 feet. Construction noise levels would vary on a day-to-day basis during the construction period, and construction of each Project component would require a different combination of construction equipment.

Table 3.12-1: Construction Equipment Noise Levels

Construction Equipment	Noise Level (dBA Lmax at 50 feet)
Dump Truck	76
Flat Bed Truck	74
Excavator	81
Front Loader	79
Water Truck	85
Vacuum Street Sweeper	82
Compactor	83
Smooth Drum Roller	85
Backhoe	78
Paver	77
Paving Roller	80
Concrete Mixer Truck	79
Jack and Bore Machine	83

Source: FHWA User's Guide 2006

The nearest residences to the construction area are located east of the SMART rail corridor. Ambient noise levels in this area range from 65 to 70 dBA (Novato 2014a), and are heavily influenced by vehicle noise from Highway 101 to the east. Construction activities in this area would include jack and bore activities for the joint utility trench, as well as concrete flat work for new sidewalks, portions of which would be located within 50 feet of existing residences. Construction activities along the Railroad Ditch would be located within 100 feet of residences to the east. Although these construction activities would be temporary in duration, they would be close enough to existing residences to result in substantial temporary increases in ambient noise. The impact is considered significant.

Vehicular noise levels along Olive Avenue between the SMART railroad corridor and Redwood Boulevard range from 65 to 70 dBA (Novato 2014a). Although no schools, hospitals, libraries, group care facilities, residences, convalescent homes, or other sensitive noise receptors are located immediately adjacent to

this portion of Olive Avenue, construction activities would temporarily increase ambient noise levels in the area. The impact is considered significant.

The nearest residences west of the construction area are located approximately 450 away, across the intersection of Olive Avenue and Redwood Boulevard. Ambient noise levels in this area range from 55 to 60 dBA (Novato 2014a). Sound from point sources attenuate at a rate of 6 decibels for each doubling of distance (Harris 1998), therefore, noise levels from construction equipment at the nearest residences to the west would be approximately 19 decibels less than at the Project site, and would range from 55 dBA to 66 dBA. Although the construction activities would be temporary in duration, they would temporarily increase ambient noise levels at residences in the area. The impact would be significant.

Mitigation Measure NOI-1: Reduce Construction-Related Noise

The City shall require the construction contractor to implement construction noise control measures. Noise control measures may include, but would not be limited to, the following:

- Construction activity shall be allowed only between the hours of 7:00 a.m. and 6:00 p.m. Monday through Friday, and between 10:00 a.m. and 5:00 p.m. on Saturdays.
- Internal combustion engine driven equipment shall be equipped with intake and exhaust mufflers that are in good condition and appropriate for the equipment.
- Stationary noise generating equipment shall be located as far as possible from sensitive receptors.
- Unnecessary idling of internal combustion engines shall be prohibited within 100 feet of residences.
- Construction equipment shall be maintained properly to minimize extraneous noise due to squeaking or rubbing machinery parts, damaged mufflers, or misfiring engines.
- A “disturbance coordinator” shall be designated who would be responsible for responding to any local complaints about construction noise. The name and phone number of the disturbance coordinator shall be conspicuously posted at the construction site. The disturbance coordinator shall determine the cause of the noise complaint, and shall require that reasonable measures warranted to correct the problem be implemented.

With implementation of Mitigation Measure NOI-1, which requires construction noise control measures, the temporary increase in ambient noise levels during construction would be reduced to a less-than-significant level:

e, f) Excessive Noise Levels from Airport or Airstrip – No Impact

Marin County Airport at Gnoss Field is the nearest airport to the Project site, located approximately two miles to the north. The Project site is not located within established airport noise contours (Novato 1996), and the Project would not include new development. Therefore, construction and operation of the Project would not expose people to excessive airport-related noise levels. No impact would occur.

3.13 Population and Housing

	Potentially Significant Impact	Less-Than-Significant With Mitigation Incorporation	Less-Than-Significant Impact	No Impact
Would the Project:				
a. Induce substantial population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)?				✓
b. Displace substantial numbers of existing housing, necessitating the construction of replacement housing elsewhere?				✓
c. Displace substantial numbers of people, necessitating the construction of replacement housing elsewhere?				✓

a) Induce Substantial Population Growth – No Impact

The proposed Project would not directly or indirectly induce substantial population growth in the area. The improvements would not increase the vehicle or roadway capacity of Olive Avenue because it would not increase travel lanes, nor would it include construction of new housing or businesses. In addition, the intent of the drainage improvements is to convey storm flows to alleviate localized flooding in the Project area and would not extend City services such that population growth would be induced. Therefore, no impact would occur.

b, c) Displace Housing and People – No Impact

The Project would not displace existing housing or people, would not involve the demolition of residential structures, would not require removal or relocation of any housing, and would not require construction of replacement housing elsewhere. No impact would occur.

3.14 Public Services

	Potentially Significant Impact	Less-Than-Significant With Mitigation Incorporation	Less-Than-Significant Impact	No Impact
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:				
a. Fire protection?				✓
b. Police protection?				✓
c. Schools?				✓
d. Parks?				✓
e. Other public facilities?				✓

a, b, c, d, e) Impacts Associated with New or Altered Fire or Police Protection, Schools, Parks, or Other Facilities – No Impact

Construction and operation of the Project would not induce population growth, and therefore would not require expanded fire or police protection facilities to maintain acceptable service ratios, response times, or other performance objectives (see Section 3.13, Population and Housing). The Project would not result in an increase in the City's student population, and therefore no new or expanded schools would be required. The Project would not result in the increased use of existing parks and other public facilities or require the expansion of recreational facilities to maintain acceptable service ratios in parks. No impact would occur.

Potential impacts to emergency access during construction are addressed in Section 3.16, Transportation/Traffic.

3.15 Recreation

	Potentially Significant Impact	Less-Than-Significant With Mitigation Incorporation	Less-Than-Significant Impact	No Impact
Would the Project:				
a. Increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?				✓
b. Include recreational facilities or require the construction or expansion of recreational facilities, which might have an adverse physical effect on the environment?				✓

a) Substantial Physical Deterioration of Recreational Facilities – No Impact

There are no recreational facilities located within the Project limits or planned for development as part of the Project. The Project would not directly or indirectly induce substantial population growth. Therefore, the Project would not 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. No impact would occur.

b) Construction or Expansion of Recreational Facilities – No Impact

There are no recreational facilities located within the Project limits or planned for development as part of the Project. Therefore, no impact would occur.

The Project would include the addition of Class II striped bicycle paths along Olive Avenue between Redwood Boulevard and Railroad Avenue, which would have a beneficial impact on recreation. The impacts associated with roadway widening (and consequently, addition of bicycle lanes) are analyzed in this Initial Study.

3.16 Transportation / Traffic

	Potentially Significant Impact	Less-Than-Significant With Mitigation Incorporation	Less-Than-Significant Impact	No Impact
Would the Project:				
a. Conflict with an applicable plan, ordinance or policy establishing measures of effectiveness for the performance of the circulation system, taking into account all modes of transportation including mass transit and non-motorized travel and relevant components of the circulation system, including but not limited to intersections, streets, highways and freeways, pedestrian and bicycle paths, and mass transit?		✓		
b. Conflict with an applicable congestion management program, including, but not limited to level of service standards and travel demand measures, or other standards established by the county congestion management agency for designated roads or highways?				✓
c. Result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks?				✓
d. Substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?			✓	
e. Result in inadequate emergency access?			✓	
f. Conflict with adopted policies, plans, or programs regarding public transit, bicycle, or pedestrian facilities, or otherwise decrease the performance or safety of such facilities?		✓		

a) Conflict with Measures of Effectiveness for Circulation System – Less than Significant with Mitigation

Roadway Level of Service

Level of Service (LOS) is used to rank traffic operation on various types of facilities based on traffic volumes and roadway capacity using a series of letter designations ranging from A to F. Generally, LOS A represents operations with very low delay and LOS F represents delays that are unacceptable to most drivers.

Program 4.1 of the Transportation Chapter of the Novato General Plan establishes an LOS D standard for intersections with signals or four-way stop signs, and a LOS E standard at intersections with stop signs on side streets only (Novato 1996).

The closest intersection to the Project site is Redwood Boulevard at Olive Avenue. The most recent baseline intersection LOS analysis available for this intersection is based on traffic volumes obtained in 2012, which indicate that the intersection operates at LOS C in both the AM and PM peak hour (Novato

2014a). The nearest intersection to Sweetser Avenue for which LOS data is available is Redwood Boulevard at Grant Avenue, located approximately 400 feet to the north. According to the most recent baseline intersection LOS analysis, which also is based on traffic volumes obtained in 2012, this intersection operates at LOS B in both the AM and PM peak hour (Novato 2014a). Therefore, under existing conditions, both of the above-mentioned intersections are known to have recently been operating satisfactorily in accordance with the City's local LOS standards.

LOS standards are intended to regulate long-term impacts from operation of future projects as opposed to temporary impacts from construction. Therefore, a qualitative analysis of potential construction-related impacts on LOS standards is provided here. Construction traffic would result in a short-term increase in construction-related vehicle trips on Redwood Boulevard, Olive Avenue, Railroad Avenue, and Sweetser Avenue. As discussed in the Project Description, the Project is estimated to require approximately 24 haul trips during the demolition process and approximately 284 delivery truck trips during the construction process. The estimated size of the construction workforce at any one time during construction is anticipated to range between 6 to 10 workers per day. The number of construction-related vehicles traveling to and from the Project site would vary on a daily basis. For the purpose of analysis, it is conservatively assumed that up to 32 haul trucks or delivery truck tips could occur on a given day during construction, and that up to 10 workers vehicles could be required. Because Redwood Boulevard is a designated truck route within the City, the signalized intersection that would be most affected by construction-related traffic is Redwood Boulevard at Olive Avenue. As discussed above, recent traffic analysis indicates that this intersection operates satisfactorily in accordance with local LOS standards. Only a portion of the construction-related vehicles expected on any one day would occur during a peak hour, and therefore, the temporary contribution of construction traffic is not anticipated to cause local intersection level of service to deteriorate below adopted standards. Traffic impacts during construction would be less than significant.

Following construction, the proposed Project would not include new development that would result in an increase in traffic levels in the area, and the improvements to the roadway would not result in additional travel lanes that would increase the corridor capacity of Olive Avenue. Therefore, the Project would not result in new traffic that would cause congestion or that would affect the performance of the circulation system. No operational impact would occur.

Potential Conflict on Local Roadway System

Construction of utility undergrounding, Olive Avenue widening, Olive Ditch pipeline, and Olive Avenue culvert installation components of the Project would require partial lane closures along Olive Avenue over an approximately five-month period. Such lane closures would temporarily alter the normal functionality of the roadway and result in a temporary decrease in its overall performance and safety, including the potential for conflicts between construction vehicles with slower speeds and wider turning radii than autos and vehicles sharing the roadway, as well as confusion or frustration of drivers related to construction activities and traffic routing. Access to the Trader Joe's shopping center via the Olive Avenue driveway would be temporarily unavailable during construction of the Olive Avenue widening and Olive Ditch pipeline improvements and traffic would be redirected to the Redwood Boulevard driveway. The potential impact is considered significant.

Mitigation Measure TR-1: Traffic Control Plan

The City shall require the construction contractor to prepare and implement an approved traffic control plan for the proposed construction activities. The plan shall include measures that address

work that would block the public ROW, and shall include plans for re-routing of vehicles, bicycles and pedestrians. The traffic control plan shall include, but not necessarily be limited to, the following measures as applicable to site-specific conditions:

- The traffic control plan shall also conform to applicable provisions of the State's Manual of Traffic Controls for Construction and Maintenance Work Areas.
- Flaggers and signage shall be used to guide vehicles through and/or around the construction zone.
- Truck routes shall be identified in the traffic control plan and shall be utilized to the extent feasible to minimize truck traffic on local roadways and residential streets that are not identified locally as designated haul routes.
- Lane closures at Olive Avenue shall be limited during peak hours to the extent feasible. In addition, outside of allowed working hours, or when work is not in progress, Olive Avenue shall be restored to normal operations, where feasible, with all trenches covered with steel plates.
- Signs shall be provided to advise bicyclists and pedestrians of temporary detours around construction zones.
- Access to driveways and private roads shall be maintained, as feasible, by using steel trench plates. If access must be restricted for brief periods (more than one hour), property owners shall be notified by the City in advance of such closures. Access to the Trader Joe's shopping center shall be rerouted to the Redwood Boulevard driveway if access via Olive Avenue is not available.
- At locations where the main access to a nearby property is blocked, the contractor(s) shall be required to have ready at all times the means necessary to accommodate access by emergency vehicles to such properties, such as plating over excavations, short detours, and/or alternate routes.
- Construction shall be coordinated with facility owners or administrators of land uses that may be more significantly affected by traffic impacts, such as police and fire stations, transit providers, hospitals, ambulance providers, and schools. Emergency responders, and other more significantly affected facility owners and/or operators shall be notified by the City in advance of the timing, location, and duration of construction activities and the locations and durations of any temporary lane closures.

With implementation of Mitigation Measure TR-1, which requires the City and its contractor to implement a traffic control plan, the potential impact of increased traffic safety hazards during construction would be reduced to a less-than-significant level.

b) Conflict with an Applicable Congestion Management Program - No Impact

In Marin County, the Transportation Authority of Marin (TAM) is designated as the Congestion Management Agency that oversees Congestion Management Programs. The LOS standards established by the TAM Congestion Management Program are intended to regulate long-term impacts due to future operation of new development (e.g., retail, residential, and industrial uses) projects.

The current Congestion Management Program establishes a LOS E standard for US 101, LOS D for Novato Boulevard from San Marin Drive to Diablo Avenue, and LOS D from South Novato Boulevard from Diablo Avenue US 101 (Novato 2014a). A specified level of service criteria for Olive Avenue has not been established in the Congestion Management Program.

The proposed Project would not include new development that would result in an increase in traffic levels in the area, and the improvements to the roadway would not result in additional travel lanes that would increase the corridor capacity of Olive Avenue. Therefore, the Project would not result in new traffic that would conflict with the approved Congestion Management Program. No impact would occur.

c) Result in a Change in Air Traffic Patterns – No Impact

Project construction and operation would include only ground-based travel, and because the Project is not growth inducing, it would not affect air traffic levels. No impact would occur.

d) Increase Hazards due to a Design Feature or Incompatible Use – Less than Significant

Improvements to Olive Avenue within the Project area would include a new center turn lane, parking on both sides of the roadway, Class II striped bicycle lanes, and sidewalks (or under Alternate 1, no parking). The roadway configuration would improve the overall performance and safety of Olive Avenue, including sight distance at the SMART rail corridor. For these reasons, the proposed Project would have a beneficial effect on the performance and safety of the roadway.

The CPUC has jurisdiction over the safety of rail crossings in California. The Rail Crossings Engineering Section of the CPUC reviews projects for the safe design of crossings and recommends safety measures, such as automatic warning devices, to mitigate hazards for at-grade crossing users. Automatic gate arms are already installed at the existing crossing. However, the extension of sidewalks and roadway widening across the SMART railroad corridor to Railroad Avenue would realign the roadway such that the automatic gate arms would not be properly placed to prevent vehicular, bicycle, and pedestrian access across the railroad corridor when a train is approaching. As described in the Project Description, the City would fully comply with CPUC General Order Nos. 88-B, 72-B, and 75-D, which regulates modifications of railroad crossings, pavement construction at railroad grade crossings, and warning devices for at-grade crossings. Compliance with these regulatory orders would resolve potential hazards related to railroad traffic for motorists, bicyclists and pedestrians from modifications to the existing railroad crossing, and the impact would be less than significant.

e) Result in Inadequate Emergency Access – Less than Significant

Construction of the improvements to Olive Avenue would require temporary partial lane closures along the roadway. Access through the construction area would be maintained during construction to allow traffic flow in both directions, including emergency vehicles. Emergency access to the commercial center on the north side of Olive Avenue would remain unobstructed during construction from the Redwood Boulevard entrance. The temporary lane closures along Olive Avenue would not block emergency access to surrounding land uses, and the potential impact of partial lane closures on emergency vehicles using Olive Avenue would be less than significant. Although the impact would be less than significant, measures included in Mitigation Measure TR-1 to reduce impacts to the performance of the circulation system would further reduce impacts related to emergency access by requiring measures to accommodate access by emergency vehicles to surrounding properties, such as plating over excavations, short detours, and/or alternate routes.

Following construction, Olive Avenue would be widened and would include a center turn lane, which would generally improve the ease of emergency access along the roadway corridor when compared to existing conditions. No long-term impact on emergency access would occur.

f) Public Transit, Bicycle, and Pedestrian Facilities – Less than Significant with Mitigation

Public Transit

Marin Transit Bus Route 154, which is operated on school days only, is the only public transit bus route that currently traverses Olive Avenue in the Project area. Because no bus stops for Route 154 are located within the Project construction area, and because Olive Avenue would remain partially open to vehicle travel during construction, the Project's impact on the performance or safety of Route 154 would be less than significant. Following construction, Olive Avenue in the Project area would be widened and would include a center turn lane, which may generally improve the performance and safety of bus transit along the roadway corridor when compared to existing conditions. No long-term impact on bus routes would occur.

Rail Service

As described in the Project Description, the installation of an underground joint utility trench through the SMART rail corridor would be accomplished using jack and bore trenchless construction methods. This construction technique would avoid physical disturbance to the existing railroad improvements at this location and would prevent interference with rail activities. Construction of the Olive Avenue widening improvements and Olive Ditch culvert installation would require work within the SMART ROW and the railroad corridor. As described in the Project Description, the City would obtain an encroachment permit from SMART, which would dictate when the City can work within their ROW, and would limit disturbance to rail service. Therefore, construction activities would have a less than significant performance or safety of rail service. Following construction, the Project would not conflict with rail service. No operational impact would occur.

Bicycle and Pedestrian Facilities

No bicycle routes or facilities are currently located within the Project construction area. During construction, the existing sidewalk on the south side of Olive Avenue would be temporarily closed during construction when the existing sidewalk is being replaced. Partial lane closures would be required, which could introduce potential conflicts between vehicles, bicyclist and pedestrians during construction. Sidewalk closure during construction would also temporarily affect the performance and safety of bicycle and pedestrian facilities along Olive Avenue. The impact would be significant.

Mitigation Measure TR-1: Traffic Control Plan

See discussion in "a" above for a description of this mitigation measure.

Implementation of Mitigation Measure TR-1 would reduce temporary impacts to the performance and safety of facilities for pedestrians and bicyclists by requiring the City and its contractor to implement a traffic control plan that includes measures to advise bicyclists and pedestrians of temporary detours around construction zones. Construction impacts would be reduced to less-than-significant.

Following construction, the reconfigured roadway would establish Class II striped bicycle paths on either side of Olive Avenue between Redwood Boulevard to the west and Railroad Avenue to the east as envisioned in the City's Bicycle Plan (Novato 2007). Sidewalks would also be provided on either side of

Olive Avenue in the Project area. These improvements would comply with General Plan policies and programs that seek to incorporate bicycle facilities into the design and construction of roadway improvements (TR Program 20.2), and that require a sidewalk, path, or shoulder on all streets (TR Program 22.1). Extension of sidewalks and roadway widening across the SMART railroad corridor to Railroad Avenue and would realign the roadway such that the automatic gate arms would not be properly placed to prevent vehicular, bicycle, and pedestrian access across the railroad corridor when a train is approaching. As described previously, the City would fully comply with CPUC General Order Nos. 88-B, 72-B, and 75-D, which regulates modifications of railroad crossings, pavement construction at railroad grade crossings, and warning devices for at-grade crossings. Compliance with these regulatory orders would resolve potential impacts related to the performance and safety of bicycle and pedestrian facilities during operation, and the impact would be less than significant.

3.17 Utilities and Service Systems

	Potentially Significant Impact	Less-Than-Significant With Mitigation Incorporation	Less-Than-Significant Impact	No Impact
Would the Project:				
a. Exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board?				✓
b. Require or result in the construction of new water or wastewater treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?				✓
c. Require or result in the construction of new storm water drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?			✓	
d. Have sufficient water supplies available to serve the Project from existing entitlements and resources, or are new or expanded entitlements needed?				✓
e. 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?				✓
f. Be served by a landfill with sufficient permitted capacity to accommodate the Project's solid waste disposal needs?			✓	
g. Comply with federal, state, and local statutes and regulations related to solid waste?			✓	

a, b, d, e) Exceed Capacity of or Require New or Expanded Wastewater and Water Treatment Facilities – No Impact

The Project would not result in the short-term or long-term generation of wastewater requiring treatment. The Project would not require new or expanded water or wastewater treatment facilities. Therefore, the Project would not affect wastewater treatment requirements, require new water or wastewater facilities, or require expanded water supply entitlements. No impact would occur.

c) Require New or Expanded Storm Water Drainage Facilities – Less than Significant

The Project includes the improvement of the existing storm water drainage system within the area to accommodate 25-year storm flows and to reduce flooding issues. As stated in the Project Description, construction of the Project could require dewatering if water is present in the ditches. The flow would be diverted by placing coffer dams upstream and downstream of the active construction areas using sand bags, and directing flow through a pipe to discharge below the Project areas. There would not be an increase in discharge to the storm drain system, and therefore, no construction-related impact would occur.

Following construction, the Project would increase the currently undersized capacity of Olive Ditch from a peak flow of 50 cubic feet per second (cfs) to approximately 65 cfs. The reconfigured Olive Ditch would then be able to accommodate a 25-year storm event. A new box culvert would replace the existing culvert under Olive Avenue, which would connect to the new box culvert installed in Railroad Ditch. The Railroad Ditch box culvert would then connect to the existing culvert and headwall on the southern end. Both new culverts would be designed to convey flow from a 25-year storm event and would discharge to an existing storm drain system upstream of the Project area that also has capacity for a 25-year storm event (Army Corps 2001). Therefore, the Project would not exceed the capacity of the storm drain system or otherwise require construction of additional new or expanded facilities beyond that included in the Project. The operational impact would be less than significant.

f, g) Have Sufficient Landfill Capacity and Comply with Statutes Related to Solid Waste – Less than Significant

Solid waste collection services in the City are conducted under the Marin County Solid and Hazardous Waste Joint Powers Authority (JPA) comprised of all Marin County's cities and unincorporated areas. The JPA contracts collection, hauling, and solid waste disposal throughout the County. Solid waste is hauled by the Novato Disposal Service and taken to the Redwood Landfill, which is located three miles north of the City (Novato 1996). The permitted capacity at the Redwood Landfill is 2,300 tons per day. The remaining estimated capacity of 26,000,000 cubic yards (CalRecycle 2014).

Construction of the Project would include site excavation, grading or pavement cutting, and vegetation clearing. Therefore, there would be a temporary need for solid waste disposal during construction. Excavated soils would be used for backfill or hauled off-site for recycling or disposal as required by the City and County regulations (Novato 1994). As stated in Section 3.8, Hazards and Hazardous Materials, there is potential for contaminated soils to be encountered at the Project site, and therefore, soils to be disposed of would be tested for hazardous materials prior to disposal. Non-hazardous materials would be taken to an approved local disposal area, such as the Redwood Landfill. Although not anticipated, any excavated materials and construction debris found to contain unacceptable levels of hazardous materials would be hauled to a licensed disposal site. The amount of solid waste disposal needs for construction is approximately 250 cubic yards (CY) of construction waste. The Redwood Landfill facility has sufficient capacity to accept solid waste generated from Project construction. Therefore, the short-term solid waste disposal needs of the Project can be sufficiently accommodated by existing landfills, and the Project would be required to comply with applicable federal, state, and local statutes. Therefore, the construction-related impact would be less than significant.

Following construction, the Project would not require solid waste disposal and is not expected to have any effect on solid waste generation. No operational impact would occur.

3.18 Mandatory Findings of Significance

	Potentially Significant Impact	Less-Than-Significant With Mitigation Incorporation	Less-Than-Significant Impact	No Impact
Would the Project:				
a. Does the Project have the potential to 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, reduce the number or restrict the range of a rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory?		✓		
b. Does the Project have impacts that are individually limited, but cumulatively considerable? ("Cumulatively considerable" means that the incremental effects of a Project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects)?		✓		
c. Does the Project have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly?		✓		

Discussion

a, c) Less than Significant with Mitigation

With implementation of the mitigation measures imposed in this Initial Study/Proposed MND, the Project as a whole does not have the potential to degrade the quality of the environment, including fish or wildlife species or their habitat, plant or animal communities, important examples of the major periods of California history or prehistory, or adverse effects on human beings.

b) Less than Significant with Mitigation

Cumulative impacts are defined as "two or more individual effects which, when considered together, are considerable or which compound or increase other environmental impacts" (CEQA Guidelines Section 15355). Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time. For this Initial Study/Proposed MND, the cumulative project scenario has been evaluated using a list of past, present, and probable future projects producing related or cumulative impacts.

Table 3.18-1 lists the past, present, and reasonably foreseeable projects in the vicinity of the Project site that are considered for cumulative impacts. These projects may coincide in timing and duration with the proposed Project, and are located within a general geographic area in which they could contribute incremental environmental effects on the same resources as the Project.

Table 3.18-1: Projects Considered for Cumulative Impacts

Project Location	Project Description	Project Status	Vicinity to Project
Railroad Avenue from its northern extent to Rose Court	The Marin Sanitary District would install a parallel force main from the Marin Sanitary District's pump station located north of the intersection of Olive Avenue & Railroad Avenue to a point where the existing force main goes to gravity just south of the intersection of Railroad Avenue & Rose Court.	Construction anticipated to occur September – November 2014	Crosses through Project site
Redwood Boulevard to east of Railroad Avenue	The North Marin Water District will replace 1,000 LF of 12-inch water line with new 12-inch PVC main. The old pipeline will be abandoned in place. Local service lines (e.g., fire service, 4-inch to 6-inch water connections to fire hydrants, and service laterals) will be replaced. Construction of new water main (together with new laterals) will be included in City contract with option to remove from bid item. The new main will be installed with existing water main to remain in service. Reconnection and tie-ins to existing water meters & fire services will be completed by the Water District. An existing recycled water valve box will be raised to grade.	Would likely occur at same time as the Project	Crosses through Project site
Novato Boulevard between Diablo Avenue and Grant Avenue	City capital improvement project to widen, including bicycle lanes, portions of Novato Boulevard between Diablo Avenue and Grant Avenue	Undergoing environmental review; construction schedule not set	0.5 mile southwest of the Project site
7474 Redwood Boulevard	New car wash and above ground propane tank	Use Permit approved on Jan. 23, 2014. Design Review	Adjacent to Project site

Table 3.18-1: Projects Considered for Cumulative Impacts

Project Location	Project Description	Project Status	Vicinity to Project
		approved March 12, 2014. Building permit reviewed by Planning. Construction schedule is unknown.	
7505 Redwood Boulevard	Remodel of existing commercial tenant space for a new restaurant	No building permits submitted; construction schedule is unknown	Parcel is across the street from the Project site.
Various SMART improvements near Olive Avenue	Installation of new box culvert, approximately 60 feet north of the railroad crossing at Olive Avenue; construction of new ditch and retaining wall; new box culvert along Railroad Ditch north of Olive Avenue and west of the railroad corridor	Permits have not been obtained; construction schedule is unknown	Adjacent

Source: Novato, personal communication; Novato 2014c.

The evaluation of potential impacts in Section 3 of this Initial Study concluded that the following environmental resource areas would result in no impact: Agricultural and Forest Resources, Mineral Resources, Population and Housing, Public Services, and Recreation. Because the Project would have no impact on these resource sections, it would not contribute to any related cumulative impacts.

As reported in this Initial Study, the Project may have temporary impacts on, or related to, nesting birds, jurisdictional wetlands and other waters, cultural resources, contaminated soil, construction-related noise, and construction-related traffic. It is assumed that the cumulative projects listed above could adversely affect some of the same biological and cultural resources, and create additional contaminated soil, construction-related noise and construction-related traffic impacts. Therefore, cumulative impacts could be significant, and the Project's impact could be cumulatively considerable. However, implementation of mitigation measures imposed in this Initial Study/Proposed MND would serve to reduce the potential impacts from the Project to less-than-significant levels. In addition, each of the cumulative projects would be required to comply with applicable regulations, plans, policies, and ordinances intended to protect the environment and public health, similar to the project. Therefore, with implementation of these mitigation measures, the Project's contribution to cumulative impacts would not be cumulatively considerable.

4. Preparers

The following GHD team members prepared this Initial Study/Proposed MND.

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Appendix A, Habitat Assessment

Habitat Assessment

Olive Avenue Roadway and Drainage Improvements Project
Novato, Marin County, CA

FINAL

September 24, 2014

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Habitat Assessment
Olive Avenue Roadway and Drainage Improvements Project
Novato, Marin County

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SUMMARY

The proposed Olive Avenue Roadway and Drainage Improvements project, as depicted on the Project Construction Drawings, includes the following: a) installation of existing aboveground utilities in an underground joint utility trench, b) widening and improving Olive Avenue with associated sidewalks, c) replacing an existing culvert under Olive Avenue, and d) enclosing two open drainage ditches (Olive Ditch and Railroad Ditch), into culverts.

This Habitat Assessment presents the findings of our review of scientific literature and reports detailing previous studies conducted in the area, and the California Department of Fish and Wildlife's (CDFW) Natural Diversity Data Base (CNDDB) for reported occurrences of special-status vegetation communities, plants and animals.

Three vegetation community types occur on the property: ruderal non-native grassland, freshwater emergent wetland, and landscaped and developed areas. All of the vegetation community types are non-native types, although a few native plants are present in the grassland and wetland areas.

As part of this Habitat Assessment, we conducted a site visit of all habitats on the site to evaluate the potential for occurrence of 29 special-status plant species, and 30 special-status wildlife species. No focused surveys for animals were conducted for this assessment. Plant surveys were conducted to determine the presence or absence of any special status plants or potential habitat. Although the survey was conducted outside of the flowering season for many special status plants, the ruderal, urban and disturbed nature of the existing plant communities ruled out the likelihood of any special status plants occurring in the project area. A formal delineation of water of the U.S., including wetlands, was also conducted. A separate delineation report will be submitted to the U.S. Army Corps of Engineers for their verification.

Based on the literature review, presence of drainages on site, seasonal periods of bird nesting and bat maternity roosting activity and limitations of the surveys conducted for this assessment, the following are action items to be addressed prior to ground breaking:

- Obtain a Section 404 Nationwide Permit from the U.S. Army Corps of Engineers, and a 401 Water Quality Certification from the North Coast Regional Water Quality Control Board, and contact the California Department of Fish and Wildlife to see if a Streambed Alteration Agreement is needed for work in any of the drainages.
- A nesting bird survey should be conducted within one week of the removal of tree nesting habitat, unless removal occurs after August 15 and before March 1.

INTRODUCTION

GHD contracted with Jane Valerius Environmental Consulting and Wildlife Research Associates to conduct a Habitat Assessment of the Olive Avenue Roadway and Drainage Improvements. The proposed project is located in the northern portion of the City of Novato, in the northern portion of Marin County, California. This habitat assessment was conducted to determine the potential for special-status vegetation communities, plant and animal species to occur within the proposed project and to identify the limitations to potential development of the project, such as: a) impacts to wetlands; and, b) habitat removal.

This Habitat Assessment is part of the preliminary analysis of both the existing environment and potential impacts from the proposed project as required under the California Environmental Quality Act (CEQA) for new projects. Federal and state agencies that have purview over biological resources include the following:

- U.S. Army Corps of Engineers (USACE),
- U.S. Fish and Wildlife Service (USFWS),
- National Marine Fisheries Service (NMFS),
- California Regional Water Quality Control Board (RWQCB), and the
- California Department of Fish and Wildlife (CDFW).

The USACE regulates the discharge of dredged or fill material into waters of the United States. Waters of the U.S. are defined as waters that are hydrologically connected to waters with interstate or foreign commerce, and include tributaries to any of these waters, and wetlands, which are areas that are inundated or saturated by surface water or groundwater at a frequency and duration sufficient to support vegetation typically adapted to life in saturated soil conditions. The USFWS has regulatory authority over federally listed plant and animal species. The NMFS, a division of the National Oceanic and Atmospheric Administration (NOAA), has regulatory authority over essential fish habitat, which is habitat necessary to maintain sustainable fisheries in the United States. The California RWQCB protects all waters with special responsibility for wetlands, riparian areas, and headwaters. The CDFW has regulatory authority over state listed plants and animals as well as streams and lakes within the State.

Site Location

The linear-shaped parcel is located in the northwestern portion of the City of Novato, west of Highway 101 and north of DeLong Avenue. The project will occur along Olive Avenue, between Redwood Boulevard, in the west, and Railroad Avenue, in the east, and along the west side of the railroad tracks, between Olive Avenue and Sweetser Avenue.

Site Conditions

Currently, Olive Avenue, between Redwood Boulevard and Railroad Avenue, is a two-lane roadway with a sidewalk and parking spaces on the south side of the street, and no parking or sidewalk on the north side.

Olive Ditch is an approximately 660 linear feet (LF) unlined and manmade ditch. In a 25-year storm event, Olive Ditch has a peak flow of 50 cubic feet per second (cfs), but overtops its northern bank at 25 cfs (Army Corps 2001). Upstream (i.e., west) of Redwood Boulevard, the Olive Avenue drainage basin has been undergrounded up to the intersection of Redwood Boulevard and Olive Avenue, at which point storm flow discharges through a 30-inch by 48-inch elliptical-shaped pipe to Olive Ditch (Army Corps 2001). Olive Ditch also receives flows from the Trader Joe's parking lot and from Railroad Ditch. An elliptical 69-foot long, 38-inch by 60-inch reinforced concrete pipe (RCP) conveys storm water flow under the Trader Joe's driveway. At Olive Avenue, flows are discharged into Railroad Ditch via a 72-inch by 48-inch elliptical corrugated metal pipe (CMP) under the railroad tracks. An existing 36-inch RCP conveys flows north-south under Olive Avenue.

Railroad Ditch is approximately 830 LF in the Project area. In the Project area, it is an unlined, manmade ditch between Olive Avenue and Sweetser Avenue. Railroad Ditch has a capacity of 30 cfs, which translates

to a 7-year-flood event; in a 25-year storm event peak flow is 72 cfs (Army Corps 2001). Railroad Ditch receives flow from the City's downtown area via an existing 3-foot by 5-foot reinforced concrete box culvert and discharges into the existing 36-inch RCP that crosses north-south under Olive Avenue. Downstream of Olive Avenue, and outside of the Project area, Railroad Ditch is an unlined, manmade ditch. Stormflow from the Project area eventually drains to Rush Creek, north of the Project site.

PROPOSED PROJECT

Project Overview

Project objectives identified by the City include:

- Replace approximately 1,490 feet of undersized storm water drainage facilities along Olive Avenue and the SMART Railroad (i.e., Olive Ditch and Railroad Ditch) to convey storm flows during 25-year storm events to alleviate localized flooding in the Project area.
- Replace the undersized culvert under Olive Avenue at the railroad crossing to convey 25-year storm flows.
- Underground overhead utilities along Olive Avenue between Redwood Boulevard and Plum Avenue.
- Widen Olive Avenue to include a center turn lane and parking along the north side of the roadway; accommodate bike lanes and sidewalks to improve public safety; and correct vertical curvature to improve sight distance at the railroad crossing.
- Rehabilitate the existing pavement along Olive Avenue between Redwood Boulevard and Railroad Avenue to improve roadway conditions.

Two roadway configurations, Concept Plan CP-1 (i.e., the proposed Project), and Alternate 1, are under consideration by the City for the Olive Avenue roadway work.

Project Specifics

Olive Avenue Utility Undergrounding

The Olive Avenue Utility Undergrounding component of the Project consists of undergrounding existing PG&E electrical power, Comcast cable, and Verizon phone lines between Redwood Boulevard and Railroad Avenue into an approximately 775 LF utility joint trench on the north side of Olive Avenue under the proposed sidewalk. The joint trench would be mostly installed via open trench construction, but would cross under the railroad tracks via trenchless construction to connect to an existing PG&E vault in Railroad Avenue. Typically the joint trench would be approximately 36-inches wide and 4- to 5-feet deep and contain 6-inch Comcast, 4-inch PG&E, and 4-inch Verizon conduits. The trench would be backfilled with native material to a compaction of 90 percent. An existing utility pole located on the south side of Olive Avenue near the railroad corridor would be relocated approximately 30 feet south along the railroad corridor.

Construction would also include installation of several subsurface junction boxes, vaults, and associated appurtenances for the various utilities. One subsurface duplex transformer would be installed in a 4.5-foot by 8.5-foot by 6-foot deep enclosure. All work would occur within the City's right-of-way (ROW). This Project component would only result in a marginal increase in impervious surface, but would resurface approximately 210 square feet of existing impervious surfaces.

Olive Avenue Widening and Olive Ditch Culvert Installation

Under the proposed Project (i.e., Concept Plan CP-1), Olive Avenue would be widened from approximately 40.5 feet to approximately 80 feet, and improved to accommodate sidewalks (5-feet wide on the north side and 10-feet wide on the south side), curb and gutter, 8-foot parking lanes, 5-foot Class II bike lanes, and 12-foot travel lanes on both sides of the street, with a center 11-foot two-way left turn lane (typical widths). Approximately 10 parking spaces would be added to the north side of the street, while parking on the south side would remain the same as under existing conditions. A new driveway would be constructed along the

north side of the street into the vacant parcel east of Trader Joe's (APN 143-011-08). The existing Trader Joe's driveway would relocated 50 feet west. The vacant parcel may be developed in the future, but no development is included in the proposed Project. The Olive Avenue sidewalk, curb, and gutter would be extended east across the railroad corridor to the intersection of Olive Avenue and Railroad Avenue, to provide a connection between the existing sidewalk to the east and the proposed Project improvements. The roadway and sidewalk crossing surfaces would consist of placing concrete panels across the tracks. New AC pavement would be overlaid on a portion of Railroad Avenue to conform the new Olive Avenue improvements to the existing roadway. New sidewalk striping would be painted along the Railroad Avenue and Olive Avenue intersection. Extension of the sidewalk, curb and gutter on the north side of Olive

Olive Ditch would be enclosed into an approximately 650 LF 38-inch by 60-inch reinforced elliptical RCP culvert, designed to convey flow from a 25-year storm event. On the west end the culvert would connect to the existing culvert under Redwood Boulevard. On the east end, the culvert would terminate just west of the railroad corridor into the open segment of Railroad Ditch north of Olive Avenue. The existing 38-inch by 60-inch culvert under the existing Trader Joe's driveway would be removed and existing and new drainage inlets located along Olive Avenue would be connected to the new Olive Ditch culvert. The new culvert would be designed to convey flow from a 25-year storm event, including any new flow that may result from the widening of Olive Avenue. All work would occur within the City's ROW.

Under Alternate 1, Olive Avenue would be reconfigured to include 5-foot Class II bike lanes, 11-foot-wide travel lanes on both sides of the street, with a center 12-foot two-way left-turn lane (typical widths). On the south side of the street, the existing 10.5-foot sidewalk would remain, and the existing 10 parking spaces would be removed. On the north side of the street, Olive Ditch would be relocated approximately 10 feet north and would be reduced to 13-feet wide (compared to existing 20.5-foot width) to accommodate the westbound vehicle and bike lanes. The reconfigured Olive Ditch would have an approximate flow capacity of 65 cfs, and could accommodate a 25-year storm event. North of the relocated drainage ditch, a 5-foot wide sidewalk would be constructed. The utility joint trench design would remain the same as described under the proposed Project. All work would occur within the City's ROW.

Under both the Project and Alternate 1, the existing north-south oriented 36-inch RCP culvert under Olive Avenue would be removed and replaced with a new 56 LF segment of 5-foot by 3-foot concrete box culvert, which would connect to the new culvert installed in Railroad Ditch under the Railroad Ditch Culvert component of the Project. The new culvert is designed to convey flow from a 25-year storm event. Under the Project as proposed, this Project component would result in approximately 0.67 acre of new impervious surface (1.4 acre for new and resurfaced existing impervious surfaces combined). Under Alternate 1, Olive Avenue widening and Olive Ditch culvert installation would result in slightly less acreage of new impervious surface, because Olive Ditch would be reduced in width, but would remain unpaved and pervious.

Railroad Ditch Culvert Installation

In this Project component, a 5-foot by 3-foot concrete box culvert would be installed in approximately 830 LF of Railroad Ditch from Sweetser Avenue to Olive Avenue. The new culvert would connect to the existing 30-inch culvert and headwall on the southern end. The northern end of the new culvert would terminate just south of Olive Avenue, connecting to the new 5-foot by 3-foot culvert segment installed under Olive Avenue as part of Olive Avenue Widening and Culvert Installation, described above. The new culvert is designed to convey flow from a 25-year storm event. Construction of this Project component would require working within the SMART ROW. It is anticipated that some area drains would be connected to the new box culvert. Conservatively, this Project component would result in approximately 0.27 acre of new impervious surface if the entire area is paved after culvert installation.

Project Construction

Construction of the utility undergrounding is anticipated to tentatively commence in April 2015 and require approximately eight months to complete all three Project components (one month for utility undergrounding, four months for Olive Avenue widening and Olive Ditch culvert installation, and three months for Railroad

Ditch culvert installation). It is possible that the Project components may be constructed under separate contracts and separate construction schedules. Construction activities within the banks of the drainage ditches would be performed between the months of June 15 and October 15 when flow would be lowest. Typical daily construction hours would be between 8:00 a.m. and 5:00 p.m., Monday through Friday.
The majority of the Project would take place within the City ROW, although temporary ROW access would be required from SMART for work occurring within the railroad corridor and SMART ROW.

Construction Zone, Access, and Staging Areas
The construction zone would be approximately 4.0 acres in size. During construction, worker vehicles and haul trucks would access the Project area from U.S. Highway 101 and local City streets, including Olive Avenue, Redwood Boulevard, Railroad Avenue, and Sweetser Avenue.

A staging area for construction equipment and supplies would be located in the empty parcel to the east of the Trader Joe's shopping center, or along the incomplete portion of Railroad Avenue. The staging area would be used by contractors for construction-related equipment, materials storage, and stockpiling. The staging area would be fenced for security. After the Project is completed, the staging area would be restored and/or revegetated as necessary to return the site to pre-Project conditions.

Dewatering
Construction activities within the drainage ditches would be performed between June 15 and October 15, which would correspond to times when there is little or no precipitation and when flow would be lowest. If water is present in the ditches, the flow would be diverted by placing coffer dams upstream and downstream of the active construction areas using sand bags, and directing flow through a pipe to discharge below the Project areas. The face of the sand bag coffer dams would be lined with 10-mil poly sheeting to prevent seepage.

Because the ditches are relatively flat, bypass flows would be piped around the construction areas by pumping using a 50 horsepower, noise-attenuated diesel powered pump or an electric sump pump with a diesel generator staged away from the ditches.

The length of the bypass pipe would be the minimum necessary to safely convey the flow through the construction site, and would be placed in the bed of the ditches at natural grade. Diverted flows would be returned to the ditches immediately downstream of the work area. Once any upstream flow is diverted, any standing water within the construction area would be pumped out of the ditch and discharged nearby (e.g., vacant parcel, Railroad Ditch north of Olive Avenue) to the ground to allow for infiltration into the ground. Upon completion of the Projects, the diversion pipe and coffer dam material would be removed from the channel.

Tree Removal, Revegetation and Site Restoration
Tree removal is not anticipated for this Project. Street trees along the south side of Olive Avenue would remain and would be protected during construction. Clearing and grubbing would be required prior to culvert installation and roadway widening. Following completion of construction, any areas within the construction zone altered by construction activities would be restored to at or near pre-construction contours. Pavement over disturbed areas would be replaced, and soil would be revegetated.

Joint Utility Trench Construction

Open Trench Construction
The majority of the joint utility trench would be constructed using open trench construction. The open trench construction method involves clearing the ground of vegetation within the work area; grading or pavement cutting; excavation and potential shoring of the trench; installation of the pipe bedding, pipeline, valves and appurtenances; backfilling of the trench; and restoration of the ground surface.

Installation of the pipelines would require a minimum 3-feet wide by 4- to 5-foot deep trench. Dewatering of the trench would be required in areas where groundwater is encountered (as described above in Section 1.6.1.3). Once the trench is excavated, shored (if necessary), and dewatered (if necessary), bedding material (i.e. sand) would be placed in the bottom of the trench, and the conduit sections would be installed. Native material would be reused to backfill the trench where feasible based on the geotechnical recommendations. Engineered aggregate base material would also be used for backfill. Following compaction, the work surface area would be restored to its preconstruction or close to preconstruction condition.

Trenchless Construction

Trenchless construction would be utilized to install the utility conduit under the railroad tracks. Jack and bore installation is a tunneling process that would install the conduit simultaneously with the excavation process in sending and receiving pits located on either side of the railroad tracks, within the City ROW. Sending and receiving pits would be approximately 38 feet by 12 feet, and up to 10 feet deep. A temporary horizontal jacking platform and a starting alignment track in an entrance pit would be constructed in the sending pit at the desired elevation. A steel casing pipe is then jacked by manual control along the starting alignment track with simultaneous excavation of the soil being accomplished by a rotating cutting head. This process may require the use of drilling slurry1. The ground up soil (spoil) would be transported back to the entrance pit by a drill rotating inside the pipe. After the casing pipe is installed, the new conduit would be installed through the casing and the ends of the casing would be sealed.

Culvert Installation

To install the Olive Ditch culvert, the drainage ditch would be cleared of vegetation and graded for level placement of the culvert. Prefabricated 35-foot concrete sections would be placed into the drainage ditch using a small crane. Once the culvert is installed, the ditch would be backfilled with native soil, graded to conform to the new roadway surface, and paved.

The existing north-south culvert running under Olive Ditch would be replaced when the roadway widening and sidewalk installation are under construction. After removing the existing culvert, if a prefabricated concrete culvert section is utilized, it would be installed using a small crane located on the railroad tracks. Alternatively, the culvert could be cast-in-place concrete. Once the culvert is installed, the ditch would be backfilled with native soil, graded to conform to the new roadway surface, and paved.

The Railroad Ditch culvert would consist of either prefabricated approximately 25-foot concrete sections, or cast-in-place concrete. Prior to culvert installation, the drainage ditch would be cleared of vegetation and graded as necessary for level placement of the culvert. If prefabricated culvert sections are utilized, the sections would be installed using a small crane located on the railroad tracks. Once installed, the ditch would be backfilled with native soil to conform to surrounding grade of the adjacent industrial lots to the west. In areas with existing pavement, the culvert would be backfilled with native soil, Class II aggregate base, and paved to match the existing roadway section.

Haul Volumes and Truck Trips

The number of construction-related vehicles traveling to and from the Project would vary on a daily basis. As shown in Table 1 below, it is estimated that Project construction would result in the demolition and off-haul of approximately 250 cubic yards (CY) of construction waste, including concrete, asphalt concrete, and miscellaneous waste including vegetation, and any soil unsuitable for re-use as fill. In addition, approximately 2650 CY of construction materials would be required for the Project, including concrete, asphalt concrete, aggregate base, and fill material. Based on the estimated demolition and construction volumes, the Project is estimated to require approximately 24 haul trips during the demolition process (assuming the use of 12 CY capacity haul trucks) and approximately 284 delivery truck trips during construction process (assuming the use of 8 CY haul trucks for concrete and 12 CY capacity haul trucks for other materials). It is anticipated that cut/fill quantities would be balanced and soil off-haul would not be

1 Drilling slurry is sometimes used to facilitate the drilling process by controlling pressure, cooling and lubricating the bore hole, and suspending cuttings. Drilling slurry can be water-, oil- or synthetic-based. The slurries most commonly used are bentonite based, which is a naturally-occurring clay known for its hydrophilic characteristics.

required. However, if required, any remainder of excavated soil would be disposed of at the Redwood Landfill in Novato, or another approved landfill or disposal area.

Table 1 – Estimated Haul Volumes and Truck Trips
Utility Undergrounding, Roadway Widening and Culvert Installation at Olive Avenue + Railroad Ditch

Material	Cubic Yards	Estimated Haul Truck Trips (Assuming 12 CY Truck and 8 CY concrete truck)
Demolition (Utility Undergrounding, Roadway Widening and Culvert Installation at Olive Avenue + Railroad Ditch Culvert Installation)		
Concrete	100 + 0	9 + 0
Asphalt/Concrete	50 + 0	5 + 0
Miscellaneous Demolition Waste	50 + 50	5 + 5
Total	***200 + 50***	***19 + 5***
Construction (Utility Undergrounding, Roadway Widening and Culvert Installation at Olive Avenue + Railroad Ditch Culvert Installation)		
Concrete	200 + 300	25 + 38
Asphalt Concrete	850 + 50	107 + 7
Aggregate Base (fill)	800 + 50	67 + 5
Pipeline Conduits and Appurtenances	50 + 0	5 + 0
Culverts	350 + 0	30 + 0
Total	***2250 + 400***	***234 + 50***

Construction Workers and Equipment
The estimated size of the construction workforce at any one time during construction is anticipated to range between 6 to 10 workers per day. Generally, construction equipment required to construct the Project would include the following:

- On-road hauling truck (8)
- Large excavator (2)
- Medium-sized front loader (2)
- Water truck (1)
- Sweeper (1)
- Traffic control message boards (2)
- Sheep's foot compactor (1)
- Smooth drum roller (1)
- Backhoe (small) (1)
- Paving machine (1)
- Paving roller (2)
- Jack and Bore Machine (1)

METHODS

Information on special-status plant and animal species was compiled through a review of the literature and database search. Based on the size of the proposed project, database searches for known occurrences of special-status species focused on the Novato and Petaluma River U.S. Geologic Service 7.5-minute topographic quadrangles, within a three mile radius around the proposed project area. The following sources were reviewed to determine which special-status plant and wildlife species have been documented in the vicinity of the project site:

- U.S. Fish and Wildlife Service (USFWS) quadrangle species lists (USFWS 2014)
- USFWS list of special-status animals for Sonoma County (USFWS 2014)
- California Natural Diversity Database records (CNDDB) (CDFW 2014)
- California Department of Fish and Wildlife's (CDFW) Special Animals List (CDFW 2014),
- State and Federally Listed Endangered and Threatened Animals of California (CDFW 2014)
- California Native Plant Society (CNPS) Electronic Inventory records (CNPS 2014)
- California Department of Fish and Game (CDFG) publication "California's Wildlife, Volumes I-III" (Zeiner, et al., 1990)
- CalFish IMAPS Viewer (www.calfish.org/DataandMaps/CalFishGeographicData) (CDFW 2014)

Botanical nomenclature used in this report conforms to Baldwin, et al. (2012) for plants and to Sawyer et al. (2009) for vegetation communities. Nomenclature for special-status animal species conforms to CDFW (2013).

Wetland Delineation: A formal delineation of wetlands and waters of the U.S. and state was conducted on July 9, 2014 (Jane Valerius Environmental Consulting 2014). The delineation was conducted according to the 1987 Corps of Engineers *Wetlands Delineation Manual* (Environmental Laboratory 1987), the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region* (U.S. Army Corps of Engineers (2008), and U.S. Army Corps of Engineers, San Francisco District (2007) guidelines.

Site Survey: Jane Valerius, Jane Valerius Environmental Consulting, and Trish Tatarian, Wildlife Research Associates, conducted a site assessment of the habitats on the site and within 1 mile of the site on July 9, 2014, between the hours of 0930 and 1130.

The project area was evaluated for suitable bird nesting habitat using 8 x 42 roof-prism binoculars, noting presence of old bird nests. The reconnaissance-level site visit was intended only as an evaluation of on-site and adjacent habitat types; no special-status species surveys were conducted as part of this effort as winter is not a time of year in which surveys for nesting birds are valid.

EXISTING CONDITIONS

The project area is located within the San Francisco Bay Coastal Bioregion (Welsh 1994). This bioregion is located within central California and encompasses the San Francisco Bay and the Sacramento Delta, extending from the Pacific Ocean to the eastern portion of the tule marsh zone, which is defined by Highway 99 (Welsh 1994). Habitats within this bioregion include both mesic (moist) habitats, such as freshwater marsh, and xeric (dry) habitats, such as chaparral, and are typical of a Mediterranean type climate.

The proposed project site is located within the northern portion of the Novato topographic quadrangle. This unsectioned portion is within the Nicasio Rancheria. Topographically, the project site is located on a predominantly south- facing slope of Novato Valley that trends from north to south, at approximately 9 feet in elevation.

Urban development occurs on the south side of Olive Avenue, with semi-developed urban areas occurring to the north.

Drainages
The project site is located within the Rush Creek watershed, as depicted on the Rush Creek Watershed map (City of Novato 2014). The headwaters of Rush Creek are located in the City portion of Novato and flow north towards the Rush Creek. Rush Creek then flows north into Black John Slough, a saltmarsh located at the Sonoma and Marin county border, which then flows into the Petaluma River and into San Pablo Bay.

The Olive Avenue Ditch, Railroad Ditch, and the unnamed ditch are hydrologically connected to Rush Creek. As a result, the ditches are classified under the jurisdiction of the USACE and state RWQCB. The Olive Avenue ditch is 7 to 8 feet wide at the ordinary high water mark (OHWM) and the Railroad Ditch varies from 4 to 8 feet wide at the OHWM. Based on the delineation that was conducted (Jane Valerius Environmental Consulting 2014), approximately 0.106 acres of wetlands was delineated for the Olive Avenue Ditch, 0.034 acres of wetland for the Railroad Ditch, and 0.006 acres for an unnamed ditch along the east side of the railroad tracks, north of Olive Avenue. Approximately 0.061 acres of the Railroad Ditch did not meet the wetland criteria and was mapped as other waters of the U.S. Approximately 0.006 acres of other waters was also mapped for the unnamed ditch.

Vegetation Communities
Three vegetation communities occur within the project study area: ruderal non-native grassland, freshwater emergent wetland, and landscaped and developed areas. These types are further described below.

Ruderal non-native grassland occurs in the proposed staging area east of the Trader Joe's market and parking lot and along the top of bank of the ditches within the project area. Plant species associated with this type include non-native weedy forb species such as pricky lettuce (*Lactuca serriola*), wild radish (*Raphanus sativus*), bristly ox-tongue (*Helminthotheca echioides*), chichory (*Cichorium intybus*), fennel (*Foeniculum vulgare*), mustard (*Brassica nigra*), Italian thistle (*Carduus pycnocephalus*), English plantain (*Plantago lanceolata*) and bindweed (*Convolvulus arvensis*). Non-native grasses observed include wild oats (*Avena barbata*), Harding grass (*Phalaris aquatica*), ryegrass (*Festuca perennis*), hare barley (*Hordeum murinum* ssp. *leporinum*), ripgut brome (*Bromus diandrus*), soft chess (*Bromus hordaeceus*), and Bermuda grass (*Cynodon dactylon*). Native species observed include California poppy (*Eschscholzia californica*), spikeweed (*Centromadia pungens*) and scattered individual shrubs of coyote brush (*Baccharis pilularis*). Valley oak (*Quercus lobata*), coast live oak (*Quercus agrifolia*), and black walnut (*Juglans hindsii*) trees were also observed along the ditch north of the Trader Joe's parking lot.

Freshwater emergent wetland is associated with the Olive Avenue Ditch and Railroad Ditch. Wetland plant species associated with these ditches include cattails (*Typha latifolia*), hardstem bulrush (*Schoenoplectus acutus*), nut sedge (*Cyperus eragrostis*), Dallis grass (*Paspalum dilitatum*), knotweed (*Polygonum* sp.), curly dock (*Rumex crispus*) and water plantain (*Alisma trivale*). Himalayan blackberry (*Rubus armeniacus*) and thornless blackberry (*Rubus* sp.) were also observed along the drainage ditches.

Landscaped and developed areas occur along the Olive Avenue and at the businesses located adjacent to the railroad. Plant species noted in these area included landscape and garden plant such as agapanthus (*Agapanthus* sp.), iris (*Iris* sp.), maple (*Acer* sp.), magnolia (*Magnolia* sp.), olive (*Olea europea*), rose (*Rosa* sp.), and coast redwood (*Sequoia sempervirens*).

Wildlife Habitats
The value of a site to wildlife is influenced by a combination of the physical and biological features of the immediate environment. Species diversity is a function of diversity of abiotic and biotic conditions and is greatly affected by human use of the land. The wildlife habitat quality of an area, therefore, is ultimately determined by the type, size, and diversity of vegetation communities present and their degree of disturbance. Wildlife habitats are typically distinguished by vegetation type, with varying combinations of plant species providing different resources for use by wildlife. The following is a discussion of the wildlife

species supported by the on-site habitats, as described by *A Guide to Wildlife Habitats of California* (Mayer and Laudenslayer 1988) with updates from 2005.

Non-native grasslands. Grassland habitat, such as non-native grasslands, provides both primary habitat, such as nesting and foraging, and secondary habitat, such as a movement corridor. Small species using this habitat as primary habitat include reptiles and amphibians, such as southern alligator lizard (*Gerrhonotus multicarinatus*), western fence lizard (*Sceloporus occidentalis*), and Pacific slender salamander (*Batrachoseps attenuatus*), which feed on invertebrates found within and beneath vegetation and boulders within the vegetation community. This habitat also attracts seed-eating and insect-eating species of birds and mammals. California quail (*Lophortyx californicus*), mourning dove (*Zenaidura macroura*), and meadowlark (*Sturnella neglecta*) are a few seed-eaters that nest and forage in grasslands. Insect-eaters such as scrub jays (*Aphelocoma coerulescens*) use the habitat for foraging only. Grasslands are important foraging grounds for aerial and ground foraging insect-eating bat species such as myotis (*Myotis* spp.) and pallid bat (*Antrozous pallidus*). A large number of other mammal species such as California vole (*Microtus californicus*), deer mouse (*Peromyscus maniculatus*), Botta's pocket gopher (*Thomomys bottae*), California ground squirrel (*Spermophilus beecheyi*) and brush rabbit (*Sylvilagus bachmani*) also forage and nest within grasslands. Small rodents attract raptors (birds of prey) such as owls, as well as red-tailed hawks (*Buteo jamaicensis*) and red-shouldered hawks (*Buteo lineatus*), among others. Black-tailed deer (*Odoicoileus hemionus californicus*) use grassland for grazing and, if the grass is tall enough, for nesting at night. Coyotes (*Canis latrans*) and striped skunk (*Mephitis mephitis*) also inhabit the grassland.

This habitat occurs in Utility Undergrounding and Olive Avenue Widening and Culvert Installation, located north of the Olive Avenue Ditch. The open field, where the proposed utility trench and staging area will occur, is a ruderal vacant parcel that was weed-wacked at the time of the survey.

Freshwater emergent wetland. This transitional habitat occurs between terrestrial and aquatic systems where water tables are near the surface or land is covered by shallow water. The value of the habitat is dependent on the size and the duration of water at the site. For instance, a linear drainage ditch can provide breeding habitat to amphibians if water is present until metamorphosis occurs, which typically occurs in this portion of California between July and August. However, if the drainage ditch is too shallow, < 12 inches, the water will be too warm for tadpoles to survive unless abundant emergent vegetation occurs. Also, the water will evaporate prior to metamorphosis, and no protection from predation is afforded by the shallow water. Linear features, such as a drainage ditch, can provide a movement corridor between water bodies after the winter rains have ceased.

This habitat occurs primarily in Olive Avenue Widening and Culvert Installation Project area, along Olive Avenue Ditch and the Railroad Ditch. The Olive Avenue drainage ditch is 7 to 8 feet wide and there was no water at the time of the site visit. However, it appears that the ditch does not sustain water beyond the rainy season. The Railroad drainage ditch varies from 4 to 8 feet wide and also does not provide water during the spring season beyond the rainy season. There are no water bodies, such as ponds or reservoirs, for amphibians to move to through the project area. As a result, the freshwater emergent wetland on site holds very little habitat for wildlife.

Outside the project area, approximately 450 feet north, Rush Creek supports water with cattails, willows and other riparian vegetation. Water at the time of the July, 2014, survey appeared to be approximately 6-12 inches deep and 5 feet in width. Mosquitofish (*Gambusia affinis*) were observed. No other freshwater habitat occurs within the vicinity of the project site. Hidden Pond, located on Mount Burdell, is located 2.36 miles northeast of the project area with no hydrologic connection.

Movement Corridors

Wildlife movement includes migration (i.e., usually one way per season), inter-population movement (i.e., long-term genetic flow) and small travel pathways (i.e., daily movement corridors within an animal's territory). While small travel pathways usually facilitate movement for daily home range activities such as

foraging or escape from predators, they also provide connection between outlying populations and the main corridor, permitting an increase in gene flow among populations.

These linkages among habitat types can extend for miles between primary habitat areas and occur on a large scale throughout California. Habitat linkages facilitate movement among populations located in discrete areas and populations located within larger habitat areas. The mosaic of habitats found within a large-scale landscape results in wildlife populations that consist of discrete sub-populations comprising a large single population, which is often referred to as a meta-population. Even where patches of pristine habitat are fragmented, such as occurs with coastal scrub, the movement between wildlife populations is facilitated through habitat linkages, migration corridors and movement corridors. Depending on the condition of the corridor, genetic flow between populations may be high in frequency, thus allowing high genetic diversity within the population, or may be low in frequency. Potentially low frequency genetic flow may lead to complete isolation, and if pressures are strong, potential extinction (McCullough 1996; Whittaker 1998).

The project location is considered to be within the Central Coast Ecoregion of the California Essential Habitat Connectivity Project (Spencer, et al. 2010). No Natural Landscape Blocks (i.e., large, relatively natural habitat blocks that support native biodiversity), or Essential Connectivity Areas (i.e., areas essential for ecological connectivity between Natural Landscape Blocks) are identified in this portion of Marin County, based on the project area being located within the City of Novato (Spencer, et al. 2010). Rush Creek is not identified as a Key Riparian Corridor (Penrod, et al. 2013).

Wildlife connectivity of this site to other open lands in the area occur for those animals that live in urban and semi-urban habitats, such as raccoon and opossum. Major barriers to movement of small wildlife species are Highway 101 on the east and Redwood Boulevard on the west.

There is hydrologic connection to Rush Creek from the drainage ditch on-site, with no barriers to movement along this corridor. Further north, however, 784 linear feet of pipe occur between Rush Creek on the east side of HWY 101 and Rush Creek on the east side of Binford Road, where it becomes as saline emergent wetland. As a result, there is no suitable habitat for aquatic species coming from the saline emergent wetland of Jack Slough and no habitat in jack Slough for freshwater aquatic species. There is too much urbanization between Rush Creek and other creeks in the vicinity, such as Novato Creek.

SPECIAL-STATUS BIOLOGICAL RESOURCES

Certain vegetation communities, and plant and animal species are designated as having special-status based on their overall rarity, endangerment, restricted distribution, and/or unique habitat requirements. In general, special-status is a combination of these factors that leads to the designation of a species as sensitive. The Federal Endangered Species Act (FESA) outlines the procedures whereby species are listed as endangered or threatened and established a program for the conservation of such species and the habitats in which they occur. The California Endangered Species Act (CESA) amends the California Fish and Wildlife Code to protect species deemed to be locally endangered and essentially expands the number of species protected under the FESA.

Special-status Vegetation Communities

Sensitive natural communities are those that are considered rare in the region, may support special-status plant or wildlife species, or may receive regulatory protection (i.e., through Section 404 of the Clean Water Act [CWA] and/or Sections 1600 et seq. of the California Fish and Wildlife Code). Please refer to Appendix A for detailed descriptions of waters and wetlands. In addition, sensitive natural communities include plant communities that have been identified as having highest inventory priority in the California Natural Diversity Database (CNDDB). The second edition of *A Manual of California Vegetation* (Sawyer, et al. 2009) also provides the rarity ranking status of these communities.

The emergent freshwater wetland within the Olive Avenue and railroad ditches is not a special status community type but is a sensitive natural community because it is a wetland type. Wetlands are by definition

sensitive as they provide important functions and values such as wildlife habitat, sediment and toxicant reduction, and wildlife corridors. Wetlands are regulated by state and federal agencies.

Special-status Plant Species
Special-status plant species are those species that are legally protected under the federal Endangered Species Act (ESA) and/or the California Endangered Species Act (CESA) as listed or proposed for listing as threatened or endangered, as well as species that are considered rare by the scientific community. For example, the California Native Plant Society (CNPS) has identified some species as Rank 1 or 2 species and may be considered rare or endangered pursuant to Section 15380(b) of the State CEQA Guidelines. The CDFW has compiled a list of "Special Plants" (CDFW 2013), which include California Special Concern species. These designations are given to those plant species whose vegetation communities are seriously threatened. Although these species may be abundant elsewhere they are considered to be at some risk of extinction in California. Although Special Concern species are afforded no official legal status under FESA or CESA, they may receive special consideration during the planning stages of certain development projects and adverse impacts may be deemed significant under the California Environmental Quality Act (CEQA).

A total of 29 special-status plant species have been reported occurring on the two topographic quadrangles (CNDDB 2014). Please refer to Appendix B for a list of these species and their potential for occurrence. Surveys for special status plants was conducted on July 9, 2014. However, the timing of the survey was conducted outside of the flowering period for many of the special status plants known to occur in the area.. Many species were considered to have no potential to occur either because these species are restricted to areas with serpentinite, volcanic, rocky, sandy or clay soils and these substrates are lacking within the project area, or the species occurs in habitats not present within the project area such as chaparral, lower montane coniferous forest, North Coast coniferous forest, coastal bluff scrub, coastal prairie, coastal scrub and vernal pools. No special-status plants were noted during the plant surveys conducted in 2014. Plant species that have the potential to occur, based on the presence of potential grassland and emergent marsh habitat, are not expected or likely to occur given the ruderal, urban and disturbed nature of the plant communities being dominated by non-native and weedy species. No further plant surveys are recommended.

Special-status Animal Species
Special-status animal species include those listed by the USFWS (2013) and the CDFW (2013). The USFWS officially lists species as either Threatened or Endangered, and as candidates for listing. Additional species receive federal protection under the Bald Eagle Protection Act *(e.g.*, bald eagle, golden eagle), the Migratory Bird Treaty Act (MBTA), and state protection under CEQA Section 15380(d). In addition, many other species are considered by the CDFW to be species of special concern; these are listed in Remsen (1978), Williams (1986), and Jennings and Hayes (1994). Although such species are afforded no official legal status, they may receive special consideration during the planning and CEQA review stages of certain development projects. The CDFW further classifies some species under the following categories: "fully protected", "protected fur-bearer", "protected amphibian", and "protected reptile". The designation "protected" indicates that a species may not be taken or possessed except under special permit from the CDFW; "fully protected" indicates that a species can be taken for scientific purposes by permit only.

Of the 26 special-status animal species identified as potentially occurring in the vicinity of the project area, including a 3 mile radius (CNDDB 2014), several additional species were evaluated for their potential to occur within the study area, based on: 1) review of the CNDDB, 2) the "Special Animals" list (CDFW 2014) that includes those wildlife species whose breeding populations are in serious decline, and 3) the habitat present on site. See Appendix C for a list of the 30 species evaluated.

Several of these species are prominent in today's regulatory environment and and are discussed below. This document does not address impacts to species that may occur in the region but for which no habitat occurs on site, such as serpentine habitat, saline emergent wetland habitat and marine habitat.

Central California Coast steelhead (*Oncorhynchus mykiss irideus*) is federally listed as Threatened and Critical Habitat has been identified (USFWS 2005). Winter steelhead enter streams from the ocean when rains have increased the stream flows (Moyle 2002). Spawning typically occurs in tributaries to mainstream rivers, after which they return to the ocean. A key characteristic of all breeding streams is cool temperatures, typically between 0° Celsius (winter) and 26°-27° C (summer) (Moyle 2002). Higher temperatures may reduce oxygen levels that are not population sustaining. Different size classes require different microhabitats that are defined by depth, water velocity, substrate and cover (Moyle 2002).

Project Area Occurrence: No surveys were conducted for this species as part of this habitat assessment. Based on the lack of suitable water depth and cover, the drainages within the study area are unsuitable. No further analysis is required.

California red-legged frog (*Rana draytonii*) is a federally Threatened species with Critical Habitat in the eastern portion of Santa Rosa. California red-legged frog is typically found in streams, marshes, and ponds, and is generally associated with aquatic habitats with at least two feet of water depth and nearby plant cover. Preferred stream habitats are usually reaches with slow moving water or pools with emergent or overhanging vegetation. Plunge pools or pools created by log jams or root masses are also important habitat features.

Project Area Occurrence: No surveys were conducted for this Habitat Assessment. The site is within the range of the species. However, the site does not support, a) essential aquatic habitat (comprised of breeding and non-breeding habitat with a minimum depth of 20 inches for at least 4 months), b) associated uplands (within 300 feet of suitable aquatic habitat), or c) dispersal habitat connecting two or more essential aquatic habitats that is barrier free. Water does retain long enough in the creek for metamorphosis. There are no ponds or reservoirs nearby into which frogs could move across the project area. Therefore, the habitat within the study area is unsuitable for California red-legged frog. No further analysis is required.

Western pond turtle (*Emys marmorata*) is listed by the CDFW as a California Species of Special Concern. It originally inhabited many of the pacific drainage basins in California (Stebbins 1985). This medium sized turtle ranges in size to just over 8 inches (21cm) with a low carapace that is generally olive, brownish or blackish (Stebbins 1985, Jennings and Hayes 1994). Primary habitats include permanent water sources such as ponds, streams and rivers. It is often seen basking on logs, mud banks or mats of vegetation, although wild populations are wary and individuals will often plunge for cover after detecting movement from a considerable distance. Although it is an aquatic species with webbed feet, it can move across land in response to fluctuating water level, an apparent adaptation to the variable rainfall and unpredictable flows that occur in many coastal California drainage basins (Rathbun, *et al*. 1992).

Project Area Occurrence: No surveys were conducted for this species as part of this habitat assessment. This species is not expected to occur within the southern portion of Rush Creek based on the shallow depth of the creek. No further analysis is required.

Nesting Passerines: As stated previously, passerines, protected under the MBTA and Fish and Wildlife Code 3503, have potential to nest within the proposed project area. Passerines (perching birds) potentially nesting in the small trees on site include Anna's hummingbird, and Bewick's wren (*Thryomanes bewickii*). As early as February, passerines begin courtship and once paired, they begin nest building, often around the beginning of March. Nest structures vary in shapes, sizes and composition and can include stick nests, mud nests, matted reeds and cavity nests. For example, black phoebes may build a stick nest under the eaves of a building. Depending on environmental conditions, young birds may fledge from the nest as early as May and, if the prey base is large, the adults may lay a second clutch of eggs.

Project Area Occurrence: No surveys were conducted for these species as part of this habitat assessment. There is a low chance that passerines may nest in the trees located on the upland area proposed for staging. Please refer to the Impacts and Mitigation Measures for details on avoidance measures of these nesting bird species.

IMPACTS AND MITIGATION MEASURES

This section summarizes the potential temporary biological impacts from construction activities within the study area. The analysis of these impacts is based on a single reconnaissance-level survey of the study area, a review of existing databases and literature, and personal professional experience with biological resources of the region.

CEQA Guidelines Sections 15206 and 15380 were used to determine impact significance. Impacts are generally considered less than significant if the habitats and species affected are common and widespread in the region and the state.

A species may be treated as rare or endangered even if it has not been listed under CESA or FESA. Species are designated endangered when it survival and reproduction in the wild are in immediate jeopardy from one or more causes, including loss of habitat, change in habitat, overexploitation, disease or other factors.

For the purposes of this report, three principal components in the evaluation were considered:

- Magnitude of the impact (e.g., substantial/not substantial)
- Uniqueness of the affected resource (rarity)
- Susceptibility of the affected resource to disturbance (sensitivity)

The evaluation of significance must consider the interrelationship of these three components. For example, a relatively small-magnitude impact (e.g., disturbing a nest) to a state or federally listed species would be considered significant because the species is at low population levels and is presumed to be susceptible to disturbance. Conversely, a common habitat such as non-native grassland is not necessarily rare or sensitive to disturbance. Therefore, a much larger magnitude of impact (e.g., removal of extensive vegetation) would be required for it to be considered a significant impact.

Drainages

Impacts: The project proposes to fill in the 660 linear feet of the Olive Avenue ditch and 830 linear feet of the Railroad ditch from Sweetser Avenue to Olive Avenue. The total area of wetland for these two ditches is 0.14 acres plus 0.061 acres of non-wetland other waters. There may also be impacts to the unnamed ditch with 0.006 acres of wetlands and 0.006 acres of non-wetland other waters.

Mitigation Measure: A permit will be required from the USACE and RWQCB for filling of the drainage ditches. Compensation for the permanent loss of wetland habitat may be compensated by either purchasing credits at an approved mitigation bank or by creating new wetlands on-site or off-site. If compensation is provided at either an on-site or off-site location, a wetland mitigation and monitoring plan will need to be developed in accordance with the USACE and RWQCB guidelines.

A Streambed Alteration Agreement from the CDFW may or may not be required as these drainage ditches are not natural streams, but they are connected to Rush Creek. It is recommended that CDFW be contacted to determine if they will take jurisdiction over these drainage ditches.

Special-Status Plants

No special status plants were found and none are likely to occur due to the dominance by non-native, weedy species and the urban and disturbed nature of the project. The project area lacks habitat for most of the special status plants likely to occur in the area and those that have some potential to occur were not observed during the July plant survey, which was conducted during the flowering period for these species (Appendix B).

Wildlife Movement Corridors
The project site is not considered a movement corridor for aquatic wildlife, based on an insufficient water source in the drainage ditch beyond the presence of water when it rains.

Terrestrial wildlife, such as striped skunk and deer, may use the upland habitat on the parcel; however, the fire control requirements within the urban limits negate the potential for animals to stay on the parcel for any significant duration.

Birds
Impact: Several passerine (perching birds) species observed on site, such as Anna's hummingbird, build stick nests in trees and shrubs. Disturbance during the nesting season (February 15- August 15) may result in the potential nest abandonment and mortality of young, which is considered a "take" of an individual.

Mitigation Measure: The following mitigation measures should be followed in order to avoid or minimize impacts to passerines and raptors that may potentially nest in the trees:

1) Grading or removal of nesting trees should be conducted outside the nesting season, which occurs between approximately February 15 and August 15, to the extent feasible.
2) If grading between August 15 and February 15 is infeasible and groundbreaking must occur within the nesting season, a pre-construction nesting bird (both passerine and raptor) survey of the grasslands and adjacent trees shall be performed by a qualified biologist within 7 days of ground breaking. If no nesting birds are observed no further action is required and grading shall occur within one week of the survey to prevent "take" of individual birds that could begin nesting after the survey.
3) If active bird nests (either passerine and/or raptor) are observed during the pre-construction survey, a disturbance-free buffer zone shall be established around the nest tree(s) until the young have fledged, as determined by a qualified biologist.
4) The radius of the required buffer zone can vary depending on the species, (i.e., 75-100 feet for passerines and 200-300 feet for raptors), with the dimensions of any required buffer zones to be determined by a qualified biologist in consultation with CDFW.
5) To delineate the buffer zone around a nesting tree, orange construction fencing shall be placed at the specified radius from the base of the tree within which no machinery or workers shall intrude.
6) After the fencing is in place there will be no restrictions on grading or construction activities outside the prescribed buffer zones.

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Figure 1-Project Location

Figure 2. Looking east from northern parcel showing ruderal, non-native grassland.

Figure 3. Looking southeast from northern parcel.

Figure 4. Culvert and drainage ditch at Olive and Redwood Avenues.

Figure 5. Olive drainage ditch looking east.

Figure 6. Olive drainage ditch looking west.

Figure 7. Olive ditch looking east.

Figure 8. Bowl at Olive Avenue on east side of SMART railroad crossing.

Figure 9. Railroad ditch looking south from Olive Avenue

Figure 10. Railroad ditch looking south with wetland vegetation.

Figure 11. Railroad ditch looking north with upland vegetation.

APPENDIX A: FEDERAL, STATE AND LOCAL PLANS, POLICIES, REGULATIONS AND ORDINANCES

Federal Endangered Species Act - U.S. Fish and Wildlife Service

Pursuant to ESA, the U.S. Fish and Wildlife Service (USFWS) has regulatory authority over federally listed species. Under ESA, a permit to "take" a listed species is required for any federal action that may harm an individual of that species. Take is defined under Section 9 of ESA as "to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or attempt to engage in any such conduct." Under federal regulation, take is further defined to include habitat modification or degradation where it would be expected to result in death or injury to listed wildlife by significantly impairing essential behavioral patterns, including breeding, feeding, or sheltering. Section 7 of ESA requires all federal agencies to consult with USFWS to ensure that their actions are not likely to "jeopardize the continued existence" of any listed species or "result in the destruction or adverse modification" of designated critical habitat. No federal approvals or other actions are anticipated as being required to implement the project at this time. Therefore, consultation under Section 7 of ESA is not expected. However, if USACE determines that wetlands and/or other waters of the United States on the project site are subject to protection under Section 404 of the CWA, or any other federal action becomes necessary, consultation under Section 7 of ESA would be required.

For projects where federal action is not involved and take of a listed species may occur, the project proponent may seek to obtain a permit for incidental take under Section 10(a) of ESA. Section 10(a) of ESA allows USFWS to permit the incidental take of listed species if such take is accompanied by a habitat conservation plan (HCP) that includes components to minimize and mitigate impacts associated with the take. The permit is known as an incidental take permit. The project proponent must obtain a permit before conducting any otherwise-lawful activities that would result in the incidental take of a federally listed species.

Sections 404 and 401 of the Clean Water Act - U.S. Army Corps of Engineers

USACE regulates the discharge of dredged or fill material into waters of the United States under Section 404 of the CWA. Waters of the United States are defined as waters where use, degradation, or destruction could affect interstate or foreign commerce, tributaries to any of these waters, and wetlands that meet any of these criteria or that are somehow connected to any of these waters or their tributaries. Wetlands are defined as areas that are inundated or saturated by surface water or groundwater at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted to life in saturated soil conditions. Wetlands falling under USACE jurisdiction must demonstrate the presence of three specific wetland parameters: hydric soils, hydrophytic vegetation, and sufficient wetland hydrology. Generally, wetlands include swamps, marshes, bogs, and similar areas. Lakes, rivers, and streams are defined as "other waters." Jurisdictional limits of these features are typically noted by the ordinary high-water mark (OHWM). The OHWM is the line on the shore or bank that is established by the fluctuations of water and indicated by physical characteristics, such as a clear, natural line impressed on the bank, shelving, changes in soils, lack of woody or terrestrial vegetation, the presence of litter or debris, or other characteristics of the surrounding areas.

Isolated ponds or seasonal depressions had been previously regulated as waters of the United States. However, in Solid Waste Agency of Northwestern Cook County (SWANCC) v. United States Army Corps of Engineers et al. (January 8, 2001), the U.S. Supreme Court ruled that certain "isolated" wetlands (e.g., nonnavigable, isolated, and intrastate) do not fall under the jurisdiction of the CWA and are no longer under USACE jurisdiction (although isolated wetlands are regulated by the State of California under the Porter-Cologne Water Quality Control Act—see discussion below). Some circuit courts (e.g., U.S. v. Deaton, 2003; U.S. v. Rapanos, 2003; Northern California River Watch v. City of Healdsburg, 2006), however, have ruled that the SWANCC opinion does not prevent CWA jurisdiction if a "significant nexus" such as a hydrologic connection exists, whether it be human-made (e.g., roadside ditch) or natural tributary to navigable waters, or direct seepage from the wetland to the navigable water, a surface or underground hydraulic connection, an ecological connection (e.g., the same bird, mammal, and fish populations are supported by both the wetland

and the navigable water), and changes to chemical concentrations in the navigable water due to water from the wetland.

Section 404 prohibits the discharge of dredged or fill material into waters of the United States (including wetlands) without a permit from USACE. With respect to the proposed project, the discharge of dredged or fill material includes the following activities:

- placement of fill that is necessary for the construction of any structure or infrastructure in a water of the United States;
- the building of any structure, infrastructure, or impoundment requiring rock, sand, dirt, or other material for its construction;
- site-development fills for recreational, industrial, commercial, residential, or other uses; and
- construction of causeways or road fills.

The regulations and policies of USACE, the U.S. Environmental Protection Agency (EPA), and USFWS mandate that the filling of wetlands be avoided unless it can be demonstrated that no practicable alternatives (to filling wetlands) exist. If the placement of fill into waters of the U.S., including wetlands, meets certain criteria the project be permitted under one of the Nation Wide Permits (NWP), which is an expedited permit process.

Section 401 of the CWA requires an applicant for any federal permit that may result in a discharge into waters of the United States to obtain a certification from the state that the discharge will comply with provisions of the CWA. The regional water quality control boards (RWQCBs) administer this program. Any condition of water quality certification would be incorporated into the USACE permit. The state has a policy of no net loss of wetlands and typically requires mitigation for impacts on wetlands before it will issue a water quality certification.

Waters of the State - California Regional Water Quality Control Board
The term "Waters of the State" is defined by the Porter-Cologne Act as "any surface water or groundwater, including saline waters, within the boundaries of the state." The Regional Water Quality Control Board (RWQCB) protects all waters in its regulatory scope, but has special responsibility for wetlands, riparian areas, and headwaters. These waterbodies have high resource value, are vulnerable to filling, and are not systematically protected by other programs. RWQCB jurisdiction includes "isolated" wetlands and waters that may not be regulated by the USACE under Section 404. "Waters of the State" are regulated by the RWQCB under the State Water Quality Certification Program which regulates discharges of fill and dredged material under Section 401 of the Clean Water Act and the Porter-Cologne Water Quality Control Act. Projects that require a USACE permit, or fall under other federal jurisdiction, and have the potential to impact "Waters of the State," are required to comply with the terms of the Water Quality Certification determination.

If a proposed project does not require a federal permit, but does involve dredge or fill activities that may result in a discharge to "Waters of the State," the RWQCB has the option to regulate the dredge and fill activities under its state authority in the form of Waste Discharge Requirements.

Streams, Lakes, and Riparian Habitat - California Department of Fish and Game
Streams and lakes, as habitat for fish and wildlife species, are subject to jurisdiction by CDFG under Sections 1600-1616 of the State Fish and Game Code. Alterations to or work within or adjacent to streambeds or lakes generally require a 1602 Lake and Streambed Alteration Agreement. The term stream, which includes creeks and rivers, is defined in the California Code of Regulations (CCR) as follows: "a body of water that flows at least periodically or intermittently through a bed or channel having banks and supports fish or other aquatic life. This includes watercourses having a surface or subsurface flow that supports or has supported riparian vegetation" (14 CCR 1.72). In addition, the term stream can include ephemeral streams, dry washes, watercourses with subsurface flows, canals, aqueducts, irrigation ditches, and other means of water

conveyance if they support aquatic life, riparian vegetation, or stream-dependent terrestrial wildlife (CDFG ESD 1994). Riparian is defined as, "on, or pertaining to, the banks of a stream;" therefore, riparian vegetation is defined as, "vegetation which occurs in and/or adjacent to a stream and is dependent on, and occurs because of, the stream itself" (CDFG ESD 1994). Removal of riparian vegetation also requires a Section 1602 Lake and Streambed Alteration Agreement from CDFG.

Appendix B: Potentially Occurring Special-Status Plant Species in the Study Area

Scientific Name **Common Name**	**Status USFWS/ CDFG/ CNPS list**	**Habitat Affinities and Blooming Period/ Life Form**	**Potential for Occurrence**
Allium peninsulare var. *franciscanum* Franciscan onion	-/-/1B	Cismontane woodland, valley and foothill grassland on clay, volcanic and often serpentinite soils. Blooms May to June. Elevation: 52-300m.	**None.** No habitat in project area.
Amorpha californica var. *napensis* Napa false indigo	-/-/1B	Openings in broadleafed upland forest, chaparral, cismontane woodland. April-July. Elevation: 120-2000m.	**None.** No habitat in project area.
Amsinckia lunaris Bent-flowered fiddleneck	-/-/1B	Coastal bluff scrub, cismontane woodland, valley and foothill grassland. March-June. Elevation: 3-500m.	**None.** Typical habitat not in project area.
Arabis blepharophylla Coast rockcress	-/-/4	Broadleafed upland forest, coastal bluff scrub, coastal prairie, coastal scrub. Blooms February to May. Elevation: 3-1100m.	**None.** No habitat in project area.
Arctostaphylos montana ssp. *montana* Mt. Tamalpais manzanita	-/-/1B	Chaparral, valley and foothill grassland on serpentintie and rocky soils. Blooms February to April. Elevation: 160-760m.	**None.** No habitat in project area.
Astragalus tener var. *tener* Alkali milk-vetch	-/-/1B	Playas, valley and foothill grasslands on adobe clay soils, vernal pools in alkaline soils. Blooms March to June. Elevartion: 1-60m.	**None.** No habitat in project area.
California macrophylla Round-leaved filaree	-/-/1B	Cismontane woodland, valley and foothill grassland on clay soils. Blooms March to May. Elevation: 15-1200m.	**None.** Typical habitat not in project area.
Calochortus umbellatus Oakland star tulip	-/-/4	Broadleafed upland forest, chaparral, cismontane woodland, lower montane coniferous forest, valley and foothill grassland, often on serpentinite. Blooms March to May. Elevation: 100-700m.	**None.** No habitat in project area.
Castilleja ambigua var. *ambigua* Johnny-nip	-/-/4	Coastal bluff scrub, coastal prairie, coastal scrub, marshes and swamps, valley and foothill grasslands, vernal pool margins. Blooms March to August. Elevation: 0-435m.	**None.** No habitat in project area. Not observed during July survey.
Chloropyron maritimum ssp. *palustre* Point Reyes salty bird's-beak	FE/CR/1B	Coastal salt marshes and swamps. June-October.	**None.** No habitat in project area.
Chorizanthe valida	FE/CE/1B	Coastal prairie in sandy soils. Blooms June to	**None.** No habitat

Scientific Name **Common Name**	**Status USFWS/ CDFG/ CNPS list**	**Habitat Affinities and Blooming Period/ Life Form**	**Potential for Occurrence**
Sonoma spineflower		August. Elevation: 10-305m.	in project area. Not observed during July survey.
Eleocharis parvula Small spikerush	-/-/4	Marshes and swamps. Blooms April to September. Elevation: 1-3020m.	**None.** Typical habitat not in project area. Not observed during July survey.
Erigeron bioletti Streamside daisy	-/-/3	Broadleafed upland forest, cismontane woodland, North Coast coniferous forest. Blooms June to October. Elevation: 30-1100m.	**None.** No habitat in project area.
Eriogonum luteolum var. *caninum* Tiburon buckwheat	-/-/1B	Chaparral, cismontane woodland, coastal prairie, valley and foothill grassland on serpentinite, sandy to gravelly sites. May-September.	**None.** No serpentinite in project area.
Fritillaria liliacea Fragrant fritillary	-/-/1B	Cismontane woodland, coastal prairie, coastal scrub, valley and foothill grassland often on serpentinite or clay soils. February-April.	**None.** No habitat in project area.
Hemizonia congesta ssp. *congesta* Seaside tarplant	-/-/1B	Valley and foothill grassland, sometimes along roadsides. April-November.	**None.** Not observed during July survey.
Hesperolinon congestum Marin western flax	FT/CT/1B	Chaparral, valley and foothill grassland on serpentinite. April-July.	**None.** No serpentinite in project area.
Lasthenia conjugens Contra Costa goldfields	FE/-/1B	Cismontane woodland, alkaline playas, valley and foothill grassland, vernal pools. Blooms March to June. Elevation: 0-470m.	**None.** No habitat in project area.
Leptosiphon acicularis Bristly leptosiphon	-/-/4	Chaparral, cismontane woodland, coastal prairie, valley and foothill grassland. Blooms April to July. Elevation: 55-1500m.	**None.** No habitat in project area.
Lessingia hololeuca Woolly-headed lessingia	-/-/3	Broadleafed upland forest, coastal scrub, lower montane coniferous forest, valley and foothill grassland. Blooms June to October. Elevation: 15-305m.	**None.** No habitat in project area.
Lilium pardalinum ssp. *pitkinense* Pitkin Marsh lily	FE/CE/1B	Cismontane woodland, meadows and seeps, freshwater marshes and swamps. Blooms June to July. Elevation: 35-65m.	**None.** No habitat in project area. Not observed during July survey.
Micropus amphibolus Mt. Diablo cottonweed	-/-/3	Broadleafed upland forest, chaparral, cismontane woodland, valley and foothill grassland on rocky soils. Blooms March to May. Elevation: 45-825m.	**None.** Typical habitat not in project area.

Scientific Name **Common Name**	**Status USFWS/ CDFG/ CNPS list**	**Habitat Affinities and Blooming Period/ Life Form**	**Potential for Occurrence**
Navarretia leucocephala ssp. *bakeri* Baker's navarretia	-/-/1B	Cismontane woodland, lower montane coniferous forest, meadows and seeps, valley and foothill grassland, vernal pools and swales, adobe or alkaline soils, mesic sites. April-July.	**None.** No habitat in project area.
Plagiobothrys mollis var. *vestitus* Petaluma popcornflower	-/-/1A	Coastal salt marshes and swamps, mesic valley and foothill grassland. Blooms June to July. Elevation: 10-50m.	**None.** No habitat in project area.
Polygonum marinense Marin knotweed	-/-/3	Coastal salt or brackish marshes and swamps. May-August.	**None.** No habitat in project area.
Ranunculus lobbii Lobb's aquatic buttercup	-/-/4	Cismontane woodland, North Coast coniferous forest, valley and foothill grassland, vernal pools. Blooms February to May. Elevation: 15-470m.	**None.** No habitat in project area.
Ribes victoris Victor's gooseberry	-/-/4	Broadleafed upland forest, chaparral, in mesic and shady areas. Blooms March to April. Elevation: 100-750m.	**None.** No habitat in project area.
Sidalcea calycosa ssp. *rhizomata* Point Reyes checkerbloom	-/-/1B	Freshwater marshes and swamps near coast. April-September.	**None.** Typical habitat not present in project area.
Streptanthus glandulosus ssp. *pulchellus* Mount Tamalpais bristly jewel-flower	-/-/1B	Chaparral, valley and foothill grassland on serpentinite. May-July.	**None**. No serpentinite in project area.

NOTES:

U.S. FISH AND WILDLIFE SERVICE

FE = federally listed Endangered
FT = federally listed Threatened

CALIFORNIA DEPT. OF FISH AND WILDLIFE

CE = California listed Endangered
CR = California listed as Rare
CT = California listed as Threatened

CALIFORNIA NATIVE PLANT SOCIETY -

List 1: Plants of highest priority
List 1A: Plants presumed extinct in California
List 1B: Plants rare and endangered in California and elsewhere
List 2: Plants rare and endangered in California but more common elsewhere
List 3: Plants about which additional data are needed

Appendix C: Potentially Occurring Special-Status Animal Species in the Project Area

Common Name *Scientific Name*	Status USFWS/ CDFW	Habitat Affinities and Reported Localities in the Project Area	Occurrence for Potential
Invertebrates			
Opler's longhorn moth *Adela oplerella*	-/-	Serpentine grasslands with *Platystemon californicus*.	None – no suitable habitat.
Marin blind harvestman *Calcina diminua*	-/-	Serpentine endemic in grasslands on Mount Burdell.	None – no suitable habitat.
Ubick's gnaphosid spide *Talanites ubicki*	-/-	Serpentine endemic. Known only from Mount Burdell.	None – no suitable habitat.
Mimic tryonia *Tryonia imitator*	-/-	Inhabits coastal lagoons, estuaries, and salt marshes. Found only in permanently submerged areas in a variety of sediments; able to withstand a variety of salinities.	None – no suitable habitat.
Marin hersperian *Vespericola marinensis*	-/-	Found in moist spots in coastal brushfield and chaparral vegetation in Marin County. Under leaves of cow-parsnip, around springs and seeps, in leafmold along streams in alder and mixed evergreen forests.	None – no suitable habitat.
Fish			
Tidewater goby *Eucyclogobius newberryi*	FE/SSC	Occurs discontinuously throughout California, ranging from Tillas Slough (mouth of the Smith River) in Del Norte County south to Agua Hedionda Lagoon in San Diego County. Areas of precipitous coastlines that preclude the formation of lagoons at stream mouths have created three natural gaps in the distribution of the goby. Gobies are apparently absent from three sections of the coast between: 1) Humboldt Bay and Ten Mile River, 2) Point Arena and Salmon Creek, and 3) Monterey Bay and Arroyo del Oso.	None – no suitable habitat.
steelhead - Central California Coast ESU *Onchorhynchus mykiss*	FT/SSC	Requires beds of loose, silt-free, coarse gravel for spawning. Also needs cover, cool water and sufficient dissolved oxygen. Occurs in 3 tributaries to Monterey Bay (Pajaro, Salinas and Carmel Rivers), in the small streams of the Big Sur Coast and small intermittent streams in San Luis Obispo County, south to Point Conception.	None – no suitable habitat.
longfin smelt *Spirinchus thaleichthys*	FC/ST	Pacific coast of North America from Sacramento-San Joaquin estuary and (extirpated?). Well documented declines in California. Spawns in sandy-gravel, rock, or aquatic plants, Dec. – Feb. in CA, in coastal waters near shore, bays, estuaries, and rivers. Some populations anadromous close to ocean.	None – no suitable habitat.
Amphibians			

Common Name *Scientific Name*	Status USFWS/ CDFW	Habitat Affinities and Reported Localities in the Project Area	Occurrence for Potential
California tiger salamander *Ambystoma californiense*	FE (Sonoma County)/PCT	Breeds in temporary or semi-permanent pools. Seeks cover in rodent burrows in grasslands and oak woodlands.	None – no suitable habitat and outside species range.
foothill yellow-legged frog *Rana boylii*	SC/ SSC	Inhabits permanent, flowing stream courses with a cobble substrate and a mixture of open canopy riparian vegetation.	None – no suitable habitat.
California red-legged frog *Rana draytonii*	FT/ SSC	Prefers semi-permanent and permanent stream pools, ponds and creeks with emergent and/or riparian vegetation. Occupies upland habitat especially during the wet winter months.	None – no suitable habitat.
Reptiles			
western pond turtle *Emys marmorata marmorata*	SC/ SSC	Prefers permanent, slow-moving creeks, streams, ponds, rivers, marshes and irrigation ditches with basking sites and a vegetated shoreline. Requires upland sites for egg-laying.	None – no suitable habitat.
Birds			
Great blue heron *Ardea herodius*	MB/ SSC	Nests colonially in large trees near water	None – no suitable habitat.
burrowing owl *Athene cunicularia hypugea*	SC, MB/ SSC	Nests in open, dry grasslands, deserts, prairies, farmland and scrublands with abundant active and abandoned mammal burrows. Prefers short grasses and moderate inclined hills.	None – no suitable habitat.
Swainson's hawk *Buteo swainsoni*	MB/ST	Nests in scattered trees in open areas, with nests usually high in the tree. Nests are reused annually and are made of sticks, with a diameter of 21-28 inches.	None – no suitable habitat and outside species range.
Western snowy plover *Chardrius alexandrinus nivosus*	FT/-	Nests on sandy, gravelly or friable soils on beaches, salt pond levees and shores of large alkaline lakes.	None – no suitable habitat.
white-tailed kite *Elanus leucurus*	MB/CFP	Inhabits low rolling foothills and valley margins with scattered oaks and river bottom- lands or marshes adjacent to deciduous woodlands. Prefers open grasslands, meadows and marshes for foraging close to isolated, dense-topped trees for nesting and perching.	Absent – would have been detected.
saltmarsh common yellowthroat *Geothylpis trichas sinuosa*	MB/SSC	Nests in fresh and salt marshes in tall grasses, tule patches and willows and forages in thick, continuous cover down to the water surface.	None – no suitable habitat.
California black rail *Laterallus jamaicensis coturniculus*	-/ST	Inhabits saltwater, brackish, and freshwater marshes. Known from the San Francisco Bay area and the delta of the Sacramento and San Joaquin rivers south along the coast to northern Baja California and in Yuba County.	None – no suitable habitat.

Common Name *Scientific Name*	Status USFWS/ CDFW	Habitat Affinities and Reported Localities in the Project Area	Occurrence for Potential
San Pablo song sparrow *Melospiza melodia samuelis*	MB/SSC	Inhabits tidal sloughs in the Salicornia marshes, nesting in Grindelia bordering slough channels along the north side of the San Francisco and San Pablo bays.	None – no suitable habitat.
California clapper rail *Rallus longirostris obsoletus*	FE/SE	Occur in south and central San Francisco Bay and along the perimeter of San Pablo Bay. Occupies salt and brackish marshes dominated by pickleweed (*Salicornia virginica*) and Pacific cordgrass (*Spartina foliosa*). In the north Bay (Petaluma Marsh, Napa-Sonoma marshes, Suisun Marsh), rails occupy tidal brackish marshes but are largely restricted to major sloughs and rivers of San Pablo Bay and Suisun Marsh, and along Coyote Creek in south San Francisco Bay.	None – no suitable habitat.
bank swallow *Riparia riparia*	MB/ST	Nests in banks along rivers, excavating holes in sides of the banks.	None – no suitable habitat.
black phoebe *Sayornis nigricans*	MB/-	Nests in anthropogenic structures, such as culverts, on ledges. Nest made of mud pellets, dry grasses, weed stems, plant fibers and hair.	Low – potential nesting habitat in larger culvert.
Anna's hummingbird *Calypte anna*	MB/-	Nests in chaparral, coniferous forest, scrub habitats and riparian habitats.	Moderate – potential nesting habitat in shrubs and trees.
Allen's hummingbird *Selasphorus sasin*	MB/-	Nests in wooded areas, meadows, or thickets along shaded streams, on a branch low down on stem, although placement height varies between 10 inches and 90 feet.	Moderate – potential nesting habitat in shrubs and trees.
Mammals			
pallid bat *Antrozous pallidus*	-/SSC	Day roosts in crevices and cavities in rock outcrops, mines, caves, buildings, bridges, as well as hollows and cavities in a wide variety of tree species. May roost alone, in small groups (2 to 20 bats), or in 100s in maternity roosts, with males and non-reproductive subadults in other, smaller roosts. Winter roosts are not well known, but are similar to roosts when active.	None – no suitable habitat.
Townsend's big-eared bat *Corynorhinus townsendii*	-/SPT (Proposed for State Listing – 10/18/12)	Day roosts in cave analogs; mines, buildings, bridges, sometimes large tree hollows. Particularly sensitive to roost disturbance, this species has declined throughout its range in California. Switches roosts seasonally, sometimes within each season. Females form maternity colonies, males roost singly, and all disperse widely after maternity season. During winter, roosts in cold, but non-freezing roosts, which may include man-made structures. Forages in a variety of habitats, consistently in riparian and stream corridors, avoiding open habitat. May commute relatively long distances to forage.	None – no suitable habitat.

Common Name *Scientific Name*	Status USFWS/ CDFW	Habitat Affinities and Reported Localities in the Project Area	Occurrence for Potential
Western red bat *Lasiurus blossevillii*	-/SSC	Roosts in foliage of large shrubs and trees in woodland borders, rivers, agricultural areas, and urban areas with mature trees. Typically found in large cottonwoods, sycamores, walnuts and willows associated with riparian habitats. Solitary when roosting, except when females are with young (from 2 to 5 are born). Forages over mature orchards, oak woodland, low elevation conifer forests, riparian corridors, non-native trees in urban and rural residential areas, and around strong lighting. An individual was found within 3 miles of the project site (GT -personal observation).	None – no suitable habitat.
Salt-marsh harvest mouse *Reithrodontomys raviventris*	FE/SE	Prefers dense cover of native pickleweed (*Salicornia virginica*). Seldom found in cordgrass or alkali bulrush. Will use upper zone of peripheral halophytes (salt-tolerant plants) to escape the higher tides, and also move into the adjoining grasslands during the highest winter tides.	None – no suitable habitat.
American badger *Taxidea taxus*	-/SSC	Inhabits open grasslands, savannas and mountain meadows near timberline. Requires abundant burrowing mammals, their principal food source, and loose, friable soils.	None – no suitable habitat

U.S. FISH AND WILDLIFE SERVICE

FE = federally listed Endangered
FT = federally listed Threatened
FC = federal candidate for listing
FSC = federal Species of Concern
MBTA = Migratory Bird Treaty Act.

CALIFORNIA DEPT. OF FISH AND WILDLIFE

CE = California listed Endangered
CT = California listed as Threatened
SSC = Species of Special Concern

Appendix D: Plant species observed at the Olive Avenue Project Site July 9, 2014.

Scientific Name	Common Name
Acer sp.	Maple- planted street tree*
Agapanthus sp.	Garden herb*
Alisma trivale	Water plantain
Anagallis arvensis	Scarlet pimpernel*
Arundo donax	Giant reed*
Avena barbata	Wild oats*
Baccharis pilularis	Coyote brush
Brassica nigra	Black mustard*
Bromus diandrus	Ripgut brome*
Bromus hordaeceus	Soft chess*
Bromus sp.	Brome*
Carduus pycnocephalus	Italian thistle*
Centromadia pungens	spikeweed
Cichorium intybus	Chicory*
Convolvulus arvensis	Bindweed*
Cynodon dactylon	Bermuda grass*
Cyperus eragrostis	Nut sedge
Eschscholzia californica	California poppy
Festuca perennis	Wildrye*
Foeniculum vulgare	Fennel*
Hedera helix	English ivy*
Helminthotheca echioides	Bristly ox-tongue*
Hordeum murinum ssp. leporinum	Hare barley*
Hordeum sativa	Barley
Iris sp.	Garden iris*
Juglans hindsii	Walnut – sapling
Lactuca salina	Willowleaf lettuce*
Lactuca serriola	Prickly lettuce*
Lonicera sp.	Honeysuckle – garden herb*
Lotus corniculatus	Bird's-foot trefoil*
Magnolia sp.	Magnolia*
Malva parviflora	Cheeseweed*
Olea europea	Olive – planted street tree*
Opuntia sp.	Cactus*
Paspalum diliatum	Dallis grass*
Phalaris aquatica	Harding grass*
Plantago lanceolata	English plantain*
Polygonum aviculare	Knotweed*
Polygonum sp.	Knotweed
Polypogon monspeliensis	Rabbit's-foot grass*
Prunus sp.	Fruit tree*
Quercus agrifolia	Coast live oak
Quercus lobata	Valley oak
Raphanus sativus	Wild radish*
Rosa sp.	Garden rose*
Rubus armeniacus	Himalayan blackberry*
Rubus sp.	Thornless blackberry*
Rumex crispus	Curly dock*
Schoenoplectus acutus	Hardstem bulrush
Sequoia sempervirens	Coast redwood
Tragopogon porrifolius	Salsify*
Tribulus terrestris	Puncture vine*

Scientific Name	Common Name
Typha latifolia	Cattails
Vicia sativa	Spring vetch*
Vitis vinifera	Grapes*

* = non-native species

Appendix E: Wildlife Species Observed at the Olive Avenue Project Site – July 9, 2014

Scientific Name	**Common Name**
BIRDS	
Aphelocoma californica	Western scrub jay
Calypte anna	Anna's hummingbird
Corvus brachyrhynchos	American crow
Haemorhous mexicanus	house finch
Pipilo crissalis	California towhee
Melospiza melodia	American song sparrow
Sayornis nigricans	Black phoebe
MAMMALS	
Odoicoileus hemionius californicus	Black-tailed deer (sign)
Procyon lotor	Raccoon (sign)

Appendix B, Preliminary Delineation of Waters of the United States, Including Wetlands

PRELIMINARY DELINEATION OF WATERS OF THE UNITED STATES, INCLUDING WETLANDS, FOR THE OLIVE AVENUE ROADWAY AND DRAINAGE IMPROVEMENTS PROJECT, NOVATO, MARIN COUNTY, CALIFORNIA

PREPARED FOR:

CITY OF NOVATO
PUBLIC WORKS DEPARTMENT
CONTACT: PETR SKALA
PHONE: 415-899-8237

PREPARED BY:

JANE VALERIUS, WETLAND SPECIALIST
JANE VALERIUS ENVIRONMENTAL CONSULTING
2893A SCOTTS RIGHT OF WAY
SEBASTOPOL, CA 95472
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AUGUST 2014

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DELINEATION OF WATERS OF THE U. S., INCLUDING WETLANDS, FOR THE OLIVE AVENUE ROADWAY AND DRAINAGE IMPROVEMENTS PROJECT, NOVATO, MARIN COUNTY

INTRODUCTION AND BACKGROUND INFORMATION

This report presents findings based on a delineation of potential U.S. Army Corps of Engineers (Corps) waters of the U.S., including wetlands, for the Olive Avenue Roadway and Drainage Improvements Project. This work was conducted on behalf of the City of Novato Public Works Department, who is the project proponent or applicant.

The proposed project is located in the northwestern portion of the City of Novato, west of Highway 101 and north of DeLong Avenue (Figure 1). The proposed project will occur along Olive Avenue, between Redwood Boulevard, to the west, and Railroad Avenue, to the east, and along the west side of the railroad tracks, between Olive Avenue and Sweetser Avenue. The proposed project site is located within the northern portion of the Novato topographic quadrangle. This unsectioned portion is within the Nicasio Rancheria and is located at 38º06'40.36" north latitude and 122º34'03.66" west longitude.

The proposed Olive Avenue Roadway and Drainage Improvements project includes the following: a) installation of existing aboveground utilities in an underground joint utility trench, b) widening and improving Olive Avenue with associated sidewalks, c) replacing an existing culvert under Olive Avenue, and d) enclosing two open drainage ditches (Olive Ditch and Railroad Ditch), into culverts.

This delineation was conducted according to the 1987 Corps of Engineers *Wetlands Delineation Manual* (Environmental Laboratory 1987), the *Interim Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region* (U.S. Army Corps of Engineers (2006), and U.S. Army Corps of Engineers, San Francisco District (2008) guidelines. The delineation should be considered preliminary until the U.S. Army Corps of Engineers, San Francisco District, issues a jurisdictional determination of the extent of jurisdictional waters, including wetlands, in the project area. Data sheets are provided in Appendix A; information on soils in Appendix B; and site photographs are provided in Appendix C. A total of 0.146 acres of wetlands and .067 acres of non-wetland other waters were mapped for the project study area (Figure 2).

Figures and appendices are provided at the end of the text.

The client contact for this report is: Petr Skala, Civil Engineer II
City of Novato
Public Works Department
922 Machin Avenue
Novato, C 94945
Phone: (415) 899-8237

DESCRIPTION OF SITE CHARACTERISTICS

General Description

The project area is located within the San Francisco Bay Coastal Bioregion. This bioregion is located within central California and encompasses the San Francisco Bay and the Sacramento Delta, extending from the Pacific Ocean to the eastern portion of the tule marsh zone, which is defined by Highway 99. Habitats within this bioregion include both mesic (moist) habitats, such as freshwater marsh, and xeric (dry) habitats, such as chaparral, and are typical of a Mediterranean type climate.

Olive Avenue, between Redwood Boulevard and Railroad Avenue, is a two-lane roadway with a sidewalk and parking spaces on the south side of the street, and no parking or sidewalk on the north side. The Olive Avenue Ditch is an approximately 660 linear feet (LF) unlined and manmade ditch. Within the project area Railroad Ditch is approximately 830 LF and is an unlined, manmade ditch located between Olive Avenue and Sweetser Avenue.

Urban development occurs on the south side of Olive Avenue, with semi-developed urban areas occurring to the north.

Topography

Topographically, the project site is located on a predominantly south- facing slope of Novato Valley that trends from north to south, at approximately 9 feet in elevation. Urban development occurs on the south side of Olive Avenue, with semi-developed urban areas occurring to the north. Topography within the project area is relatively flat with the elevation at approximately 18 feet.

Hydrology

In 1998 the City of Novato requested that the U.S. Army Corps of Engineers conduct a flood control study of the Rush Creek basin to address chronic flooding problems in the downtown area. The Army Corps study, completed in 2001, evaluated the capacity of Olive Ditch and Railroad Ditch, which are open, constructed drainage ditches running east-west along Olive Avenue and north-south along the Northern Pacific Railroad tracks (now the Sonoma-Marin Area Rapid Transit [SMART] tracks), to convey storm water during 10-year, 25-year, and 100-year storm events. The study determined that Olive Ditch and Railroad Ditch are undersized and inadequate for conveying flow during 25-year storm events. This results in periodic flooding of adjacent properties, including the open field north of Olive Avenue, and the lumberyard west of Railroad Ditch (U. S. Army Corps of Engineers 2001). Additionally, recent improvements to the City storm drain system upstream of the study area from 10-year to 25-year storm conveyance have increased the potential for downstream flooding at Olive Ditch and Railroad Ditch (Army Corps 2001). The Army Corps report included recommendations for alleviating flooding in the study area; however no projects were implemented at the time.

In 2004, a private development application was submitted to the City for the construction of a new mixed-use project in the vacant parcels (APN 143-011-08 and 143-011-05) to the east and north of the Trader Joe's on Olive Avenue. Included in the application were proposed improvements to Olive Avenue, including roadway widening and addition of bike lanes and sidewalks, and drainage improvements, including enclosing Olive Ditch in a culvert. However, the proposed development was never constructed.

Because inadequate drainage and flooding are still issues of concern, the City is proposing to complete the roadway and drainage improvements to Olive Avenue and Olive Ditch. Additionally, the City is proposing to conduct other necessary capital improvement projects in the same geographic area, including placing existing aboveground utilities along Olive Avenue in an underground joint utility trench, and enclosing a segment of Railroad Ditch into a culvert. Together these improvements comprise the Olive Avenue Roadway and Drainage Improvements Project (Project

In a 25-year storm event, Olive Ditch has a peak flow of 50 cubic feet per second (cfs), but overtops its northern bank at 25 cfs (U. S. Army Corps of Engineers 2001). Upstream (i.e., west) of Redwood Boulevard, the Olive Avenue drainage basin has been undergrounded up to the intersection of Redwood Boulevard and Olive Avenue, at which point storm flow discharges through a 30-inch by 48-inch elliptical-shaped pipe to Olive Ditch (U. S. Army Corps of Engineers 2001). Olive Ditch also receives flows from the Trader Joe's parking lot and from Railroad Ditch. An elliptical 69-foot long, 38-inch by 60-inch reinforced concrete pipe (RCP) conveys stormwater flow under the Trader Joe's driveway. At Olive Avenue, flows are discharged into Railroad Ditch via a 72-inch by 48-inch elliptical corrugated metal pipe (CMP) under the railroad tracks. An existing 36-inch RCP conveys flows north-south under Olive Avenue.

Railroad Ditch has a capacity of 30 cfs, which translates to a 7-year-flood event; in a 25-year storm event peak flow is 72 cfs (U. S. Army Corps of Engineers 2001). Railroad Ditch receives flow from the City's downtown area via an existing 3-foot by 5-foot RCB culvert and discharges into the existing 36-inch RCP that crosses north-south under Olive Avenue. Downstream of Olive Avenue, and outside of the Project area, Railroad Ditch is an unlined, manmade ditch. Stormflow from the Project area eventually drains to Rush Creek, north of the Project site.

Soils

Soils are mapped as urban land-xerothents complex, 0 to 9 percent slopes (Appendix B). This mapping unit is used for home site, urban and recreational development areas. Soils on the site were typical of urban fill areas. The soil profile included lots of gravel and rocks and whatever soil was in the profile had a loam to clay loam texture. Soils within the wetland portions of the ditches also had 5% or more mottles.

Vegetation

Three vegetation communities occur within the project study area: ruderal non-native grassland, freshwater emergent wetland, and landscaped and developed areas. These types are further described below.

Ruderal non-native grassland occurs in the proposed staging area east of the Trader Joe's market and parking lot and along the top of bank of the ditches within the project area. Plant species associated with this type include non-native weedy forb species such as pricky lettuce (*Lactuca serriola*), wild radish (*Raphanus sativus*), bristly ox-tongue (*Helminthotheca echioides*), chichory (*Cichorium intybus*), fennel (*Foeniculum vulgare*), mustard (*Brassica nigra*), Italian thistle (*Carduus pycnocephalus*), English plantain (*Plantago lanceolata*) and bindweed (*Convolvulus arvensis*). Non-native grasses observed include wild oats (*Avena barbata*), Harding grass (*Phalaris aquatica*), ryegrass (*Festuca perennis*), hare barley (*Hordeum murinum* ssp. *leporinum*), ripgut brome (*Bromus diandrus*), soft chess (*Bromus hordaeceus*), and Bermuda grass (*Cynodon dactylon*). Native species observed include California poppy (Eschscholzia californica), spikeweed (*Centromadia pungens*) and scattered individual shrubs of coyote brush (*Baccharis pilularis*). Valley oak (*Quercus lobata*), coast live oak (*Quercus agrifolia*), and black walnut (*Juglans hindsii*) trees were also observed along the ditch behind the Trader Joe's parking lot.

Freshwater emergent wetland is associated with the Olive Avenue ditch and the railroad ditch. Wetland plant species associated with these ditches include cattails (*Typha latifolia*), hardstem bulrush (*Schoenoplectus acutus*), nut sedge (*Cyperus eragrostis*), Dallis grass (*Paspalum dilitatum*), knotweed (*Polygonum* sp.), curly dock (*Rumex crispus*) and water plantain (*Alisma trivale*). Himalayan blackberry (*Rubus armeniacus*) and thornless blackberry (*Rubus* sp.) were also observed along the drainage ditches

Landscaped and developed areas occur along the Olive Avenue and along the railroad. Plant species noted in these area included landscape and garden plant such as agapanthus (*Agapanthus* sp.), iris (*Iris* sp.), maple (*Acer* sp.), magnolia (*Magnolia* sp.), olive (*Olea europea*), rose (*Rosa* sp.), and coast redwood (*Sequoia sempervirens).*

SECTION 3 – METHODS

Literature Review

Prior to the delineation field survey, literature pertinent to identifying potential wetlands and other waters of the United States in the project area was reviewed, including the USGS 7.5 minute topographic quadrangle map for the area, the detailed topographic/aerial photograph base map prepared for the project area, the soil survey report, and the county hydric soils list.

Field Survey and Map Preparation

A formal delineation was conducted by Jane Valerius, botanist and wetland ecologist, on July 9, 2014. Areas in which the topography or vegetation suggested that wetlands could exist were sampled using the routine onsite determination method procedures described in the 1987 Corps of Engineers *Wetlands Delineation Manual* (Environmental Laboratory 1987). The *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region (Version 2.0)* U.S. Army Corps of Engineers (2008), U.S. Army Corps of Engineers, San Francisco District (2000) delineation guidelines and the U.S. Army Corps of Engineers San Francisco District November 2007 *Information Requested for Verification of Corps Jurisdiction* guidance was also used as part of the on-site wetlands analysis and report preparation

A soil pit was excavated at each of the six (6) delineation sample plots (data points) (shown on Figure 2) to a depth of 12 inches. The data points were established in representative wetlands and adjoining non-wetlands. In most cases an adjoining nonwetland data point was established near the wetland data point to "bracket" the wetland data point, as a means to identify the wetland-nonwetland boundary. Additionally, supplemental observations (not recorded as data points) of vegetation, soil, and hydrologic characteristics were made at numerous other locations to evaluate candidate wetlands and to extrapolate wetland-nonwetland boundaries.

Data point locations and the boundaries of the wetlands were mapped on a 1 inch equals 40 feet aerial photographic base map provided by GHD.

SECTION 4 – RESULTS

This section describes the results of the field survey. The preliminary jurisdictional features and data point locations are shown on Figure 2 (Delineation Map). Wetland delineation data sheets completed at the data points are provided in Appendix A. A selection of site photographs is provided in Appendix C. A summary of the acreages of the mapped features is provided in Table 1. A total of 0.146 acres of wetlands and 0.067 acres of non-wetland other waters were mapped for the delineation study area.

Table 1. Summary of Potential Jurisdictional Wetlands

Habitat	Acres
Emergent Wetlands	
Olive Ditch	0.106
Railroad Ditch	0.034
Unnamed Ditch	0.006
Total wetlands	**0.146**
Non-Wetland Other Waters	
Olive Ditch	0.000
Railroad Ditch	0.061
Unnamed Ditch	0.006
Total other waters	**0.067**
TOTAL WETLANDS AND WATERS	**0.213**

SECTION 5 – REFERENCES CITED

Soil Survey Staff. 2014. Natural Resources Conservation Service, United States Department of Agriculture. Web Soil Survey for Marin, California. Available online at http://websoilsurvey.nrcs.usda.gov/ .

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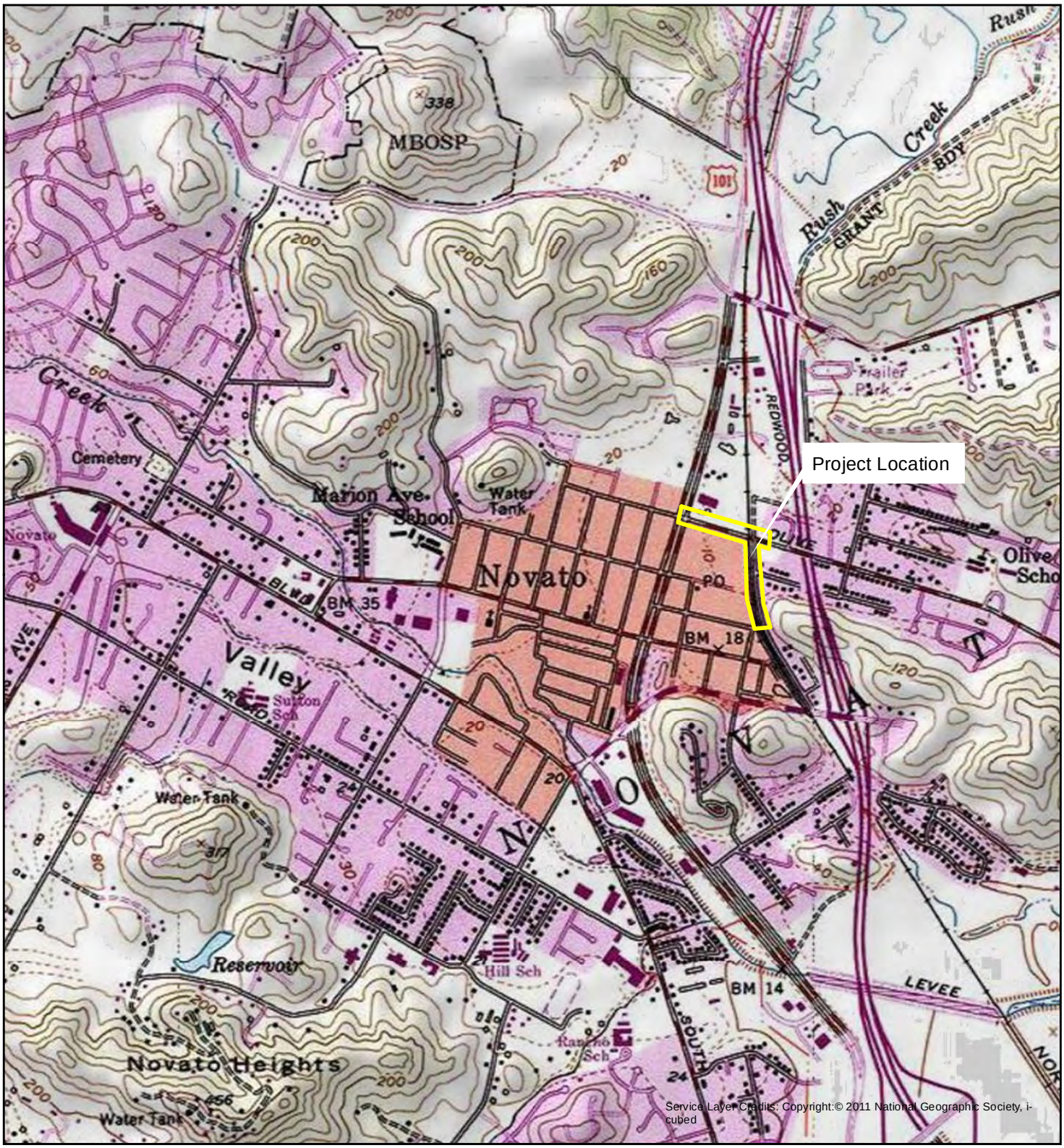
U. S. Army Corps of Engineers. 2008. Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region. Final Report. December. Vicksburg, MS. U. S. Army Engineers Research and Development Center.



LEGEND

Project Location

Paper Size ANSI A

0 0.125 0.25 0.5 Mile

Map Projection: Mercator Auxiliary Sphere
Horizontal Datum: WGS 1984
Grid: WGS 1984 Web Mercator Auxiliary Sphere

City of Novato
Olive Ave. Roadway and Drainage Improvements

Job Number 8411202
Revision A
Date 22 Jul 2014

Project Location

Figure 1

505 Montgomery St, Suite 2300, San Francisco, CA, 94111 **T** 415 283 4970 **F** 415 283 4980 **W** www.ghd.com

C:\Users\cphlegar\Desktop\Figure 1_Wetland.mxd

Created by:cphlegar

N

0 60' 120'

1"=60'

Wetland	Acres
Olive Ditch	0.106
Railroad Ditch	0.034
Unnamed Ditch	0.006

Other Waters	Acres
Olive Ditch	0.000
Railroad Ditch	0.061
Unnamed Ditch	0.006

LEGEND

- Limit of Project Work
- Approximate Parcel Line
- DP-1 Data Point
- Wetland
- Other Waters of the U.S.

Plot Date: 17 July 2014 - 4:01 PM Cad File No: G:\02591 - City of Novato\02591-8411202 - Olive Ave Improvements\06-CAD\Figures\PDF\Figure 02 - Wetland Delineation.dwg

GHD

City of Novato
Olive Avenue Improvements Project

Delineation of Waters of the U.S., Including Wetlands for the Olive Avenue Improvements Project

Job Number 8411202
Revision
Date July 2014

Figure 2

505 Montgomery Street Suite 2300 San Francisco California 94111 USA **T** 1 415 283 4970 **F** 1 415 283 4980 **W** www.ghd.com

Appendix A - Data Sheets

WETLAND DETERMINATION DATA FORM

Project/Site: Olive Ave City/County: Marin Sampling Date: 07/09/2014

Applicant/Owner: City of Novato State: CA Sampling Point: DP 1

Investigator(s): Jane Valerius Section, Township, Range:

Landform (hillslope, terrace, etc.): Valley Local relief (concave, convex, none): Concave Slope (%): 0-2

Subregion (LRR): Lat: Long: Datum:

Soil Map Unit Name: Urban Land - Xerothents, 0-9% 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? (no) Are "Normal Circumstances" present? Yes ✓ No ___

Are Vegetation ___, Soil ___, or Hydrology ___ naturally problematic? (no) (If needed, explain any answers in Remarks.)

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

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

Remarks: Data point located in flow line of culvert.
Centerline of ditch. No bare ground in ditch
OHWM = 8' wide
OLIVE DITCH

VEGETATION

Tree Stratum (Plot size: ___)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	= Total Cover		
Sapling/Shrub Stratum (Plot size: ___)			
1.			
2.			
3.			
4.			
5.			
	= Total Cover		
Herb Stratum (Plot size: 5 ft radius)			
1. Paspalum dilatatum	80	Y FAC	FAC
2. Cyperus eragrostis	20	Y FACW	FACW
3.			
4.			
5.			
6.			
7.			
8.			
	100 = Total Cover		
Woody Vine Stratum (Plot size: ___)			
1.			
2.			
	= Total Cover		

% Bare Ground in Herb Stratum 0 % Cover of Biotic Crust 0

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

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

Prevalence Index = B/A = ___

Hydrophytic Vegetation Indicators:

✓ Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

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

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes ✓ No ___

Remarks: NL = No listing status

SOIL

Sampling Point: DP1

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-12	10YR 2/1	95	10YR 3/6	5	F6		loam	

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

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

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present): none

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ✓ No ___

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ___ 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 Plowed 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)
- ___ Thin Muck Surface (C7)
- ___ 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: flowing from W to E

WETLAND DETERMINATION DATA FORM

Project/Site: Olive Ave City/County: Marin Sampling Date: 07/09/2014

Applicant/Owner: City of Novato State: CA Sampling Point: DP2

Investigator(s): Jane Valerius Section, Township, Range:

Landform (hillslope, terrace, etc.): valley Local relief (concave, convex, none): planar Slope (%): 0.5%

Subregion (LRR): Lat: Long: Datum:

Soil Map Unit Name: Urban Land - Xerothents Complex 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? (no) Are "Normal Circumstances" present? Yes ✓ No ___

Are Vegetation ___, Soil ___, or Hydrology ___ naturally problematic? (no) (If needed, explain any answers in Remarks.)

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

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

Remarks: Data point located in flow line of culvert.

outside flow of culvert and on top of bank

VEGETATION

Tree Stratum (Plot size: ___)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	___ = Total Cover		
Sapling/Shrub Stratum (Plot size: ___)			
1.			
2.			
3.			
4.			
5.			
	___ = Total Cover		
Herb Stratum (Plot size: 5 ft radius)			
1. Avena barbata	50	Y	FACU
2. Picris echioides	20	Y	FACU
3. Convolvulus arvensis	20	Y	FACU
4. Cichorium intybus	2	N	UPL
5. Bromus sp.	5	N	UPL
6. Plantago lanceolata	2	N	FAC
7. Raphanus sativus	1	N	UPL
8.			
	100 = Total Cover		
Woody Vine Stratum (Plot size: ___)			
1.			
2.			
	___ = Total Cover		

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

Dominance Test worksheet:

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

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

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

Prevalence Index worksheet:

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

Prevalence Index = B/A = ___

Hydrophytic Vegetation Indicators:

___ Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

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

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes ___ No ✓

Remarks: NL = No listing status

SOIL

Sampling Point: DP2

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-12	10YR 2/1	100					loam	w/ gravel + rocks
								@

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

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

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present): none

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ___ No ✓

Remarks:

Urban fill soil on top of bank

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ___ 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 Plowed 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)
- ___ Thin Muck Surface (C7)
- ___ 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:

WETLAND DETERMINATION DATA FORM

Project/Site: Olive Ave City/County: Marin Sampling Date: 07/09/2014

Applicant/Owner: City of Novato State: CA Sampling Point: DP3

Investigator(s): Jane Valerius Section, Township, Range:

Landform (hillslope, terrace, etc.): Valley Local relief (concave, convex, none): Concave Slope (%): 0-2%

Subregion (LRR): Lat: Long: Datum:

Soil Map Unit Name: Urban Land - Xerorthents Complex 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? (no) Are "Normal Circumstances" present? Yes ✓ No ___

Are Vegetation ___, Soil ___, or Hydrology ___ naturally problematic? (no) (If needed, explain any answers in Remarks.)

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

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

Remarks: Data point located in flow line of culvert.

7' wide OHWM OLIVE DITCH

VEGETATION

Tree Stratum (Plot size: ___)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	= Total Cover		
Sapling/Shrub Stratum (Plot size: ___)			
1.			
2.			
3.			
4.			
5.			
	= Total Cover		
Herb Stratum (Plot size: 5 ft radius)			
1. Paspalum dilitatum	45	Y	FAC
2. Cyperus eragrostis	30	Y	FACW
3. Rumex crispus	10	N	FAC
4. Phalaris aquatica	10	N	FACU
5. Raphanus sativus	5	N	UP
6.			
7.			
8.			
	100 = Total Cover		
Woody Vine Stratum (Plot size: ___)			
1.			
2.			
	= Total Cover		

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

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

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

Prevalence Index = B/A = ___

Hydrophytic Vegetation Indicators:

✓ Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

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

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes ✓ No ___

Remarks: NL = No listing status

Stands of bulrush on E side of culvert on driveway into TJ's

SOIL

Sampling Point: DP3

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-12	10YR 3/1	95	7.5YR 3/4	5			loam	

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

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

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present): none

Type: N/A

Depth (inches): ___

Hydric Soil Present? Yes ✓ No ___

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ___ 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 Plowed 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)
- ___ Thin Muck Surface (C7)
- ___ 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: Flowing from W to E

WETLAND DETERMINATION DATA FORM

Project/Site: Olive Ave City/County: Marin Sampling Date: 07/09/2014

Applicant/Owner: City of Novato State: CA Sampling Point: DP4

Investigator(s): Jane Valerius Section, Township, Range:

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

Subregion (LRR): Lat: Long: Datum:

Soil Map Unit Name: Urban Land - Xerorthents Complex 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? (no) Are "Normal Circumstances" present? Yes ✓ No ___

Are Vegetation ___, Soil ___, or Hydrology ___ naturally problematic? (no) (If needed, explain any answers in Remarks.)

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

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

Remarks: Data point located in flow line of culvert. Data point at top of bank of ditch ~~7' wide~~

VEGETATION

Tree Stratum (Plot size: ___)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	___ = Total Cover		
Sapling/Shrub Stratum (Plot size: ___)			
1.			
2.			
3.			
4.			
5.			
	___ = Total Cover		
Herb Stratum (Plot size: 5 ft radius)			
1. Avena barbata	20	Y	FACU
2. Phalaris aquatica	55	Y	FAC
3. Rhaphanus sativus	5	N	FACU
4. Hcns echioides	10	N	FACU
5. Lactuca serriola	10	N	FAC
6.			
7.			
8.			
	100 = Total Cover		
Woody Vine Stratum (Plot size: ___)			
1.			
2.			
	___ = Total Cover		

% Bare Ground in Herb Stratum 0 % Cover of Biotic Crust 0

Dominance Test worksheet:

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

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

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

Prevalence Index worksheet:

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

Prevalence Index = B/A = ___

Hydrophytic Vegetation Indicators:

___ Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

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

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes ___ No ✓

Remarks: NL = No listing status

SOIL

Sampling Point: DP4

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-12	10YR 2/1	100					loam	w/ gravel & rocks

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

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

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present): none

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ___ No ✓

Remarks:

Urban fill soil on top of bank

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ___ 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 Plowed 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)
- ___ Thin Muck Surface (C7)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

Field Observations:

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

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

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

Wetland Hydrology Present? Yes ___ No ✓

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

Remarks:

WETLAND DETERMINATION DATA FORM

Project/Site: Olive Ave City/County: Marin Sampling Date: 07/09/2014

Applicant/Owner: City of Novato State: CA Sampling Point: DP 5

Investigator(s): Jane Valerius Section, Township, Range:

Landform (hillslope, terrace, etc.): valley Local relief (concave, convex, none): concave Slope (%): 0-5%

Subregion (LRR): Lat: Long: Datum:

Soil Map Unit Name: Urban Land - Xerorthents Complex 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? (no) Are "Normal Circumstances" present? Yes ✓ No ___

Are Vegetation ___, Soil ___, or Hydrology ___ naturally problematic? (no) (If needed, explain any answers in Remarks.)

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

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

Remarks: Data point located in flow line of culvert.
Constructed ditch @ 4'
Data point in constructed drainage ditch
Railroad Ditch ⇒ non-wetland waters

VEGETATION

Tree Stratum (Plot size: ___)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	= Total Cover		
Sapling/Shrub Stratum (Plot size: ___)			
1.			
2.			
3.			
4.			
5.			
	= Total Cover		
Herb Stratum (Plot size: 5 ft radius)			
1. Ficus echioides	40	Y	FACU
2. Phalaris aquatica	40	Y	FACW
3. Cyperus eragrostis	10	N	FACW
4. Rumex crispus	1	N	FAC
5. Avena barbata	9	N	UP
6.			
7.			
8.			
	100 = Total Cover		
Woody Vine Stratum (Plot size: ___)			
1.			
2.			
	= Total Cover		

% Bare Ground in Herb Stratum 0 % Cover of Biotic Crust 0

Dominance Test worksheet:

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

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

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

Prevalence Index worksheet:

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

Prevalence Index = B/A = ___

Hydrophytic Vegetation Indicators:

___ Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

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

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes ___ No ✓

Remarks: NL = No listing status

SOIL

Sampling Point: DPS

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-8	10YR 2/2	100					~~loam~~ Urban fill	large cobbles & rocks

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

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

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present): none

Type: Rocks

Depth (inches): 8 inches

Hydric Soil Present? Yes ___ No ✓

Remarks: Fill likely from construction of Smart Trail

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ___ 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 Plowed 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)
- ___ Thin Muck Surface (C7)
- ___ 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:

NON-WETLAND WATERS

WETLAND DETERMINATION DATA FORM

Project/Site: Olive Ave City/County: Marin Sampling Date: 07/09/2014

Applicant/Owner: City of Novato State: CA Sampling Point: DP6 (SIX)

Investigator(s): Jane Valerius Section, Township, Range:

Landform (hillslope, terrace, etc.): Valley Local relief (concave, convex, none): Concave Slope (%): 0-5%

Subregion (LRR): Lat: Long: Datum:

Soil Map Unit Name: Urban land - Xerothents Complex 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? (no) Are "Normal Circumstances" present? Yes ✓ No ___

Are Vegetation ___, Soil ___, or Hydrology ___ naturally problematic? (no) (If needed, explain any answers in Remarks.)

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

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

Remarks: Data point located in flow line of culvert.
OHWM 8' wide
Bare ground on top of bank SMART trail gravel dirt

VEGETATION

Tree Stratum (Plot size: ___)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	= Total Cover		
Sapling/Shrub Stratum (Plot size: ___)			
1.			
2.			
3.			
4.			
5.			
	= Total Cover		
Herb Stratum (Plot size: 5 ft radius)			
1. Cyperus eragrostis	25	Y	FACW
2. Typha latifolia	20	Y	OBLW
3. Phalaris aquatica	10	N	FACU
4. Paspalum dilatatum	10	N	FAC
5. Rumex conspus	20	Y	FAC
6. Rubus armeniacus	15	N	FACU
7. Picris echioides	2	N	FAC
8.			
	= Total Cover		
Woody Vine Stratum (Plot size: ___)			
1.			
2.			
	= Total Cover		

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

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 3 (A)

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

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

Prevalence Index = B/A = ___

Hydrophytic Vegetation Indicators:

✓ Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

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

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes ✓ No ___

Remarks: NL = No listing status

SOIL

Sampling Point: DP 6

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-12	10YR 3/1	95	10YR 3/6	5			~~loam~~ Urban Soil & clay loam	

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

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

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present): none

Type: Ø

Depth (inches): Ø

Hydric Soil Present? Yes ✓ No ___

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ___ 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 Plowed 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)
- ___ Thin Muck Surface (C7)
- ___ 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:

Appendix B -
Soils Information

Soil Map—Marin County, California
(Olive Avenue Roadway and Drainage Improvements Project)

Map Scale: 1:2,030 if printed on A portrait (8.5" x 11") sheet.

N

Meters: 0 30 60 120 180

Feet: 0 50 100 200 300

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 1:24,000.

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: http://websoilsurvey.nrcs.usda.gov
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: Marin County, California
Survey Area Data: Version 7, Nov 26, 2013

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Nov 2, 2010—Feb 17, 2012

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

Marin County, California (CA041)			
Map Unit Symbol	**Map Unit Name**	**Acres in AOI**	**Percent of AOI**
202	Urban land-Xerorthents complex, 0 to 9 percent slopes	3.0	100.0%
Totals for Area of Interest		**3.0**	**100.0%**

Appendix C -
Site Photographs

APPENDIX C: SITE PHOTOGRAPHS

Olive Avenue Ditch looking west.

Olive Avenue Ditch looking east.

Appendix C continued

Railroad Ditch looking south from Olive Avenue. This portion of the ditch lacks wetland plants and soils.

Railroad Ditch looking south towards Sweetzer Avenue – this portion of the ditch has wetland plants.

Appendix C, Mitigation, Monitoring, and Reporting Program

City of Novato Olive Avenue Roadway and Drainage Improvements Project Mitigation, Monitoring, and Reporting Program

Mitigation Measure	Verify Compliance/ Monitoring Responsibility	Timing of Initial Action	Monitoring Frequency and Duration	Action Items
Project Measure 1 – Implement Air Quality Control Measures during Construction The proposed Project will include the following Bay Area Air Quality Management District (BAAQMD) recommended Basic Construction Measures in contract specifications to limit dust, criteria pollutants, and precursor emissions associated with construction: • All exposed surfaces (e.g., parking areas, staging areas, soil piles, graded areas and unpaved access roads) shall be watered two times per day; • All haul trucks transporting soil, sand, or other loose material off-site shall be covered; • All visible mud or dirt tracked-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 shall be prohibited; • All vehicle speeds on unpaved areas shall be limited to 15 miles per hour; • All paving shall be completed as soon as possible after work is finished; • Idling times shall be minimized either by shutting equipment off when not in use or reducing the maximum idling time to five minutes (as required by the California airborne toxics control measure Title 13, Section 2485 of California Code of	City of Novato	During construction	Ongoing during construction	Implement BMPs

Mitigation Measure	Verify Compliance/ Monitoring Responsibility	Timing of Initial Action	Monitoring Frequency and Duration	Action Items
Regulations). Clear signage shall be provided for construction workers at all access points; • All construction equipment shall be maintained and properly tuned in accordance with manufacturer's specifications, and/or certified by California Air Resources Board (CARB) for on- and off-road diesel engines. All equipment shall be checked by a certified mechanic and determined to be running in proper condition prior to operation; and • Post a publicly visible sign with the telephone number and 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 phone number shall also be visible to ensure compliance with applicable regulations.				
Project Measure 2 – Manage Construction Storm Water If the proposed Project components are constructed together, thereby disturbing more than one acre of soil, the City will obtain coverage under State Water Resources Control Board Order No. 2009-0009-DWQ, Waste Discharge Requirements for Discharges of Storm Water Runoff Associated with Construction and Land Disturbance Activities, as amended by Order No. 2012-0006, as required by regulation. The City will submit permit registration documents (notice of intent, risk assessment, site maps, Storm Water Pollution Prevention Plan [SWPPP], annual fee, and certifications) to the State Water Resources Control Board. The SWPPP will address pollutant sources, non-storm water discharges resulting from construction dewatering, best management practices, and other requirements specified in the above-mentioned Order. The	City of Novato	Prior to construction	Ongoing during construction	Complete and implement SWPPP or Erosion Control Plan

Mitigation Measure	Verify Compliance/ Monitoring Responsibility	Timing of Initial Action	Monitoring Frequency and Duration	Action Items
SWPPP will also include dust control practices to prevent wind erosion, sediment tracking, and dust generation by construction equipment. A Qualified Storm Water Pollution Prevention Plan Practitioner will oversee implementation of the SWPPP, including visual inspections, sampling and analysis, and ensuring overall compliance. If Project components are constructed separately and disturb less than one acre of soil, the City will require its Contractor to develop an Erosion Control Plan prior to construction to prevent or minimize soil erosion and sedimentation during construction. The Plan will address how the Contractor would manage erosion and sediment control measures, general site and materials management, and inspection and maintenance. Below are examples of the measures that would be incorporated into Project construction to reduce soil erosion and protect water quality: • Erosion and sediment control measures will be in effect and maintained by the Contractor on a year-round basis until all disturbed areas are stabilized. • Stockpiled material will be covered or watered daily sufficient to eliminate dust. • Fiber rolls, straw waddles, silt dams, or similar products will be utilized to reduce sediment runoff from disturbed soils. • A stabilized construction entrance will be maintained to minimize tracking of mud and dirt from construction vehicles onto public roads. • Storm drain inlets receiving storm water runoff will be equipped				

Mitigation Measure	Verify Compliance/ Monitoring Responsibility	Timing of Initial Action	Monitoring Frequency and Duration	Action Items
with inlet protection.				
Mitigation Measure BIO-1: Protect Nesting Birds The City's contractor shall implement measures to protect nesting passerines that may potentially nest in trees in and adjacent to the Project construction area prior to, or during construction: • Grading or removal of shrubs shall be conducted outside the passerine nesting season, which occurs between approximately February 15 and August 15, to the extent feasible. • If grading between August 15 and February 15 is infeasible and groundbreaking must occur within the nesting season, a pre-construction nesting bird (passerine) survey of the grasslands and adjacent trees and shrubs shall be performed by a qualified biologist within seven days of ground breaking. If no nesting birds are observed no further action is required and grading shall occur within one week of the survey. • If active bird nests are observed during the pre-construction survey, a disturbance-free buffer zone shall be established around the nest tree(s) until the young have fledged, as determined by a qualified biologist. The radius of the required buffer zone can vary depending on the species, (i.e., 75-100 feet for passerines and 200-300 feet for raptors), with the dimensions of any required buffer zones to be determined by a qualified biologist in consultation with the California Department of Fish and Wildlife (CDFW). • To delineate the buffer zone around any trees with an active passerine nest in it orange construction fencing shall be placed at the specified radius from the base of the tree within which no	City of Novato	Prior to construction	Ongoing during construction	Conduct surveys if needed, implement mitigation measures as needed

Mitigation Measure	Verify Compliance/ Monitoring Responsibility	Timing of Initial Action	Monitoring Frequency and Duration	Action Items
machinery or workers shall intrude. • After the fencing is in place there will be no restrictions on grading or construction activities outside the prescribed buffer zones.				
Mitigation Measure BIO-2a: Avoid or Restore Jurisdictional Waters and Wetlands Temporarily Affected by Construction The City shall implement avoidance and minimization measures, including best management practices (BMPs), to protect jurisdictional wetlands and waters during construction that would not be permanently filled as part of the Project. Examples of such measures include: • Materials and fluids generated by construction activities shall be placed at least 25 feet away from wetland areas or drainages until they can be disposed of at a permitted site. • Minimize construction work area to the extent feasible. All wetlands and waters areas that will not be filled, but area located adjacent to the construction zone, shall be temporarily fenced off and designated as environmentally sensitive areas to prevent accidental intrusion by workers and equipment. • All wetlands and waters areas temporarily disturbed by construction shall be revegetated and restored to original contours and drainage patterns. • Sending and receiving pits for jack and bore operations shall be situated outside of wetlands and other waters.	City of Novato	During Project design	Monitor implementation of BMPs	Avoid where feasible and restore where impacts occur

Mitigation Measure	Verify Compliance/ Monitoring Responsibility	Timing of Initial Action	Monitoring Frequency and Duration	Action Items
Mitigation Measure BIO-2b: Compensate for the Loss of Wetlands and Other Waters The City shall compensate for the permanent loss of wetlands and other waters by developing a Wetlands and Waters Mitigation Plan (Plan) to ensure no net loss. The Plan shall compensate for permanent impacts through the purchase of mitigation credits from an approved mitigation bank or creation, restoration, re-establishment, or preservation of wetlands. The Plan shall be submitted to the resource permitting agencies, including the U.S. Army Corps of Engineers, the San Francisco Bay Regional Water Quality Control Board, and the California Department of Fish and Wildlife, for review and approval as part of the permitting process. The Plan, if needed, shall address restoration or re-establishment needs, success criteria, annual monitoring requirements, and reporting requirements. The mitigation ratio and success criteria shall be determined in coordination with the resource permitting agencies but shall be no less than 1:1. If required by permitting agencies, compensation shall also be required for temporary impacts to wetlands and other waters. Compensatory wetlands or other waters shall be in-kind, if practicable and, if feasible, compensatory wetlands or other waters shall be located within the same watershed as the impacted waters. Out-of-kind compensatory wetlands or other waters, if constructed, shall provide equal or greater wetland function and value than impacted waters. Wetland creation shall be monitored for a minimum of two years for hydrological functions and restoration or re-establishment of	City of Novato	During Project permitting process	As specified in permit conditions to ensure success criteria are met (but minimum of two years)	Prepare plan and submit to resource agencies for review and approval

Mitigation Measure	Verify Compliance/ Monitoring Responsibility	Timing of Initial Action	Monitoring Frequency and Duration	Action Items
herbaceous wetlands, to achieve a minimum 70 percent survival rate, or as otherwise determined by the permitting agencies. If restoration or re-establishment objectives are not achieved within the monitoring period, restoration or re-establishment activities shall continue until performance standards and success criteria are met. If the City pursues the construction of Alternate 1 that includes relocation and resizing of Olive Ditch, the City shall include re-establishment, restoration and vegetation of the ditch in the Wetlands and Waters Restoration and Mitigation Plan.				
Mitigation Measure CR-1: Protect Archaeological Resources Discovered During Construction The City shall obtain a qualified archaeologist to serve as an onsite monitor during Project ground-disturbing construction activities. The qualified archaeologist shall observe ground-disturbing activities to identify and alert the construction crew to the presence of archaeological resources, such as chert, obsidian flakes, projectile points, mortars, pestles, dark friable soil containing shell and bone dietary debris, heat-affected rocks, or human burials, if encountered during construction activities. If archaeological resources are encountered, the City shall temporarily halt construction in the vicinity of the resource. Workers shall avoid altering the materials and their context and shall not collect cultural materials. The City's qualified professional archaeologist shall evaluate the find and provide appropriate recommendations. If the archaeologist determines that the find potentially qualifies as a unique archaeological resource for purposes of CEQA (CEQA Guidelines Section 15064.5[c][3]), all work must remain stopped in the immediate vicinity to allow the archaeologist to evaluate any	City of Novato	If encountered	Ongoing during construction	Implement procedures and initiate notification as necessary

Mitigation Measure	Verify Compliance/ Monitoring Responsibility	Timing of Initial Action	Monitoring Frequency and Duration	Action Items
materials and recommend appropriate treatment. The City shall notify interested Native American tribes of such discoveries and consult with the tribe from which the resources originated, according to the Native American Heritage Commission. Such treatment and resolution shall include either modifying the Project to allow the materials to be left in place or undertaking data recovery of the materials in accordance with standard archaeological methods. The preferred treatment of the resource is protection and preservation.				
Mitigation Measure CR-2: Protect Paleontological Resources During Construction Activities If a suspected paleontological resource is discovered during construction, the City shall temporarily halt all ground disturbing activities within 50 feet of the find, and a qualified paleontologist shall be notified to document the discovery as needed, evaluate the potential resource, and assess the nature and significance of the find. Based on the scientific value or uniqueness of the find, the paleontologist may record the find and allow work to continue, or recommend salvage and recovery of the material, if it is determined that the find cannot be avoided. The paleontologist shall make recommendations for any necessary treatment that is consistent with currently accepted scientific practices.	City of Novato	If encountered	Ongoing during construction	Implement procedures as needed
Mitigation Measure CR-3: Procedures for Encountering Human Remains The City shall immediately notify the Marin County Coroner should human remains, associated grave goods, or items of cultural patrimony be encountered during construction, and the following procedures shall be followed as required by Public Resources Code	City of Novato	If encountered	Ongoing during construction	Implement procedures and initiate notification as necessary

Mitigation Measure	Verify Compliance/ Monitoring Responsibility	Timing of Initial Action	Monitoring Frequency and Duration	Action Items
§ 5097.98 and Health and Safety Code § 7050.5. In the event of the coroner's determination that the human remains are Native American, notification of the Native American Heritage Commission, which would appoint a Most Likely Descendant (MLD). A qualified archaeologist, the City and the MLD shall make all reasonable efforts to develop an agreement for the treatment, with appropriate dignity, of any human remains and associated or unassociated funerary objects. The agreement would take into consideration the appropriate excavation, removal, recordation, analysis, custodianship, and final disposition of the human remains and associated or unassociated funerary objects.				
Mitigation Measure HAZ-1: Health and Safety Plan Prior to construction, the City shall require the contractor to prepare a site-specific health and safety plan in accordance with federal OSHA regulations (29 CFR 1910.120) and Cal-OSHA regulations (8 CCR Title 8, Section 5192) to address potential worker health and safety issues during construction. The health and safety plan shall identify the potentially present chemicals, health and safety hazards associated with those chemicals, all required measures to protect construction workers and the general public from exposure to harmful levels of any chemicals identified at the site (e.g., engineering controls, monitoring, and security measures to prevent unauthorized entry to the work area), appropriate personal protective equipment, and emergency response procedures. The health and safety plan shall designate qualified individuals responsible for implementing the plan and for directing subsequent procedures in the event that unanticipated contamination is encountered.	City of Novato	Prior to construction	Ongoing during construction	Prepare plan and implement health and safety measures

Mitigation Measure	Verify Compliance/ Monitoring Responsibility	Timing of Initial Action	Monitoring Frequency and Duration	Action Items
Mitigation Measure HAZ-2: Hazardous Materials Management Plan Prior to construction, the City shall require the contractor to prepare a hazardous materials management plan that specifies the method for handling and disposal of both chemical products and hazardous materials during construction and contaminated soil and groundwater, should any be encountered during construction. Contract specifications shall mandate full compliance with all applicable local, State, and federal regulations related to identifying, transporting, and disposing of hazardous materials, including any hazardous wastes encountered in excavated soil or groundwater. If contaminated soil or groundwater is encountered, the City shall require the construction contractor to prepare and implement a construction Soil and Groundwater Management Plan. The contractor shall submit the Plan to the City for review and approval. Elements of the plan shall include: • Measures to address hazardous materials and other worker health and safety issues during construction, including the specific-level of protection required for construction workers (e.g., protective gear, engineering controls, monitoring, and security measures to prevent unauthorized entry to the work area). • Provisions for excavation of soil, stockpiling, and dust control measures. • Measures to prevent off-site migration of contaminated soil and groundwater. • Location and final disposition of all soil and groundwater	City of Novato	Prior to construction	Ongoing during construction	Prepare plan and implement hazardous materials management plan

Mitigation Measure	Verify Compliance/ Monitoring Responsibility	Timing of Initial Action	Monitoring Frequency and Duration	Action Items
removed from the site. • All other necessary procedures to ensure that excavated materials are stored, managed, and disposed of in a manner that is protective of human health and in accordance with applicable laws and regulations.				
Mitigation Measure NOI-1: Reduce Construction-Related Noise The City shall require the construction contractor to implement construction noise control measures. Noise control measures may include, but would not be limited to, the following: • Construction activity shall be allowed only between the hours of 7:00 a.m. and 6:00 p.m. Monday through Friday, and between 10:00 a.m. and 5:00 p.m. on Saturdays. • Internal combustion engine driven equipment shall be equipped with intake and exhaust mufflers that are in good condition and appropriate for the equipment. • Stationary noise generating equipment shall be located as far as possible from sensitive receptors. • Unnecessary idling of internal combustion engines shall be prohibited within 100 feet of residences. • Construction equipment shall be maintained properly to minimize extraneous noise due to squeaking or rubbing machinery parts, damaged mufflers, or misfiring engines. • A “disturbance coordinator” shall be designated who would be responsible for responding to any local complaints about construction noise. The name and phone number of the disturbance coordinator shall be conspicuously posted at the	City of Novato	Prior to construction	Ongoing during construction	Develop and implement noise reduction measures

Mitigation Measure	Verify Compliance/ Monitoring Responsibility	Timing of Initial Action	Monitoring Frequency and Duration	Action Items
construction site. The disturbance coordinator shall determine the cause of the noise complaint, and shall require that reasonable measures warranted to correct the problem be implemented.				
Mitigation Measure TR-1: Traffic Control Plan The City shall require the construction contractor to prepare and implement an approved traffic control plan for the proposed construction activities. The plan shall include measures that address work that would block the public ROW, and shall include plans for re-routing of vehicles, bicycles and pedestrians. The traffic control plan shall include, but not necessarily be limited to, the following measures as applicable to site-specific conditions: • The traffic control plan shall also conform to applicable provisions of the State's Manual of Traffic Controls for Construction and Maintenance Work Areas. • Flaggers and signage shall be used to guide vehicles through and/or around the construction zone. • Truck routes shall be identified in the traffic control plan and shall be utilized to the extent feasible to minimize truck traffic on local roadways and residential streets that are not identified locally as designated haul routes. • Lane closures at Olive Avenue shall be limited during peak hours to the extent feasible. In addition, outside of allowed working hours, or when work is not in progress, Olive Avenue shall be restored to normal operations, where feasible, with all trenches covered with steel plates.	City of Novato	Prior to construction	Ongoing during construction	Develop and implement traffic control plan measures

Mitigation Measure	Verify Compliance/ Monitoring Responsibility	Timing of Initial Action	Monitoring Frequency and Duration	Action Items
• Signs shall be provided to advise bicyclists and pedestrians of temporary detours around construction zones. • Access to driveways and private roads shall be maintained, as feasible, by using steel trench plates. If access must be restricted for brief periods (more than one hour), property owners shall be notified by the City in advance of such closures. Access to the Trader Joe's shopping center shall be rerouted to the Redwood Boulevard driveway if access via Olive Avenue is not available. • At locations where the main access to a nearby property is blocked, the contractor(s) shall be required to have ready at all times the means necessary to accommodate access by emergency vehicles to such properties, such as plating over excavations, short detours, and/or alternate routes. • Construction shall be coordinated with facility owners or administrators of land uses that may be more significantly affected by traffic impacts, such as police and fire stations, transit providers, hospitals, ambulance providers, and schools. Emergency responders, and other more significantly affected facility owners and/or operators shall be notified by the City in advance of the timing, location, and duration of construction activities and the locations and durations of any temporary lane closures.				

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