

Draft

INITIAL STUDY/

MITIGATED NEGATIVE DECLARATION

for the

CRESTWOOD HEIGHTS WATER ASSOCIATION

WATER SYSTEM CONSOLIDATION PROJECT

Prepared for:



City of Watsonville
250 Main Street
Watsonville, CA 95076

Prepared by:



Denise Duffy & Associates
947 Cass Street, Suite 5
Monterey, CA 93940

April 2026

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- A. Engineering Report and Plans
- B. Biological Assessment
- C. CalEEMod Summary Report
- D. Geologic Hazards Evaluation & Geotechnical Investigation

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CITY OF WATSONVILLE

Environmental Checklist / Initial Study

CRESTWOOD HEIGHTS WATER ASSOCIATION WATER SYSTEM CONSOLIDATION PROJECT

1. Project Title

Crestwood Heights Water Association Water System Consolidation Project

2. Lead Agency Name and Address

City of Watsonville
Danielle Green
250 Main Street
Watsonville, CA 95076
(831) 768-3104
danielle.green@watsonville.gov

3. General Plan Designation

- AG (Agriculture)
- RU-L (Urban Low Density Residential)
- O-U (Urban Open Space)

The designations above are shown in **Figure 3a. Land Use Map**.

4. Zoning Designation

- CA (Commercial Agriculture)
- RA-GH (Residential Agricultural, Geologic Hazards)
- R-1-6 (Single-Family Residential)
- A (Agriculture)

The designations above are shown in **Figure 3b. Zoning Map**.

5. Project Description Sources

The primary sources for the project description provided below are as follows:

- Final Preliminary Engineering Report for the Crestwood Heights Water Association System Consolidation Project, prepared by MNS Engineers Inc., dated May 2023; and
- 60% Design Plans for the Crestwood Heights Water Association System Consolidation Project, prepared by MNS Engineers Inc., dated June 2023; and
- Biological Resources Report for the Crestwood Heights Water Association Project, prepared by Denise Duffy & Associates, dated March 2026.

These documents are included in **Appendices A through D** to this document.

6. Introduction

6.1 INTRODUCTION

This Initial Study has been prepared to evaluate the potential environmental effects associated with the Crestwood Heights Water Association Water System Consolidation Project (“project” or “proposed project”), located outside the City of Watsonville in unincorporated Santa Cruz County (“County”). This document has been prepared in accordance with the California Environmental Quality Act (“CEQA”), Public Resources Code §21000 et. seq., and the State CEQA Guidelines, California Code of Regulations (“CCR”) §15000 et. seq.

An Initial Study is an informational document prepared by a Lead Agency to determine if a project may have a significant effect on the environment (CEQA Guidelines §15063, subd. (a)). If there is substantial evidence that a project may have a significant effect on the environment, an Environmental Impact Report (“EIR”) must be prepared, in accordance with CEQA Guidelines §15064(a). However, if the Lead Agency determines that revisions in the project plans or proposals made by or agreed to by the applicant to mitigate the potentially significant effects to a less than significant level, a Mitigated Negative Declaration (“IS/MND”) may be prepared instead of an EIR (CEQA Guidelines §15070, subd. (b)). The Lead Agency prepares a written statement describing the reasons a proposed project would not have a significant effect on the environment and, therefore, why an EIR need not be prepared. This IS/MND conforms to the content requirements under CEQA Guidelines §15071.

The City of Watsonville (“City”) is acting as the Lead Agency pursuant to CEQA Guidelines §15050(a). As the Lead Agency, the City of Watsonville prepared this IS/MND pursuant to CEQA Guidelines §15063, §15070, and §15152. This IS/MND will be circulated for agency and public review during a 30-day public review period pursuant to CEQA Guidelines §15073. Comments received by the City of Watsonville on this IS/MND will be reviewed and considered as part of the deliberative process in accordance with CEQA Guidelines §15074.

The following section is consistent with the requirements of CEQA Guidelines §15124 to the extent that it is applicable to the project. This section contains a detailed description of the project location, historical background and context, project components and relevant project characteristics, project goals and objectives, and applicable regulatory requirements.

6.2 PROJECT LOCATION

The proposed project, described below, is located outside of the eastern boundary of the City of Watsonville. The proposed project components, described below in **Section 6.5**, are primarily within the Lakeview Road right-of-way, with some components located in the Crestwood Heights community of unincorporated Santa Cruz County (see **Figure 1. Regional Project Map** and **Figure 2. Project Location**).





Project Location

Date
10/12/2025

Scale
1 in = 600 ft



Denise Duffy & Associates, Inc.
Planning and Environmental Consulting

Figure
2

The proposed project would be located on the following assessor's parcels:

- | | | |
|--------------|--------------|--------------|
| • 051-30-101 | • 051-30-201 | • 051-30-217 |
| • 051-30-102 | • 051-30-202 | • 051-30-218 |
| • 051-30-103 | • 051-30-203 | • 051-30-219 |
| • 051-30-104 | • 051-30-204 | • 051-30-220 |
| • 051-30-105 | • 051-30-205 | • 051-30-221 |
| • 051-30-106 | • 051-30-206 | • 051-30-222 |
| • 051-30-107 | • 051-30-207 | • 051-30-223 |
| • 051-30-108 | • 051-30-208 | • 051-30-225 |
| • 051-30-109 | • 051-30-209 | • 051-30-226 |
| • 051-30-112 | • 051-30-210 | • 051-30-227 |
| • 051-30-113 | • 051-30-211 | • 051-30-228 |
| • 051-30-114 | • 051-30-212 | • 051-30-232 |
| • 051-30-115 | • 051-30-213 | • 051-30-233 |
| • 051-30-117 | • 051-30-214 | • 051-30-234 |
| • 051-30-118 | • 051-30-215 | |
| • 051-30-119 | • 051-30-216 | |

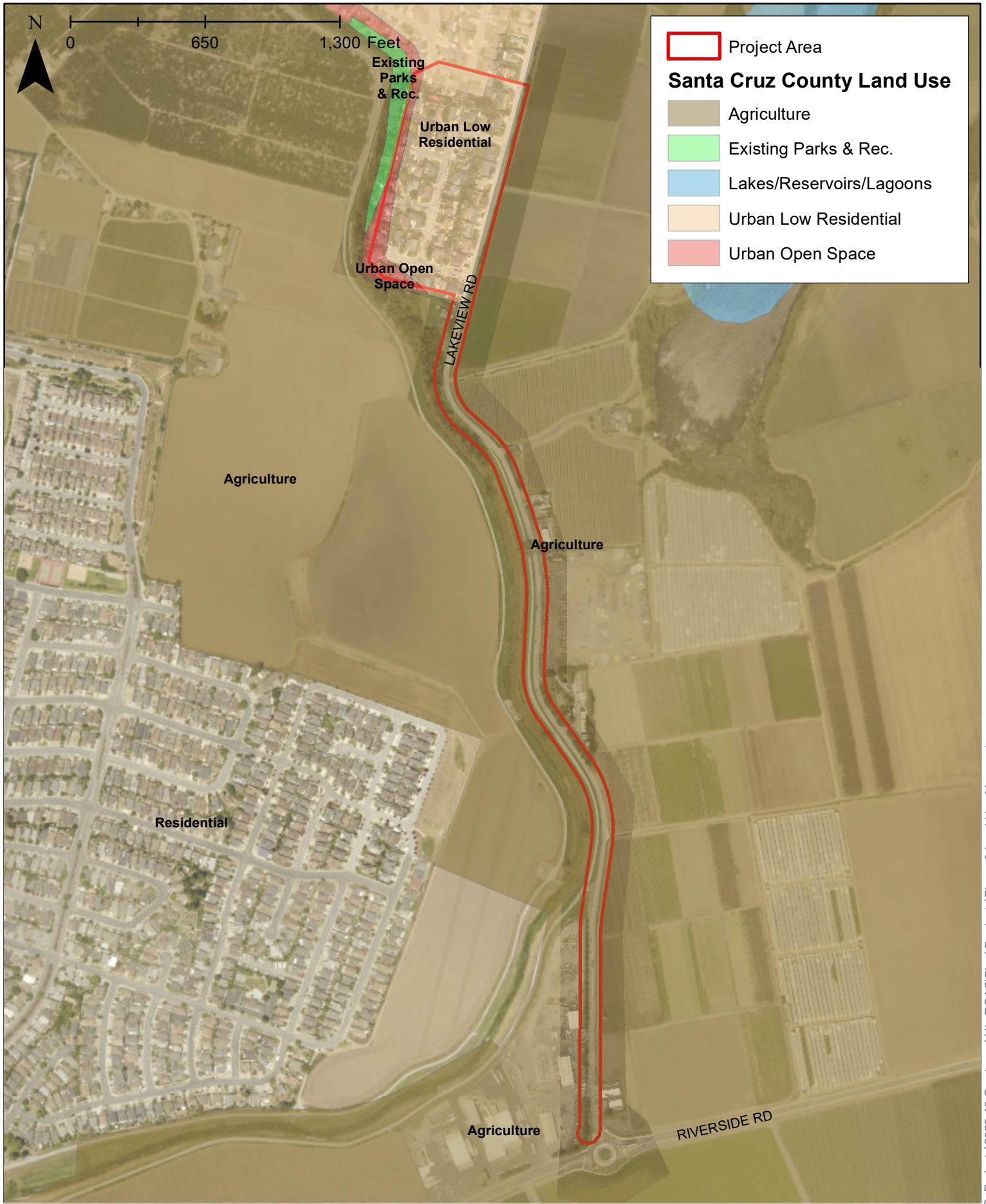
Regional access to the project site is provided from State Route 129/Riverside Road ("SR-129") and College Road. The proposed project is surrounded primarily by agricultural and residential uses. In addition, open space use (Salsipuedes Creek) is located to the west of the project. The project site currently consists of paved road rights-of-way and single-family residential land.

6.3 EXISTING GENERAL PLAN LAND USE DESIGNATION

The project area is governed by the County of Santa Cruz 1994 General Plan and is within the Pajaro Valley Planning Area. The residential portion of the project area is designated as Urban Low Density Residential ("R-UL"), and a small portion of the west and southwest parcels of the residential area are partially designated as Urban Open Space ("O-U"). The road right-of-way areas do not have land use designations. The area to the west of the project area across Lakeview Road is within the Salsipuedes Planning Area of County of Santa Cruz and is designated as Agriculture ("AG") and Lakes, Reservoirs, and Lagoons ("O-L"). See **Figure 3a. Land Use Map**. It should be noted that the project area is within the jurisdiction of the County of Santa Cruz and is located within the City of Watsonville Sphere of Influence.

6.4 PROJECT BACKGROUND

Crestwood Heights, an incorporated community, is currently on a small community water system located just northeast of the City in unincorporated Santa Cruz County, California. The water system delivers water through 45 service connections and serves an approximate population of 147 residents. The system is currently supplied by groundwater through one (1) primary active well (Well #1). A secondary stand-by well (Well #2) onsite is currently nonoperational due to past complications from regional seismic activity. The inoperable stand-by well has left the community vulnerable to water insecurity in the occurrence of failure of Well #1. The primary well satisfies overall capacity; however, the water system has difficulty meeting peak usage demand due to limited available storage. The water system also experiences frequent maintenance issues that require mainline shutoff, thereby resulting in periodic service termination throughout the community.



Land Use Map

Date
10/12/2025

Scale
1 in = 600 ft



Denise Duffy & Associates, Inc.
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Figure

3a



Zoning Map

Date
10/12/2025

Scale
1 in = 600 ft



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Figure
3b

The proposed project would consolidate the Crestwood Heights Water Association (“CHWA”) water system with the City’s water system. The proposed project would replace the current CHWA distribution infrastructure and install individual meters on each service connection to meet City standards. The CHWA water main alignment is located between residences on Lakeview Road and Cambridge Drive, in a 10-foot (“ft”) wide water easement parallel to Lakeview Road and adjacent residential streets. The project includes constructing laterals from the water main to 45 residences, the alignments for each lateral are not yet known. The consolidation design also incorporates two (2) intertie locations to provide system service reliability. After consolidation, the CHWA would be dissolved of its status as a mutual water company. The proposed project also involves preparing a Drinking Water State Revolving Fund (“DWSRF”) application to assist in funding construction of the project.

The existing CHWA system is shown in **Figure 4. Existing System**.

6.4.1 Existing System

The CHWA, Public Water System ID CA4400605, provides potable water service to its membership consisting of approximately 147 people from 45 single-family residences in the southern region of the County, located just northeast of the city limits of the City of Watsonville. CHWA has been serving its community since 1968. The CHWA serves residences encompassing a portion of Lakeview Road, Crestwood Drive, Cambridge Drive, Stratford Drive, Oxford Drive, and Kingston Drive. The roads included in the Project are public right-of-way, owned and maintained by the County. CHWA is located within the City’s potable water service area, and the City’s sphere of influence boundary.

The system is currently served by one (1) of two (2) existing wells, which produce water from the Pajaro Valley Groundwater Basin. These wells are located within the community on a dedicated well site parcel at the west end of Kingston Drive. The parcel has no address but is denoted by Accessor’s Parcel Number 051-302-34 and has an area of 3,484.8 square feet, or 0.08 acres.

Currently, Well #1 is active and reliable, in terms of capacity, and meets current water quality requirements. Well #2 is inactive due to damage from seismic activity, and possible water contamination as indicated by discoloration of the water. Well #1 was constructed in 1972 and equipped with a 10-horsepower motor, a 3-inch galvanized steel column pipe, and an 8-inch PVC casing extending to 262 feet below ground surface. The well produces 105 gallons per minute at a pressure of 70 pounds per square inch (psi) at grade.

The remainder of the existing water distribution system was constructed in 1968. The remainder of the system is comprised of the two (2) aforementioned wells, a 5,000-gallon hydropneumatic tank to assist in maintaining system pressure, four (4) wharf head style fire hydrants, and approximately 3,000 linear feet of 4-inch diameter asbestos cement (“AC”) water mains to convey water to the residents. A majority of the existing water mains are located within 10-foot-wide easements centered on property lines between parcels. The water is currently untreated and without disinfection.

Demand is completely generated from residential customers; there are no commercial or industrial customers served by the system. The current system is operated and maintained by CHWA through a third-party system operator, Dougherty Pump & Drilling, Inc (“Dougherty”). Operational activities by Dougherty include monthly and annual sampling of the water quality and reporting to the County Health Department.

The service area boundaries are shown in **Figure 5. Site Plan**.



Existing Crestwood Heights Water System

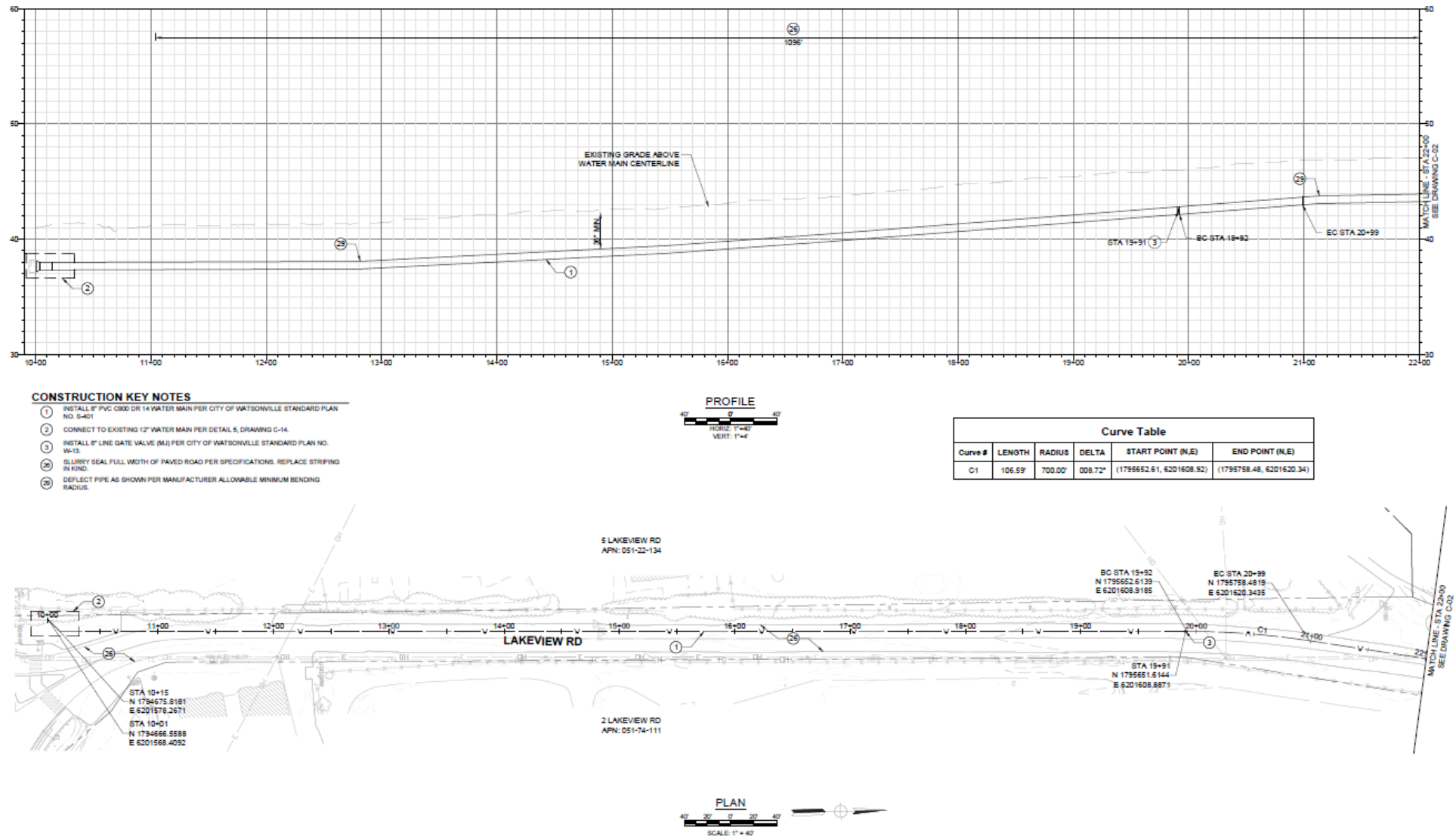
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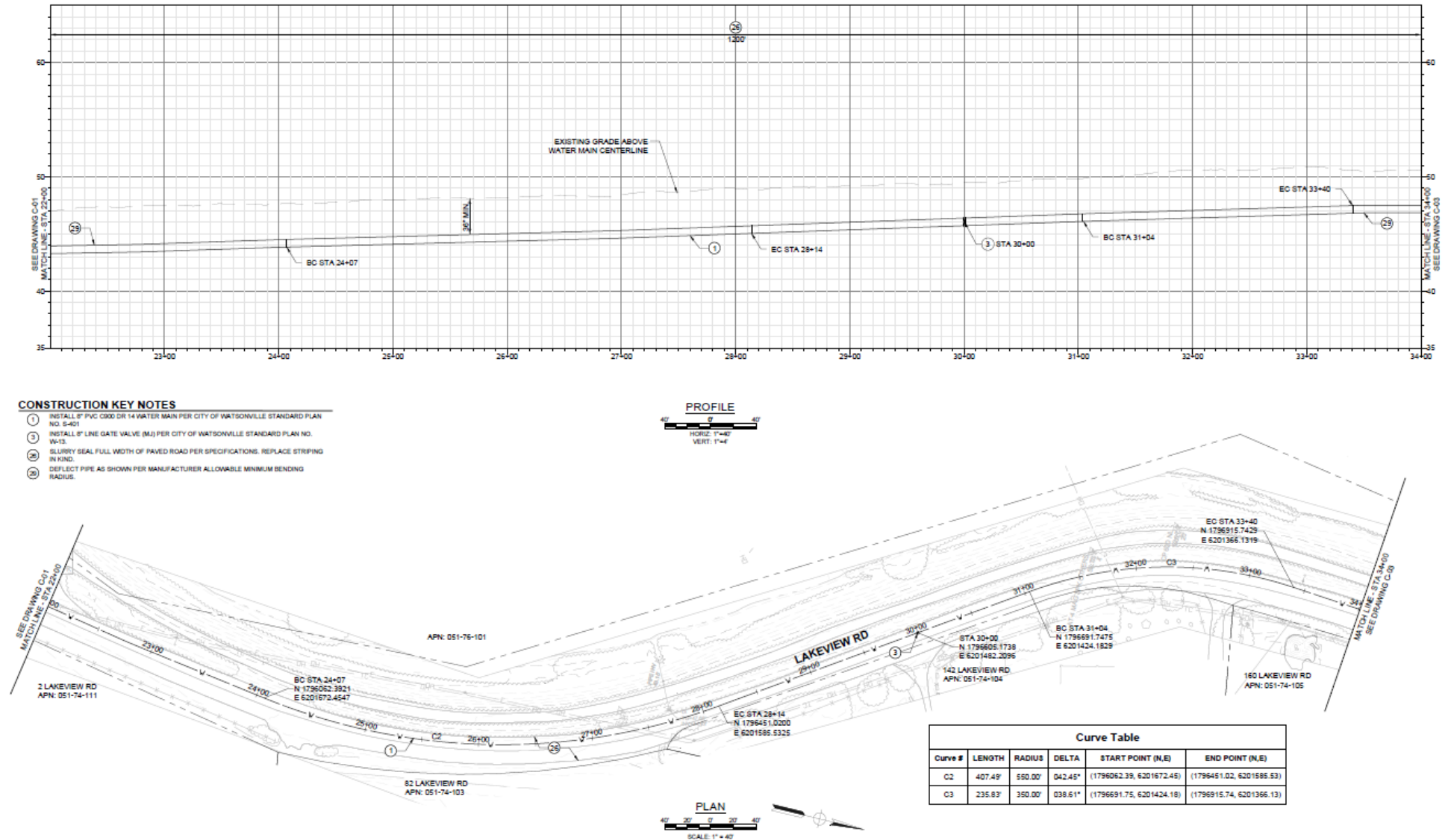
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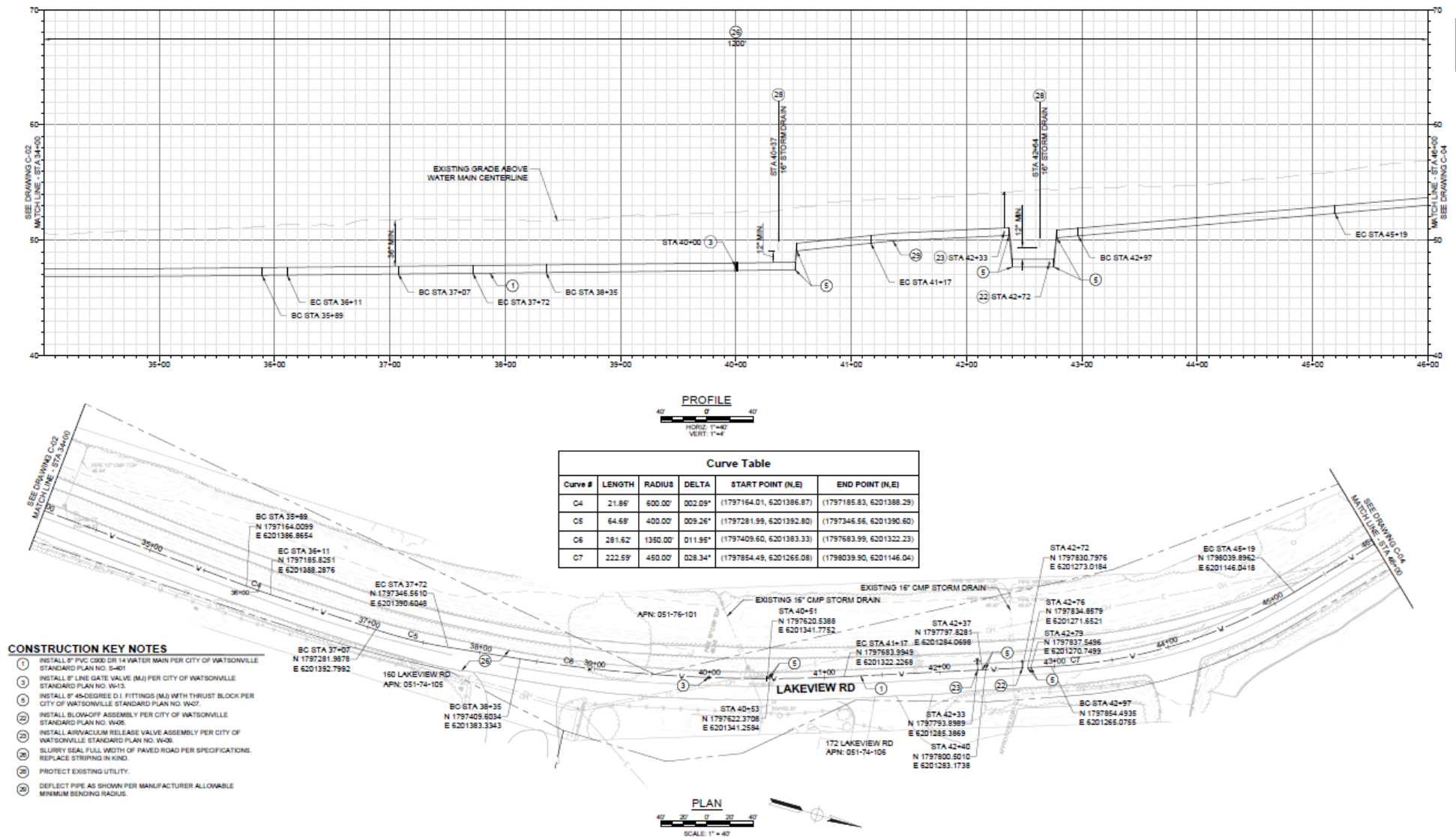


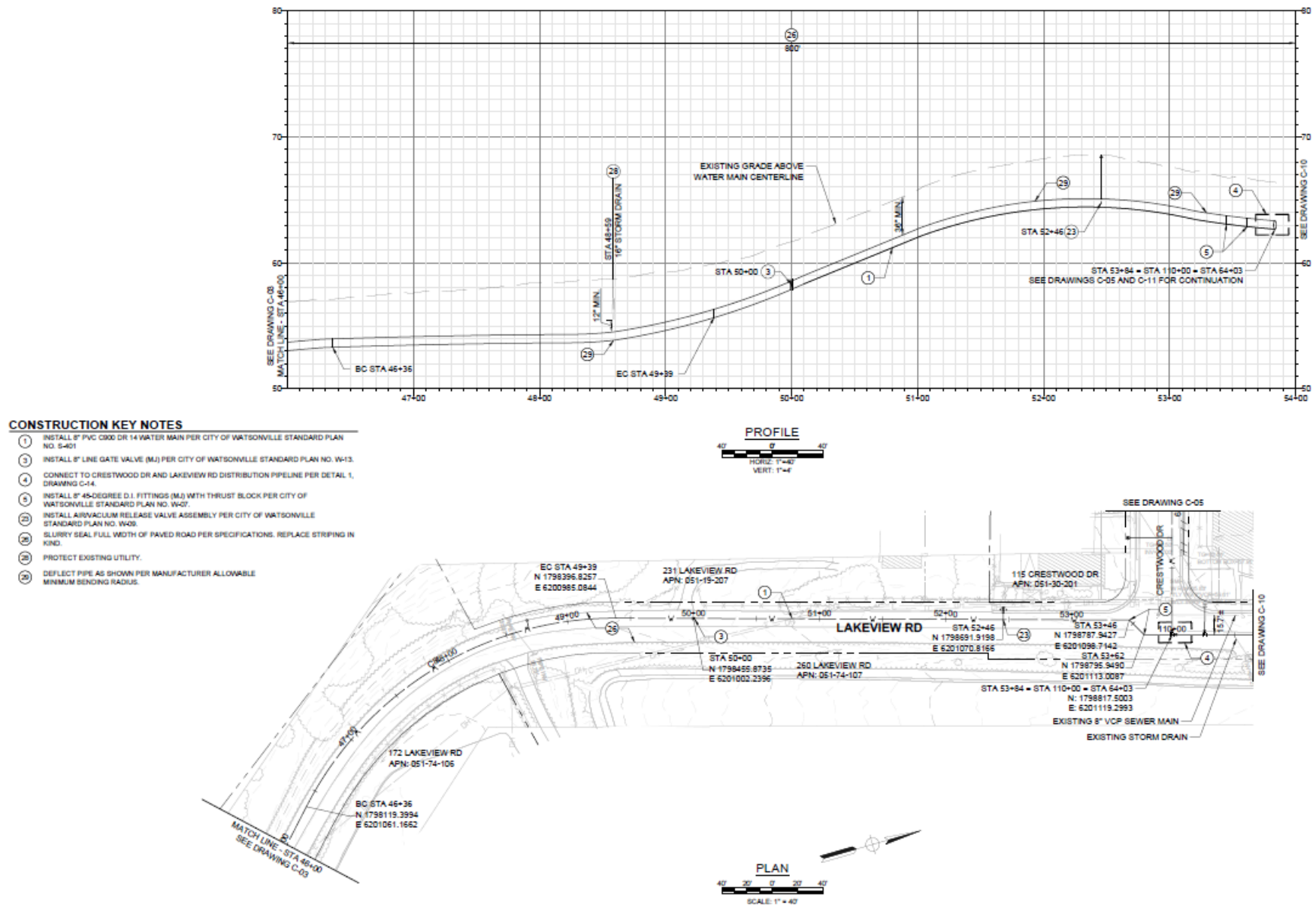
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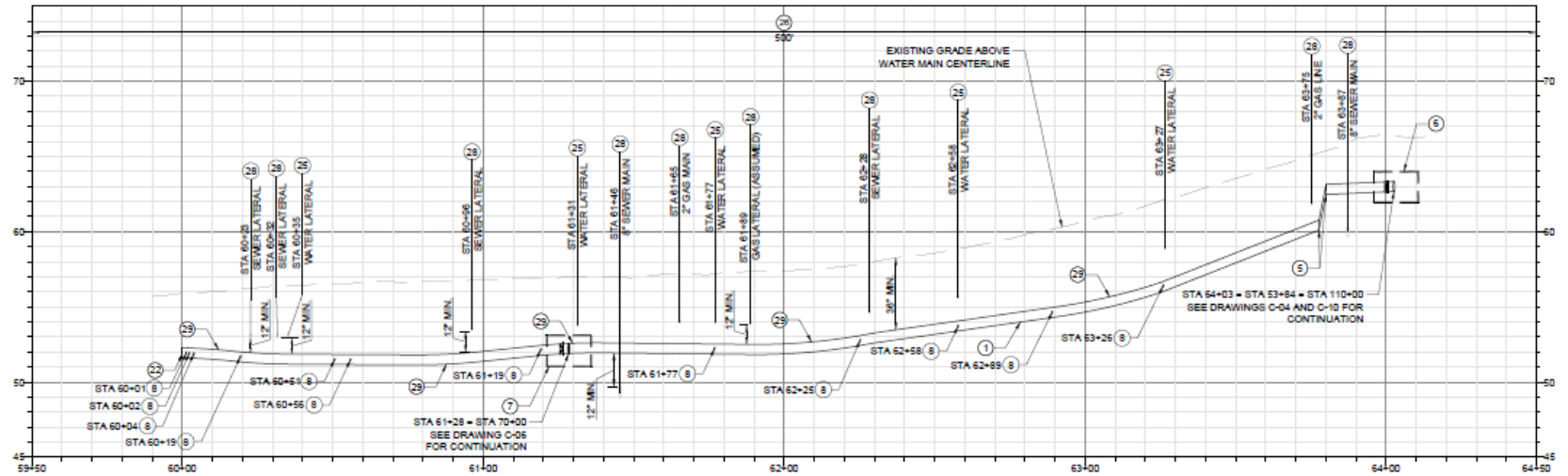
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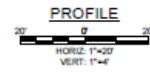






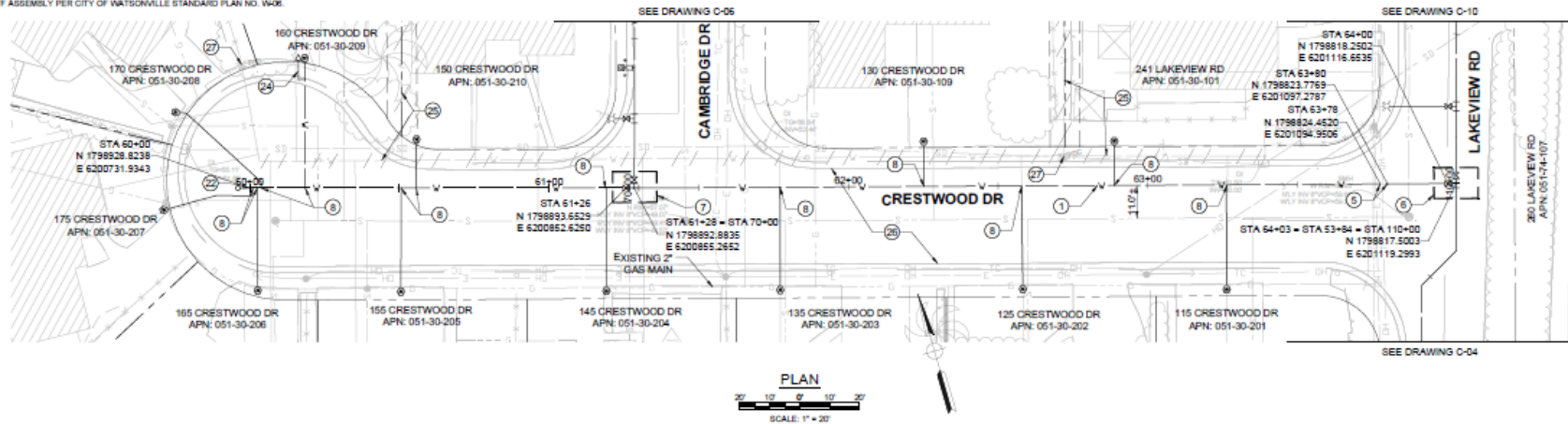
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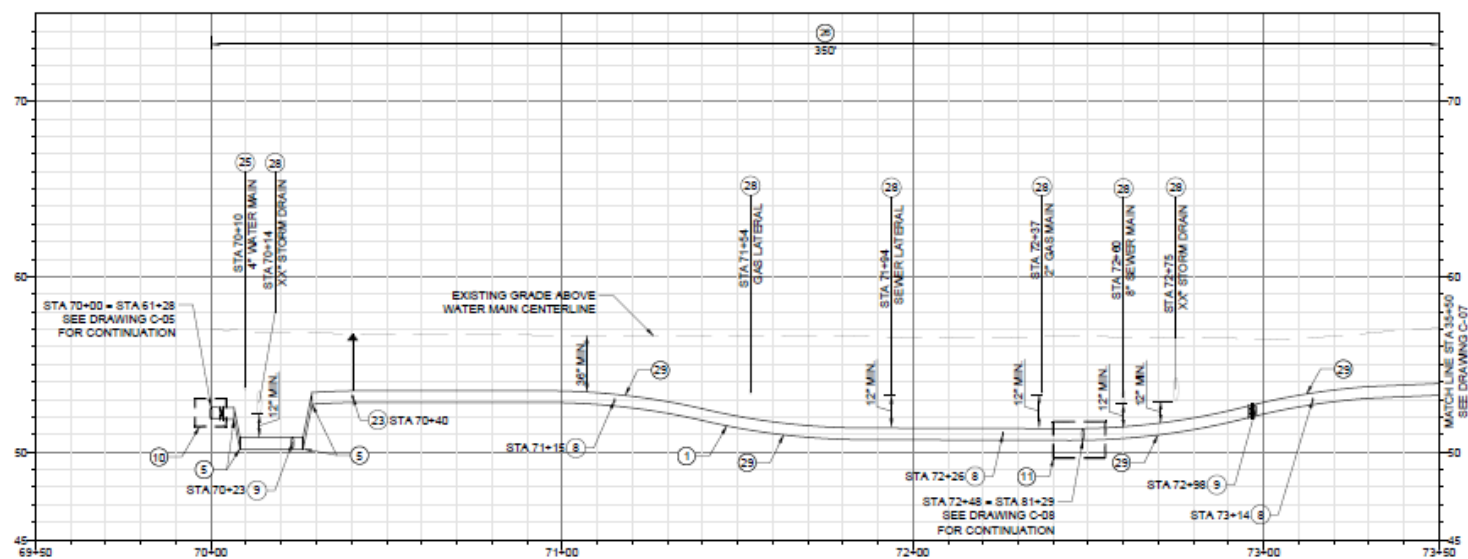
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GENERAL NOTES

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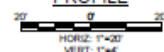




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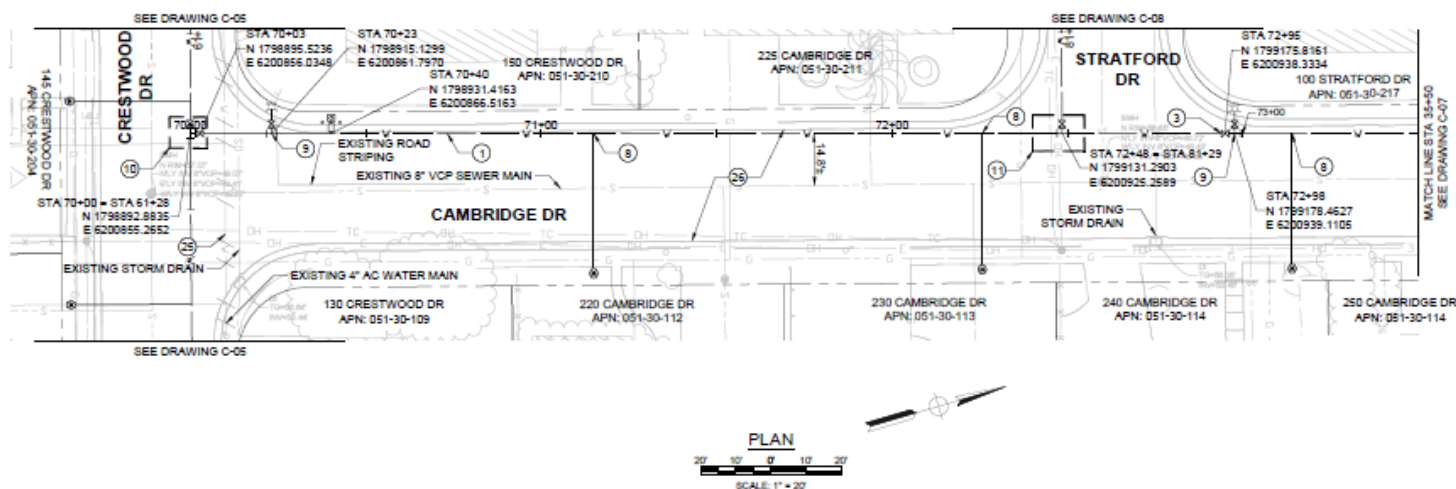
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PROFILE

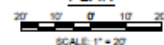


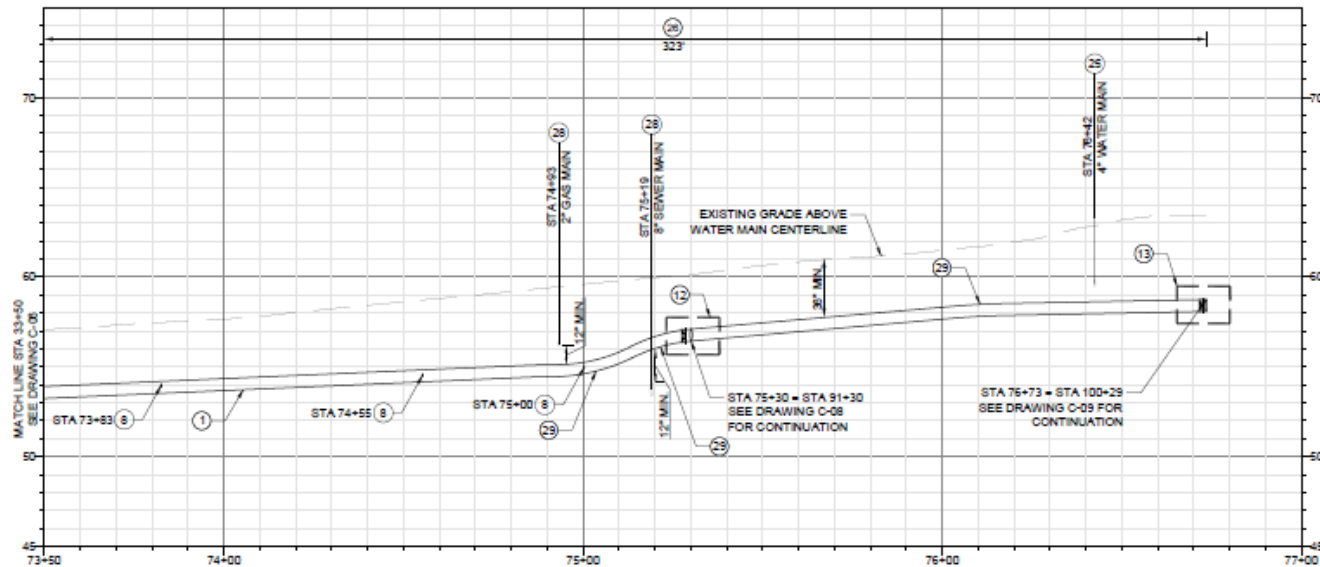
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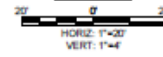




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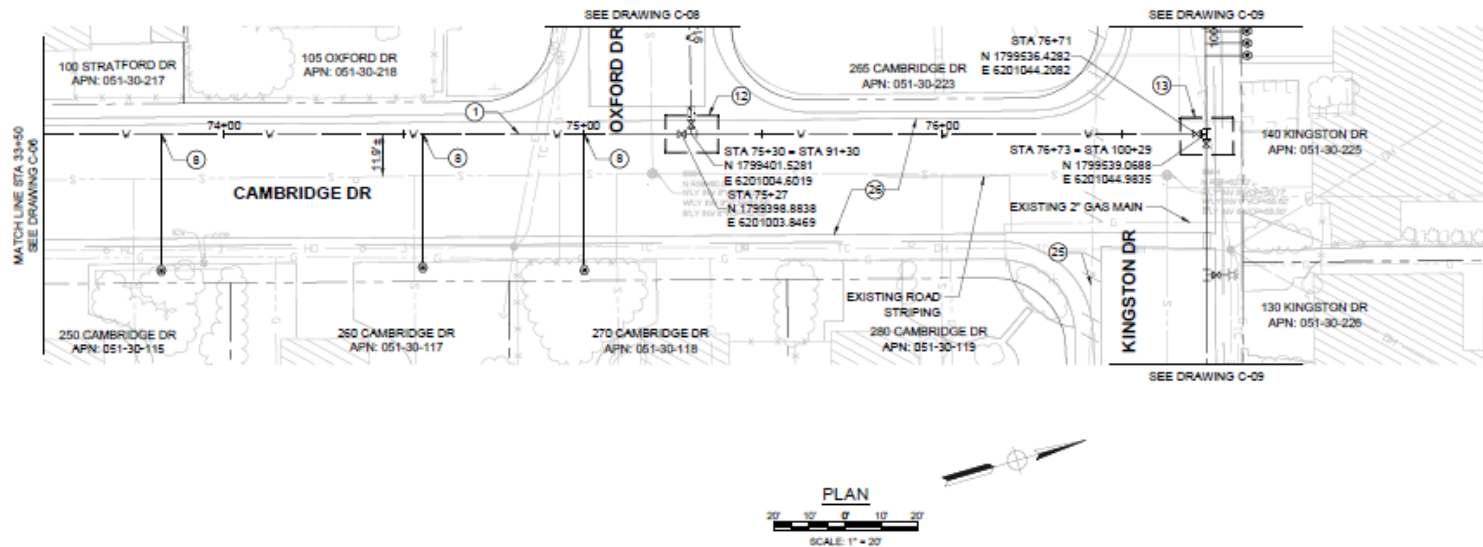
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| <p>1. INSTALL 8" PVC C900 DR 14 WATER MAIN PER CITY OF WATSONVILLE STANDARD PLAN NO. S-401.</p> <p>8. INSTALL 1" WATER SERVICE LATERAL, 1" METER, AND METER BOX PER CITY OF WATSONVILLE STANDARD PLAN NO. W-04. REFER TO SHEETS C-12 AND C-13 FOR PRIVATE LATERAL PLANS.</p> <p>12. CONNECT TO OXFORD DR. DISTRIBUTION PIPELINE PER DETAIL 1, DRAWING C-15.</p> | <p>13. CONNECT TO KINGSTON DR. DISTRIBUTION PIPELINE PER DETAIL 6, DRAWING C-14.</p> <p>25. ABANDON EXISTING 4" AC WATER MAIN PER SPECIFICATIONS.</p> <p>26. SLURRY SEAL FULL WIDTH OF PAVED ROAD PER SPECIFICATIONS. REPLACE STRIPING IN KIND.</p> <p>28. PROTECT EXISTING UTILITY.</p> <p>29. DEFLECT PIPE AS SHOWN PER MANUFACTURER ALLOWABLE MINIMUM BENDING RADIUS.</p> |
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PROFILE

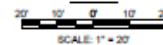


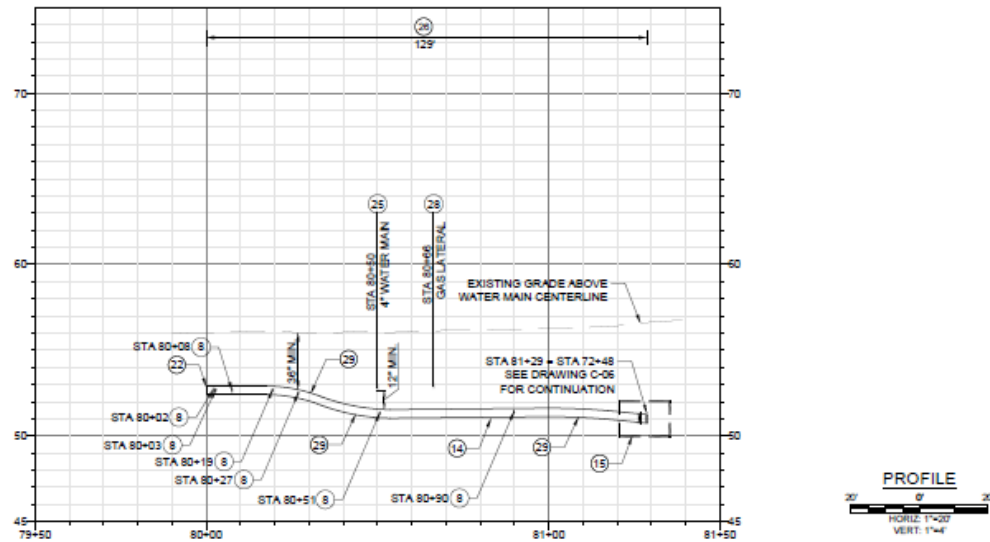
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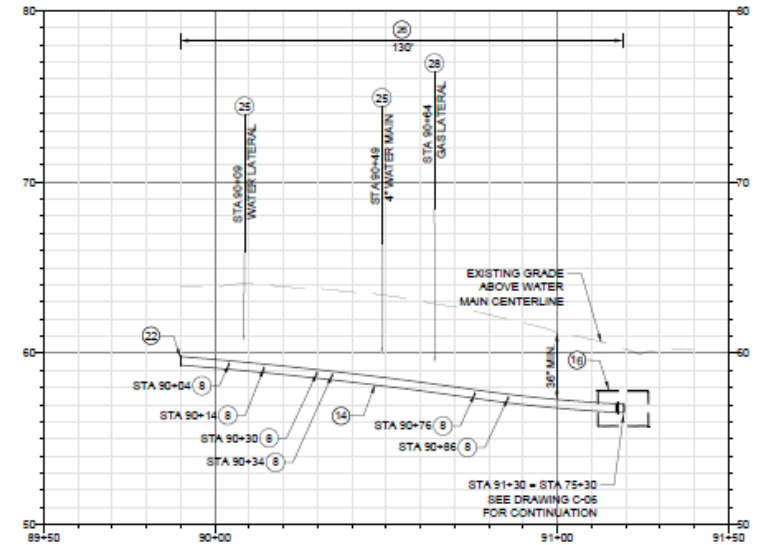
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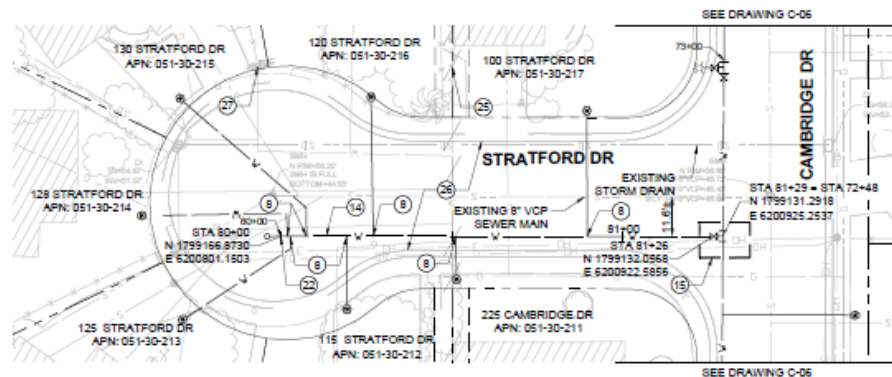
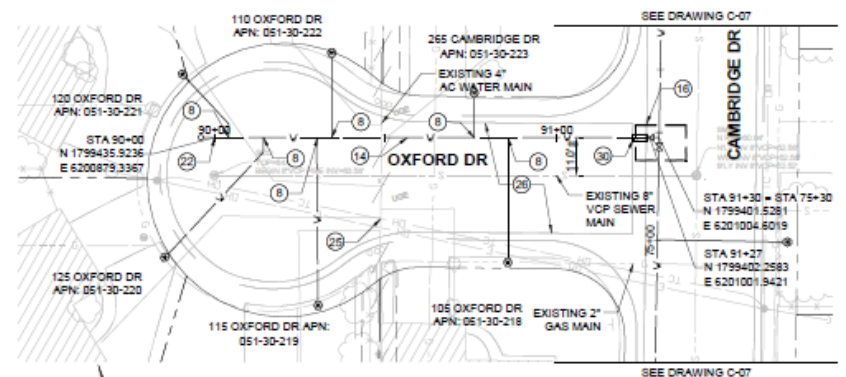
CONSTRUCTION KEY NOTES

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| <p>8 INSTALL 1" WATER SERVICE LATERAL, 1" METER, AND METER BOX PER CITY OF WATSONVILLE STANDARD PLAN NO. W-04. REFER TO SHEETS C-12 AND C-13 FOR PRIVATE LATERAL PLANS.</p> <p>14 INSTALL 6" PVC C900 DR 14" WATER MAIN PER CITY OF WATSONVILLE STANDARD PLAN NO. S-401.</p> <p>15 CONNECT TO CAMBRIDGE DR. DISTRIBUTION PIPELINE PER DETAIL 3, DRAWING C-14.</p> <p>16 CONNECT TO CAMBRIDGE DR. DISTRIBUTION PIPELINE PER DETAIL 1, DRAWING C-15.</p> | <p>22 INSTALL SLOW-OFF ASSEMBLY PER CITY OF WATSONVILLE STANDARD PLAN NO. W-06.</p> <p>26 ABANDON EXISTING 4" AC WATER MAIN PER SPECIFICATIONS.</p> <p>29 SLURRY SEAL FULL WIDTH OF PAVED ROAD PER SPECIFICATIONS. REPLACE STRIPING IN KIND.</p> <p>27 REMOVE AND DISPOSE OF EXISTING FIRE HYDRANT. CUT AND PLUG FIRE HYDRANT LATERAL 12 INCHES BELOW FINISHED GRADE. REPAIR SIDEWALK TO MATCH EXISTING CONDITIONS.</p> | <p>25 PROTECT EXISTING UTILITY.</p> <p>28 DEFLECT PIPE AS SHOWN PER MANUFACTURER ALLOWABLE MINIMUM BENDING RADIUS.</p> <p>30 REPAIR CROSS-GUTTER TO TRENCH WIDTH PER COUNTY OF SANTA CRUZ STANDARD DESIGN CRITERIA FIGURE ST-5.</p> |
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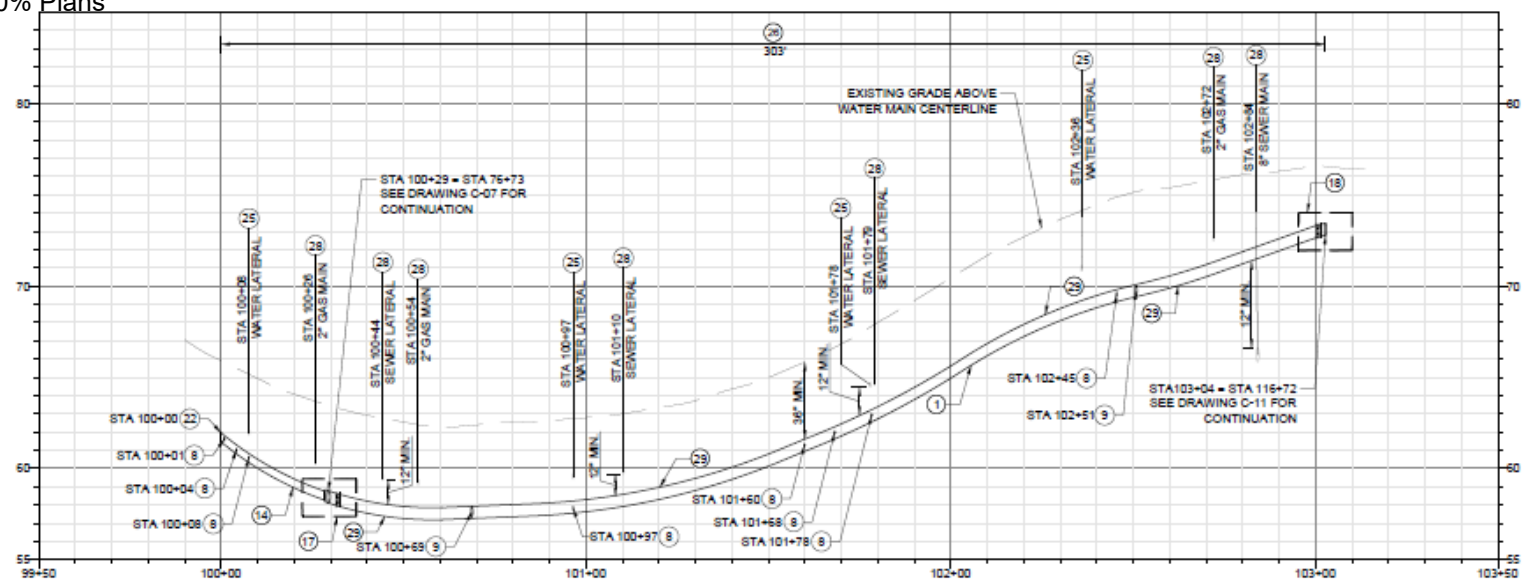


GENERAL NOTES

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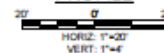
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CONSTRUCTION KEY NOTES

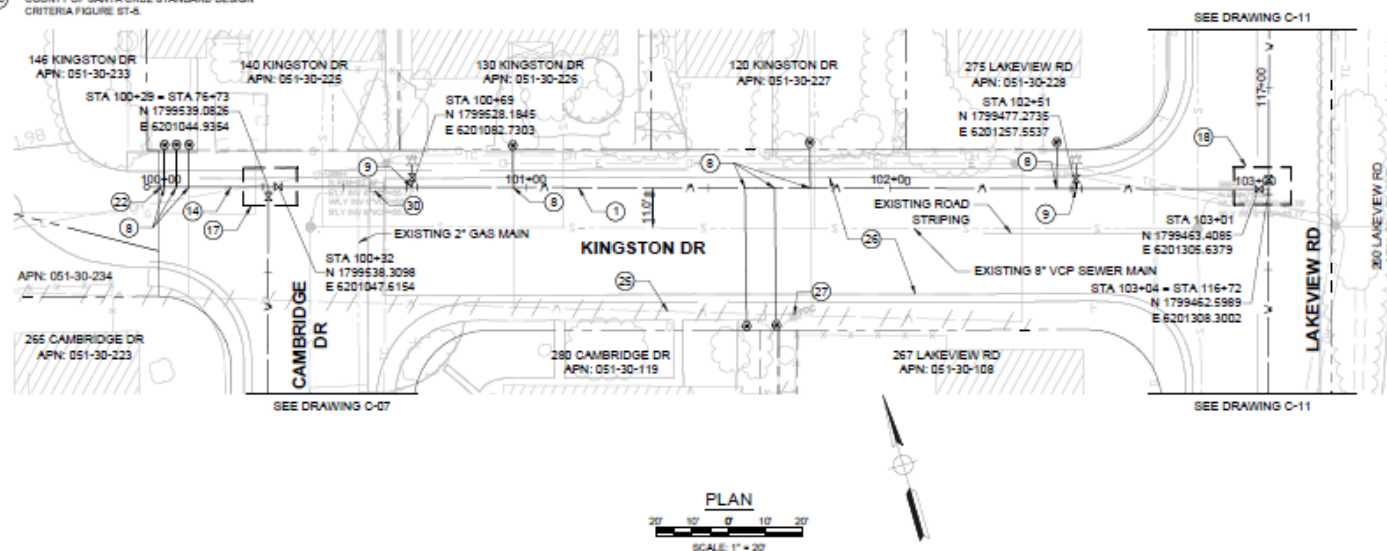
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| 1 | INSTALL 1" PVC 6000 DR 14 WATER MAIN PER CITY OF WATSONVILLE STANDARD PLAN NO. 6-401. | 27 | REMOVE AND DISPOSE OF EXISTING FIRE HYDRANT. CUT AND PLUG FIRE HYDRANT LATERAL. 12 INCHES BELOW FINISHED GRADE. REPAIR SIDEWALK TO MATCH EXISTING CONDITIONS. |
| 3 | INSTALL 1" LINE GATE VALVE (M) PER CITY OF WATSONVILLE STANDARD PLAN NO. W-13. | 28 | PROTECT EXISTING UTILITY. |
| 8 | INSTALL 1" WATER SERVICE LATERAL, 1' METER, AND METER BOX PER CITY OF WATSONVILLE STANDARD PLAN NO. W-04. REFER TO SHEETS C-12 AND C-13 FOR PRIVATE LATERAL PLANS. | 29 | DEFLECT PIPE AS SHOWN PER MANUFACTURER ALLOWABLE MINIMUM BENDING RADIUS. |
| 9 | INSTALL FIRE HYDRANT, BURY, AND LATERAL PER CITY OF WATSONVILLE STANDARD PLAN NO. W-04. | 30 | REPAIR CROSS-GUTTER TO TRENCH WIDTH PER COUNTY OF SANTA CRUZ STANDARD DESIGN CRITERIA FIGURE S7-8. |
| 14 | INSTALL 1" PVC 6000 DR 14 WATER MAIN PER CITY OF WATSONVILLE STANDARD PLAN NO. 6-401. | | |
| 17 | CONNECT TO CAMBRIDGE DR. DISTRIBUTION PIPELINE PER DETAIL C, DRAWING C-14. | | |
| 18 | CONNECT TO LAKEVIEW RD DISTRIBUTION PIPELINE PER DETAIL 2, DRAWING C-15. | | |
| 20 | INSTALL BLOW-OFF ASSEMBLY PER CITY OF WATSONVILLE STANDARD PLAN NO. W-06. | | |
| 22 | ABANDON EXISTING 4" AC WATER MAIN PER SPECIFICATIONS. | | |
| 23 | SLURRY SEAL FULL WIDTH OF PAVED ROAD PER SPECIFICATIONS. REPLACE STRIPING IN KIND. | | |

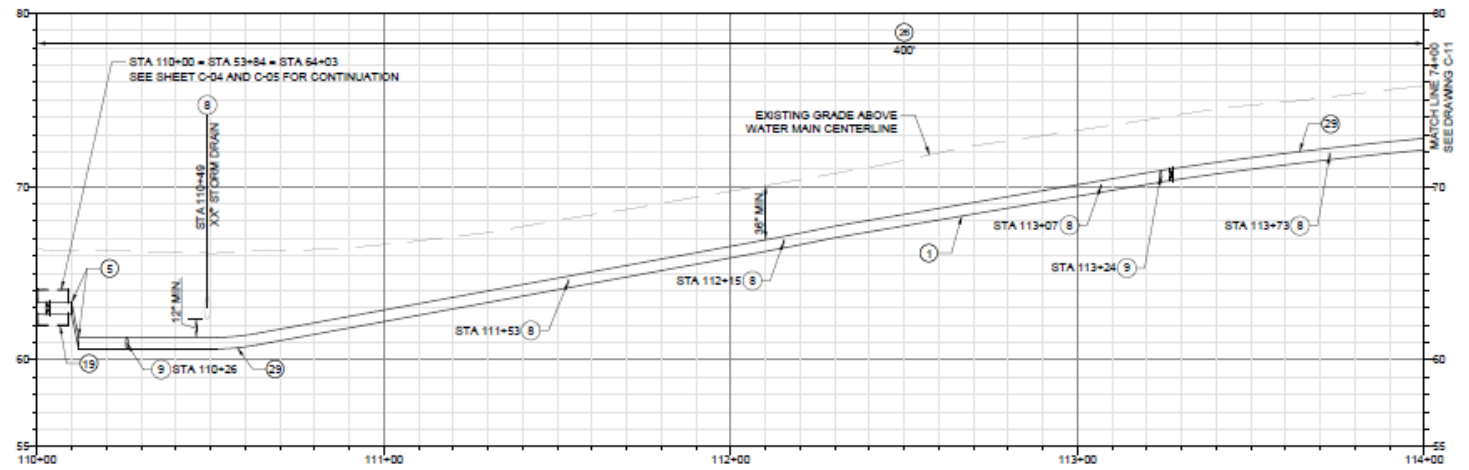
PROFILE



GENERAL NOTES

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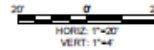




CONSTRUCTION KEY NOTES

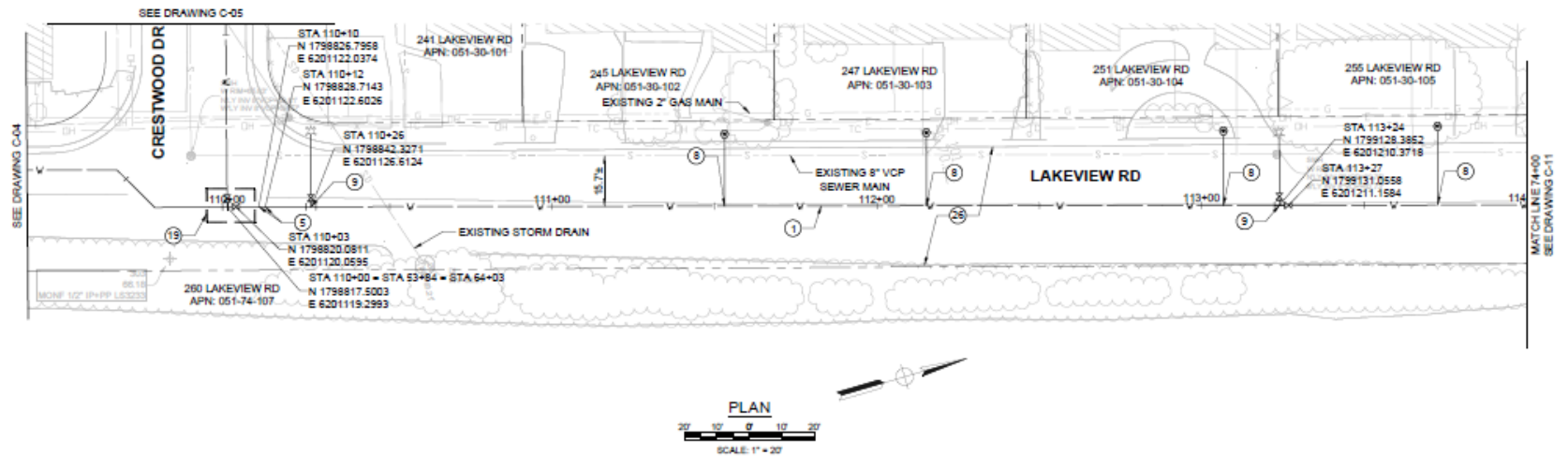
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| <p>1. INSTALL 8" PVC 600 DR 14 WATER MAIN PER CITY OF WATSONVILLE STANDARD PLAN NO. S-401.</p> <p>3. INSTALL 8" LINE GATE VALVE (MJ) PER CITY OF WATSONVILLE STANDARD PLAN NO. W-13.</p> <p>5. INSTALL 8" 45-DEGREE D.I. FITTINGS (MJ) WITH THRUST BLOCK PER CITY OF WATSONVILLE STANDARD PLAN NO. W-07.</p> <p>7. INSTALL 1" WATER SERVICE LATERAL, 1" METER, AND METER BOX PER CITY OF WATSONVILLE STANDARD PLAN NO. W-04. REFER TO SHEETS C-12 AND C-13 FOR PRIVATE LATERAL PLANS.</p> | <p>8. INSTALL FIRE HYDRANT, BURY, AND LATERAL PER CITY OF WATSONVILLE STANDARD PLAN NO. W-05.</p> <p>19. CONNECT TO LAKEVIEW RD TRANSMISSION PIPELINE AND CRESTWOOD DR DISTRIBUTION PIPELINE PER DETAIL 1, DRAWING C-14.</p> <p>26. SLURRY SEAL FULL WIDTH OF PAVED ROAD PER SPECIFICATIONS. REPLACE STRIPING IN KIND.</p> <p>28. PROTECT EXISTING UTILITY.</p> <p>29. DEFLECT PIPE AS SHOWN PER MANUFACTURER ALLOWABLE MINIMUM BENDING RADIUS.</p> |
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PROFILE

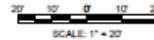


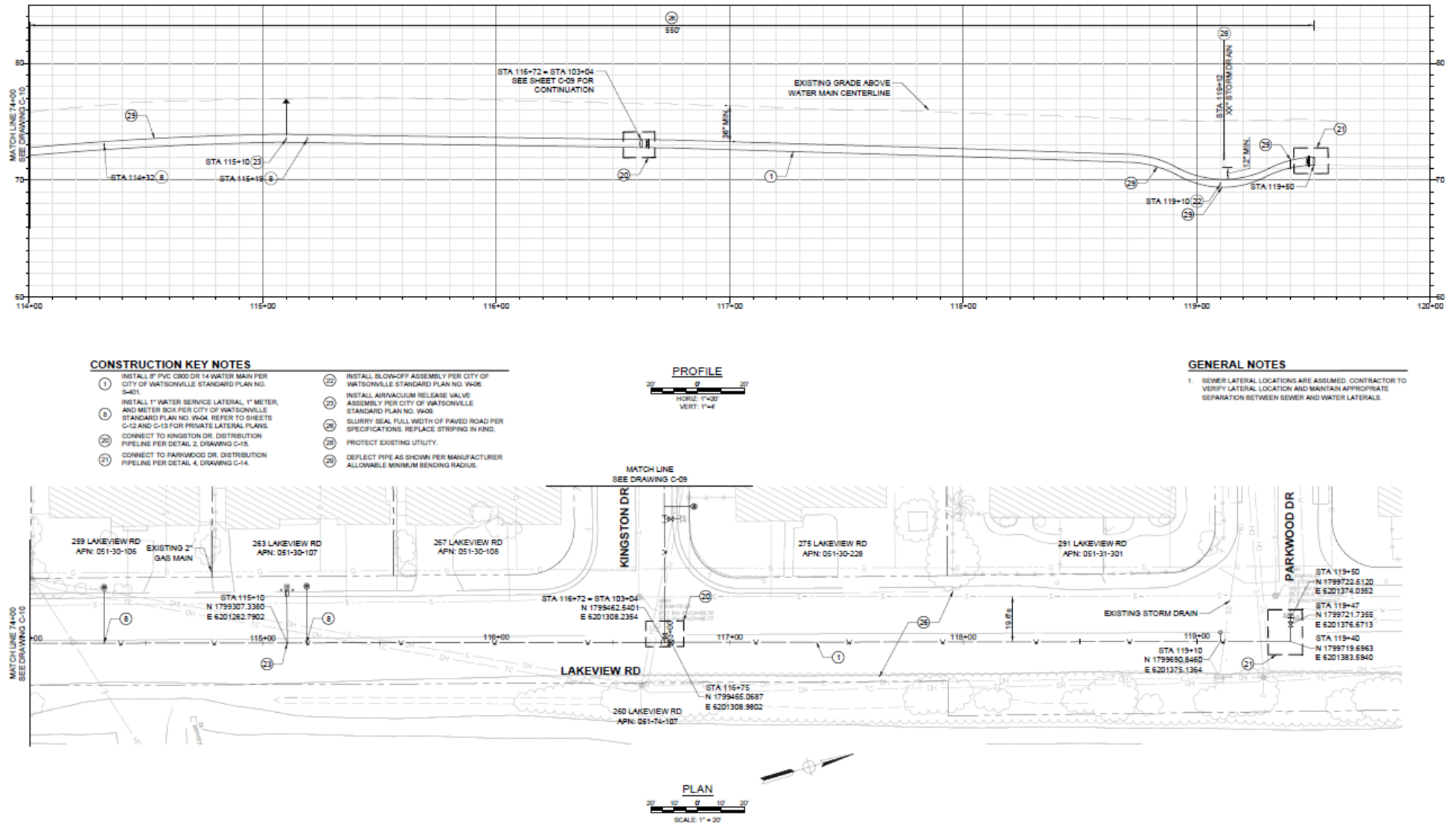
GENERAL NOTES

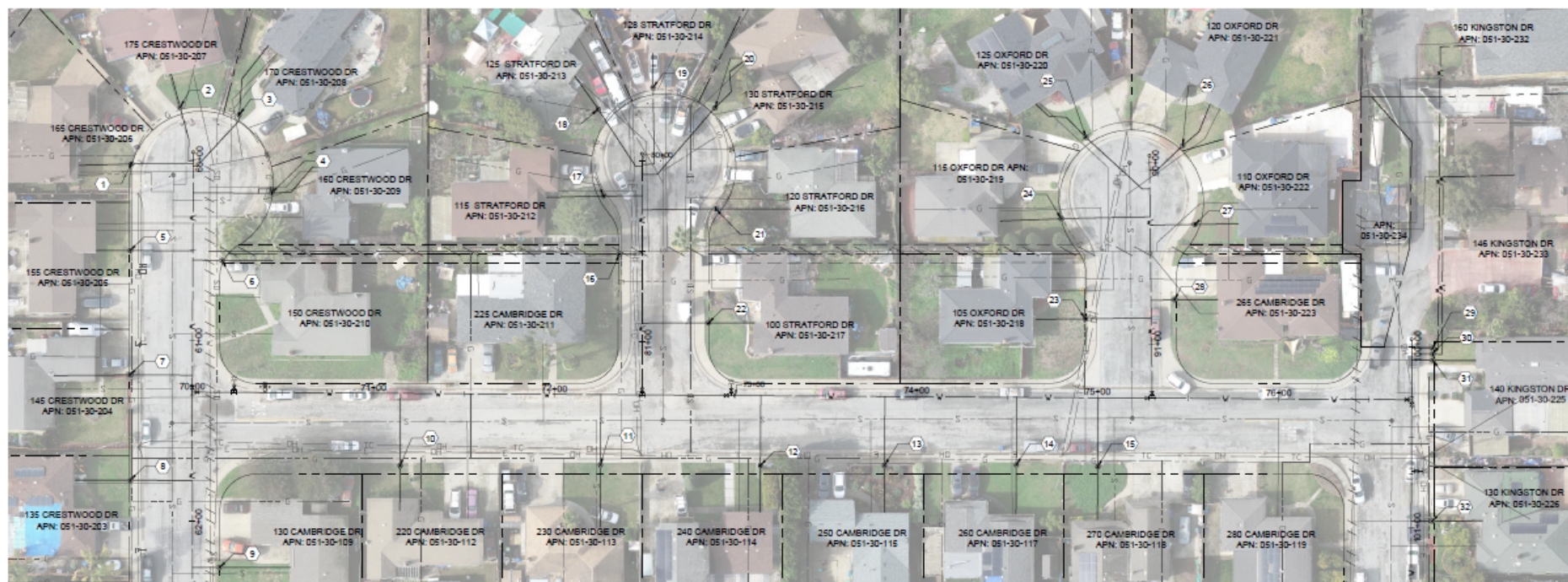
1. SEWER LATERAL LOCATIONS ARE ASSUMED. CONTRACTOR TO VERIFY LATERAL LOCATION AND MAINTAIN APPROPRIATE SEPARATION BETWEEN SEWER AND WATER LATERALS.



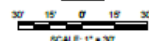
PLAN







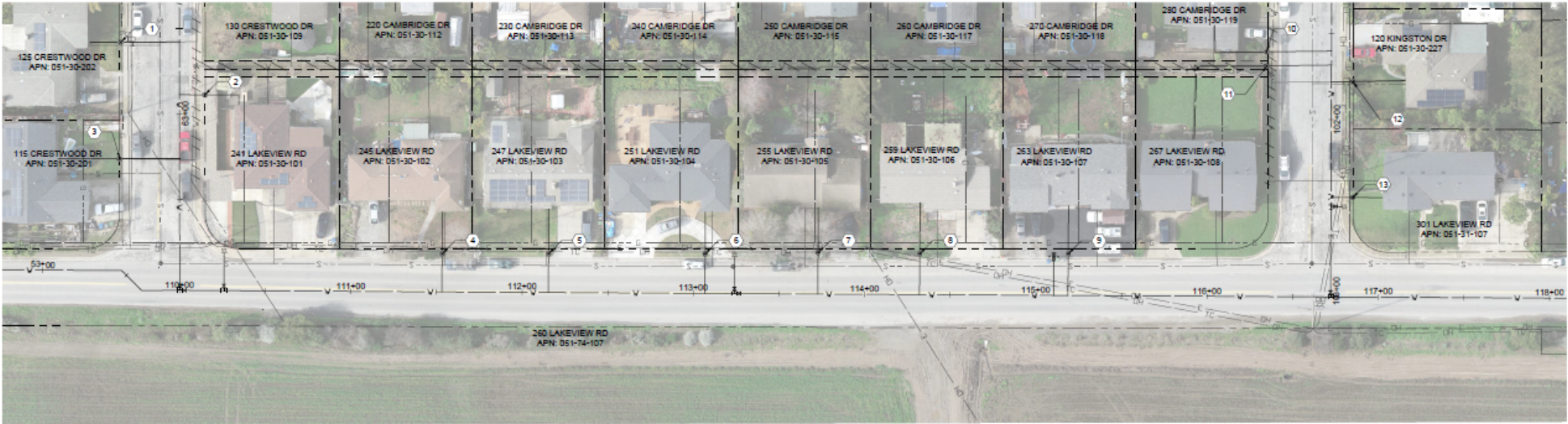
PLAN



PRIVATE LATERAL LOCATION SCHEDULE				
LABEL NO.	LATERAL SIZE	MAIN STATION	NORTHING	EASTING
①	1"	60+02	1798928.1293	6200734.3174
②	1"	60+01	1798929.5373	6200732.8895
③	1"	60+04	1798927.7403	6200735.6521
④	1"	60+19	1798923.6278	6200749.7367
⑤	1"	60+51	1798914.6816	6200780.4637
⑥	1"	60+56	1798913.2187	6200785.3356
⑦	1"	61+19	1798895.5014	6200846.3125
⑧	1"	61+77	1798879.5183	6200902.0776
⑨	1"	62+25	1798866.2957	6200948.3550
⑩	1"	71+15	1799003.2260	6200887.6615
⑪	1"	72+26	1799109.4267	6200918.8417
⑫	1"	73+14	1799134.1661	6200943.7229
⑬	1"	73+83	1799259.9212	6200963.0265

PRIVATE LATERAL LOCATION SCHEDULE				
LABEL NO.	LATERAL SIZE	MAIN STATION	NORTHING	EASTING
14	1"	74+55	1799329.7661	6200983.5327
15	1"	75+00	1799372.9312	6200996.2059
16	1"	80+51	1799152.7963	6200850.2316
17	1"	80+19	1799161.5566	6200819.6934
18	1"	80+02	1799166.1162	6200803.7900
19	1"	80+03	1799166.3218	6200803.0729
20	1"	80+08	1799164.7955	6200808.3965
21	1"	80+27	1799159.4271	6200827.1206
22	1"	80+90	1799142.2187	6200887.1420
23	1"	90+86	1799413.2351	6200961.9746
24	1"	90+30	1799428.0215	6200908.1155
25	1"	90+14	1799432.1212	6200893.1846
26	1"	90+04	1799434.8177	6200883.3642

PRIVATE LATERAL LOCATION SCHEDULE				
LABEL NO.	LATERAL SIZE	MAIN STATION	NORTHING	EASTING
(27)	1"	90+34	1799426.8279	6200912.4624
(28)	1"	90+76	1799415.8304	6200952.5200
(29)	1"	100+01	1799546.9373	6201017.5392
(30)	1"	100+04	1799546.0548	6201020.7220
(31)	1"	100+08	1799545.0768	6201024.0286
(32)	1"	100+87	1799520.3490	6201103.3781



PLAN
SCALE: 1" = 30'

PRIVATE LATERAL LOCATION SCHEDULE				
LABEL NO.	LATERAL SIZE	MAIN STATION	NORTHING	EASTING
1	1"	62+58	1798857.3538	6200979.7100
2	1"	62+89	1798848.8624	6201009.4517
3	1"	63+26	1798838.5687	6201045.4758
4	1"	111+53	1798964.4507	6201162.3478
5	1"	112+15	1799024.1028	6201179.8227
6	1"	113+07	1799111.8603	6201205.5309
7	1"	113+73	1799175.1476	6201224.0706
8	1"	114+32	1799232.1176	6201240.7598
9	1"	115+19	1799315.3423	6201265.1352
10	1"	101+60	1799502.5975	6201170.4063
11	1"	101+68	1799500.3259	6201178.2171
12	1"	101+78	1799497.5926	6201187.6582
13	1"	102+45	1799478.7716	6201252.4468





DEMOLITION KEY NOTES

- | | |
|---|---|
| <p>① DESTROY WELLS NO. 1 AND NO. 2 IN ACCORDANCE WITH CALIFORNIA DEPARTMENT OF WATER RESOURCES BULLETIN NOS. 74-81 AND 74-80, THE APPLICABLE SECTIONS OF THE SANTA CRUZ COUNTY CODE, CHAPTER 7.70 WATER WELLS, PERMIT REQUIREMENTS, AND SPECIFICATIONS.</p> <p>② REMOVE AND DISPOSE HYDROPIEUMATIC TANK AND APPURTENANCES.</p> <p>③ DEMOLISH AND DISPOSE CHEMICAL BUILDING AND ELECTRICAL EQUIPMENT.</p> <p>④ DEMOLISH AND DISPOSE ABOVE GRADE PVC PIPING.</p> <p>⑤ DEMOLISH AND DISPOSE METER BOX.</p> | <p>⑥ DEMOLISH AND DISPOSE FENCING AND FENCE POLES.</p> <p>⑦ CLEAR AND GRUB EXISTING WELL SITE. SCARIFY TOP 6" OF GROUND AND BACKFILL WITH NATIVE COMPACTED TO 85% COMPACTION. HYDROSEED WELL SITE.</p> <p>⑧ PROTECT POWER POLE IN PLACE.</p> <p>⑨ DEMOLISH AND DISPOSE ALL VISIBLE TRACES OF EXISTING WATER SYSTEM INFRASTRUCTURE. REMOVE EXISTING PIPING, VALVES, AND APPURTENANCES TO 3' BELOW GRADE.</p> |
|---|---|



SCALE: 1" = 10'

6.5 PROJECT DESCRIPTION

6.5.1 Project Objective

The primary project goal is to provide the community of Crestwood Heights with safe and reliable drinking water. To best meet the primary goal, the project's key objectives are:

- Meet the water system's O&M needs;
- Comply with regulatory requirements; and
- Meet environmental requirements.

6.5.2 Project Components

The proposed project consists of consolidating the CHWA water system with the City's water system. After consolidation, the CHWA would be dissolved of its status as a mutual water company. Additionally, the proposed project would upgrade the current CHWA distribution infrastructure and install individual meters on each service connection to meet the City's standards. Per State standards, the consolidation design of the water system must incorporate two (2) intertie locations to provide system service reliability. The proposed project consists of a water main, water service laterals, and service connections. In total, these components include 7,000 linear feet (1.33 miles) of new pipelines, which is delineated by 4,384 linear feet of transmission water main and 2,616 linear feet of distribution water main. The existing CHWA water production facility would be demolished. These components are explained in more detail below.

Water Main

The eight (8) inch water main would extend from the intersection of Lakeview Road and Parkwood Drive to the intersection Lakeview Road and SR-129 to connect with the 12-inch stub of the City of Watsonville's water system. The project would also install water mains on Cambridge Drive, Kingston Drive, Oxford Drive, Stratford Drive, and Crestwood Drive. The water mains would total approximately 7,000 feet in length. Blow-off valves, air release valves, and sampling stations would be located along the pipeline alignment as appropriate. See **Figure 5. Site Plan** for more information.

Water Service Laterals and Service Connections

New water service laterals would extend from the new water main to a point of connection for each residence and incorporate a water meter at each property line. Residences currently serviced by water mains located in easements at the rear of properties would require laterals to be rerouted to the new meters at the front of the properties which may include work on private properties. The proposed project includes 45 service connections on Lakeview Road, Cambridge Drive, Crestwood Drive, Stratford Drive, Oxford Drive, and Kingston Drive. Each service connection to the residences may vary in length. See **Figure 5. Site Plan**.

Existing System

Above grade portions of the existing CHWA system would be demolished and removed, including the existing pressure tank, building, site improvements, and existing wells. The existing water mains would be abandoned in place or removed as necessary to facilitate construction of the new water main. The existing wells would be destroyed in accordance with State and County regulations using explosives.

6.5.3 Project Construction

Site Preparation and Trenching

The project site is generally flat and consists of existing road right-of-way and residential uses. Construction of the project is anticipated to include open trench methodology. The proposed project includes trenching and ground disturbance of approximately 28,200 square feet (0.65 acres). Site preparation and potholing activities are anticipated to be completed within approximately 1 month and trenching activities within public rights-of-way are anticipated to be completed within 11 weeks. The proposed project involves approximately 34,750 cubic feet (1,287 cubic yards) of cut and the same amount of fill. The project may require some import or export of cut and fill materials if existing materials are not suitable for reuse. The water main trench would be between 24 and 36-inches wide; and the distribution line trench would be between 24 and 32-inches wide.

Schedule

Construction is anticipated to occur over the course of approximately ten (10) months.¹ Construction is expected to begin as soon as early 2027. Construction activities would include site preparation/mobilization, trenching, connections, paving, and well site demolition. The anticipated schedule of these construction activities is as follows:

1. Mobilization, potholing: This construction phase would last approximately 1 month.
2. Trenching in Lakeview Road: This construction phase would last approximately 12 weeks.
3. Trenching in Crestwood neighborhood: This construction phase would last approximately 4 weeks.
4. Lateral Connections: This construction phase would last approximately 8 weeks.
5. Existing Infrastructure Abandonment: This construction phase would last approximately 2 weeks.
6. Final Paving: This construction phase would last approximately 4 weeks.
7. Well Site Demolition: This construction phase would last approximately 6 weeks.

The construction contractor will determine the precise sequencing of the construction phases above. Due to the linear nature of the proposed project, it is probable that multiple construction phases would occur simultaneously.

Construction Circulation and Access

The project site is within the Crestwood Heights community and is located on a looped road off of Lakeview Road and contains three (3) cul-de-sacs. To maintain access and parking for residents, work would be phased to maintain access to homes and minimize short- and long-term parking impacts. The project would be required to control traffic on Lakeview Road, parallel to the Crestwood Heights community. Work within

¹ Nick Panofsky (MNS) email correspondence. January 23, 2024.

Lakeview Road would require one way traffic controls with flaggers to construct the water main. During construction, access to the project site would occur via Lakeview Road. Construction of the proposed project is estimated to generate ten (10) large truck trips per day and eight (8) worker vehicle trips per day. The proposed project would require a location for storing and staging construction materials and equipment. A staging location has not yet been determined; however, it would be an existing disturbed site near the project site. A likely staging location for the project would be an existing agricultural equipment yard located on the west side of Lakeview Road, near the intersection with SR-129.

6.5.4 Project Operation

With the exception of fire hydrants, air release valves, sample stations, and service meters, the entirety of the proposed project would be underground after construction is complete. Regular maintenance on these facilities includes annual valve exercising and hydrant flushing, and other typical activities for a potable water distribution system. It is not anticipated that the City would need to hire additional employees to accommodate the additional connections generated by the proposed project. The proposed project would require one (1) vehicle trip per month under normal conditions during operation of the proposed project.

Once operational, the CHWA would no longer exist, and current CHWA customers would receive water directly from the City of Watsonville.

7. Surrounding Land Uses and Setting

North: Residential

South: Agricultural

East: Agricultural

West: Agricultural and Open Space

8. Other Public Agencies Whose Approval is Required

State

- State Water Resources Control Board – State Revolving Fund Financing Approval
- Division of Drinking Water – Potable Water System Amendment

Regional/Local

- Regional Water Quality Control Board – Water Quality Certification
- City of Watsonville Public Works – Water System Modification Permit
- County of Santa Cruz – Encroachment Permit

9. CEQA Checklist

1. AESTHETICS

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

SETTING:

The proposed project is located within the Pajaro Valley of Santa Cruz County. The City of Watsonville is located southeast of the project. There are no State-designated scenic highways located within the vicinity of the proposed project. The nearest State-designated scenic highway is State Route 152/East Lake Avenue ("SR-152"), which is designated as eligible for scenic highway status and is located approximately 0.5 miles to the east (Caltrans, 2021). The nearest County-designated scenic road within the vicinity of the proposed project area is SR-129, located approximately 60 feet south of the project site.

The southern portion of the proposed project area is within a paved road right-of-way of Lakeview Road and the northern portion of the project is in a residential area. The lands surrounding the project area are primarily agricultural, residential, and industrial. The aesthetic quality of the site has previously been altered by the current uses described above. Vehicle traffic on Lakeview Road is the primary source of public viewership for the proposed project. The topography of the proposed project site and surrounding area is flat. See **Figure 6. Site Photos**.



Photo #1: North facing view of vegetation near Lakeview Road to the south of Crestwood Heights Community.
Source: DD&A - March 2023

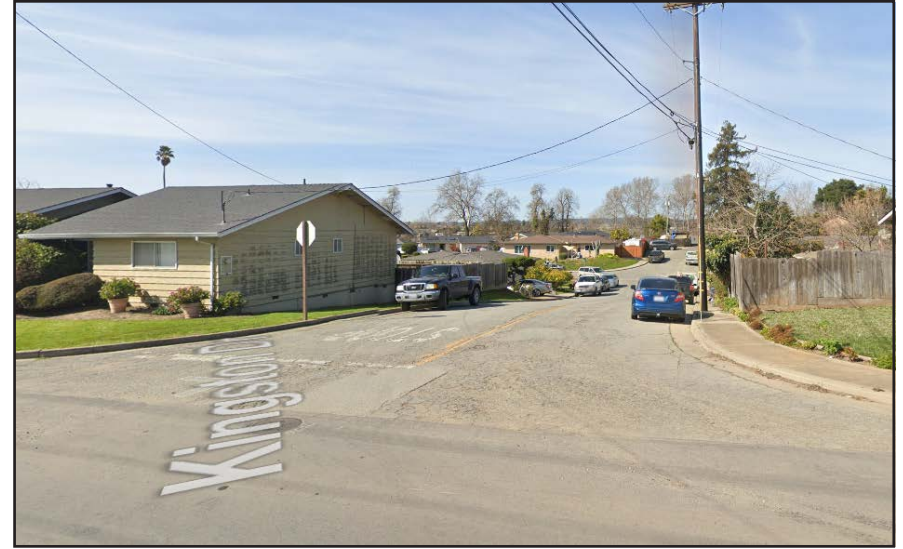


Photo #2: West facing view of residences on Lakeview Road and Kingston Drive.
Source: Google Maps - February 2023



Photo #3: South facing view of Salsipuedes Creek and Levee Path.
Source: DD&A - March 2023



Photo #4: South facing view of Lakeview Road south of Crestwood Heights.
Source: DD&A - March 2023

Site Photos

Construction of the proposed project would include trenching with the use of heavy equipment. Construction of the proposed project may require limited nighttime construction between 8 PM and 5 AM. This may occur as close as 50 ft of existing residences. Nighttime construction work would only occur in the roadway public right-of-way for a period of approximately two (2) days in any one location during the entire construction period. Construction is anticipated to last approximately ten (10) months. Once operational, the distribution pipeline and laterals would be entirely underground; apart from the individual meters on each service connection, the components of the project would not be visible.

IMPACT DISCUSSION:

- a. The majority of the project site is located within existing roadway rights-of-way and disturbed areas. All the project components would be underground and would not be visible after construction is complete. The project would not impact scenic vistas and is not located within a scenic corridor. Construction of the project may be temporarily visible from private residences and vehicles traveling on Lakeview Road and SR-129. Impacts to private views in a project's immediate vicinity are not a consideration under CEQA. The proposed project would have a ***less than significant impact*** on scenic vistas.
- b. The nearest County-designated scenic road within the vicinity of the proposed project area is SR-129/Riverside Road, located approximately 60 feet south of the project site. Construction of the project may be temporarily visible from vehicles traveling on SR-129. The project components would be installed underground and would not be visible after construction is complete. There are no trees, rock outcroppings, or historic buildings along the County-designated scenic road that would be impacted by the project. Construction and operation of the project would result in a ***less than significant impact*** on scenic resources.
- c. The existing visual character of the project site is comprised of rural land uses, including agriculture and residential. The site's overall visual quality is considered relatively low due to the surrounding residential development, agricultural/open space uses, and existing roads. The residential uses within the vicinity of the project site consists of low-scale, primarily single-story homes that do not enhance the area's aesthetic value (see **Figure 6**). Construction impacts would include the presence of construction vehicles, equipment and materials, stockpiles, and exposed soils. These impacts would be temporary in nature. Once the project is completed, the land would be restored to its pre-construction condition. For these reasons, the project would result in a ***less than significant impact*** on the existing visual character or quality of public views of the site and its surroundings.
- d. The project does not propose any new sources of light or glare, as the new water main, laterals, and service connections would be underground and do not include nighttime lighting. Construction of the project may require nighttime work in the roadway public right-of-way, which could adversely affect nighttime views in the area. Nighttime work would occur over two (2) days total at any one location, rather than over the entire project area. The project would have a ***less than significant impact*** resulting from light and glare.

2. AGRICULTURE AND FOREST RESOURCES

In determining whether impacts to agricultural resources are significant environmental effects, lead agencies may refer to the California Agricultural Land Evaluation and Site Assessment Model (1997) prepared by the California Department of Conservation as an optional model to use in assessing impacts on agriculture and farmland. In determining whether impacts to forest resources, including timberland, are

significant environmental effects, lead agencies may refer to information compiled by the California Department of Forestry and Fire Protection. These resources include the state's inventory of forest land, including the Forest and Range Assessment Project and the Forest Legacy Assessment Project, and forest carbon measurement methodology provided in Forest Protocols adopted by the California Air Resources Board.

Would the project:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a. Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?	☐	☐	☐	☒
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?	☐	☐	☒	☐

SETTING:

Agriculture has historically played an important role in the economy and development of the Watsonville area and the Pajaro Valley. Soil quality, water supply, year-round growing season, and level topography have made the Pajaro Valley one of the most productive agricultural regions in the country.

Areas to the east, west, and south of the proposed project area are currently utilized for agriculture and County-designated as Type 1A (Viable Agricultural Land) and Type 1B (Viable Agricultural Land in Utility Assessment Districts) Agriculture Resource land types. The Lakeview Road right-of-way portion of the proposed project area is zoned as Commercial Agriculture, the parcel outside of the project area located south of the residences is zoned as Residential Agriculture, and the parcel outside of the project area near SR-129 and Lakeview Road to the east of the Lakeview Road right-of-way is zoned as Agriculture. The proposed project area is designated as Prime Farmland near the Lakeview Road right-of-way, Urban and Built-Up Land in Crestwood Heights community at the north area of the project area and the agricultural-

industrial portion at the south of the project area, and Other Land near the center of the project area. The proposed project area is not under a Williamson Act contract. See **Figure 7. Important Farmlands**.

According to California Public Resources Code (PRC) Section 12220(g), forest land is defined as land that can support 10% native tree cover of any species, including hardwoods, under natural conditions, and that allows for management of one or more forest resources, including timber, aesthetics, fish and wildlife, biodiversity, water quality, recreation, and other public benefits. Timberland is defined as land, other than land owned by the federal government and land designated by the State Board of Forestry and Fire Protection, as experimental forest land, which is available for, and capable of, growing a crop of trees of a commercial species used to produce lumber and other forest products, including Christmas trees. The project site does not support any forest land or timberland.

IMPACT DISCUSSION:

- a. The project site includes lands designated as Prime Farmland, Urban and Built-Up Land, and Other Land on the Important Farmlands Map for Santa Cruz County prepared by the Farmland Mapping and Monitoring Program of the California Resources Agency (California Department of Conservation, 2026). The water main would be located in the Lakeview Road right-of-way in previously disturbed areas. The laterals and service connections would be located within the roadways and in previously disturbed areas of the Crestwood Heights residential community. Neither construction nor operation of the proposed project would encroach into agricultural land. The proposed project would have **no impact** resulting from the conversion of prime farmland, unique farmland, or farmland of statewide importance.
- b. The project site is not located on land enrolled under the Williamson Act. Construction and operation of the proposed project would occur within public roadways of Lakeview Road and residential development and would not have an impact on agricultural land uses, or any lands that are under a Williamson Act contract. Furthermore, project operation would not impact adjacent lands that support agricultural land uses. For this reason, the proposed project would have **no impact** resulting from a conflict with existing zoning for agricultural use, or a Williamson Act contract.
- c. The project site does not contain any forest land as defined in Public Resources Code Section 12220(g), timberland as defined by Public Resources Code Section 4526, or property zoned for Timberland Production as defined by Government Code Section 51104(g). The project would have **no impact** resulting from a conflict in zoning for these land uses.
- d. As mentioned above, there is no forest land within the project vicinity and the project would have **no impact** associated with the conversion of forest land into a non-forest use.
- e. The project would not involve changes in the existing environment, which could result in conversion of farmland or agricultural land due to their location or nature. Construction impacts adjacent to agricultural resources would occur within existing disturbed areas and would be temporary in nature. The project is a water system improvement project and would not convert any land for other use. For these reasons, this impact is considered a **less than significant impact**.



Important Farmlands

Date
10/12/2025

Scale
1 in = 600 ft



Denise Duffy & Associates, Inc.
Planning and Environmental Consulting

Figure
7

3. AIR QUALITY

Where available, the significance criteria established by the applicable air quality management district or air pollution control district may be relied upon to make the following determinations.

Would the project:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a. Conflict with or obstruct implementation of the applicable air quality plan?	☐	☐	■	☐
b. Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard?	☐	☐	■	☐
c. Expose sensitive receptors to substantial pollutant concentrations?	☐	☐	■	☐
d. Result in other emissions (such as those leading to odors) adversely affecting a substantial number of people?	☐	☐	■	☐

SETTING:

The project lies within the North Central Coast Air Basin ("NCCAB"). The Monterey Bay Air Resources District ("MBARD") is the local agency authorized to regulate stationary air quality sources in the project area. The Federal Clean Air Act and the California Clean Air Act ("CCAA") mandate the control and reduction of specific air pollutants. Under these Acts, the U.S. Environmental Protection Agency ("EPA") and the California Air Resources Board ("CARB") have established ambient air quality standards for specific "criteria" pollutants, designed to protect public health and welfare. Primary criteria pollutants include carbon monoxide ("CO"), reactive organic gases ("ROG"), nitrogen oxides ("NO_x"), particulate matter ("PM₁₀"), sulfur dioxide ("SO₂"), and lead ("Pb"). Secondary criteria pollutants include ozone ("O₃"), and fine particulate matter ("PM_{2.5}").

The EPA administers National Ambient Air Quality Standards ("NAAQS") under the Federal Clean Air Act. The EPA sets the NAAQS and determines if areas meet those standards. Violations of ambient air quality standards are based on air pollutant monitoring data and evaluated for each air pollutant. Areas that do not violate ambient air quality standards are considered to have attained the standard.

The MBARD monitors air pollutant levels to ensure that air quality standards are met and, if not met, develop strategies to meet the standards. Depending on whether or not the standards are met or exceeded, the NCCAB is classified as being in "attainment" or as "non-attainment." See **Table 1. North Central Coast Air Basin Attainment Status** below for a summary of the attainment status for NCCAB.

Table 1.
North Central Coast Air Basin Attainment Status

Pollutant	State Designation	National Designation
Ozone (O ₃)	Nonattainment-Transitional	Attainment
Inhalable Particulates (PM ₁₀)	Nonattainment	Attainment
Fine Particulates (PM _{2.5})	Attainment	Attainment
Carbon Monoxide (CO)	Unclassified (Santa Cruz County)	Attainment
Nitrogen Dioxide (NO ₂)	Attainment	Attainment
Sulfur Dioxide (SO ₂)	Attainment	Attainment
Lead	Attainment	Attainment

Source: MBARD 2012-2015 Air Quality Management Plan, <https://www.mbard.org/air-quality-plans>

Plans to attain these standards already accommodate the future growth projections available at the time these plans were prepared. Any development project capable of generating air pollutant emissions exceeding regionally established criteria is considered significant for purposes of CEQA analysis, whether or not such emissions have been accounted for in regional air planning. Any project that would directly cause or substantially contribute to a localized violation of an air quality standard would generate substantial air pollution impacts. The same is true for a project that generates a substantial increase in health risks from toxic air contaminants or introduces future occupants to a site exposed to substantial health risks associated with such contaminants.

The 2012-2015 Air Quality Management Plan (“AQMP”) is the seventh (7th) triennial update to the initial state Air Quality Management Plan (MBARD, 2017). MBARD’s 2012-2015 AQMP serves as an important regulatory tool to maintain attainment status and address the many factors that threaten to increase regional NO_x and volatile organic compounds (“VOC”) emissions in the future. To comply with the current 2012-2015 AQMP, the project’s direct and indirect emissions must be accounted for in the growth assumptions in this AQMP, and the project must be consistent with the policies adopted in the 2012-2015 AQMP.

Common sources of odors and odor complaints include wastewater treatment plants, transfer stations, coffee roasters, painting/coating operations, and landfills. The project is located in a residential and agricultural area and would not generate significant odors during construction or operation.

Sensitive receptors are more susceptible to the effects of air pollution than the general population. Land uses that are considered sensitive receptors include residences, schools, and health care facilities. Sensitive receptors in the vicinity of the project consist of residences on Lakeview Road, Crestwood Drive, Cambridge Road, Stratford Rive, Oxford Drive, and Kingston Drive.

IMPACT DISCUSSION:

- a) CEQA Guidelines §15125(b) requires that a project be evaluated for consistency with applicable regional plans. The MBARD 2012-2015 AQMP is the applicable air quality plan for the proposed project. The CCAA required MBARD to prepare an AQMP in 1991, with subsequent updates every three (3) years. The most recent update (2012-2015) is the seventh (7th) update to the 1991 AQMP. It shows that the region continues to make progress toward meeting the state ozone standard. The project does not include new housing or commercial development, and operation and maintenance of the project components would not require new employees. Due to the lack of operational emissions, the project would not cause any long-term adverse air quality effects. As a result, the project would have a **less than significant impact** resulting from conflicts with and/or otherwise obstruct the implementation of MBARD’s AQMP.

- b. The NCCAB is currently designated “attainment” for federal air quality standards, designated “nonattainment” for state standards for inhalable particulate matter (PM₁₀), and designated “transitional nonattainment” for the state ozone standard.

Construction Emissions

Based on the 60% Design Plans, Final Engineering Report, and information provided by MNS Engineers, Inc. (“MNS”), short-term construction emissions associated with the proposed project were estimated using the California Emission Estimator Model (“CalEEMod”).

MBARD has established quantitative thresholds of significance for short-term air pollutant emissions. MBARD’s Guidelines for Implementing the California Environmental Quality Act (MBARD, 2016) implements a 137 pounds/day significance threshold for construction emissions of reactive organic gases (ROG) and oxides of nitrogen (NO_x), as well as other criteria emissions with the exception of sulfur dioxide (SO₂). A comparison of estimated construction emissions and applicable MBARD-recommended thresholds are provided in **Table 2** below.

Table 2
Construction Air Pollutant Emissions for the Crestwood Heights Water Association Water System Consolidation Project (lbs/day)

Criteria	ROG	NO _x	CO	PM ₁₀	PM _{2.5}
Significance Threshold (MBARD)	137	137	550	82	55
Estimated Project Emissions	0.26	2.55	3.09	15.7	1.66
Exceed Threshold?	No	No	No	No	No

Source: Summary of Air Quality Modeling for Crestwood Heights Water Association Water System Consolidation Project, Denise Duffy & Associates, 2024.

Construction of the project would emit relatively small amounts of the pollutants included in **Table 2** above. The project would not exceed any short-term construction threshold as recommended by MBARD. The project would implement vehicle speed reduction and dust control measures, as required for all projects involved in earthmoving activities regardless of the significance of the fugitive dust impacts, therefore resulting in a **less than significant impact**. These measures are identified below:

1. During construction, the project would use water trucks or sprinkler systems to keep all areas of vehicle movement damp enough to prevent dust from leaving the site. At a minimum, this should include wetting down such areas in the late morning and after work is completed for the day. Increased watering frequency should be required whenever the wind speed exceeds 15 miles per hour. Reclaimed water should be used whenever feasible. However, reclaimed water should not be used in or around crops for human consumption.
2. Minimize amount of disturbed area and reduce on-site vehicle speeds to 15 miles per hour or less on unpaved areas.
3. If importation, exportation, and/or stockpiling of fill material is involved, soil stockpiled for more than two (2) days shall be covered, kept moist, or treated with soil binders to prevent dust generation. Trucks transporting fill material to and from the site shall use a tarp from the point of origin.
4. Gravel pads shall be installed at all access points to prevent tracking of mud onto public roads.

5. After clearing, grading, earth moving or excavation is completed, treat the disturbed area by watering, or revegetating, or by spreading soil binders until the area is paved or otherwise developed so that dust generation will not occur.
6. The contractor or builder shall designate a person or persons to monitor the dust control program and to order increased watering, as necessary, to prevent transport of dust offsite. Their duties shall include holiday and weekend periods when work may not be in progress. The name and telephone number of such persons shall be provided to MBARD prior to grading/building permit issuance and/or map clearance.

Operational Emissions

The operation of the project would not have a significant impact due to air pollution emissions since the only operational effects would be limited to one (1) vehicle trip per month to the site for maintenance activities. In addition, the project would not require any new staff. There would be an incremental increase in the amount of power required by the City of Watsonville water system to serve the new connections. This would result in a nominal increase in emissions related to electricity production.

Based on the above analysis, the project would have a ***less than significant impact*** resulting from a cumulatively considerable net increase in any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard.

- c. Ambient air quality standards have been established to represent the levels of air quality considered sufficient, with a margin of safety, to protect public health and welfare. They are designed to protect that segment of the public most susceptible to respiratory distress, such as children under 14; the elderly over 65; persons engaged in strenuous work or exercise; and people with cardiovascular and chronic respiratory diseases. CARB identifies sensitive receptors as "land uses where sensitive individuals are most likely to spend time," such as schools and schoolyards, parks and playgrounds, daycare centers, nursing homes, hospitals, and residential communities (CARB, 2005). Because the project includes the installation of new water connections, construction would occur within the immediate vicinity of residents, specifically along Lakeview Road and within the Crestwood Heights community.

Implementation of the project would result in short-term emissions of fugitive dust associated with construction activities. However, as noted in **Table 2**, above, the project would not result in emissions that would exceed MBARD's significance thresholds. Applicable MBARD thresholds are designed to be protective of public health. Compliance with applicable MBARD regulations would minimize potential nuisance impacts to occupants of nearby land uses. For these reasons, construction activities would be considered to have a ***less than significant impact*** on nearby sensitive residential receptors.

Although construction-related air quality impacts would be less-than-significant, implementing Mitigation Measure AQ-1 would further reduce air pollutant emissions below the significance level.

- d. There may be intermittent odors from construction associated with diesel exhaust that could be noticeable at times to residences in close proximity. However, given the limited construction duration, potential intermittent odors are not anticipated to result in odor complaints and would not affect a substantial number of people. Any individual receptor at any location within the project area would be exposed to project construction for only a few days. Following construction, the project

would not generate any long-term criteria pollutants. Therefore, the project would have a ***less than significant impact*** related to odors.

4. BIOLOGICAL RESOURCES

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

SETTING:

Denise Duffy & Associates ("DD&A" or "DDA") Natural Resources Division prepared a Biological Resources Report for the project, contained in **Appendix B**. The report describes the existing biological resources

within and adjacent to the project site, including any special-status species or sensitive habitats known or with the potential to occur within and adjacent to the site. This report also assesses the potential impacts to biological resources that may result from the project, and recommends appropriate avoidance, minimization, and mitigation measures necessary to reduce those impacts to less than significant, in accordance with CEQA (DDA, 2026). This report was originally prepared in July 2023; however, it was revised in March 2026 to ensure no new circumstances have occurred which would alter the results of the original analysis.

The project is located just outside the City of Watsonville in unincorporated Santa Cruz County. The proposed project's components are located along Lakeview Road and adjacent residential streets in the Crestwood Heights community.

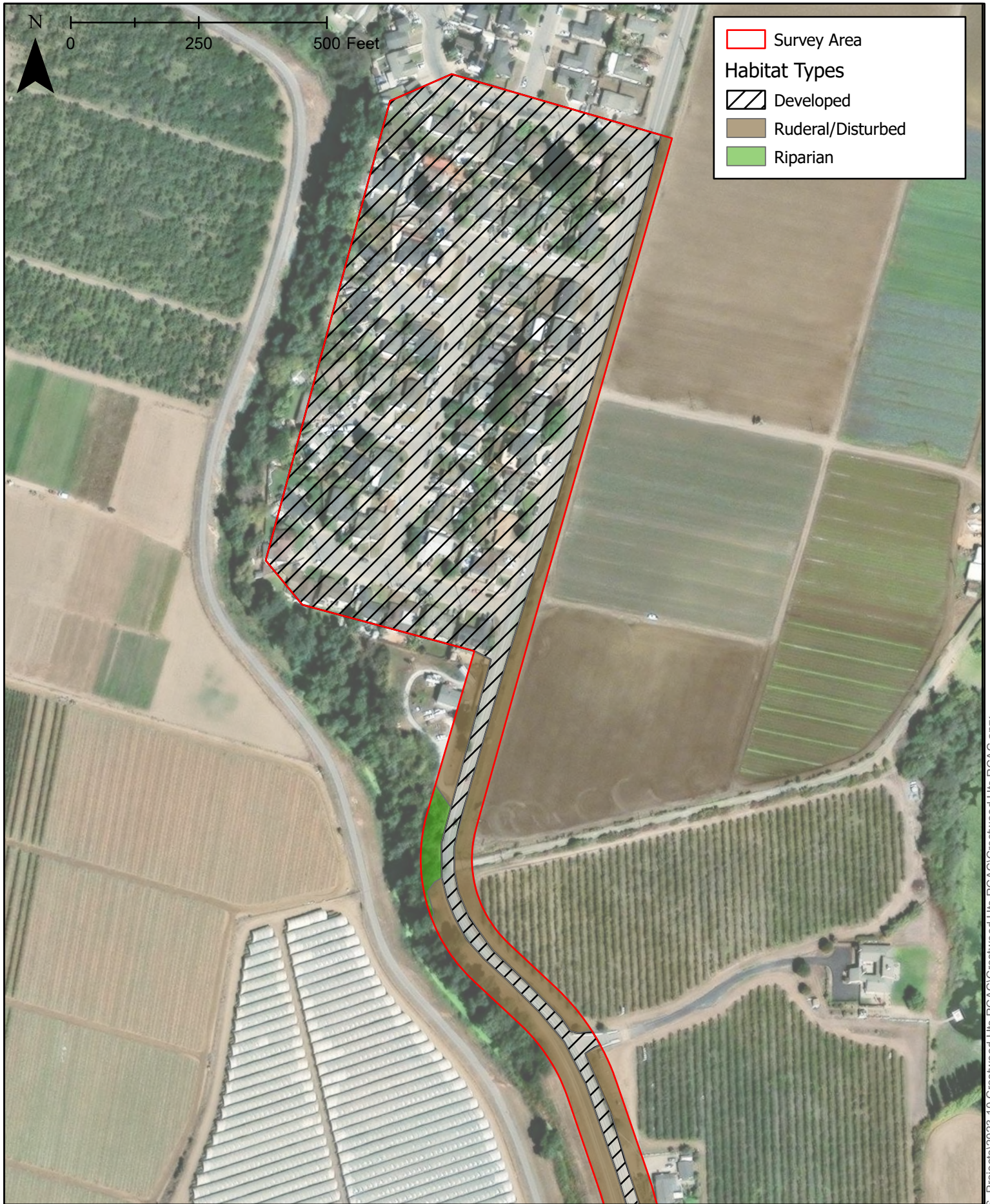
Three (3) vegetation types were mapped within the project survey area: developed, ruderal/disturbed, and riparian. No special-status species have a moderate or high potential to occur within the survey area based on lack of appropriate habitat and no known occurrences within the vicinity of the project. Raptors and other avian species protected under California Fish and Wildlife Code have the potential to nest within trees present within and adjacent to the survey area and project site. All other species evaluated have a low potential to occur, are assumed unlikely to occur, or were determined not present within the survey area.

The survey results include mapping and quantification of the acreage of three (3) vegetation types within the survey area, as shown in **Figure 8. Vegetation Types. Table 3. Summary of Vegetation Types** provides a summary of the acreage of each area:

Table 3.
Summary of Vegetation Types

Vegetation Type	Survey Area
Ruderal / Disturbed	7.0 acres
Riparian	0.17 acres
Developed	15.9 acres

Fremont cottonwood forest (riparian) is listed as a sensitive habitat on the CDFW's California Natural Communities List. No potential wetlands or waters of the U.S. or state were identified within the survey area; however, Salsipuedes Creek occurs directly adjacent to the survey area which may be considered waters of the U.S. and/or state. This resource is identified as freshwater forested/shrub wetland and riverine habitat by the National Wetland Inventory. Salsipuedes Creek is bordered by a levee and agricultural and urban development occur directly adjacent to the creek on either side. This resource contained flowing surface water during the time of the March 2023 survey (DDA, 2026). There are no adopted Habitat Conservation Plans ("HCP"), or Natural Community Conservation Plans ("NCCP") associated with the evaluation area.



Vegetation Types

Date
3/31/2026
Scale
1:2,900



Denise Duffy & Associates, Inc.
Planning and Environmental Consulting

Figure
3a

Vegetation Types

Ruderal/Disturbed

Ruderal areas are those areas which have been disturbed by human activities and are dominated by nonnative annual grasses and other “weedy” species. Ruderal areas within the survey area occur along the margins of roadways and show evidence of human disturbance such as mowing and pedestrian use. Approximately 7.0 acres of ruderal/disturbed habitat occurs within the survey area. Dominant species within ruderal areas include non-native plants such as slender wild oat (*Avena barbata*), burr clover (*Medicago polymorpha*), and wild radish (*Raphanus sativa*). Ruderal communities are not defined as sensitive by CDFW’s *California Natural Communities List* (DDA, 2026).

Ruderal and disturbed areas provide only low-quality habitat for plants and wildlife. Common wildlife species which do well in urbanized and disturbed areas that may occur within the ruderal habitat include American crow (*Corvus brachyrhynchos*), raccoon (*Procyon lotor*), striped skunk (*Mephitis mephitis*), scrub jay (*Apelocoma californica*), European starling (*Sturnus vulgaris*), western fence lizard (*Sceloporus occidentalis*), and rock dove (*Columba livia*).

Riparian

Riparian habitats are those plant communities supporting woody vegetation found along rivers, creeks, streams, canyon bottom drainages, and seeps. They can range from a dense thicket of shrubs to a closed canopy of large mature trees. There is approximately a 0.17-acre riparian area within the survey area. This habitat consists of a small portion of a larger riparian area adjacent to Salsipuedes Creek, most of which is located outside of the survey area. This habitat is dominated by Fremont cottonwood (*Populus fremontii*) and arroyo willow (*Salix lasiolepis*) with an understory of cape ivy (*Delairea odorata*) and California blackberry (*Rubus ursinus*). Fremont cottonwood woodlands are considered sensitive by CDFW’s *California Natural Communities List* (DDA, 2026).

Riparian areas provide habitat for many wildlife species, particularly birds and herpetofauna. Common species that may be found within riparian habitat include Sierran treefrog (*Pseudacris sierra*) and song sparrow (*Melospiza melodia*).

Developed

Developed areas within the survey area include paved roads, driveways, sidewalks, landscaped areas, and residences. Vegetation within these areas consist only of ornamental plants, lawns, and sparse weeds. As such, developed areas are considered to have no biological value. Approximately 15.9 acres of developed areas occur within the survey area.

Special-Status Species

Raptors and other avian species protected under California Fish and Wildlife Code have the potential to nest within trees present within and adjacent to the project site. All other special-status wildlife species are assumed unlikely to occur or have a low potential to occur. Therefore, the project is unlikely to impact special status wildlife species, and these species are not discussed further. No special-status plant species were observed during the field survey, and none are expected to occur based on the lack of suitable habitat within the project site. Therefore special-status plant species are unlikely to be impacted by the project and are not discussed further.

Raptors, their nests, and other nesting birds are protected under California Fish and Wildlife Code. While the life histories of these species vary, overlapping nesting (approximately February through August) and foraging similarities allow for their concurrent discussion. Most raptors are breeding residents throughout most of the wooded portions of the state. Stands of live oak, riparian deciduous, or other forest habitats, as well as open grasslands, are used most frequently for nesting. Breeding occurs February through August, with peak activity May through July. Raptors prey on small birds, small mammals, and some reptiles and amphibians, and many raptor species hunt in open woodland and along habitat edges.

Suitable habitat for nesting avian species occurs within trees located within and adjacent to the survey area, particularly in riparian habitat. At the time of the March 30, 2023, survey, no active raptor or other bird nests were observed within the survey area. However, mitigation measures include preconstruction clearance surveys if construction is to be conducted within the breeding season. This measure would ensure that no impacts will occur to nesting birds as a result of the project.

IMPACT DISCUSSION:

- a. Nesting raptors and other protected avian species have the potential to occur within the project site. Construction activities may result in direct mortality of individuals or disturbance of nests. No special-status species have a moderate or high potential to occur within the survey area based on lack of appropriate habitat, and no known occurrences within the vicinity of the project. Potential impacts would be considered a ***less than significant impact with mitigation incorporated***, see Mitigation Measure BIO-1 below.
- b. Riparian habitat, which is considered a sensitive habitat, occurs within the survey area. Wetlands or waters of the U.S. and/or state potentially subject to the jurisdiction of the ACOE and the RWQCB occur directly adjacent to the survey area; therefore, no direct impacts to potential wetlands or waters are expected to occur. However, impacts to these resources could occur if construction activities occur within these areas, occur outside of the proposed work limits, or if construction activities result in erosion and sedimentation to these adjacent sensitive habitats. Additionally, impacts to these resources could occur if an accident during construction were to result in the release of hazardous materials into the adjacent sensitive habitats. The project is subject to existing regulatory requirements pertaining to the use and disposal of hazardous materials. This is considered a ***less than significant impact with mitigation incorporated***, see Mitigation Measure BIO-2 below.
- c. This resource is identified as freshwater forested/shrub wetland and riverine habitat by the National Wetland Inventory. Salsipuedes Creek is bordered by a levee and agricultural and urban development occur directly adjacent to the creek on either side. This resource contained flowing surface water during the time of the March 2023 survey (DDA, 2026). The project would not result in direct impacts to the potential wetlands; however, if an accident during construction were to result in the release of hazardous materials (e.g., fuel for construction equipment, oil, solvents, or paints) into the environment, there is a potential to degrade the adjacent habitat and impact water quality. This is considered a ***less than significant impact with mitigation incorporated***, see Mitigation Measures BIO-2, BIO-3, and BIO-4 below.
- d. All project features would be below ground and would not permanently remove any wildlife habitat. The majority of the project site and the surrounding areas are within the rights-of-way of public roadways and are developed and disturbed and provide little habitat for wildlife species. As a result, the development of the project would not 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. This represents a ***less than significant impact*** and no mitigation is required.

- e. The project would not conflict with local policies or ordinances of the Santa Cruz County General Plan or the City of Watsonville General Plan to protect biological resources. The project site is dominated by ruderal/disturbed and developed vegetation types, and there is a 0.17-acre riparian area within the area surveyed. The majority of the project site is within roadway public rights-of-way and previously disturbed areas. Additionally, there are no adopted HCPs or NCCPs that apply to the project site. Finally, implementation of the proposed project would not involve the trimming or removal of any trees within the project area. Therefore, the project would have a ***less than significant impact*** relative to local policies or ordinances to protect biological resources.
- f. There are no adopted Habitat Conservation Plans or Natural Community Conservation Plans, or other approved local, regional or state habitat conservation plans located within the project area. The project, therefore, would have ***no impact*** associated with any conflict with these plans.

Mitigation Measures incorporated into the project:

BIO-1 To avoid/minimize impacts to nesting raptors and other avian species the following measures shall be adhered to:

- a. If removal of trees/vegetation, grading activity, or other use of heavy equipment begins outside of the February 1 to August 31 breeding season, there will be no need to conduct a preconstruction survey for active nests.
- b. If removal of trees/vegetation, grading activity, or other use of heavy equipment is to commence between February 1 and August 31, a survey for active bird nests shall be conducted by a qualified biologist within two (2) weeks prior to the start of such activity. The survey area shall include the survey area, and a survey radius around the survey area of 50 feet for MBTA birds and 250 feet for birds of prey.
- c. If no active nest of a bird of prey or MBTA bird is found, then no further avoidance and minimization measures are necessary.
- d. If active nest(s) of MBTA birds or birds of prey are found in the survey area, the following avoidance buffers shall be adhered to unless otherwise advised by CDFW or USFWS: Avoidance buffer of 50 feet for MBTA birds and 250 feet for birds of prey shall be established around the active nest(s). The biologist shall monitor the nest and advise the applicant when all young have fledged the nest. Removal of vegetation, grading activity, or other use of heavy equipment may begin after fledging is complete.
- e. If the biologist determines that a smaller avoidance buffer will provide adequate protection for nesting birds, a proposal for alternative avoidance/protective measures, potentially including a smaller avoidance buffer and construction monitoring, may be submitted to USFWS and CDFW for review and approval prior to removal of vegetation, grading activity, or other use of heavy equipment.

- f. If removal of vegetation, grading activity, or other use of heavy equipment stops for more than two (2) weeks during the nesting season (February 1 - August 31) a new survey shall be conducted prior to re-commencement of construction.

BIO-2a Riparian habitat shall be avoided to the extent feasible. If riparian habitat is impacted by the project, any loss of sensitive habitat shall be mitigated for at a 2:1 ratio for area lost. A restoration plan shall be prepared that details the locations to be restored; describes specific materials and methods for site preparation, planting, and weed control; as well as methods and requirements for monitoring, success criteria, and adaptive management measures.

BIO-2b Prior to construction activities, the project proponent shall retain a qualified biologist to conduct an Employee Education Program for the construction crew. The biologist shall meet with the construction crew at the project site at the onset of construction to educate the construction crew on the following: a) a review of the project boundaries; b) all sensitive habitats that may be present; c) the specific mitigation measures that will be incorporated into the construction effort; and d) the general provisions and protections afforded by the regulatory agencies.

BIO-2c Prior to construction, exclusionary fencing shall be placed around the riparian area and all potential waters of the U.S. and/or state located within 25 feet of construction impacts to preclude construction vehicles and personnel from impacting sensitive habitats. A qualified biologist or biological monitor shall supervise the installation of exclusionary fencing and monitor at least once per week until construction is complete to ensure that the protective exclusionary fencing remains intact.

BIO-2d Stationary equipment such as motors, generators, and welders located within 100 feet of sensitive habitats shall be stored overnight at a designated staging area and shall be positioned over drip pans.

BIO-2e Any hazardous or toxic materials deleterious to life that could be washed into adjacent sensitive habitats shall be contained in watertight containers.

BIO-2f Refueling of equipment shall take place within designated staging areas or at least 100 feet from potential wetlands and other waters of the U.S. and/or state or riparian areas.

BIO-2g All construction debris and associated materials stored in the staging area shall be removed from the work site upon completion of the project.

5. CULTURAL RESOURCES

Would the project:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a. Cause a substantial adverse change in the significance of a historical resource pursuant to §15064.5?	☐	☐	☒	☐
b. Cause a substantial adverse change in the significance of an archaeological resource pursuant to §15064.5?	☐	☒	☐	☐
c. Disturb any human remains, including those interred outside of formal cemeteries?	☐	☒	☐	☐

SETTING:

A Phase 1 Cultural Resource Inventory was prepared for the project by Albion Environmental, Inc. ("Albion") (Albion, 2023). This report may discuss locations of specific archaeological sites and is confidential. For this reason, it is not included in this Initial Study. Qualified personnel, however, may request a copy of the report from the lead agency.

Albion's study was conducted to comply with requirements under CEQA guidelines (Public Resources Code 21000 et seq.). The purpose of this Phase I cultural resource inventory was to document cultural resource identification efforts for the project. The study included archival and background research, a search of records at the California Historical Resources Information System's Northwest Information Center ("NWIC"), a Sacred Lands File search with the Native American Heritage Commission ("NAHC") and Native American stakeholder outreach; and a pedestrian survey of the project area.

A search of records at the NWIC indicated that one (1) previous cultural resource study has been conducted within the project area, and that nine (9) previous cultural resource studies have been conducted within a 500-foot radius of the project area. According to the record search, there are no previously identified cultural resources within the project area and two (2) cultural resources are mapped within a 1/4-mile radius of the project area.

After reviewing the record search results, Albion conducted an intensive pedestrian survey of the project area. During the survey, ground surface visibility was generally poor due to public/private development and heavy vegetation cover. Visibility was limited to unpaved road shoulders and areas exposed by bioturbation and agricultural activities. Visual inspection of the project area surface did not identify evidence of any significant archaeological deposits. In addition, no potential historic era-built environment resources were noted (e.g., buildings, culverts, bridges) within the project area. Albion's investigation indicates that the area is sensitive for precolonial archaeological resources, including buried sites. There is also some potential for historic-era archaeological resources associated with agricultural development spanning the American Period (ca. 1848-present). Given the limited surface visibility noted during the pedestrian survey, Albion cannot rule out the presence of potentially significant archaeological resources within the project area.

The Native American Heritage Commission provided the results of a Sacred Lands File search and list of Tribal stakeholders on April 4, 2022. The Native American stakeholder list includes groups or individuals who may have knowledge of cultural resources in the area. According to the NAHC, the Sacred Lands File search is positive and recommended that the project contact two (2) Tribal stakeholders for more information. Albion sent email requests for additional information to both individuals on April 10, 2023. One (1) individual responded by email on April 10, 2023, with concerns and the other individual did not provide a response. NAHC provided a letter and list of contacts to assist the City in carrying out Native American Tribal Consultation pursuant to the Assembly Bill 52 (AB 52). Albion provided support to the City of Watsonville for their AB 52 consultation with local Tribes, including assistance with consultation letters and procurement of the consultation list from the NAHC. Albion did not participate in the AB 52 consultation aside from assisting the City to initiate the process. The City contacted the local Tribes for AB 52 consultation through certified mail and received no comments or responses. A local Tribe of which the certified mail was undeliverable was further contacted through email and telephone and received no comment or response. This is discussed further in **Section 18. Tribal Resources**.

The project area was inhabited by Ohlone, or Costanoan populations. When first encountered by Spanish explorers, aboriginal inhabitants of the Bay Area and vicinity were referred to as *Costaños*. The people came to be known as Costanoans although now, the descendants of those earlier inhabitants prefer to be referred to as Ohlone. Both terms refer to the language group spoken by the people, rather than any sort of political group. The Ohlone inhabited the San Francisco Peninsula, the East Bay to the Delta, and south past Santa Clara Valley to the coast of Monterey Bay.

General Land Office (“GLO”) maps from 1872 and 1882 indicate the project area is within Townships 11 and 12S, Range 2E, within the Salsipuedes Rancho. The rancho was named for Salsipuedes Creek after the Spanish phrase *Sal si puedes* (Get out if you can). The history of the rancho is not clear.

A plat map from 1881 indicates a portion of the project area was located within lands owned by J. L. Rathbone and that at least a portion of the southern project area was in lands owned by James Tynan. An aerial photograph from 1935 shows the northern portion of the project area was under cultivation and associated with a farmstead, the eastern portion of which lies within the project area. Salsipuedes Creek weaves in and out of the central portion of the project area, while the southern portion contained apparent residential and non-residential structures within the project area along the western side of Lakeview Road. An aerial photograph from 1975 shows the northern portion of the project area developed, as it appears today. The photograph also indicates structures in the southern portion of the project area just north of SR-129.

IMPACT DISCUSSION:

- a. CEQA Guidelines §15064.5 describes a historical resources as: 1) any resource that is listed in, or determine to be eligible by the State Historical Resources Commission, for listing in the California Register of Historical Resources; 2) a resource included in a local register of historical resources; and, 3) any object, building, structure, site, area, place, record, or manuscript which a lead agency determines to be historically significant based on substantial evidence in light of the whole record. The fact that a resource is not listed in or determined to be eligible for listing does not preclude a lead agency from determining that the resource may be a historical resource (CEQA Guidelines §15064.5(4)). A substantial change includes the physical demolition, destruction, relocation, or alteration of a resource or its immediate surroundings such that the significance would be materially impaired (CEQA Guidelines §15064.5(b)).

The project would not cause a substantial adverse change in the significance of a historical resource as defined in CEQA Guidelines §15064.5. Two (2) archaeological resources have been previously identified within a 1/4-mile of the proposed project area; one (1) is precolonial habitation site located 150 meters west of Lakeview Road; and one (1) is a historic road (SR-129) immediately south of the proposed project area. No potential historic era-built environment resources were noted and no cultural resources are mapped within the proposed project area. Therefore, the project would have a ***less than significant impact*** related to historical resources as defined in CEQA Section 15064.5.

- b. Public Resources Code §21083.2 requires that lead agencies evaluate potential impacts on archaeological resources. Specifically, lead agencies must determine whether a project may have a significant effect or cause a substantial adverse change in the significance of an archaeological resource. The findings of the Phase I cultural report states that there were no significant archaeological deposits observed during the survey. In addition, no potential historic era-built environment resources were noted. Accordingly, the project would not significantly impact a known archaeological resource. Although not anticipated, there is the potential for inadvertent discovery of archaeological resources during construction, which may result in potential inadvertent damage or disturbance to a resource. This is considered a ***less than significant impact with mitigation incorporated***, see Mitigation Measure CR-1 below.
- c. Human graves are often associated with prehistoric occupation sites. Section 7050.5 of the California Health and Safety Code states that it is a misdemeanor to knowingly disturb a human burial and Section 5097.99 of the Public Resources Code defines the obtaining or possession of Native American remains or grave goods to be a felony.

Although not anticipated, there is the potential for inadvertent discovery of human remains and potential inadvertent damage or disturbance during construction. This is a ***less than significant impact with mitigation incorporated***, see Mitigation Measure CR-2 below.

Mitigation Measure(s) incorporated into the project:

- CR-1** If archaeological resources are unexpectedly discovered during construction, work shall be halted within 50 meters (±160 feet) of the find until it can be evaluated by a qualified professional archaeologist. If the find is determined to be significant, appropriate mitigation measures shall be formulated and implemented, with the concurrence of the County of Santa Cruz.
- CR-2** If human remains are unexpectedly discovered during construction, work shall be halted within 50 meters (±160 feet) of the find. The County Coroner shall be notified in accordance with provisions of Public Resources Code 5097.98-99 in the event human remains are found and the Native American Heritage Commission shall be notified in accordance with the provisions of Public Resources Code Section 5097 if the remains are determined to be of Native American origin. The Commission will designate a Most Likely Descendant who will be authorized to provide recommendations for management of the Native American human remains (California Public Resources Code Section 5097.98; and Health and Safety Code Section 7050.5).

6. ENERGY

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

SETTING:

The proposed project includes a connection to the City of Watsonville water distribution system. Therefore, operation of the proposed project would result in an incremental increase in the City of Watsonville's energy usage. Pacific Gas and Electric Company ("PG&E") has historically been the primary electricity provider for the City of Watsonville and County of Santa Cruz.

Beginning in 2018, Santa Cruz County customers began to receive their electricity from Central Coast Community Energy ("3CE") (previously known as Monterey Bay Community Power [MBCP]). 3CE is a community choice energy agency that has committed to providing its customers with 100% carbon-free energy by the year 2030 (3CE, 2023). Community choice energy agencies allow local governments to procure power on behalf of their residents, businesses, and municipal accounts from an alternative supplier while still receiving transmission and distribution service from their existing utility provider (in this case, PG&E). This is typically an attractive option for communities that want more local control over their electricity sources, more clean energy than their default utility offers, and/or lower electricity prices. Per Public Utilities Code Section 366.2, customers have the right to opt-out of the community choice energy program and continue to receive service from the incumbent utility (PG&E) if they choose.

The County of Santa Cruz has adopted the 2022 Climate Action and Adaptation Plan ("2022 CAAP") to provide a strategic framework with actionable steps towards reducing the causes of global warming, adapting communities to climate hazards and ensuring the safety and well-being of those most vulnerable to climate change. The 2022 CAAP includes energy-related goals and strategies for the development and use of alternative forms of energy in new and existing buildings, microgrid development, and achieving 100% clean energy provided by 3CE.

IMPACT DISCUSSION:

- a. Electricity and natural gas for the project site would be provided by PG&E. The project's construction and operational energy usage are included in **Appendix C**, based on GHG and modeling using CalEEMod, version 2022.1. Electricity and natural gas consumption are compared to existing consumption in the PG&E service areas. Project modeling provides an estimate of construction and operational emissions and energy consumption. The project would not consume large amounts of energy outside the functions commonly found within water systems. The

anticipated construction schedule assumes that the project would be built out over a maximum of 10 months. The construction phase would require energy for the preparation of the site (e.g., excavation, and grading), and the actual construction of the facilities. Petroleum based fuels such as diesel fuel and gasoline would be the primary sources of energy for these tasks. The overall construction of the project has been designed to be energy-efficient in order to avoid excess fuel and rental equipment costs. During operation, the project would consume energy in the form of electricity primarily for pumping for water distribution. Based on the discussion above, the project would result in a **less than significant impact** during the construction and operational phases related to energy use.

- b. The project would comply with existing state energy standards and would not conflict with or obstruct a state or local plan for renewable energy or energy-efficiency. The project would be designed to comply with the California Green Building Code, Title 24 energy efficiency requirements, and 2022 California Building Energy Standards requirements. The project would result in a **less than significant impact** resulting from conflict or obstruction with a state or local plan for renewable energy or energy efficiency.

7. GEOLOGY AND SOILS

Would the project:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a. Directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving:	☐	☐	☒	☐
i. Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area 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?	☐	☐	☒	☐

Would the project:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
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 most recent Uniform Building Code (1994), creating substantial direct or indirect risks to life or property?	☐	☐	☒	☐
e. Have soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems where sewers are not available for the disposal of wastewater?	☐	☐	☐	☒
f. Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?	☐	☐	☐	☒

SETTING:

ENGEO prepared a geotechnical study for planning and design of the CHWA consolidation project (May 11, 2023); this report is contained in **Appendix D**. The purpose of this study was to characterize subsurface conditions to provide conclusions and recommendations for proposed improvements. The study included eight (8) soil borings, lab testing of collected materials, analysis of the geotechnical data, and design recommendations.

The findings of the geotechnical study indicate that the site is suitable for the proposed project provided that the recommendations contained in the report are incorporated into the design and implemented during construction. The geotechnical considerations for the project include seismicity, presence of existing pavement underlain by some layers of loose sand and liquefaction, the presence of shallow groundwater, and corrosion potential of soil in the pipeline zone.

There are several active and potentially active faults within Santa Cruz County. Zones of fracture are designated in the Seismic Safety Element of the General Plan/Local Coastal Plan and California State designated Seismic Review Zones. Fault zones designated for review by the County include the Butano, Sargent, Zayante, and Corralitos complexes. State-designated seismic review zones include the San Andreas, San Gregorio, and portions of the Zayante and Butano complexes (County of Santa Cruz, 2021). According to the California Department of Conservation's Fault Activity Map of California, the proposed project area is located in the Zayante-Vergeles fault zone. The project area is not within an Alquist-Priolo Earthquake Zone of Required Investigation; however, an Earthquake Zone of Required Investigation is located approximately 0.83 miles northwest of the proposed project area. Additionally, the proposed project is within the Zayante Fault Zone Hazard Area of the County of Santa Cruz. See **Figure 9. Fault Zone** for more information.



Fault Zone Map

Date
10/12/2025

Scale
1 in = 600 ft



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Planning and Environmental Consulting

Figure
9

Liquefaction is the transformation of loose, water-saturated granular materials (such as sand or silt) from a solid to a liquid state accompanying ground shaking during an earthquake. Liquefaction commonly, but not always, leads to ground failure. On slopes liquefaction may result in slope failure. Liquefaction potential varies significantly, and site-specific analysis is needed to accurately determine liquefaction potential in earthquake prone areas. Most of the valley bottoms in the southern regions of the County are underlain by alluvium and are considered at very high, high, or moderate risk for liquefaction potential based on the Santa Cruz County Liquefaction Hazard Areas map (County of Santa Cruz. 2021). The majority of the proposed project area has a very high liquefaction potential, with low liquefaction potential in the northeast corner of the Crestwood Heights community and a small area in the Lakeview Road right-of-way.

Landsliding is a general term that describes a wide variety of mass downslope movements of soil and rock in response to gravity. Landsliding occurs as falls, topples, slides, spreads, flows, and a combination of these categories, and may change from one form of failure to another during their movement. Factors causing landsliding include the rock strength and orientation of elements on the slope, erosion, weathering, high rainfall, steepness of slopes, recent fire activity, and human activities such as the removal of vegetation and inappropriate grading. Landslides occur throughout the world, but Santa Cruz County's unique geologic conditions make large portions of the County particularly susceptible to many forms of landsliding. Landsliding occurs throughout Santa Cruz County but is centered primarily along the steeper slopes in the hills and mountains, along stream corridors, and along coastal bluffs and inlets. The types of landslide that occur in rivers and streams areas of Santa Cruz include shallow landslides, rotational landslides, and lateral spreading (County of Santa Cruz, 2021). The proposed project area is not located within a designated landslide zone or within an area with steep slopes. The project site is relatively flat and is not located in the vicinity of slopes that would be susceptible to landslides.

Land subsidence is defined as a settling, compaction, or caving in of land caused by subsurface mining, ground-water withdrawal, thawing permafrost, or pumping of oil and gas. Land subsidence occurs in Santa Cruz only in conjunction with severe coastal storms and earthquake (County of Santa Cruz, 2021).

Expansive soils are generally clays or sedimentary rocks derived from clays, which experience volume changes as a result of moisture variation. The hazard that expansive soils create can be significant. Many of the expansive soils do not create large areas of destruction; however, they can disrupt supply lines (i.e., roads, power lines, railways, and bridges) and damage structures. The primary soil types mapped by the National Resource Conservation Service ("NRCS") in the project area as expansive are Watsonville Loam, Clear Lake Clay, Diablo Clay, Fagan Loam, Los Osos Loam, Mocho Silt Loam, Pinto Loam, Felton Sandy Loam, Cropley Silty Clay, Danville Loam and Lompico Variant Loam. The Crestwood Heights community of the proposed project area is designated as containing expansive soils. The County of Santa Cruz data of soil types describe the proposed project area as Baywood loamy sand 0% to 2% slopes, Elder sandy loam 0% to 2% slopes MLRA 14, Cropley silty clay 2% to 9% slopes MLRA 14, and Watsonville loam 2% to 15% slopes. The US Department of the Interior's US Geological Survey ("USGS") Geologic Map of Santa Cruz County shows the geologic units of the proposed project area as Qof (older flood-plain deposits) and Qyf (younger flood-plain deposits)

IMPACT DISCUSSION:

- a.i. Although the project site is in a region with several active faults, it is not mapped within an Alquist-Priolo Earthquake Fault Zone and no known surface expression of active faults is known to exist within the site and fault rupture is not anticipated (ENGEO, 2023). However, an Earthquake Zone of Required Investigation is located approximately 0.83 miles northwest of the proposed project area. Additionally, the proposed project is within the Zayante Fault Zone Hazard Area of the County

of Santa Cruz. USGS considers the fault as late Quaternary and not active. In addition, the project would be subject to standard construction standards and seismic requirements. This is considered a ***less than significant impact***.

- a.ii. Seismic ground shaking is influenced by the proximity of the site to an earthquake fault, the intensity of the seismic event, and the underlying soil composition. As described above, the project site is located within the Zayante Fault Zone Hazard Area of the County of Santa Cruz. The project area is likely to be subject to strong seismic shaking during the life of the improvements. There is a very low risk that persons would be on the site checking or maintaining the pipelines during a seismic event. Therefore, project would not expose people to potential substantial adverse effects beyond the current level of exposure. The effect of seismic ground shaking would be minimized through the implementation of the seismic requirements and applicable County standards for earthquake-resistant construction; therefore, potential impacts would be ***less than significant***.
- a.iii. Liquefaction tends to occur in loose, saturated and fine-grained cohesionless sands, coarse silts or clays with a low plasticity. In order for liquefaction to occur there must be the proper soil type, soil saturation, and cyclic accelerations of sufficient magnitude to progressively increase the water pressures within the soil mass. The point-to-point contact of the soil grains develops non-cohesive soil shear strength. As the water pressures increase in the void spaces surrounding the soil grains the soil particles become supported more by the water than the point-to-point contact. When the water pressures increase sufficiently, the soil grains begin to lose contact with each other resulting in the loss of shear strength and continuous deformation of the soil where the soil appears to liquefy. Liquefaction induced lateral spreading occurs when a liquefied soil mass fails toward an open slope face or fails on an inclined topographic slope.

Based on the observed shallow depth to groundwater and presence of loose sand with low blow counts, the geotechnical study concluded that there is moderate to high potential for liquefaction at the site during seismic shaking. If liquefaction occurs, some seismic-induced settlements are possible which may affect site improvements and areas along alignment. If further evaluation of liquefaction and potential adverse effect is needed, this would require further field exploration and evaluation (ENGEO, 2023). The proposed project would result in a ***less than significant impact with mitigation incorporated*** associated with liquefaction. Mitigation GEO-1 is identified to avoid impacts associated with potential liquefaction impacts.

Mitigation Measure(s) incorporated into the project:

GEO-1: To avoid or minimize potential damage from liquefaction and other unstable soil conditions, the project shall be constructed in conformance with all building requirements and the recommendations of an approved geotechnical investigation.

- a.iv. The proposed project site is relatively flat and is not within a County-designated landslide hazard area. The potential for landslides to occur and adversely affect the proposed development is negligible. This is considered a ***less than significant impact***.
- b. The proposed project site is within public rights-of-way and previously disturbed areas. The project proposes approximately 34,750 cubic feet (1,287 cubic yards) of cut and the same amount of fill. The project would not require a grading permit from the County of Santa Cruz because excavation activities for wells and utilities are exempt (County of Santa Cruz, 2023c). Improper grading, both during and post-construction, has the potential to increase the volume of runoff from a site and subsequently increase erosion. Construction of the proposed project would result in the potential

for erosion or loss of topsoil from excavation activities required for the installation of pipelines and tie-in connections. However, any erosion or loss of topsoil would be minimal because construction activities would be largely contained to open trenching within existing paved roadways. For these reasons, the project would have a ***less than significant impact***.

- c. The proposed project site is subject to seismic shaking and liquefaction, as discussed in ai-aiiv) above. The geotechnical study concluded that there is moderate to high potential for liquefaction at the site during seismic shaking. If liquefaction occurs, some seismic-induced settlements are possible which may affect site improvements and areas along alignment. Any construction impact resulting from unstable soil would be temporary, as construction is anticipated to last 10 months. Risks to life and property would not occur during operation of the project, because the project would be entirely underground. The project contractor would fully comply with all state, federal, and other laws, rules, regulations to ensure worker safety during construction. This represents a ***less-than-significant impact with mitigation incorporated*** associated with liquefaction. Mitigation GEO-1 is identified to avoid impacts associated with potential liquefaction impacts.

Mitigation Measure(s) incorporated into the project:

GEO-1 The full text of this mitigation measure is included in Impact a.iii in **Section 7. Geology and Soils**.

- d. The USGS Geologic Map of Santa Cruz County shows the geologic units of the proposed project area as Qof (older flood-plain deposits) and Qyf (younger flood-plain deposits). The soils of the proposed project area are described as Baywood loamy sand 0% to 2% slopes, Elder sandy loam 0% to 2% slopes MLRA 14, Cropley silty clay 2% to 9% slopes MLRA 14, and Watsonville loam 2% to 15% slopes. The Crestwood Heights community of the proposed project area is designated as containing expansive soils. Construction of the project would comply with the most recent regulatory requirements, which would ensure the protection of structures from geo-seismic hazards, such as expansive soils; therefore, impacts would be ***less than significant***. See also Mitigation GS-1 above.
- e. The project is a water distribution system consolidation and improvements project and does not propose any septic tanks or alternative wastewater disposal systems. ***No impact*** would occur.
- f. As stated in **5. Cultural Resources**, the cultural resources report did not discover evidence of prehistoric archeological deposits within the proposed project site. The proposed project site is not listed within an area identified as containing paleontological resources nor is it located in close proximity to any known paleontological resources. As such, the project would not result in the risk of encountering underlying formations that have a potential for paleontological resources. Therefore, the project would have ***no impact*** on a unique paleontological resource or site, or unique geologic feature.

8. GREENHOUSE GAS EMISSIONS

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

SETTING:

Greenhouse gases (“GHGs”) are gases that absorb and re-emit infrared radiation in the atmosphere. The gases that are widely seen as the principal contributors to human-induced climate change include carbon dioxide (CO₂), methane (CH₄), nitrous oxide (N₂O), fluorinated gases such as hydrofluorocarbons (HFCs) and perfluorocarbons (PFCs), and sulfur hexafluoride (SF₆). Water vapor is excluded from the list of GHGs because it is short-lived in the atmosphere and its atmospheric concentrations are largely determined by natural processes, such as oceanic evaporation.

GHGs are emitted by both natural processes and human activities. Of these gases, CO₂ and CH₄ are emitted in the greatest quantities from human activities. Emissions of CO₂ are largely by-products of fossil fuel combustion, whereas CH₄ results from off-gassing associated with agricultural practices and landfills.

The County of Santa Cruz 2019 inventory focuses on the three (3) greenhouse gases most relevant to County operations: carbon dioxide (CO₂), methane (CH₄), and nitrous oxide (N₂O). Other gases are omitted from the inventory, specifically those emitted primarily in private sector manufacturing and electricity transmission (hydrofluorocarbons, perfluorocarbons, and sulfur hexafluorides). This approach is consistent with typical community inventory approaches, as industrial emissions are outside of a County’s jurisdictional control. Emissions totals are then presented as “CO₂ equivalent” (CO₂E) by converting the relative impacts of methane and nitrous oxide to their CO₂ equivalent. Broken down by sector, 70.4% of GHG emissions coming from transportation, which includes passenger vehicles (51.2%), commercial vehicles (13.6%), public transit (1.0%) and off-road equipment (4.6%). Residential and non-residential natural gas and propane total 24.1% of GHG emissions compared to 0.4% for both residential and nonresidential electricity. The amount of GHG from transportation is the most significant contributor, with natural gas and propane from the built environment being next (County of Santa Cruz, 2022).

Unincorporated Santa Cruz County GHG emissions reduction strategies and objectives are informed by the State of California GHG emissions reduction targets. In 2016, the State passed Senate Bill (SB) 32, which requires California to reduce GHG emissions by 40% below 1990 levels by 2030. In September 2022, Assembly Bill (AB) 1279 was signed, declaring it a policy of the State to achieve net zero greenhouse gas emissions by 2045, and to achieve and maintain net negative greenhouse gas emissions afterwards. AB 1279 requires that by 2045, statewide greenhouse gas emissions caused by humans be reduced to at least 85% below 1990 levels. Addressing the remaining 15%, the bill requires implementation of a variety of

policies and strategies to enable carbon dioxide removal solutions and carbon capture, utilization, and storage technologies in California. The 2022 CAAP strives to meet the SB 32 target of reducing GHG emissions 40% below 1990 levels before 2030, while simultaneously establishing a policy framework to achieve the longer-term target of net negative GHG emissions by 2045 (AB 1279). In addition to being compliant with State law, the 2022 CAAP sets forth GHG reduction targets as the specific measurable outcomes to be achieved by the County of Santa Cruz. Federal and State legislation will reduce the County's GHG emissions associated with transportation, building efficiency and renewable electricity (County of Santa Cruz, 2022).

The significance of GHG emissions may be evaluated based on locally adopted quantitative thresholds or consistency with a regional GHG reduction plan (such as a Climate Action Plan). MBARD has developed a GHG threshold of 10,000 metric tons per year CO₂e (MTCO₂e/ year) for stationary source projects, which includes equipment, processes, and operations that require an Air District permit to operate (MBARD, 2016).

State Requirements

Assembly Bill 32

In response to an increase in man-made GHG concentrations over the past 150 years, California has implemented AB 32, the "California Global Warming Solutions Act of 2006." AB 32 codifies the statewide goal of reducing GHG emissions to 1990 levels by 2020 (essentially a 15% reduction below 2005 emission levels) and the adoption of regulations to require reporting and verification of statewide GHG emissions.

Senate Bill 32

On September 8, 2016, the governor signed Senate Bill ("SB") 32 into law. SB 32 extends GHG reduction goals beyond the initial target year of 2020 in AB 32, directing the CARB to ensure that GHGs are reduced to 40% below the 1990 level by 2030.

Assembly Bill 1279

AB 1279 was signed by the governor on September 16, 2022. In order to further reduce GHG concentrations, AB 1279 requires the state to achieve net zero greenhouse gas emissions as soon as possible, but no later than 2045, as well as reduce statewide GHG emissions by 85% below the 1990 levels, and directs the CARB to work with relevant state agencies to achieve these goals.

Climate Change Scoping Plan

CARB's 2022 Climate Change Scoping Plan reflects the statewide GHG emissions reductions of 85 percent below 1990 emissions levels by 2045, as directed by AB 1279. A significant part of achieving the AB 1279 goals include strategies to reduce fossil fuel combustion by using clean technologies and fuels, further reduce short-lived climate pollutants, support sustainable development, increase actions on natural and working lands to reduce emissions and sequester carbon, and capture and store carbon.

Executive Order B-55-18

Executive Order ("EO") B-55-18 was issued in September 2018, establishing a new statewide goal to achieve "carbon neutrality as soon as possible, and no later than 2045, and achieve and maintain net negative emissions thereafter."

Local Requirements

The 2045 Metropolitan Transportation Plan (“MTP”) and Sustainable Communities Strategy (“SCS”) prepared by AMBAG is a local plan that include goals and policies related to the reduction of GHG emissions. The MTP is a long-range planning document that defines how the region plans to invest in the transportation system over the next 25 years based on regional goals, multi-modal transportation needs for people and goods, and estimates of available funding. The MTP includes the SCS as required by SB 375.² The SCS sets forth a forecasted development pattern for the region, which, when integrated with the transportation network and other transportation measures and policies, will reduce GHG emissions from passenger vehicles and light trucks to achieve the GHG reduction targets set by the California Air Resources Board. The future land use and transportation scenario presented in the SCS must accommodate forecast population, employment, and housing sufficient to meet the needs of all economic segment of population, including the State-mandated Regional Housing Needs Assessment (“RHNA”), while considering State housing goals.

IMPACT DISCUSSION:

- a. As discussed above, implementation, construction, and operation of the project would not exceed established thresholds for air quality emissions. Construction of the proposed project is estimated to generate 10 large truck trips per day and 8 worker vehicle trips per day. One (1) vehicle trip per month would be generated by the project for maintenance. Operation of the project would generate minimal emissions since the project consists primarily of linear pipelines with no increase in staff and one (1) vehicle trip per month. Project construction would generate an estimated annual emission of 136 MT of CO₂e annually based on CalEEMod air quality modeling for the project. This is a conservative estimate since construction would last less than one (1) year. This falls far below the threshold of 10,000 MT of CO₂e per year. For these reasons, this impact is a ***less than significant impact***.
- b. The project would be consistent with the Santa Cruz County General Plan, the AMBAG 2045 Metropolitan Transportation Plan/Sustainable Communities Strategies (RTP/SCS), the 2022 Climate Change Scoping Plan, and Executive Order B-55-18, which are regulations adopted to implement a statewide, regional, or local plan to reduce or mitigate GHG emissions. Based on the modeling results, project-related GHG emissions would not exceed any significance threshold established for GHGs. Furthermore, the operational component of the project would not result in an increase in existing operation and maintenance related emissions. This represents a ***less than significant impact***.

² SB 375 directs CARB to set regional targets for reducing greenhouse gas emissions. The law establishes a “bottom up” approach to ensure that cities and counties are involved in the development of regional plans to achieve those targets. SB 375 builds on the existing framework of regional planning to tie together the regional allocation of housing needs and regional transportation planning in an effort to reduce GHG emissions from motor vehicle trips.

9. HAZARDS AND HAZARDOUS MATERIALS

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

SETTING:

The Hazardous Waste and Substances Site ("Cortese") List is a planning tool used by the state, local agencies, and developers to comply with CEQA requirements related to the disclosure of information about the location of hazardous materials release sites. California Government Code Section 65962.5 requires the California EPA ("CalEPA") to develop at least annually an updated Cortese List. Various state and local government agencies are required to track and document hazardous material release information for the Cortese List. The proposed project area is not within 0.25 miles of a hazardous materials site on the Cortese Site List.

The California Department of Toxic Substance Control (“DTSC”) EnviroStor database tracks DTSC cleanup, permitting, enforcement, and investigation efforts at hazardous waste facilities and sites with known contamination, such as federal superfund sites, state response sites, voluntary cleanup sites, school cleanup sites, school investigation sites, and military evaluation sites.

The SWRCB GeoTracker database contains records for sites that impact, or have the potential to impact, water in California, such as Leaking Underground Storage Tank (“LUST”) sites, Department of Defense sites, and Cleanup Program Sites (SWRCB, 2026). **Table 4** below includes a summary of the sites that are within 0.25 miles of the project site. These sites are also shown in **Figure 10. Hazardous Sites with Project Vicinity**.

Table 4.
Geotracker Sites within 0.25 Mile of the Project

Site	GeoTracker Number	Site Type	Cleanup Status
Crop Production Services, Inc. - Watsonville	SL203231261	Cleanup Program Site	Open – Verification Monitoring as of 1/3/1997
Borina Orchard	T0608797961	LUST Program Site	Completed – Case closed as of 1/10/2014

As noted above, the Crop Production Services, Inc. - Watsonville site is considered “Open.” This cleanup site is located in the vicinity of the southern boundary of the proposed project area, near the intersection of Lakeview Road and SR-129. The other site is considered “Completed – Case Closed.”

The project site is located primarily within existing road rights-of-way and previously disturbed areas, and it is not within the vicinity of hazardous waste facilities. No hazardous materials are anticipated to be stored on-site during construction other than typical substances. In addition, there are no schools within 0.25 miles of the proposed project area.

The Watsonville Municipal Airport is a public airport located approximately 2.6 miles west of the proposed project area. Per the most recent Watsonville Municipal Airport Master Plan Update (2023) the proposed project area is not within the planning area, any Safety Compatibility Zone, or any airport noise contour for the Watsonville Municipal Airport Master Plan (City of Watsonville, 2026).

IMPACT DISCUSSION:

- a. No hazardous materials are expected to be stored on-site during construction other than typical construction equipment fluids, including gasoline, diesel, and lubricants for maintaining equipment. These materials would be handled and stored in compliance with all local, State, and Federal regulations pertaining to hazardous materials. This impact is a ***less than significant impact***.
- b. There are typically two (2) types of hazardous materials releases that could occur during construction: 1) the accidental release of hazardous materials that are routinely used during construction activities; and 2) the potential for construction activities to encounter and excavate contaminated soil or groundwater that are already present at the construction site and thus release it to expose new receptors to the hazard.



Hazardous Sites

Date
10/12/2025

Scale
1 in = 800 ft



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Figure
10

Properties with known soil and/or groundwater contamination are identified in **Table 4** above. Two (2) environmental cases were identified using GeoTracker that may have potentially affected soil or subsurface conditions within 0.25 mile of the proposed project site. As described above, one (1) site is listed as “Open;” the remaining site is considered “Completed – Case Closed,” meaning that a closure letter or other formal closure decision document has been issued for the site. The project is not located within 0.25 miles of a hazardous materials site on the Cortese List. The above conditions are not anticipated to affect the project site due to the following 1) active groundwater monitoring of the cleanup site, 2) the location of the cleanup site in an area that does not appear to affect the project site, and 3) the project proposes to demolish the existing well and connect to the City of Watsonville water system.

The project area has been historically used for agricultural purposes, and residual pesticides could possibly remain in the soils. However, the project is not proposing sensitive uses such as residences. If present, suspicious soil would be managed during construction in accordance with all state and local regulations to protect worker safety as discussed further below.

Any hazardous materials associated with the project during operations would be addressed in the final design plans including a management plan for any new or increased use of coagulant and chemical feed additions, chlorination and corrosion protection chemicals, and clean-in-place solutions.

In addition, standard best management practices, such as stopping work and notifying the Santa Cruz County Environmental Health Division if soil contamination is suspected or encountered during construction activities (e.g., unusual soil discoloration or strong odor) until appropriate health and safety procedures have been determined and employed, would be implemented to reduce potential impacts to less than significant.

Operation of the proposed project would not result in exposure to hazardous materials because all components of the project would be underground. Any potential hazardous materials on the site would not be accessible to the public or nearby residents.

For the above reasons, the project’s impacts related to hazardous materials would be considered ***less than significant***.

- c. The project site is not located within ¼ mile of any proposed or existing schools. Therefore, ***no impact*** would result.
- d. The project site is not on or within the vicinity of a hazardous site as designated by Government Code Section 65962.5 (i.e., Cortese List). Therefore, ***no impact*** would result.
- e. There are no private airstrips within the vicinity of the project area. The Watsonville Municipal Airport is a public airport located approximately 2.6 miles to the west. Since most project features would be located underground, operation of the project would not affect airport operations or create a safety hazard. Therefore, ***no impact*** would result.
- f. The project does not include any characteristics or features that would interfere with an adopted emergency response plan or emergency evacuation plan. Once operational all components of the project would be underground, for these reasons, this impact is considered a ***less than significant impact***.

- g. The project site is located within existing road rights-of-way and within an area that is primarily residential development, within an agricultural area. There are no wildlands located adjacent to the project area. The CAL FIRE Hazard Severity Zone map designates the residential portion of the project site is located within a Local Responsibility Area (“LRA”) Moderate FHSZ (CALFIRE, 2026). Furthermore, the project consists of water supply improvements that would increase municipal water availability in the area. Implementation of the proposed project would not further expose people or structures to wildland fires, this is considered a ***less than significant impact***. See **Section 20. Wildfire**.

10. HYDROLOGY AND WATER QUALITY

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

Would the project:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
e. Conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan?	☐	☐	☒	☐

SETTING:

The project site is located within the Pajaro River Watershed. The watershed covers approximately 1,300 square miles and includes portions of Santa Cruz, Santa Clara, San Benito, and Monterey Counties. In October 2004, Pajaro Valley Water Management Agency (“PV Water”), San Benito County Water District (SBCWD), and Santa Clara Valley Water District (“Valley Water”) entered into a Memorandum of Understanding (MOU) for the purpose of coordinating water resources planning and implementation activities in the watershed. The three (3) agencies, collectively known as the Pajaro River Watershed Collaborative, led the development and implementation of the 2007 Pajaro River Watershed Integrated Regional Water Management (“IRWM”) Plan. The IRWMP addresses water supply, water quality, flood management, and other challenges within the watershed (PRWFPA, 2019).

PV Water is a state-chartered special purpose district formed under State Law pursuant to the Pajaro Valley Water Management Agency Act. PV Water is the Groundwater Sustainability Agency (“GSA”) for the Pajaro Valley Groundwater Subbasin and received approval for their alternative management plan under the Sustainable Groundwater Management Act (SGMA) (PRWFPA, 2019).

The project area is located within the Corralitos - Pajaro Valley Groundwater Subbasin (3-002.01) (California Department of Water Resources, 2023). The Pajaro Valley is completely dependent on local groundwater, surface water, and recycled water. Decades of groundwater overdraft lowered water levels throughout the Basin, and eventually caused seawater to intrude into freshwater aquifers. To eliminate groundwater overdraft and stop seawater intrusion, PV Water has constructed supplemental water supply facilities that reduce coastal groundwater production. Existing facilities include the Harkins Slough Managed Aquifer Recharge and Recovery Facility, the Watsonville Area Recycled Water Facility, blend wells, and a connection to the City of Watsonville’s potable water system. New projects will utilize locally available surface water resources to increase the supplemental water supply and include the College Lake Integrated Resources Management Project and the Watsonville Slough System Managed Aquifer Recharge and Recovery Projects approved in 2021. In addition, a multi-phase Recycled Water Facility Optimization Project, which includes treatment, storage, and distribution improvements has been partially constructed. (PV Water, 2022).

The Department of Water Resources (“DWR”) implements regulatory oversight of the GSAs.

DWR designated the Pajaro River Valley Groundwater Subbasin as a critically overdrafted subbasin. DWR approved PV Water’s Basin Management Plan as a Groundwater Sustainability Plan Alternative in July 2019. PV Water submitted the Basin Management Plan: Groundwater Sustainability Update 2022 (GSU22), its first GSP-Alternative 5-year update, along with other associated documents to DWR in December 2021. (PV Water, 2022). The sustainability indicators applicable to the Basin are seawater intrusion, reduction of

groundwater in storage, chronic lowering of groundwater levels, depletions of interconnected surface water, and degraded water quality. A USGS investigation of land subsidence confirmed the lack of observed permanent subsidence in the Basin and reaffirmed that subsidence sustainable management criteria are not required for the Basin. Minimum thresholds were met, and undesirable conditions are not occurring related to seawater intrusion and reduction of groundwater in storage. Thresholds and milestones have not been met related to chronic lowering of local groundwater levels, depletions of interconnected surface water, and degraded water quality.

As stated above and in **Section 19. Utilities and Service Systems**, the City of Watsonville's primary water supply source is local groundwater from the Pajaro Valley Groundwater Subbasin produced by the City's wells. Collaboration between the City and PV Water has resulted in the development of Watsonville Area Recycled Water Treatment Facility (RWF) and other on-going and new projects to help reduce overdraft and address water resource issues in the subbasin and watershed. City wells are not currently run at full capacity and can supply additional water when needed. The City's wells are capable of providing for both current and projected water demands through the planning period of 2045 (City of Watsonville, 2021). However, since existing customers use groundwater wells for supply, transitioning to the City's system will result in a net zero change in water use.

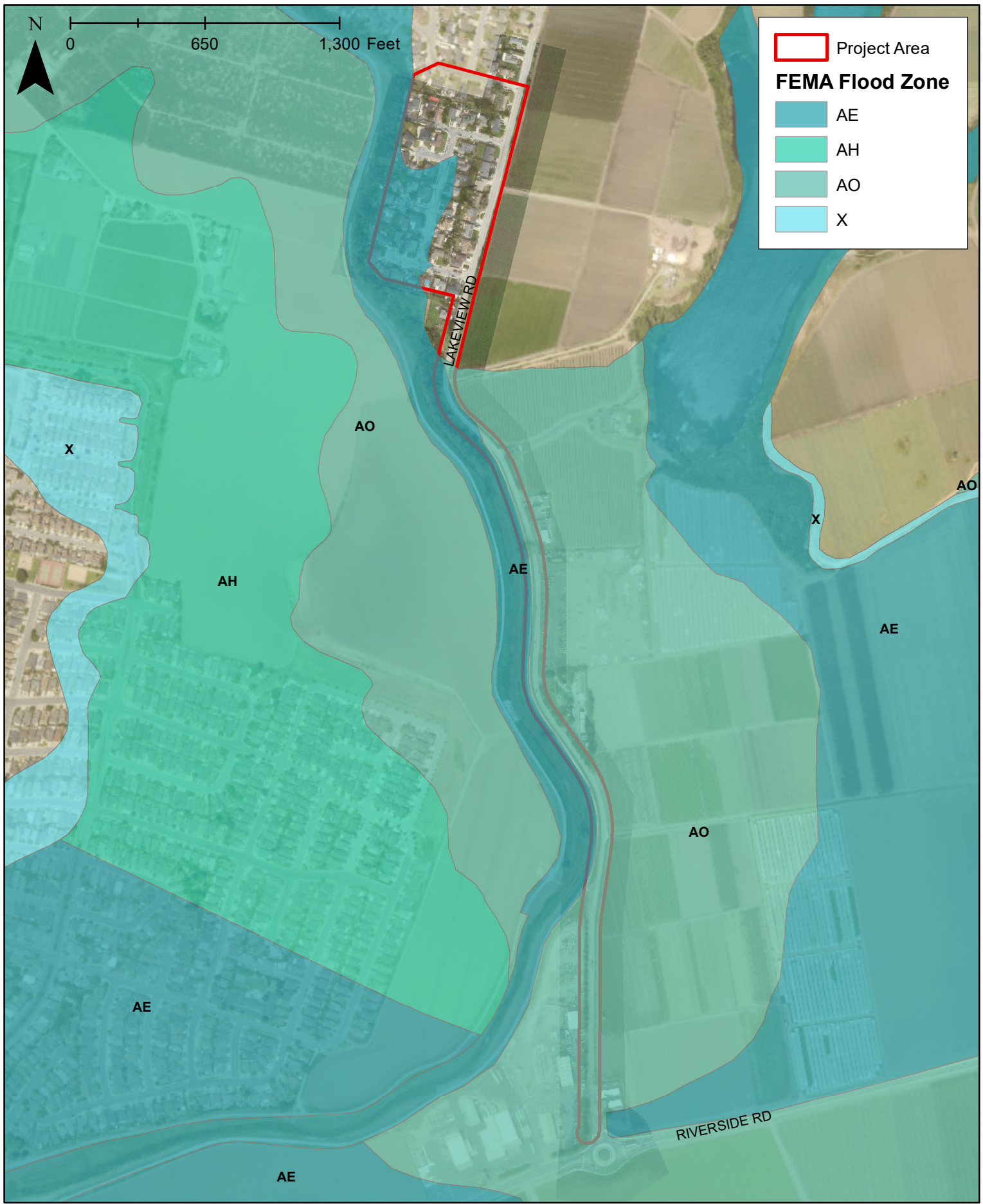
The proposed project would require trenching, which could result in minimal erosion of onsite soils and potential sedimentation during heavy wind or rain events. The project would be required to comply with all local, state, and federal requirements. Since the disturbance for the project is less than one (1) acre, a Stormwater Pollution Protection Plan is not required. The project includes best management practices to control erosion and sedimentation into local surface water drainage in accordance with the County of Santa Cruz Construction Site Stormwater Pollution Control BMP Manual. Additionally, the project would comply with the adopted standards contained within the County of Santa Cruz Municipal Code, Chapter 16.22 (Erosion Control).

According to the Federal Emergency Management Agency ("FEMA"), the proposed project site is Zone AE and Zone AO Special Flood Hazard Areas, and the northeast and west portions of residential area is not within a flood zone (FEMA, 2023). See **Figure 11 Flood Hazards**. In addition, the project area is not located within a tsunami inundation area (County of Santa Cruz, 2023a).

IMPACT DISCUSSION:

- a. The proposed project would require on-site trenching, which could result in the erosion of onsite soils and sedimentation during heavy wind or rain events. The project does not include commercial, industrial, or other uses that would generate a substantial number of contaminants or discharge runoff either directly or indirectly into a public or private water supply or reduce water quality in local water bodies. Proposed trenching could result in minimal erosion of onsite soils and potential sedimentation during heavy wind or rain events. The project would be required to comply with all local, state, and federal requirements. Since the disturbance for the project is less than one (1) acre, a Stormwater Pollution Protection Plan is not required. The project includes best management practices to control erosion and sedimentation into local surface water drainage in accordance with the County of Santa Cruz Construction Site Stormwater Pollution Control BMP Manual. Additionally, the project would comply with the adopted standards contained within the County of Santa Cruz Municipal Code, Chapter 16.22 (Erosion Control).

The project would not violate water quality standards and waste discharge requirements; therefore, impacts would be ***less than significant***.



Flood Hazards Zones

Date
10/12/2025

Scale
1 in = 600 ft



Denise Duffy & Associates, Inc.
Planning and Environmental Consulting

Figure
11

- b. The project involves new connections to the City of Watsonville's existing water system infrastructure as well as demolition of the existing CHWA well site and would not impede sustainable groundwater management in the basin. Although the City's primary water supply source is local groundwater from the basin, with adequate community water conservation the City's water supply is expected to remain stable. The City's wells are capable of providing for both current and projected water demands through the planning period of 2045. The project would serve an existing community and would not induce population growth in the area. For these reasons, the project would not lead to a substantial depletion of groundwater supplies, and impacts would be **less than significant**.
- c.i-iv. Salsipuedes Creek is located west of the project site. The project includes the construction of a water main, distribution line, and new service connections in order to serve the existing area. Construction activities for pipeline installation would involve trenching and other pipeline installation methods that would disturb both paved roadways and unpaved land within the project site, this disturbance would be temporary. Construction would be required to comply with BMPs and Santa Cruz County Municipal Code requirements which would reduce impacts related to erosion and surface runoff. After construction, the project area would be restored to its original condition, and any drainage pattern within the right-of-way would be returned to existing conditions following project construction activities. In addition, once in place, the proposed project would not substantially increase the rate or amount of surface runoff in a manner which would result in flooding onsite or offsite or create or contribute runoff water that would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff. BMPs would be implemented during construction activities to minimize runoff and erosion. Finally, the project would not impede or redirect flood flows, since the project consists of underground pipelines. For these reasons, **less than significant impacts** would result from construction and operation of the project.
- d. Tsunamis or "tidal waves" are seismic waves created when displacement of a large volume of seawater occurs as a result of movement on seafloor faults. The project site is located outside a tsunami hazard zone. The project site is located within Zone AE and Zone AO Special Flood Hazard Areas, and the northeast and west portions of residential area is not within a flood zone. The project is a water distribution system consolidation and improvements project and would not present a significant risk release of pollutants due to project inundation. Therefore, the project would have a **less than significant impact** related to the risk of release of pollutants due to project inundation due to these areas.
- e. As described above under the project setting, the Pajaro River Valley Groundwater Subbasin is a critically overdrafted basin, the DWR considers it managed by PV Water's Basin Management Plan/Groundwater Sustainability Update. Additionally, the City of Watsonville has enough water supply and capacity to meet projected water demands. Therefore, the project would have **less than significant impacts**.

11. LAND USE AND PLANNING

Would the project:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a. Physically divide an established community?	☐	☐	☐	☒
b. Cause a significant environmental impact due to a conflict with any land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect?	☐	☐	☒	☐

SETTING:

The proposed project is within the jurisdiction of the County of Santa Cruz and is located within the City of Watsonville Sphere of Influence, see **Figure 1. Regional Map**.

The project area is governed by the County of Santa Cruz 1994 General Plan and is within the Pajaro Valley Planning Area. The residential portion of the project area is designated as Urban Low Density Residential (R-UL), and a small portion of the west and southwest parcels of the residential area are partially designated as Urban Open Space (O-U). The road right-of-way areas do not have land use designations. The area to the west of the project area across Lakeview Road is within the Salsipuedes Planning Area of County of Santa Cruz and is designated as Agriculture (AG) and Lakes, Reservoirs, and Lagoons (O-L). Surrounding land uses include residential to the north, agriculture and industry to the south, and agriculture to the east and west.

As described above, the proposed project is located within the City of Watsonville Sphere of Influence and within the City's water system service area.

IMPACT DISCUSSION:

- a. The project consists of a water distribution system. The project includes the extension of water lines and construction of water system improvements in order to serve the project area. All pipeline components would be installed underground and would not physically divide the community in any way. To maintain access and parking for residents, work would be phased to maintain access to homes and minimize short- and long-term parking impacts. There would also be traffic control required in Lakeview Road. No changes in land use are planned and the community would not be divided by the actions of the proposed project. Therefore, the proposed project would not physically divide an established community and **no impact** would result.
- b. The project would not conflict with any policy adopted for the purposes of avoiding and/or mitigating an adverse environmental effect. Construction of the project is limited to trenching for pipeline installation primarily within the road right-of-way. As a result, potential impacts would be minimized. Where appropriate, this IS/MND has identified a number of mitigation measures to further ensure that impacts would be less than significant. The consolidation of the CHWA water system to the

City of Watsonville municipal water system is consistent with the land use designations on the site and within the project area. This is considered a ***less than significant impact***.

12. MINERAL RESOURCES

Would the project:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a. Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state?	☐	☐	☐	☒
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?	☐	☐	☐	☒

SETTING:

The County of Santa Cruz's primary mineral resources are sand, rock, and gravel. The site is not within a Santa Cruz County General Plan designated mineral resources area. In accordance with the Surface Mining and Reclamation Act of 1975 ("SMARA"), the California Geological Survey ("CGS") maps the regional significance of mineral resources throughout the state, with priority given to areas where future mineral resource extraction could be precluded by incompatible land use or to mineral resources likely to be mined during the 50-year period following their classification. The State Board of Mining and Geology has adopted regulations to protect lands classified as MRZ-2 (i.e., lands where information indicates that significant stone, sand, and/or gravel deposits are present, or where a high likelihood for their presence exists; and lands otherwise designated as areas of statewide or regional significance relative to mineral resources). Updated mapping completed in 2021 of the project site area by CGS did not indicate that the project site contained any MRZ-2 designated resource zones.

IMPACT DISCUSSION:

- a. Based on the Santa Cruz County General Plan, the project area has not been identified as an area that contains any known mineral resources that would be of value to the region and the residents of the state. The project would involve excavation through the open trenching process in construction of water connection pipelines. However, this would largely occur within public roadways that are already highly disturbed, in areas where no mineral resources have been identified. Therefore, there would be ***no impact***.
- b. There are no known or mapped mineral resources in the project area and the likelihood of future mining of important resources within the project area is very low. The project does not have a designated mineral resource designation or overlay. Therefore, no potential significant loss of availability of a known mineral resource recovery site delineated on a local general plan, specific plan or other land use plan would occur as a result of this project. There would be ***no impact***.

13. NOISE

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

SETTING:

In the context of this document, “noise” is defined as unwanted sound. The primary source of existing noise in the proposed project area is traffic on adjacent roadways, primarily Lakeview Road and SR-129 (Riverside Road).

Community noise levels are typically measured in terms of A-weighted decibels (“dBA”). A-weighting is a frequency correction that correlates overall sound pressure levels with the frequency response of the human ear. Equivalent noise level (Leq) is the average noise level on an energy basis for a specific time period. The duration of noise and the time of day at which it occurs are important factors in determining the impact of noise on communities. The Community Noise Equivalent Level (“CNEL”) and Day-Night Average Level (“Ldn”) account for the time of day and duration of noise generation. These indices are time-weighted average values equal to the amount of acoustic energy equivalent to the time-varying sound over a 24-hour period. The Noise Element of the County’s General Plan includes compatibility standards for noise exposure by land use. These include exterior noise standards as shown in **Table 5** and **Table 6**.

Policy 9.2.6 of the Noise Element of the Santa Cruz County General Plan requires mitigation and/or best management practices to reduce construction noise as a condition of project approvals, particularly if noise levels would exceed 75 dB at neighboring sensitive land uses or if construction would occur for more than 7 days.

Table 5

Acceptable through Unacceptable Ranges of Noise Exposure by Land Use* (DNL or CNEL, dB)
 (*outdoor noise exposure measured at the property line of receiving land use)

Land Use Category	55	60	65	70	75	80	85
1. Residential/Lodging – Single Family, Duplex, Mobile Home, Multifamily							
2. Schools, Libraries, Museums, Meeting Halls, and Churches							
3. Outdoor Sports Arena or Facility, Playgrounds, Neighborhood Parks							
4. Office Buildings, Business Commercial, and Professional							
5. Industrial, Manufacturing, Utilities, Agriculture							

Legend	Description
	Normally Acceptable: Specific land use is satisfactory, based upon the assumption that any buildings involved are of normal conventional construction, without any special noise insulation requirements, and can meet the indoor noise standards.
	Conditionally Acceptable: New construction or development should be undertaken only after a detailed analysis of the noise reduction requirements is made and needed noise insulation features included in the design to meet interior and exterior noise standards, where applicable.
	Normally Unacceptable: New construction or development should generally be discouraged. If new construction or development does proceed, a detailed analysis of the noise reduction requirements must be made and needed noise insulation features included in the design to meet interior and exterior noise standards, where applicable.
	Clearly Unacceptable: New construction or development should generally not be undertaken

Source: Santa Cruz County General Plan, Noise Element, Table 9-2

The County of Santa Cruz General Plan, Noise Element, dated February 2020, provides regulation and guidelines regarding noise (Santa Cruz County, 2020). The County of Santa Cruz noise thresholds for industrial land uses are:

- Under 70 dB CNEL is considered normally acceptable
- Between 70 dB CNEL and 85 dB CNEL is considered conditionally acceptable

Table 6.
Maximum Allowable Noise Exposure
Stationary Noise Sources

Period	Daytime ⁵ (7 AM to 10 PM)	Nighttime ^{2,5} (10 PM to 7 AM)
Hourly Leq – average hourly noise level, dB ³	50	45
Maximum level, dB ³	70	65

Period	Daytime ⁵ (7 AM to 10 PM)	Nighttime ^{2,5} (10 PM to 7 AM)
Maximum level dB – Impulsive Noise ⁴	65	60

dB = decibel

5 As determined at the property line of the[RS3.1] receiving land use. When determining the effectiveness of noise mitigation measures, the standards may be applied on the receptor side of noise barriers or other property line noise mitigation measures.

2 Applies only where the receiving land use operate or is occupied during nighttime hours.

3 Sound level measurements shall be made with “slow” meter response.

4 Sound level measurements shall be made with “fast” meter response.

5 Sound level measurements shall be made with “slow” meter response.

Source: Santa Cruz County General Plan, Noise Element, Table 9-3

IMPACT DISCUSSION:

- a. The proposed project would construct water pipelines and service connections within the project area, which is predominantly residential and agricultural. There are no project components that would produce a permanent increase in noise throughout the project area; however, the project would result in short-term noise increases in the immediate vicinity of construction. Sensitive receptors in the area include nearby residences within the immediate vicinity of the pipelines in the Crestwood Heights community and along Lakeview Road. Project construction would generate a temporary increase in noise associated with the use of construction equipment. Noise generated by pipeline installation can vary greatly depending on the specific equipment selected by the construction contractor. The contractor would be using standard equipment associated with pipeline construction including excavators, loaders, dump trucks, and hauling vehicles. Construction phases include site preparation, grading, trenching, and paving that would take place over a maximum of 10 months. General work hours would be limited to daytime hours between 8 A.M. to 5 P.M., Monday through Friday, but may require limited nighttime construction between 8 PM and 5 AM. Nighttime construction work would only occur in public right-of-way for a period of approximately two (2) days in any one location during the entire construction period. However, due to the project site’s close proximity to nearby residences, construction noise could result in a significant impact.

Although noise impacts to nearby sensitive receptors during construction would be temporary, based on the proximity of the nearest receptor and the rate that noise diminishes, construction activities would likely exceed the County’s noise related threshold. This is considered a ***less than significant impact with mitigation incorporated***, see Mitigation Measures NSE-1 and NSE-2 below.

The distribution pipeline would not generate any permanent noise during project operation, as it would be entirely underground and consists of water pipelines. The project would have a ***less than significant impact*** due to a permanent increase in ambient noise levels.

- b. The project is not subject to substantial groundborne vibration, nor would it generate any permanent source of groundborne vibration at nearby sensitive receptors. Construction activities may generate groundborne vibration, however, these activities would be temporary, and the vibration effects of typical construction equipment is not expected to affect nearby sensitive residential receptors. This constitutes a ***less than significant impact***.

- c. The project area is located approximately 2.6 miles east of the Watsonville Municipal Airport. The project area is not located within the noise contours, airport influence area (AIA), or safety zones of the Watsonville Municipal Airport Master Plan. Additionally, the proposed project consists of new service connections to the City water system and would not place new development within vicinity of the Watsonville Municipal Airport. Therefore, **no impact** would occur.

Mitigation Measures incorporated into the project:

NSE-1 All equipment shall be properly maintained, and all internal combustion engine-driven equipment shall be equipped with intake and exhaust mufflers that are in good condition and appropriate for the equipment. Equipment engine shrouds shall be closed during equipment operations. The applicant shall require all contractors, as a condition of contract, to maintain and tune-condition all construction equipment to minimize noise emissions. Additionally, all stationary noise generating equipment (e.g., compressors) and equipment staging areas shall be located as far as possible from adjacent residential receivers.

NSE-2 The project contractor shall designate a "disturbance coordinator" responsible for responding to any complaints about construction noise. The disturbance coordinator will be responsible for notifying neighboring residences of planned construction schedules at least 72 hours in advance. The disturbance coordinator's telephone number shall be posted at the project site and included in the notice. All noise complaints will be sufficiently examined and promptly addressed.

14. POPULATION AND HOUSING

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

SETTING:

According to the 2020 Decennial Census, the current population of the County of Santa Cruz is 270,861 persons, and 52,590 persons for the City of Watsonville. In 2022, AMBAG published a new regional growth forecast which projects a 2045 population of 294,967 residents and a 2035 population of 288,523 residents for Santa Cruz County, and a 2045 population of 56,334 residents and a 2035 population of 55,138 residents for the City of Watsonville.

The project consists of consolidating the CHWA water system with the City of Watsonville's water system. Project components include a new water main, water service laterals, and 45 water service connections. The 45 service connections serve approximately 147 residents in the Crestwood Heights community near Lakeview Road. After consolidation, the CHWA would be dissolved of its status as a mutual water company. Additionally, the proposed project would upgrade the current CHWA distribution infrastructure and install individual meters on each service connection to meet the City's standards. The project would not displace any existing housing.

IMPACT DISCUSSION:

- a. Although the project would include water service connections, these connections would only serve existing residences that are currently served by CHWA. The CHWA water system is served by one (1) active well and has faced challenges related to aging infrastructure, limited operation and management resources, challenges with meeting peak demands, minimal fire protection, and reliance on a single source of supply. Consolidation of the CHWA system and connection to the City's water system would provide potable water to the existing residents. Upon project completion, CHWA would cease to operate, and therefore, would no longer pump groundwater to serve its customers. The project would construct needed improvements to deliver a reliable and potable water supply to the community. Therefore, the project would serve an existing community and would not induce substantial population growth in the area. This impact is a ***less than significant impact***.
- b. The project involves the construction and operation of a new water main, distribution line, and service connections to the City of Watsonville water system. The new service connection would only serve the existing customers of the CHWA. The project would not displace substantial numbers of existing people, housing, or necessitate the construction of replacement housing elsewhere. Therefore, ***no impact*** would result.

15. PUBLIC SERVICES

Would the project:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a. 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:				
i. Fire protection?	☐	☐	☒	☐

Would the project:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
ii. Police protection?	☐	☐	☒	☐
iii. Schools?	☐	☐	☐	☒
iv. Parks?	☐	☐	☐	☒
v. Other public facilities?	☐	☐	☐	☒

SETTING:

Fire protection services for the project area are provided by the Pajaro Valley Fire Protection District ("FPD"). One (1) fire station serves the FPD, located at 562 Casserly Road. Police protection services for unincorporated areas of Santa Cruz County are served by the Santa Cruz County Sheriff's Department. The Pajaro Valley School District serves the City's elementary, middle, and high schools.

IMPACT DISCUSSION:

- a.i, ii. Because the project is a water service and supply project, it would have no post-construction impact on the Fire Department or Police Department. The project would benefit the residents of Crestwood Heights by providing reliable fire protection flows for the community. Although unlikely, these departments could be required to respond to potential construction-related emergencies. Construction is expected to be completed within ten (10) months and would not significantly impact fire protection or police protection services or require the construction of new or remodeled facilities. This represents a ***less than significant impact***.
- a.iii, iv, v. The water supply project would have no physical impact on schools, parks, or other public facilities and would not require the construction of new or remodeled facilities. ***No impact*** would result from implementation of the proposed project.

16. RECREATION

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

SETTING:

The proposed project is a water system project. The project does not include any recreational facilities. There are not any existing recreational facilities within the vicinity of the proposed project.

IMPACT DISCUSSION:

- a, b. The project is a water system project and would not increase the use of surrounding recreational facilities and would therefore not contribute to the physical deterioration of park facilities or necessitate the construction of new recreational facilities. The project would have **no impact** on recreational facilities.

17. TRANSPORTATION

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
Would the project:				
a. Conflict with a program, plan, ordinance or policy addressing the circulation system, including transit, roadway, bicycle and pedestrian facilities?	☐	☐	☒	☐
b. Conflict or be inconsistent with CEQA Guidelines section 15064.3, subdivision (b)?	☐	☐	☒	☐

Would the project:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
c. Substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?	☐	☐	☒	☐
d. Result in inadequate emergency access?	☐	☐	☒	☐

SETTING:

The proposed project is located just outside the City of Watsonville in unincorporated Santa Cruz County. Regional access to the project site is provided from SR-129 (Riverside Road) and College Road. In the Circulation Element of the County of Santa Cruz General Plan, College Road and Lakeview Road are considered arterials. College Road, Lakeview Road, and Riverside Road are designated bikeways in the Watsonville Area of the Master Plan of County Bikeways in Circulation Element of the County of Santa Cruz General Plan. Riverside Road is also considered a Class II Bike Lane.

The project would require excavation within the Santa Cruz County public right-of-way on Lakeview Road for the water main trenching. Other streets included in the project are residential streets in the Crestwood Heights community. The proposed project applicant would be responsible for obtaining an encroachment permit from the County prior to the start of construction. The encroachment permit would require a traffic control plan. The City has an existing franchise agreement with the County for utilities within public roadways. Due to the significant scope and scale of the project, a waiver under the franchise agreement is not anticipated, and a traditional encroachment permit process is anticipated for this project (MNS, 2023).

To maintain access and parking for residents, work would be phased to maintain access to homes and minimize short- and long-term parking impacts. There would also be traffic control required in Lakeview Road. It is anticipated that construction of the project would result in 10 large truck trips per day and 8 worker vehicle trips per day, which is expected to last 10 months. The proposed project would require one (1) vehicle trip per month during operation of the proposed project after construction has been completed.

IMPACT DISCUSSION:

- a. The proposed project would generate one (1) vehicle trip per month under normal conditions once operational. The project would result in a temporary increase in traffic during construction. Construction-related vehicle trips would include workers traveling to and from the project construction sites and staging area(s) and other trucks associated with equipment and material deliveries. Construction worker trips are estimated to be 10 large truck trips per day and 8 worker vehicle trips per day during project construction. Truck trips for materials and hauling for the proposed project would vary depending on delivery of materials and construction vehicles. Compared to the existing level of traffic traveling on Lakeview Road, the temporary construction-related traffic would be minimal. Work within Lakeview Road would require one way traffic controls with flaggers to construct the water main. In the event of any type of closure, clear signage (e.g.,

closure and detour signs) must be provided to ensure vehicles, pedestrians and bicyclists are able to adequately reach their intended destinations safely. The construction contractor would prepare a construction Traffic Control Plan as part of the encroachment permit from the County of Santa Cruz. This plan should address the construction schedule, street closures and/or detours, construction staging areas and parking, and planned truck routes. Construction is a short-term, temporary activity and construction trips would account for a relatively small portion of existing traffic on area roadways. Construction-related traffic impacts would be reduced through implementation of the required Traffic Control Plan. No bike lanes exist within the proposed project area; however, sidewalks exist in the Crestwood Heights community. Therefore, traffic flow impacts during construction would be **less than significant**.

- b. An assessment of vehicle miles traveled (VMT) requires estimating the vehicle trips for work trips, deliveries, shopping, etc. Vehicle trips can cross between jurisdictions as well as between cities and counties locally. For this reason, regional models, and household travel surveys are the preferred tool to estimate VMT under State law. The State's Technical Guidance published by the Office of Planning and Research ("OPR") states:

Many agencies use "screening thresholds" to quickly identify when a project should be expected to cause a less than significant impact without conducting a detailed study. As explained below, this technical advisory suggests that lead agencies may screen out VMT impacts using project size, maps, transit availability, and provisions of affordable housing.

The Technical Advisory lists screening thresholds for various types of land use development project, including some that are presumed to have a less than significant impact on VMT and therefore, a less than significant adverse impact on transportation. OPR advises that small projects that generate or attract fewer than 110 trips per day can generally be assumed to cause a less than significant transportation impact. The proposed project would generate one (1) trip for maintenance activities once operational. As stated above, it is estimated that the project would generate 10 large truck trips per day and 8 worker vehicle trips per day during the construction period and no additional trips during operation. The vehicle trips per day fall below the threshold of 110 trips per day, therefore the project has a **less than significant impact** related to an increase in VMT.

- c. The project would not substantially increase hazards due to a design feature (for example, sharp curves or dangerous intersections) or incompatible uses. The project would generate one (1) vehicle trip per month once operational. This is consistent with the current operational traffic under existing conditions. The project does not include the construction of hazardous design features and would not result in incompatible uses with the surrounding developed area. Implementation of a Traffic Control Plan would minimize potential traffic hazards during construction. This constitutes a **less than significant impact**.
- d. The proposed Traffic Control Plan would include traffic control measures in the event of a lane closure and would give priority access to emergency vehicles. The proposed project consists of installing and maintaining new pipelines, which would not impact emergency access with the implementation of the Traffic Control Plan. This represents a **less than significant impact**.

18. TRIBAL CULTURAL RESOURCES

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

SETTING:

To recognize California Native American tribal sovereignty and the unique relationship of California local governments and public agencies with California Native American tribal governments, and to respect the interests and roles of project proponents, the State Legislature enacted AB 52 (Gatto, 2014) Native Americans: California Environmental Quality Act. California AB 52, effective as of July 2015, provides CEQA protections for tribal cultural resources. All lead agencies approving projects under CEQA are required, if formally requested by a culturally affiliated California Native American Tribe, to consult with such tribe regarding the potential impact of a project on tribal cultural resources before releasing an environmental document. Prior to the enactment of AB 52, the State of California found that current laws provided limited protection for sites, features, places, objects, and landscapes with cultural value to California Native American Tribes. Under California Public Resources Code §21074, tribal cultural resources include site features, places, cultural landscapes, sacred places, or objects that are of cultural value to a tribe and that are eligible for or listed on the California Register of Historical Resources ("CRHR") or a local historic register, or that the lead agency has determined to be of significant tribal cultural value.

The Native American Heritage Commission ("NAHC") maintains a list of tribes that are traditionally and culturally affiliated with the geographic area. The NAHC provided the results of a Sacred Lands File search and list of Tribal stakeholders on April 4, 2022. The Native American stakeholder list includes groups or individuals who may have knowledge of cultural resources in the area. According to the NAHC, the Sacred

Lands File search is positive and recommended that the project contact two (2) Tribal stakeholders for more information. Albion sent email requests for additional information to both individuals on April 10, 2023. One (1) individual responded by email on April 10, 2023, and reported that a site is located within 1/8 of a mile from the project area, and that the site is known to contain sensitive resources. The other individual did not provide a response. NAHC provided a letter and list of contacts to assist the City in carrying out Native American Tribal Consultation pursuant to the Assembly Bill 52 (AB 52). Albion provided support to the City of Watsonville for their AB 52 consultation with local Tribes, including assistance with consultation letters and procurement of the consultation list from the NAHC. Albion did not participate in the AB 52 consultation aside from assisting the City to initiate the process. The City contacted the local Tribes for AB 52 consultation through certified mail and received no comments or responses. A local Tribe of which the certified mail was undeliverable was further contacted through email and telephone and received no comment or response.

IMPACT DISCUSSION:

- a.i, ii There are no historical structures on the site. Records indicate that the project site, which is primarily within the road rights-of-way and contains several residences on and adjacent to Lakeview Road, is not listed on the California Register of Historic Places or on Santa Cruz County's local list. Professional archaeologists studied a project boundary larger than the proposed project site disturbance. After initial consultation, a field survey of the project area was completed. The studies indicate the area of proposed development is not within an archaeological site eligible to be designated as a historical resource applying the criteria set forth in subdivision (c) of Public Resources Code Section 5024.1. Should archaeological resources be unexpectedly discovered during construction, work shall be halted until it can be evaluated by a qualified professional archaeologist and determined to be significant, and appropriate mitigation measures formulated and implemented, as identified in Mitigation Measures CR-1 and CR-2. The project would have a ***less than significant impact with mitigation incorporated*** on tribal cultural resources.

Please see **Section 5. Cultural Resources** of this IS/MND for additional discussion.

Mitigation Measure(s) incorporated into the project:

CR-1 The full text of this mitigation measure is included in **Section 5. Cultural Resources**.

CR-2 The full text of this mitigation measure is included in **Section 5. Cultural Resources**.

19. UTILITIES AND SERVICE SYSTEMS

Would the project:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a. Require or result in the relocation or construction of new or expanded water, wastewater treatment or storm water drainage, electric power, natural gas,	☐	☐	☒	☐

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

SETTING:

The City of Watsonville (City) operates three (3) independent and self-supporting utility enterprises, which are run by the Water, Wastewater, and Solid Waste Divisions. Each enterprise is managed and operated by the City's Public Works & Utilities Department and is funded primarily with rates and charges paid monthly by each customer.

The Water Division is responsible for providing safe, reliable, and affordable drinking water to 66,000 residential, commercial, industrial, and institutional customers within the City as well as to parts of unincorporated areas of Santa Cruz County. Staff operates and maintains 190 miles of pipelines, 14 wells, 8 reservoirs and the Corralitos Filtration Plant treatment plant. The City's primary water supply source is local groundwater from the Pajaro Valley Groundwater Subbasin produced by the City's wells. Groundwater resources in the Subbasin have been managed by the Pajaro Valley Water Management Agency (PV Water) since the agency's formation in 1984. PV Water has completed multiple water supply projects to help reduce overdraft, lessen seawater intrusion, and improve and protect water quality within the entire basin. The City works collaboratively with PV Water on a number of projects. In particular, the City and PV Water jointly developed the Watsonville Area Recycled Water Treatment Facility (RWF). The City operates the RWF, and PV Water distributes the recycled water for agricultural uses. With adequate conservation measures implemented during drought events, and on-going and new projects by PV Water, groundwater levels in the Subbasin, and thus the City's available water supply, are expected to remain stable. City wells

are not currently run at full capacity and can supply additional water when needed. At this time, the City's wells are capable of providing for both current and projected water demands through the planning period of 2045 (City of Watsonville, 2021).

The existing CHWA system currently utilizes one (1) active well (Well #1) to pump groundwater as the primary source of water. There is also a secondary well onsite (Well #2), however, it is currently nonoperational due to past complications caused by regional seismic activity. Although Well #1 is reliable in terms of overall capacity, the system has difficulty meeting consumer demands during periods of peak usage due to the limited available storage. The system also encounters frequent maintenance issues requiring mainline shutoff, resulting in service termination throughout the community. The Crestwood Heights Water Association system serves 45 service connections in the Crestwood Heights community near Lakeview Road.

The project would consolidate the CHWA water system with the City's system, and construct improvements to the existing system to deliver a reliable water supply to the residents. The proposed project would upgrade the current CHWA distribution infrastructure and install individual meters on each service connection to meet the City's standards.

MNS prepared a Final Preliminary Engineering Report ("PER") (**Appendix A**) during project development, which explored several alternative methods of supplying potable water to the area. In addition, the PER found that the average daily demand (ADD) is 330 gallons per day (GPD) per residence served in the CHWA system and maximum daily demand (MDD) is 723 GPD per residence served. During the period analyzed, the average daily demand (ADD) of the system is 14,858 gallons per day (GPD).

IMPACT DISCUSSION:

- a. The project would demolish the existing well used by CHWA and connect the CHWA system to the City's water system. The project would not generate any additional wastewater or exceed or impact wastewater treatment requirements of the applicable Regional Water Quality Control Board. The project would not increase wastewater generation. The project would not require additional construction or relocation of utility facilities, which would cause significant environmental effects. The potential adverse environmental effects associated with the water expansion project are fully evaluated in this IS/MND. With implementation of recommended mitigation measures, construction of new water service facilities would result in a ***less than significant impact***.
- b. The project proposes to demolish the existing active well and to connect the Crestwood Heights community to the existing City of Watsonville water system. The project includes a water main, distribution line, and individual water service connections. The City's primary water supply source is local groundwater from the Pajaro Valley Groundwater Basin produced by the City's wells. As stated above, the City's water supply is expected to reliably meet the projected water demand and have an available water supply through 2045, with the City implementing stricter water conservation measures during drought conditions. Therefore, this impact is a ***less than significant impact***.
- c. The primary objective of the project is to provide a reliable high-quality water source, which would provide long-term water supply reliability for the community. The project does not require wastewater service or expansion. There would be ***no impact*** in connection with the project.
- d. The proposed project would not generate significant solid waste. Solid waste is transported from Watsonville area and disposed of at the Monterey County Regional Waste Management District's

Monterey Peninsula Landfill in the City of Marina, and has adequate capacity to serve the existing development in the region. Therefore, there would be **no impact** in connection with the project.

- e. The proposed project would minimize waste disposal at landfills, and all waste would be properly disposed of in a safe, appropriate, and lawful manner in compliance with all applicable regulations of local, state (California Integrated Waste Management Act of 1989 & California Green Building Standards), and federal regulations related to solid waste. Since the project would require compliance with all county, state, and federal regulations and conditions, there would be no violation of the regulations concerning solid waste disposal as conditions for approval. Therefore, these actions constitute a **less than significant impact**.

20. WILDFIRE

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

SETTING:

The State Fire Marshal is mandated to classify lands within State Responsibility Areas (“SRA”) into Fire Hazard Severity Zones (“FHSZ”). FHSZ are defined by the California Department of Forestry and Fire Protection (“CALFIRE”) based on the presence of fire-prone vegetation, climate, topography, assets at risk (e.g., high population centers), and a fire protection agency’s ability to provide service to the area (CALFIRE, 2023). FHSZs are designated as “Very High,” “High,” or “Moderate.” The residential portion of the project site is located within a designated Local Responsibility Area (“LRA”) Moderate FHSZ (CALFIRE, 2026). The project site primarily consists of disturbed or developed areas.

IMPACT DISCUSSION:

- a. The proposed project does not include any characteristics or features that would interfere with an adopted emergency response plan or emergency evacuation plan. The project would not result in the closure of any roads. For these reasons, this is considered a ***less than significant impact***.
- b. The project site is located within existing road rights-of-way and within an area that is primarily residential development, within an agricultural area. The site is relatively flat and lacks physical and biological features that would be conducive to a wildland fire. There are no wildlands located adjacent to the project area. The CAL FIRE Hazard Severity Zone map designates the residential portion of the project site is located within a Local Responsibility Area ("LRA") Moderate FHSZ (CALFIRE, 2026). Therefore, the project would not exacerbate wildfire risks or result in exposure to pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire. This impact is a ***less than significant impact***.
- c. The project is a water system improvement project located within existing road rights-of-way and within an area that is primarily residential development, within an agricultural area. The project would include the installation of emergency fire hydrants within the Crestwood Heights community, thereby allowing for more efficient firefighting in the unlikely event of a wildfire. The project does not include infrastructure facilities that would exacerbate fire risk; therefore, ***no impact*** would result.
- d. The project site is relatively flat and is not located in the vicinity of slopes that would be susceptible to landslides. While the project is not located within State Responsibility Area ("SRA") Fire Hazard Zone, a portion of the project site is located within a designated Local Responsibility Area ("LRA") Moderate FHSZ. For these reasons, this is considered a ***less than significant impact***.

21. MANDATORY FINDINGS OF SIGNIFICANCE

Does the Project:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
1. Have the potential to substantially degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, substantially reduce the number or restrict the range of a rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory?	☐	☒	☐	☐

Does the Project:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
2. 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.)	☐	☐	☒	☐
3. Have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly?	☐	☒	☐	☐

IMPACT DISCUSSION:

- The proposed water main, distribution line, and service connections are primarily within the public rights-of-way that does not contain suitable habitat for fish and wildlife species. As discussed in the previous sections of this Initial Study, the proposed project would not degrade the quality of the environment with the implementation of the identified mitigation measures in **Section 4. Biological Resources, Mitigation Measures BIO-1** through **BIO-2g**. Mitigation measures are identified to address potential direct and indirect impacts to nesting raptors that may be present on the project site as well as potential impacts to the riparian areas adjacent to the project site. Therefore, the project would not 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 or substantially reduce the number or restrict the range of a rare or endangered plant or animal.

The proposed water main, distribution line, and service connections would be constructed within existing rights-of-way that do not contain important examples of the major periods of California history or prehistory. As discussed in **Section 5. Cultural Resources** and **Section 18. Tribal Cultural Resources**, the proposed project would not eliminate important examples of California history or prehistory with implementation of the **Mitigation Measures CR-1** and **CR-2**. Mitigation measures are identified to protect cultural resources requiring work to stop and any finds evaluated should unanticipated archaeological resources be discovered during construction. Therefore, the project would not eliminate important examples of the major periods of California history or prehistory with implementation of mitigation measures identified in this document. This is a ***less than significant impact with mitigation incorporated***.

- Section 15355 of the CEQA Guidelines defines "cumulative impacts" as two (2) or more individual effects which, when considered together, are considerable or which compound or increase other environmental effects. The cumulative impact from several projects is the change in the environment which results from the incremental impact of the project when added to other closely related past, present, and reasonably foreseeable probable future projects. Cumulative impacts could occur due to indirect growth-inducing impacts, which include consideration of whether the project would remove an obstacle to additional growth and development. The project area and

community to be served by this project is already developed and receiving potable water. The project would not include housing or development that could induce growth and would not remove any barriers that could result in population growth.

The project impacts are temporary and localized along the pipelines during the construction period. Upon operation, the project would not have significant adverse environmental impacts or induce new development in the area that could combine with other projects' effects to create cumulatively significant impacts. Project operational activities would not significantly alter the existing environment, particularly since the proposed pipelines would be underground. There are no known projects in the immediate project vicinity of a similar nature proposed or reasonably foreseeable for development. When considered cumulatively along with past, current, and probable future projects that may occur in the area, the project's contribution is considered negligible and would not be cumulatively considerable. This impact is a ***less than significant impact***.

3. The project would not result in environmental effects that would cause substantial adverse effects on human beings, either directly or indirectly. The project involves construction of the proposed components within already developed areas within an established community. Construction of the proposed project would result in impacts to biological resources, cultural resources (archaeological), geology/soils, and noise. These impacts would be minimized by implementation of identified mitigation measures. This represents a ***less than significant impact with mitigation incorporated***.

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11. List of Preparers

The Public Review Draft IS/MND for the proposed project was prepared by Denise Duffy & Associates, Inc. in cooperation with the City of Watsonville.

City of Watsonville, Lead Agency

Danielle Green, Interim Director of Public Works & Utilities
Beau Kayser, Water Division Manager

Denise Duffy & Associates, Inc.

Denise Duffy, Principal
Leianne Humble, Senior Project Manager
Robyn Simpson, Deputy Project Manager
Matthew Johnson, Senior Project Manager/Environmental Scientist, Biological Resources
Rikki Lougee, Associate Environmental Scientist, Biological Resources
Conor O'Toole, Deputy Project Manager, Air Quality/Modeling
Luke Hiserman, Assistant Planner
Mike DiFranco, Office Manager, Editing/Report Production

Albion Environmental, Inc., Cultural Consultants

Stella D'Oro, MA, RPA,
Jennifer M. Farquhar, PhD

The following organizations and individuals also contributed to this IS/MND.

Rural Community Assistance Corporation (RCAC)

Abilene Runyan, Environmental and Community Services, Small Utility Project Manager

MNS Engineers, Engineering

Nick Panofsky, PE, Vice President – Water Resources
Jordyn Arreola, PE, Senior Project Manager

ENGEO Incorporated, Geotechnical Consultants

Theodore P. Bayham, GE, CEG, Principal
Randy Hildebrant, PE, GE, Associate
Aryan Noroozi, EIT, Staff Engineer

12. Data Sources

General Plan

X	Land Use Element
X	Circulation Element
X	Safety Element
X	Noise Element
X	Housing Element
X	Resources Management Element

Other

X	Agricultural Preserve Maps
X	Archaeological Maps/Reports
	Architectural Elevations
X	Biology Reports
	CA Oil and Gas Maps
X	California Emissions Estimator Model (CalEEMod)
X	FEMA Maps (Flood)
	Grading Plans
X	Site Plan
	Topographic Maps
X	Aerial Photos
	Traffic Studies
	Trip Generation Manual (ITE)
X	Zoning Maps
	Other (list)

13. Summary of Potentially Significant Impacts

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

14. Determination

On the basis of the Initial Study, the lead agency:

- Finds that the proposed project is a Class **CATEGORICAL EXEMPTION** and no further environmental review is required.
- Finds that the proposed project **COULD NOT** have a significant effect on the environment, and a **NEGATIVE DECLARATION** will be prepared.
- X

Finds 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.
- Finds that the proposed project **MAY** have a significant effect on the environment, and an **ENVIRONMENTAL IMPACT REPORT** is required.
- Finds 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 acceptable standards, and 2) has been addressed by mitigation measures based on the earlier analysis as described on the attached sheets. An **ENVIRONMENTAL IMPACT REPORT (EIR)/SUBSEQUENT EIR/SUPPLEMENTAL EIR/ADDENDUM** is required, but it must analyze only the effects that remain to be addressed.
- Finds that although the proposed project could have a significant effect on the environment, because all significant effects (a) have been analyzed adequately in an earlier **EIR** or **NEGATIVE DECLARATION** pursuant to acceptable 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.

<div><div>DocuSigned by:</div><div><i>Danielle Green</i></div><div>5B3F61EC579947B...</div></div>	<div>4/20/2026 10:44 PM PDT</div>
<div>Signature</div>	<div>Date</div>
<div>Danielle Green</div>	<div>Interim Director of Public Works</div>
<div>Printed Name</div>	<div>Title</div>

Appendix A

Crestwood Heights Water Association System Consolidation

Project Final Engineering Report

60 Percent Design Plans

The full text of this appendix is not included in this online copy of the IS/MND due to certain content within the files not meeting Web Content and Accessibility (WCAG) guidelines. This online version of the IS/MND has been formatted to comply with the Governor's Office of Land Use and Climate Innovation (LCI) guidance (formerly the California Office of Planning and Research) for required accessibility measures for public review.

For a full copy of the appendix, please reach out to the City of Watsonville via email at danielle.green@watsonville.gov.

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Crestwood Heights Water Association System
Consolidation Project Final Engineering
Report

Rural Community Assistance Corporation

Final Engineering Report

Crestwood Heights Water Association System Consolidation Project

**CONSULTANT****MNS ENGINEERS, INC.****LOCAL OFFICE NAME
(LOCAL OFFICE)**811 El Capitan Way, Suite 130
San Luis Obispo, CA 93401
805.787.0326 Office**PROJECT
CONTACT****Nicholas Panofsky, PE**
805.592.2074 Direct | npanofsky@mnsengineers.com**AUTHORIZED
SIGNATURE****Miranda Patton, PE**
805.719.9805 Direct | mpatton@mnsengineers.com

May 15, 2023

Rural Community Assistance Corporation



Final Preliminary Engineering Report – Crestwood Heights Water Association System Consolidation Project

May 15, 2023

Prepared by:



Nick Panofsky, PE C75008

MNS Engineers, Inc.

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Abbreviations

AC	Asbestos Cement
ACOE	Army Corp of Engineers
ADD	Average Daily Demand
BMP	Best Management Practice
Carollo	Carollo Engineers
CART	Color Alternatives Review Table
CDFW	California Department of Fish and Wildlife
CEQA	California Environmental Quality Act
CHWA	Crestwood Heights Water Association
County	Santa Cruz County
D.I.	Ductile Iron
Dougherty	Dougherty Pumping & Drilling, Inc.
DWR	California Department of Water Resources
DWSRF	State of California Drinking Water State Revolving Fund
EPA	Environmental Protection Agency
GPD	Gallons Per Day
HDD	Horizontal Directional Drilling
MDD	Maximum Daily Demand
MMDD	Maximum Average Month Daily Demand
MNS	MNS Engineers, Inc
OPC	Opinion of Probable Cost of Construction
O&M	Operations and Maintenance
PSI	Pounds per Square Inch
PVC	Polyvinyl Chloride
Report	Engineering Report
RCAC	Rural Community Assistance Corporation
SWRCB	State Water Resources Control Board

Section 1. Executive Summary

1.1. Project Background

The Crestwood Heights Water Association (CHWA), Public Water System ID CA4400605, provides potable water service to its membership consisting of approximately 147 people from 45 single-family residences in southern Santa Cruz County (County) located just northeast of the city limits of the City of Watsonville. CHWA has been serving its community since 1968.

CHWA is receiving technical assistance from the State of California to coordinate and develop a project to address water quality concerns. Various issues the system is facing are discussed in Section 3. The assistance funds are being administered through the Rural Community Assistance Corporation (RCAC). RCAC has contracted with MNS Engineers, Inc. (MNS) to provide planning and design services to assist the community.

This Engineering Report (Report) provides an analysis of design alternatives and a recommended preliminary design for the overall Project. The scope of the project includes this report and detailed design of the selected alternative.

1.2. Project Alternate Analysis

Alternatives were developed to address the condition, service, and reliability issues identified with the CHWA. Two primary alternatives were identified to address the issues.

- Alternative 1 - Consolidation with the City. Three sub-alternatives for the consolidation were assessed.
- Alternative 2 - Improvements to the existing CHWA system for the supply, storage, and distribution systems to reestablish a reliable water system for the community.

A "No Project Alternative" was not considered due to the identified needs of the CHWA.

Alternative 1, with connection points at Lakeview Road and Highway 129 and the intersection of Parkwood Road and Lakeview Road is the recommended alternative. Alternative 2 is considered infeasible, as a suitable site for required improvements is not available, and other insurmountable limitations. Additional information and descriptions of the considered alternatives are discussed in Section 5.

1.3. Selected Project

The selected project was chosen based on evaluating the advantages and disadvantages of each alternative. The recommended project is to create a looped connection between the intersection of Lakeview Road and Highway 129 and the intersection of Parkwood Road and Lakeview Road.

The project includes construction of approximately 7,000 linear feet of 8-inch PVC C-900 DR14 pipe between the points of connection along Lakeview Road and within the Crestwood Heights community including Crestwood Drive, Cambridge Drive, Stratford Drive, Oxford Drive, and Kingston Drive.

The existing CHWA system will be abandoned in place or removed as necessary to facilitate construction of the proposed improvements. Service laterals for each residence will be reconnected to the new pipelines; service laterals for existing residences not currently served by water mains within public roadways will be rerouted to the front or side of the property with new meter boxes at each property line per City standards. CHWA will cease to operate as a public water system.

1.4. Permitting and Administrative Requirements

The project will need to comply with the County's requirements for an encroachment permit.

1.5. Cost Opinions for the Selected Project

The opinion of probable implementation cost of the recommended project is \$4,640,000 and is summarized in Table 1-1.

Table 1-1: OPC of Selected Project

Item	Percent of Construction Cost	Cost
Project Construction	100%	\$3,530,000
District Administration	3%	\$110,000
Topographic and Boundary Survey	1%	\$40,000
Detailed Design	10%	\$350,000
Traffic Control Plans and Permitting	1%	\$40,000
Environmental Permitting	1%	\$40,000
Construction Management	15%	\$530,000
Total Project Cost		\$4,640,000

1.6. Project Schedule

An anticipated project schedule has been prepared and is included in Section 7. Based on the prepared schedule, design and permitting for the project is anticipated to be complete by September 2023.

Section 2. Project Background Information

2.1. Introduction

The Crestwood Heights Water Association (CHWA), Public Water System ID CA4400605, provides potable water service to its membership consisting of approximately 147 people from 45 single-family residences in southern Santa Cruz County (County), located just northeast of the city limits of the City of Watsonville. CHWA has been serving its community since 1968. The CHWA location and service area is shown on **Figure 2-1**.

The community has faced many challenges associated with operating and maintaining the water system. Aging infrastructure, limited operation and management resources, challenges with meeting peak demands, minimal fire protection, and reliance on a single source of supply are the primary reasons CHWA is seeking assistance to modify the system for the benefit of the users.

CHWA is receiving technical assistance from the State of California to assist in coordinating and developing a project to address identified water supply concerns. The assistance funds are being administered through the Rural Community Assistance Corporation (RCAC). RCAC has contracted with MNS Engineers, Inc. (MNS) to provide planning and design services to assist the community.

This Engineering Report (Report) provides an analysis of design alternatives and a recommended preliminary design for the overall Project. To comply with the requirements of the State Water Resources Control Board's (SWRCB) Drinking Water State Revolving Fund (DWSRF) Financial Assistance Application, this Report also details permit requirements, provides an opinion of implementation costs, and establishes a target schedule for design of the selected project.

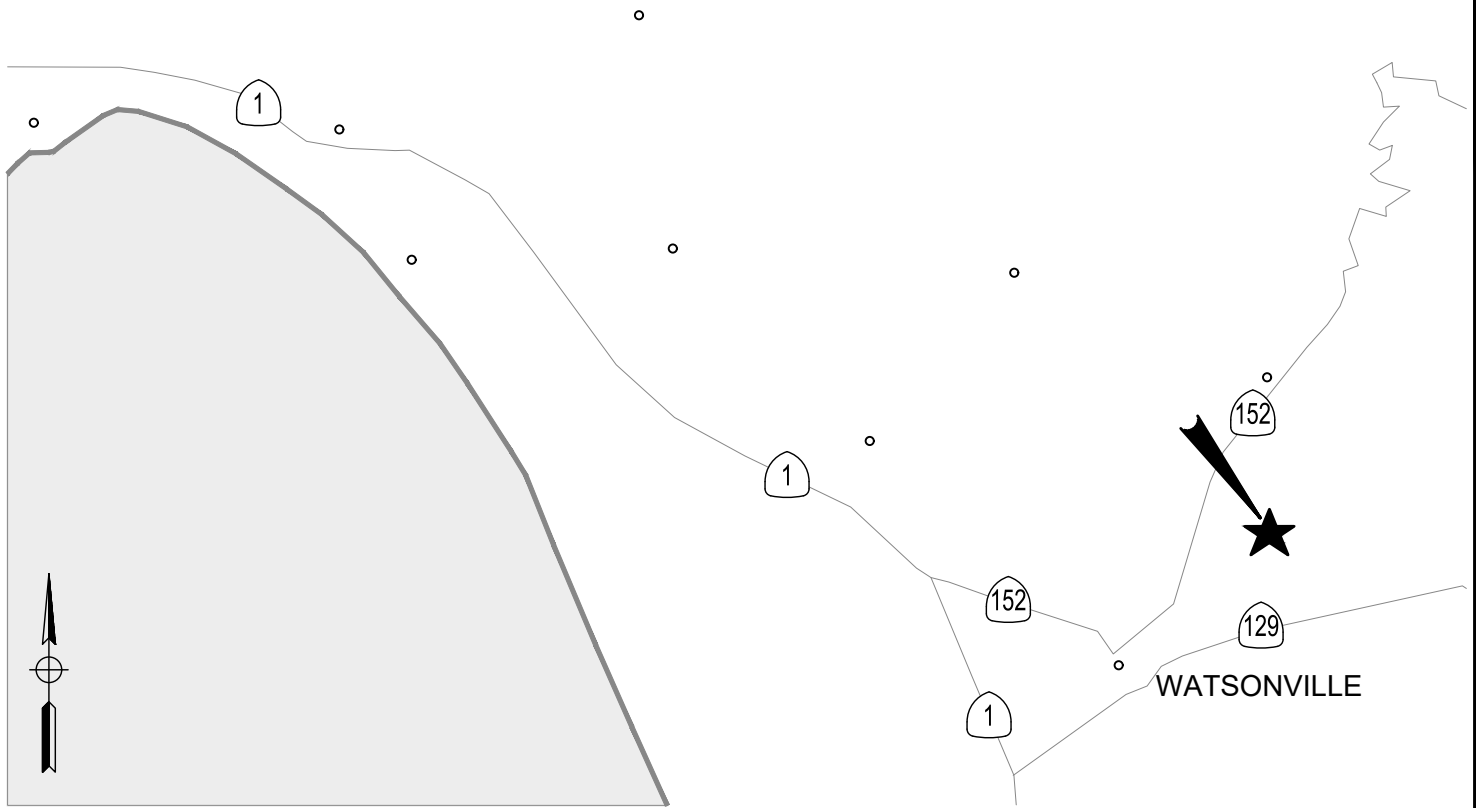
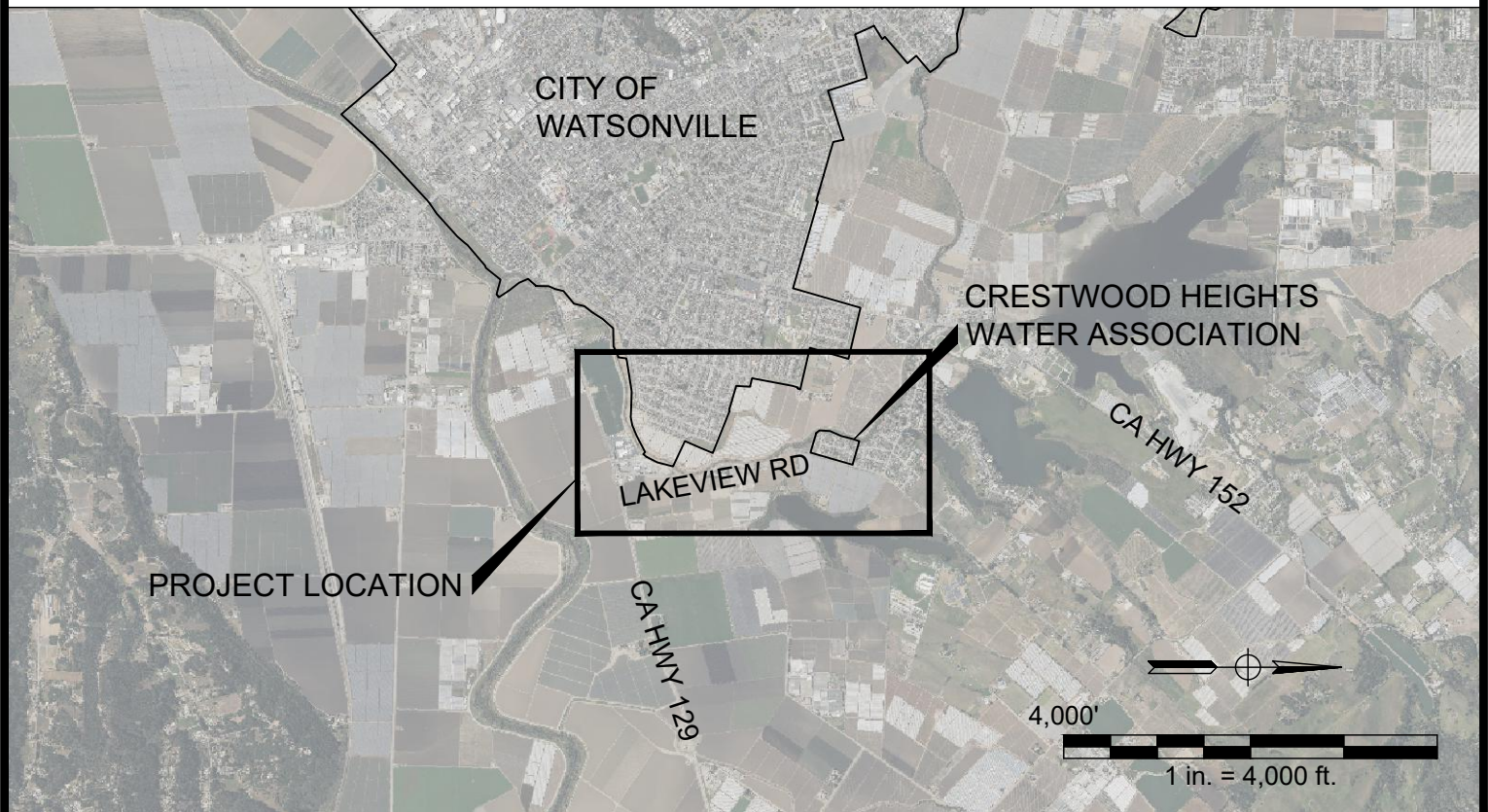
2.2. Project Area and Existing Facilities

The CHWA serves residences encompassing a portion of Lakeview Road, Crestwood Drive, Cambridge Drive, Stratford Drive, Oxford Drive, and Kingston Drive. The roads included in the Project are public right-of-way, owned and maintained by the County. CHWA is located within the City of Watsonville's potable water service area, and the City's sphere of influence boundary.

The system is currently served by one of two existing wells, which produce water from the Pajaro Valley Groundwater Basin. These wells are located within the community on a dedicated well site parcel at the west end of Kingston Drive. The parcel has no address but is denoted by Accessor's Parcel Number 051-302-34 and has an area of 3,484.8 square feet, or 0.08 acres.

Currently, Well #1 is active and reliable in terms of capacity and meets current water quality requirements. Well #2 is not active due to damage from seismic activity, and possible water contamination as indicated by discoloration of the water. Well #1 was constructed in 1972 and equipped with a 10 horsepower motor, a 3-inch galvanized steel column pipe, and an 8-inch PVC casing extending to 262 feet below ground surface. The well produces 105 gallons per minute at a pressure of 70 pounds per square inch (psi) at grade. Well completion reports are provided as **Appendix A**.

The remainder of the existing water distribution system was constructed in 1968. It is comprised of the two aforementioned wells, a 5,000-gallon hydropneumatic tank to assist in maintaining system pressure, four wharf head style fire hydrants, and approximately 3,000 linear feet of 4-inch diameter asbestos cement (AC) water mains to convey water to the residents. A majority of the existing water mains are located within 10-foot-wide easements centered on property lines between parcels. The existing water distribution system is shown on **Figure 2-2**. The water is currently untreated without disinfection. Photos of the well site are provided in **Appendix B**.



PROJECT LOCATION
CRESTWOOD HEIGHTS
WATER AGENCY CONSOLIDATION
RURAL COMMUNITY ASSOCIATION CORPORATION

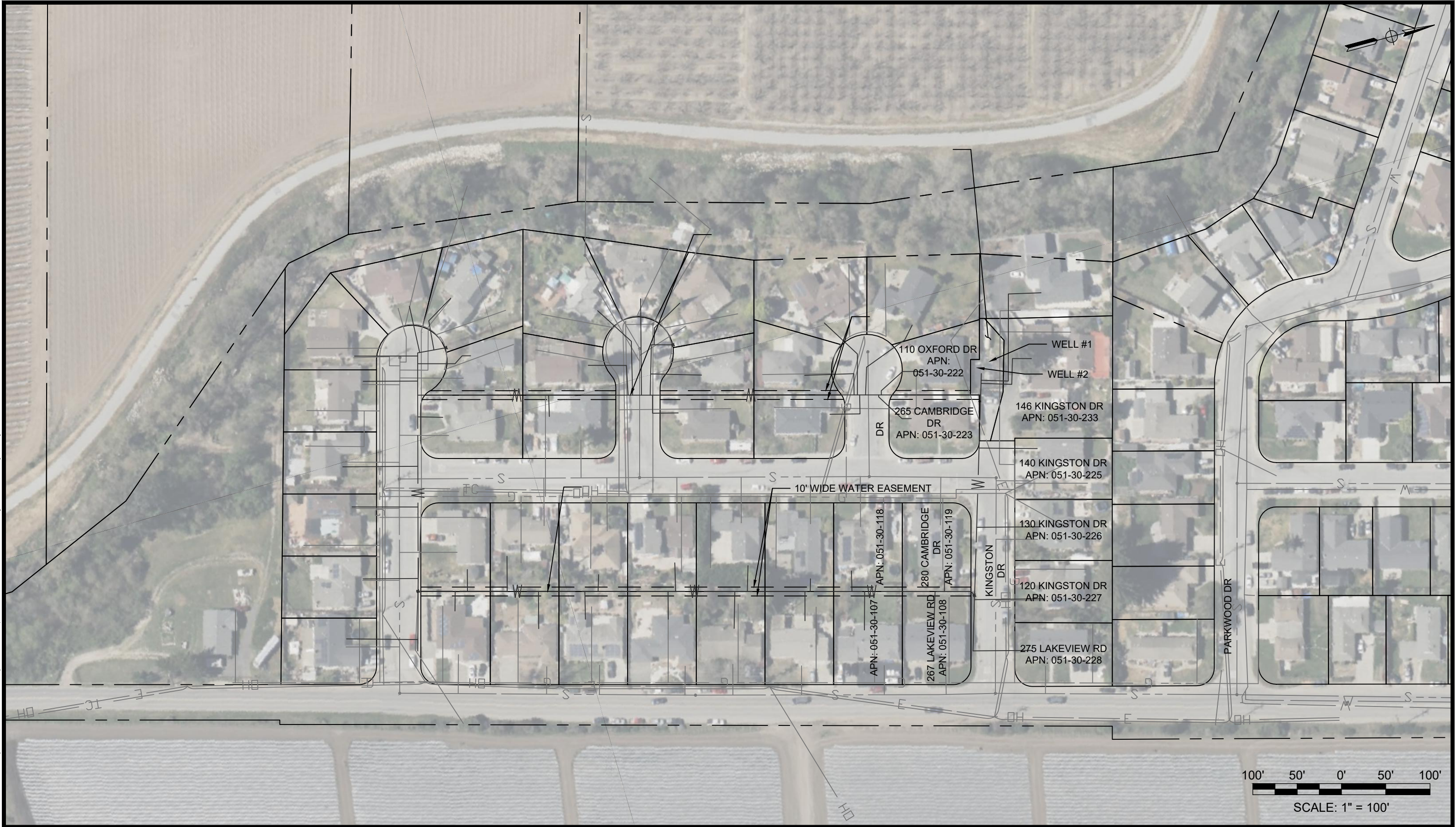
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CRESTWOOD HEIGHTS WATER ASSOCIATION EXISTING WATER SYSTEM

DRAWING NUMBER

Fig. 2-2

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2.3. Water System Demand

CHWA has been serving 45 single family residences since it was constructed in 1968. There has been no growth in recent years. This is demonstrated by CHWA's water usage from 2021 and 2022 which is summarized in **Table 2-1**. Usage data was provided by CHWA. The water usage is consistent with seasonal changes, with lower usage in the winter months and higher in summer months. Demand is completely generated from residential customers; there are no commercial or industrial customers served by the system.

Table 2-1: 2021-2022 Water Usage for Crestwood Heights Water Association

2020-2022 CHWA Water Usage			
Date	Meter Reading (Gallons)	Gallons	Average Usage per Connection (GPD)
January 13, 2021	78,064,430	568,061	308
February 16, 2021	78,555,184	490,754	321
March 2, 2021	78,759,267	204,083	324
April 13, 2021	79,462,412	703,145	372
May 17, 2021	80,049,080	586,668	383
June 11, 2021	80,472,712	423,632	377
July 22, 2021	81,280,522	807,810	438
August 10, 2021	81,624,090	343,568	402
September 3, 2021	81,994,700	370,610	343
October 6, 2021	82,503,060	508,360	342
November 15, 2021	82,976,695	473,635	263
December 8, 2021	83,225,106	248,411	240
January 13, 2022	83,569,665	344,559	213
February 1, 2022	83,788,237	218,572	256
March 3, 2022	84,178,475	390,238	289
April 21, 2022	84,712,329	533,854	242
May 6, 2022	85,037,680	325,351	482
June 6, 2022	85,597,232	559,552	401
July 7, 2022	86,169,527	572,295	410
August 8, 2022	86,722,880	553,353	384
September 19, 2022	87,394,540	671,660	355
October 10, 2022	87,659,476	264,936	280
November 4, 2022	87,959,952	300,476	267
December 5, 2022	88,282,480	322,528	231

During the period analyzed, the average daily demand (ADD) of the system is 14,858 gallons per day (GPD). This ADD equals 330 GPD per residence served.

During the period analyzed, the maximum average month daily demand (MMDD) occurred in April-May, 2022, at 21,690 GPD. Applying a factor of 1.5 to estimate maximum daily demand (MDD) yields a MDD for the system of 32,535 GPD. This MDD is an average of 723 GPD per residence served.

It is noted that ADD and MDD for CHWA users are significantly higher compared to other water systems in the area. This higher than average usage per residence is attributed to a combination of probable leaks in the system, and a lack of metering resulting in limited motivation for conservation.

Typical usage data for City of Watsonville customers is provided in the City's Rate Study, provided in **Appendix E, Section 6**.

2.4. Operations and Maintenance Practices and Abilities

The current system is operated and maintained by CHWA through a third-party system operator, Dougherty Pump & Drilling, Inc (Dougherty). Operator actions by Dougherty include monthly and annual sampling of the water quality and reporting to the County Health Department.

Section 3. Problem Description

3.1. Existing System Deficiencies

Documentation regarding the condition of the existing system is based on information provided by CHWA and a site visit conducted by MNS staff to the CHWA well site on September 14, 2022. This section documents identified deficiencies.

3.1.1. Well #1

Well #1 is equipped with a 10 horsepower motor, a 3-inch galvanized steel column pipe, and an 8-inch PVC casing extending to 262 feet below ground surface. A surface sanitary seal was provided at the time of construction to a depth of 50 feet. The well completion report is provided in **Appendix A**. A concrete base was not observed and is not in compliance with current California Water Well Construction Standards. Photos of Well #1 wellhead piping are provided in **Appendix B**. The well produces 105 gallons per minute at a pressure of 70 pounds per square inch (psi) at grade. Well #1 is operable and reliable in terms of overall capacity; however, during peak usage conditions, Well #1 has challenges maintaining pressure in the distribution system due to limited available storage volume. The well is the only supply of potable water to the system.

3.1.2. Well #2

Details on the construction of Well #2 provided are minimal. A surface sanitary seal was provided at the time of construction to a depth of 60 feet. The well completion report is provided in **Appendix A**. A concrete base was observed to be present, but not in compliance with current California Water Well Construction Standards. This well is currently inoperable and does not supply water to the system. The well was reportedly damaged during the Loma Prieta earthquake in 1989. This well is believed to be shallower compared to Well #1 and may be under the influence of surface water. Photos of Well #2 wellhead piping are provided in **Appendix B**.

3.1.3. Hydropneumatic Tank

The existing hydropneumatic tank is a 5,000 gallon above grade horizontal cylindrical pressure vessel supported on concrete piers. The tank is unanchored and susceptible to failure during a seismic event.

3.1.4. Well Site

The existing well site is poorly maintained, with minimal security. Exposed and uncoated polyvinyl chloride (PVC) is subject to degradation from ultraviolet light exposure. The on-site electrical building is dilapidated and is not watertight.

3.1.5. Distribution System

The existing water distribution system was built in 1968. It is comprised of approximately 3,000 linear feet of 4-inch diameter AC water mains, and four small diameter wharf head style fire hydrants. The system does not include isolation valves, requiring complete shutdown and loss of service to all customers in the event of a leak or other repair. Corporation stops were also not installed on laterals as part of original construction, also requiring complete shutdown and loss of service for work on service laterals. System wide shutdowns as a result of maintenance have been a frequent occurrence.

The water system was built using 4-inch AC pipe for the water mains; according to the United States Environmental Protection Agency (EPA), AC pipe has a useful life of about 50 years. The current system is approximately 55 years old,

indicating the distribution network has surpassed its useful life; it is likely that water main failures will continue and accelerate in the future, without substantial improvements.

Due to the small diameter of the distribution mains, wharf head fire hydrants, and limited system storage volume, the system has limited ability to provide fire protection flows for the community. This is a safety concern for the community.

3.2. Existing System Board and Management

The CHWA is managed by a voluntary management board. Along with the identified deficiencies, the CHWA board has minimal ability to manage and maintain the system. The CHWA has indicated a desire to relinquish control of water operations for the community.

Section 4. Consolidation Analysis

4.1. Eligibility for Consolidation

Consolidation of a water system per California's State Water Resources Control Board is defined as a project that involves the restructuring of two or more water systems into a single public water system. Additionally, the consolidation requirements per the State DWSRF Guidelines for Consolidation Projects state that upon completion of a consolidation project, all water systems involved in the consolidation, other than the restructured system, shall cease to operate as public water systems.

Both the City and CHWA have indicated a desire to consolidate, with CHWA being subsumed, and the City being the receiving water system. This consolidation would result in CHWA ceasing to exist and all CHWA customers would be served and billed by the City, becoming City of Watsonville customers for water service.

Based on the current status of CHWA, it is determined that this project is eligible for consolidation.

4.2. Feasibility for Consolidation

An analysis was conducted to determine the feasibility of consolidating the CHWA system with another system. There are several potable water systems in the vicinity of the system. The CHWA system is within the service area of the City's water service boundary, which makes it the most likely candidate for consolidation. The City also has the technical, managerial, and financial ability to operate and service the consolidated system incorporating the current 45 residences within the CHWA. The City has confirmed that incorporation of the CHWA customers would not require hiring additional operation and maintenance staff.

In addition to the City's water system, there are five small systems located to the northeast of CHWA's system including the Santa Cruz County Fairgrounds Water System, the St. Francis Tract Water System, the Alianza Charter School Water System, the Lakeview Apartments Water System, and the Gilzdich Home Ranch Water System. These systems are relatively small, and comparatively far from the CHWA, which makes them poor candidates for consolidation and are not considered further.

The City has verified their system has adequate capacity and supply to service current CHWA members. To incorporate the CHWA into the City's water system, the City requires a looped connection to the water distribution system to avoid potential water quality issues associated with dead-ends in the system and increased system flushing requirements. The City identified three alternative connection points for construction of a looped piping system to serve the study area. A hydraulic analysis of these alternatives, as well as recommended pipe sizing, was completed by Carollo Engineers (Carollo) in a report provided to the City in May 2021, included as **Appendix C**. The connection alternatives are analyzed in detail in **Section 5** of this Report.

Section 5. Alternative Analysis

5.1. Alternative Identification

Alternatives were developed to address the condition, service, and reliability issues identified with the CHWA. Two primary alternatives were identified to address the issues.

- Alternative 1 - Consolidation with the City. Three sub-alternatives for the consolidation were assessed.
- Alternative 2 - Improvements to the existing CHWA system for the supply, storage, and distribution systems to reestablish a reliable water system for the community.

A “No Project Alternative” was not considered due to the identified needs of the CHWA.

5.2. Alternative 1 - Consolidation

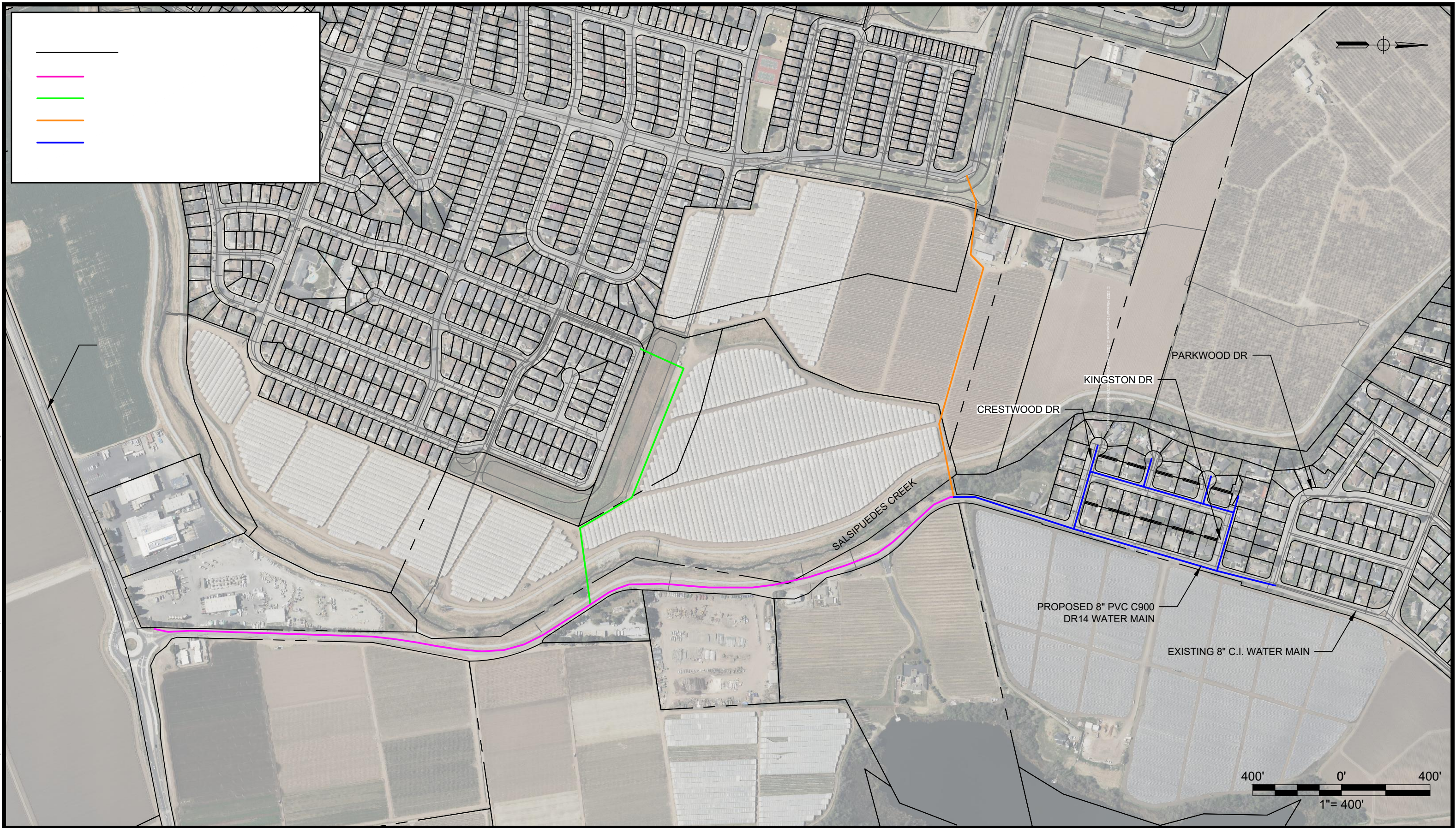
Three options were identified to consolidate CHWA with the City, based on the need for a looped connection and pipe sizing discussed in Section 4.2. The options vary based on tie-in locations into the existing City system. All three options would connect at the intersection of Parkview Drive and Lakeview Road at an existing 8-inch branch of an 8-inch by 6-inch tee, plugged for future connection. Option 1 would connect at the intersection of Highway 129 and Lakeview Road to the south. Option 2 would connect at the intersection of Village Way and Almond Drive to the southwest. Option 3 would connect at Bridge Street, just north of Manzana Street, west of CHWA. These options are described in more detail in the following sub sections and are shown on **Figure 5-1**.

5.2.1. Option 1 – Highway 129 & Lakeview Road

Option 1 consists of constructing an 8-inch water main within the CHWA neighborhood, as well as an 8-inch water main between two connections to the City's potable water distribution system to create a looped system. The new water main would connect at the intersection of Lakeview Road and Highway 129. The City's water system at this intersection includes a 12-inch stub out constructed in 1986 and recently extended outside of the Caltrans right-of-way to simplify permitting for future extension along Lakeview Road. This option includes approximately 7,000 linear feet of new water main piping, all located within public roadways which are owned and maintained by the County of Santa Cruz.

The existing CHWA system would be abandoned in place or removed as necessary to facilitate construction of the new main. No portion of the existing CHWA water system would be connected to the proposed system. Service laterals for existing residences not currently served by water mains within public roadways would be rerouted to the front of the property with new meter boxes at each property line per City standards.

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CRESTWOOD HEIGHTS WATER ASSOCIATION WATER SYSTEM ALTERNATIVES

DRAWING NUMBER

Fig. 5-1

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5.2.2. Option 2 – Village Way & Almond Drive

Option 2 consists of constructing an 8-inch water main within the CHWA neighborhood, as well as an 8-inch water main between two connections to the City's potable water distribution system to create a looped system. The new water main would connect to an existing 8-inch water main at the corner of Bridge Street, north of Manzana Street.

This option includes approximately 6,500 linear feet of new water main piping, located within public roadways which are owned and maintained by the County of Santa Cruz, as well as across Salsipuedes Creek and the US Army Corp of Engineers (ACOE) levee system, as well as agricultural fields. The alignment across Salsipuedes Creek and agricultural fields is subject to negotiation with private landowners. Before connecting to the existing system at the corner of Village Way and Almond Drive, this alignment would cross an existing drainage basin that runs parallel to Village Way. Crossing the Creek, levee system, and drainage channel will require horizontal directional drilling (HDD) to install the water main.

The existing CHWA system would be abandoned in place or removed as necessary to facilitate construction of the new main. No portion of the CHWA water system would be connected to the proposed system. Service laterals for existing residences not currently served by water mains within public roadways would be rerouted to the front of the property with new meter boxes at each property line per City standards.

5.2.3. Option 3 – Bridge Street, north of Manzana Street

Option 3 consists of constructing an 8-inch water main within the CHWA neighborhood, as well as an 8-inch water main between two connections to the City's potable water distribution system to create a looped system. The new water main would connect to an existing 8-inch water main at the corner of Village Way and Almond Drive

This option includes approximately 4,800 linear feet of new water main piping, located within public roadways which are owned and maintained by the County of Santa Cruz, as well as across Salsipuedes Creek and the US Army Corp of Engineers levee system, as well as agricultural fields. The alignment across Salsipuedes Creek and agricultural fields is subject to negotiation with private landowners. Before connecting to the existing system at the corner of Bridge Street, this alignment would cross an existing drainage channel which runs parallel to Bridge Street and existing walls near the agricultural fields. Crossing the Creek, levee system, walls, and drainage basin will require the use of HDD to install the water main.

The existing CHWA system would be abandoned in place or removed as necessary to facilitate construction of the new main. No portion of the CHWA water system would be connected to the proposed system. Service laterals for existing residences not currently served by water mains within public roadways would be rerouted to the front of the property with new meter boxes at each property line per City standards.

5.3. Alternative 2 – Improve Existing CHWA Facilities

Improving the existing CHWA water system to meet current supply reliability, storage, fire protection, and distribution standards requires the following to be implemented:

- Construction of a second source of supply, consisting of either a new well or intertie to the City
- Construction of a potable water storage tank with sufficient storage to meet fire protection requirements, anticipated to be approximately 130,000 gallons
- Construction of a potable water booster pump station to maintain system pressure
- Replacement of potable water distribution system piping with 6-inch minimum PVC C-900 distribution network within the public right of way, including valves, fire hydrants, blow-offs, air release valves, and metered service laterals
- Other miscellaneous improvements to establish municipal grade facilities.

A preliminary assessment of this alternative indicates upgrading the CHWA is not a feasible alternative. A suitable site for a new well and storage tank is not available. The City is not interested in providing a secondary source of supply, and the CHWA board is not interested in continuing to maintain a public water system. As a result, this alternative is not further evaluated.

5.4. Design Criteria

Since the only viable identified alternatives to improve the CHWA includes consolidation with the City, City standards and Carollo's hydraulic analysis were used to develop design criteria for the proposed water infrastructure improvements.

- Water main pipe material: PVC C-900 DR14 pipe
- Water main pipe size: 8-inch diameter, or 6-inch diameter on cul-de-sacs not connected to a fire hydrant
- Minimum cover: 3-feet
- Horizontal separation from Sewer mains: 10-feet
- Vertical separation from Sewer mains: 1-foot above (if feasible)
- Valve spacing: approximately every 1,000-feet and at tee intersections

Based on preliminary consultation with the County, restoration of existing roadways will be required. In Lakeview Road, trench repairs are anticipated to include a "T" section repair including repaving 1-foot beyond the edges of the trench or greater to avoid a pavement seam within the typical vehicle wheel path, followed by a Type II slurry seal over the full width of the disturbed traffic lane. Surface improvements to other streets within the Crestwood neighborhood are anticipated to include vertical trench repairs, followed by a Type II slurry seal over the entire road width.

5.5. Environmental Impacts

The environmental impacts of the identified Alternative 1 options are discussed in this section.

Each of the identified options include pipeline construction within public roadways. Lakeview Road is a busy, two-lane road with frequent resident and industrial traffic. The other streets included in the project are quiet residential streets. Typical environmental impacts resulting from this type of construction include parking, traffic, noise, air quality, water quality, and other potential impacts to be identified during Project environmental permitting such as archaeological and paleontological impacts. Measures to reduce environmental impacts would be incorporated into the contract documents. During construction within the CHWA neighborhood, parking restrictions would be limited to only one side of any street. Traffic control plans, potentially incorporating night work on Lakeview Road, will be required as part of the encroachment permit process to limit traffic impacts. The City would prefer night work be avoided except for cost, safety, or administrative purpose. Protections to limit noise and air quality impacts will be incorporated into the contract documents. Best Management Practices (BMPs) would be implemented to minimize impacts to surface water quality.

In addition to the impacts identified above, Options 2 and 3 will have additional impacts associated with crossing Salsipuedes Creek and the ACOE levee system and private agricultural farmland. These additional impacts are anticipated to be substantially similar for both Option 2 and 3. These additional impacts include potential impacts to sensitive flora and fauna, increased likelihood of impacts to archaeological and paleontological resources in previously undisturbed soils. Additional permitting would also likely be required from the ACOE, SWRCB, and California Department of Fish and Wildlife (CDFW).

Environmental impacts of the selected option will be considered in more depth during preparation of a project environmental document for compliance with the California Environmental Quality Act (CEQA), and other required regulatory approvals and consultations.

5.6. Land Requirements

This section discusses impacts to real property by the proposed Project Alternative 1 options.

All three options will allow for existing easements in the Crestwood Heights community to be quitclaimed and returned to the underlying property owners. The well site within the community will be vacated including well demolition, removing the wellhead appurtenances, wellhead piping, maintenance building, and hydropneumatic tank, and site restoration; the parcel will then be sold.

Option 1 is located within the public County right-of-way and will not necessitate land acquisition to construct.

Options 2 and 3 would traverse several private properties, including Salsipuedes Creek, agricultural fields, and residential areas. These areas would require easement acquisition from the owners of each parcel. If Option 2 or 3 is selected, coordination with private landowners would be required to determine exact alignments for easement acquisition. There are currently no existing easements for these alternative alignments.

5.7. Construction and Site Considerations

The Project area consistent for all three considered options is within the Crestwood Heights community. This community is located on a looped road off of Lakeview Road and contains three cul-de-sacs. To maintain access and parking for residents, work would be phased to maintain access to homes, and minimize short- and long-term parking impacts. There would also be traffic control required in Lakeview Road, parallel to the Crestwood Heights community for all Options.

Work within Lakeview Road would require one way traffic controls with flaggers to construct the water main.

Options 2 and 3 include crossing Salsipuedes Creek which is assumed to be completed by trenchless methods, presumed to be horizontal directional drilling. Construction of this crossing would require excavation of pits on both sides of the creek, likely requiring dewatering and multi-day traffic disruptions.

Options 2 and 3 also include construction in active agricultural fields. Impacts to active agricultural crops will need to be considered in selecting a final alignment and negotiating with landowners for easements.

A location for storing and staging construction materials and equipment will be required for the project. A staging location has not yet been determined. One likely location would be an existing agricultural equipment yard located on the west side of Lakeview Road, near the intersection with Highway 129.

Construction of the project is anticipated to be by open trench construction methods, except where noted to cross Salsipuedes Creek.

5.8. Cost Estimate

The approximate opinion of total project implementation costs for each option is listed below. The assumptions used in developing these costs are discussed in detail in Section 7.

• Option 1 – Connection at Highway 129 and Lakeview Road:	\$4,640,000
• Option 2 – Connection at Village Way and Almond Drive:	\$5,520,000
• Option 3 – Connection at Bridge Street, north of Manzana Street:	\$4,910,000

5.9. Advantages and Disadvantages

The advantages and disadvantages of each alternative are discussed in this section. The analysis of Options 2 and 3 has been combined as their advantages and disadvantages are substantially similar. All three options analyzed meet the basic requirements for the Project

5.9.1. Option 1 Advantages and Disadvantages

Key advantages of Option 1 include:

- Simplified construction and permitting due to facility construction entirely in the public right-of-way
- Minimized environmental impacts and associated permitting.
- Simplified tie-ins to the City's water system, as designated connection points are already installed
- Improved long term access for maintenance by City staff outside of private easements

Key disadvantages of Option 1 include:

- Greatest linear footage of water main required to complete the consolidation
- More extensive construction in Lakeview Road will create longer impacts to local traffic

5.9.2. Option 2 and 3 Advantages and Disadvantages

Key advantages of Option 2 and 3 include:

- Reduced linear footage of water main required to complete the consolidation

Key disadvantages of Option 2 and 3 include:

- Increased environmental impacts and associated permitting.
- Extended implementation schedule due to the need to obtain permits from ACOE, SWRCB, and CDFW, as well as the need to acquire easements
- Complicated and challenging construction due to Salsipuedes Creek Crossing
- Additional work to tie-in to the City's water system, as stub outs are not present
- Challenges associated with long term access for maintenance of water mains by City staff located in private easements
- Higher overall project costs

5.10. Alternative Evaluation and Selection

Based on the advantages and disadvantages presented in Section 5.9, the following Color Alternatives Review Table (CART) shows relative qualitative criteria used in evaluating the alternatives.

Table 5-1: Alternative Evaluation Color Alternatives Review Table

Alternative	Constructability	Service Life	Permitting	Operation & Maintenance	Capital Cost	Life Cycle Cost
Alternative 1 – Option 1 Lakeview Rd & Highway 129	Straight Forward	Good	Minimal	All Facilities in Public Right-of-Way	\$\$	\$
Alternative 1 – Option 2 Village Way & Almond Dr	Challenging Trenchless Construction	Good	Extensive	Challenging to Access Private Property	\$\$	\$
Alternative 1 – Option 3 Bridge St, north of Manzana	Challenging Trenchless Construction	Good	Extensive	Challenging to Access Private Property	\$\$	\$
Alternative 2 – Improve Existing System	Infeasible	Infeasible	Infeasible	Infeasible	Infeasible	Infeasible

COLOR KEY: GOOD, FAIR, POOR

Based on the analysis, Alternative 1, Option 1, provides clear advantages over the other options/alternatives and is the selected alternative.

Section 6. Selected Project

As discussed in Section 5, the recommended project was selected based on the evaluation of improvement alternatives and discussion with the City and CHWA. Additional information and details of the recommended project is provided in this section.

6.1. Description

The selected project includes construction of approximately 7,000 linear feet of 8-inch PVC C-900 DR14 pipe through the Crestwood Heights community down Lakeview Road connecting to an existing 12-inch stub out outside of Caltrans right-of way at the intersection of Lakeview Road and Highway 129. In addition to the 8-inch water main, the system will need to be looped to meet the minimum fire flow requirements of the City. Therefore, a connection will be made to the City's existing water system to the northeast, at the intersection of Parkwood Drive and Lakeview Road where an 8-inch branch of an existing 8-inch by 6-inch tee is plugged for such a future connection.

The design of the new mains will include valves on the mainline where necessary to avoid the current issue of the community not having access to water when maintenance is performed on the existing mains, fire hydrants spaced at approximately 500-foot intervals within the Crestwood Heights community, and water service laterals for each of the 45 residences. Additionally, blow off valves, air release valves, and sampling stations (if requested) will be located along the pipeline alignments as appropriate. New water service laterals would extend from the new main to a point of connection for each residence, incorporating a water meter at the property line, in accordance with City standards. Residences currently served by water mains located in easements at the rear of properties will require laterals to be rerouted to the new meters.

Above grade portions of the existing CHWA system will be demolished and removed. The existing water mains will be abandoned in place or removed as necessary to facilitate construction of the new main. The existing wells will be destroyed in accordance with the California Department of Water Resources (DWR) Bulletin Nos. 74-81 and 74-90, the applicable sections of the County Code, Chapter 7.70 Water Wells, and the permit requirements by a California State C-57 licensed contractor. The contractor will be required to submit a County Application for Well Permit that includes a detailed perforation plan using the blast (explosive) perforation method. The existing well site will be sold following demolition/removal of existing equipment and materials.

6.2. Schematic and Map of the System's Proposed Facilities

A schematic of the proposed water system improvement is provided as **Figure 6-1** and **Figure 6-2**.

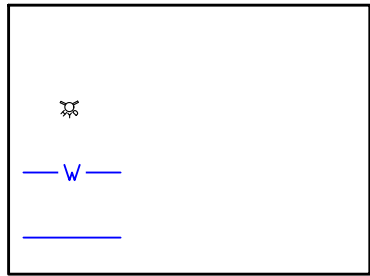
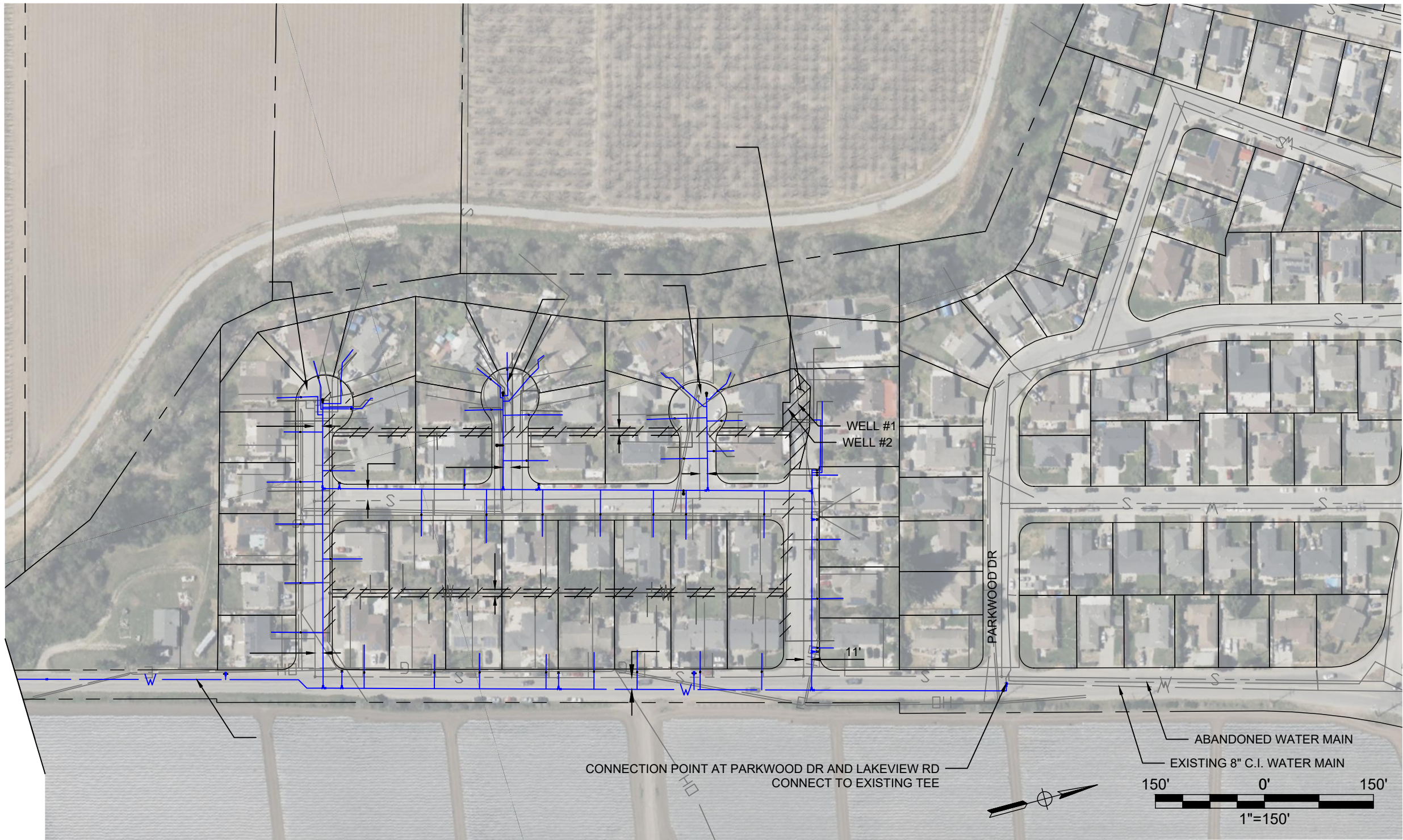
6.3. Justification

The analysis conducted in Section 5.10 indicated the selected project is the most time and cost-effective alternative for the City, RCAC, and CHWA.

6.4. Operations and Maintenance Challenges

There have not been any operations and maintenance challenges identified to the proposed consolidation plan and associated improvements. The City does not anticipate this addition to their system will necessitate more operations personnel or cause additional maintenance concerns as they currently have sufficient staff to maintain the proposed additions to their system.

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1"=150'

CRESTWOOD HEIGHTS WATER ASSOCIATION PROPOSED PROJECT ALIGNMENT

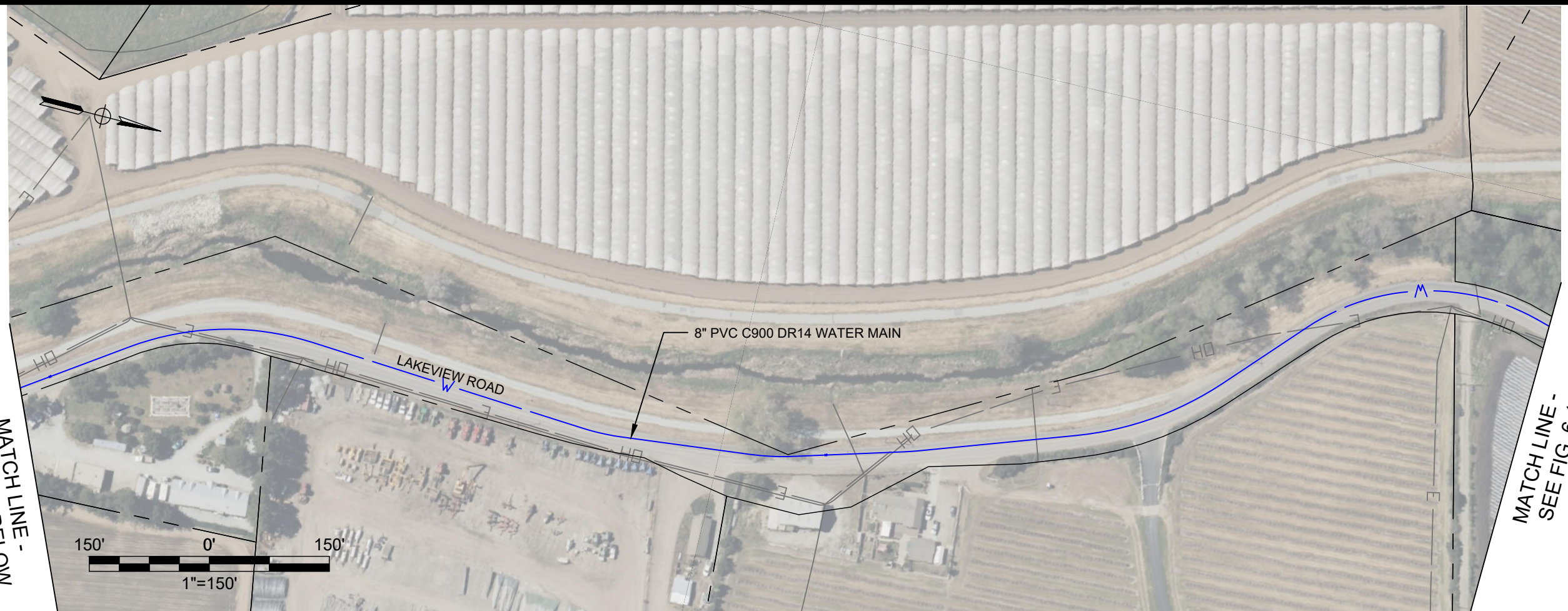
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Fig. 6-1

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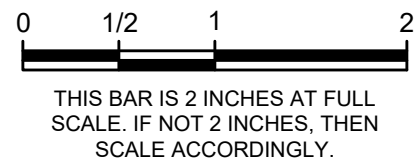
MATCH LINE -
SEE FIG. 6-2 BELOW



MATCH LINE -
SEE FIG. 6-1

MATCH LINE -
SEE FIG. 6-2 ABOVE

(E) 12" D.I. WATER MAIN
CONNECTION POINT AT LAKEVIEW RD AND HIGHWAY 129
CONNECT TO EXISTING 12" MAIN



SCALE:
1"=150'

CRESTWOOD HEIGHTS WATER ASSOCIATION PROPOSED PROJECT ALIGNMENT

DRAWING NUMBER

Fig. 6-2

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6.5. Local Planning

The project area is fully within the County of Santa Cruz. The project is fully within the City of Watsonville's potable water system service area. No modifications to jurisdictional boundaries are required for Project implementation.

Parcels along the pipeline alignments are zoned in the following categories:

- PR-GH – Parks, recreation and open space, with an identified geologic hazard
- CA – Commercial agriculture
- A – Agriculture
- RA – GH – Residential Agricultural with an identified geologic hazard
- R-1 – Single family residential

Developable parcels along the pipeline alignment (R-1 and CA) are already fully developed. Development in other zoning would likely require rezoning. Any future potable water connections to the proposed infrastructure would require appropriate planning permits from the City and County. As a result, this project is not anticipated to induce any growth and is consistent with available planning documents.

6.6. Resilience Evaluation

The improvements are considered a resilience project per the EPA in the DWSRF Eligibility Handbook. CHWA's system relies on one well for 45 residential homes with no supply redundancy. While Well #1 is currently operational, the system has already lost one well due to damage from seismic activity, and a failure of Well #1 would result in a community wide loss of service. The DWSRF Eligibility Handbook from the EPA states that vulnerability of a water system to disruption of safe water delivery, whether natural causes or human origin, qualifies a project as a resilience project. The proposed improvements to the CHWA system qualify as a resiliency project. In addition, the CHWA system does not have adequate water storage to accommodate a well failure or long-term maintenance. Consolidating the CHWA system into the City's system provides reliable water supply, storage, and maintainability through connection to the City's system.

6.7. Consolidation Structure

This Project is classified as a distribution system consolidation. Both the City and CHWA have indicated a desire to consolidate, with CHWA being subsumed and the City being the receiving water system. This consolidation would result in CHWA ceasing to exist and all CHWA customers would be served and billed by the City, becoming City of Watsonville customers for water service.

6.8. Land Acquisition

Construction of the water system within the public right-of-way will not require land acquisition. Work will be required on private properties to reconnect a portion of the residence's service laterals. Details on agreements for completing this work have not yet been established.

The CHWA property system owns the land on which the two wells, hydropneumatic tank, and maintenance building are sited, as well as multiple easements through private properties in the neighborhood. The plot of land owned by CHWA would be sold. The profit from the sale will be used to offset some costs associated with the private service line modifications. The land's property value should be assessed prior to sale. Easements will be quitclaimed and returned to the residents owning the underlying property.

6.9. Technical Aspects

The system design will follow City design and construction standards for water system construction as stated in **Section 5.2**.

A large pipeline project is being constructed by the Pajaro Valley Water Management Agency north of the project area. Coordination and special considerations may be needed to avoid combined project impacts if the projects are constructed simultaneously.

6.10. Demand and Capacity Analysis

A summary of existing demand in the CHWA is included in Section 2.3. These demands are anticipated to decline once the residences in the CHWA community become City customers as a result of reduced system losses, and reduced use resulting from billing based on metered usage and conservation promotion. The City has confirmed sufficient supplies are available to serve the additional demand. The proposed improvements have sufficient capacity to serve ADD, MDD and fire flow requirements for the improvement system, as confirmed by the Carollo report.

6.11. Estimated Useful Life

The PVC C-900 DR14 pipe anticipated to be utilized for the Project has an expected life of at least 100 years. Other components of the Project include valves, meters, and fire hydrants. According to data provided by the SWRCB, these components have a minimum anticipated lifespan of 35 years, 10 years, and 40 years minimum, respectively, typical of other City water system assets.

Section 7. Capital and Annual Maintenance Costs

7.1. Opinion of Probable Cost of Construction

A preliminary opinion of probable cost of construction (OPC) was developed for this Project. Spreadsheets summarizing the costs associated with the various elements of the considered alternatives are included in **Appendix D**. The OPC for the recommended project is \$3,530,000. Additional costs will be incurred as part of the Project. The additional costs are estimated based on an assumed percentage of the construction cost and included in the total project costs; a total project cost for the recommended improvements is provided in **Table 7-1**.

Table 7-1: Total Project Costs

Item	Percent of Construction Cost	Cost
Project Construction	100%	\$3,530,000
City Administration	3%	\$110,000
Topographic and Boundary Survey	1%	\$40,000
Detailed Design	10%	\$350,000
Traffic Control Plans and Permitting	1%	\$40,000
Environmental Permitting	1%	\$40,000
Construction Management	15%	\$530,000
Total Project Cost		\$4,640,000

7.2. OPC Methodologies and Assumptions

The Project costs included in **Appendix D** are based on information obtained from a variety of resources, including cost estimate resource guidebooks, recent bid results, budgetary quotes from vendors, engineer's experience, and publicly available information. In addition, the following mark-ups were applied to the project costs:

- Division 1 Costs, including bonds and insurance: 2%
- Taxes on materials: 7.63%
- Contractor Markup for subcontractors: 12%
- Contractor Markup for overhead and profit: 12%
- Project Contingency: 30%
- Escalation of project costs attributed to inflation: 12%

7.3. Operations and Maintenance Annual Costs

The City provided annual cost for Operations and Maintenance (O&M) of the City's system to its current buildout, which includes Water Operations, Customer Service, Water Services and Utility Billing, as well as a Rate Study prepared in 2021. The Rate Study Report is provided in **Appendix E**. The annual cost for O&M expected for the additional 45 residences being tied into the City's system was based on an average cost per service connection annually that the City has projected for the next few years

using costs from the previous years. The assumed annual O&M cost for CHWA consolidating with the City's system is listed in **Table 7-2** below.

Table 7-2: Annual O&M Costs for Consolidating CHWA's system into the City's System

Fiscal Year	O&M Costs for Water Operations	Number of Service Connections	Cost per Service Connection	CHWA Service Connections	Total O&M Cost Expected for CHWA
2021	\$9,517,549	14,610	\$651.44	45	-
2022	\$9,532,553	14,610	\$652.47	45	-
2023	\$10,479,027	14,610	\$717.25	45	-
2024	\$10,687,207	14,610	\$731.50	45	\$32,917.48
2025	\$10,722,600	14,610	\$733.92	45	\$33,026.49
2026	\$11,731,124	14,610	\$802.95	45	\$36,132.83

7.4. Opinion of Probable Customer Costs

Based on CHWA's average usage data and the City's Rate Study, a probable monthly cost to each residence has been calculated. An average typical single-family household (3-4 people) in the City uses about 8 hundred cubic feet (CCF) of potable water per month. Based on current usage data, CHWA residents use an average of about 13.5 CCF of potable water per month. Expected monthly costs for water with the proposed rate increases through 2026 for CHWA residents are provided in **Table 7-3**, if the usage numbers provided are accurate and remain constant, or if usage declines to match average City customer usage.

Table 7-3: Probable Customer Costs for Consolidating CHWA's system into the City's System

Average City Customer			CHWA Customer (Current Usage)	
Fiscal Year	Average CCF per Month	Typical Monthly Bill	Average CCF per Month	Probable Bill with Current Usage
2023	8	\$63.43	13.5	\$107.04
2024	8	\$64.06	13.5	\$108.10
2025	8	\$64.69	13.5	\$109.16
2026	8	\$65.35	13.5	\$110.28

Since CHWA members are not individually metered, these numbers are based on system overall usage per connection. It is believed that the system has leaks due to aging infrastructure which cannot be determined due to a lack of metering, resulting in high average per member water usage. The proposed consolidation will likely reduce overall usage through elimination of leaks, the addition of residential meter allowing location and repair of leaks on private property and providing access to City conservation programs. CHWA's current customers will be expected to abide by all the City's conservation policies.

Section 8. Proposed Schedule

8.1. Project Schedule

An anticipated project schedule has been prepared and is included as **Table 8-1**. Based on the prepared schedule, 60% and 90% design for the Project is anticipated to be complete by end of 2023.

Table 8-1: Anticipated Project Schedule

Item	Target Duration	Target Date
Draft PER	2 Months	December 9, 2022
City, CHWA, and RCAC Review of Draft PER	2 Months	February 10, 2023
Final PER	3 Months	May 4, 2023
State Review and Design Authorization	1 Month	April 7, 2023
Topographic Survey	3 Weeks	April 28, 2023
Geotechnical Report	10 Weeks	July 12, 2023
60% Plans & Specifications	2 Months	June 23, 2023
City, CHWA, and RCAC Review of 60% Package	3 Weeks	July 14, 2023
60% Design Review Meeting	-	July 21, 2022
90% Plans & Specifications	6 Weeks	September 1, 2023

Section 9. Comprehensive Response to Climate Change

9.1. Vulnerability

The CHWA system was constructed in 1968. The piping in the system has surpassed its useful life of 50 years and the system is lacking redundancy to address failures within their distribution system or with their single operational well. Although the system has two wells listed, the second well, Well #2, has experienced a catastrophic failure likely due to seismic shifts underground during the Loma Prieta earthquake. In addition, the system is extremely susceptible to water outages due to the lack of isolation valves on both the water mains and service connections. In the event of a repair or a water main leak, all customers in the CHWA system service area have no water until the issue is resolved. The lack of available water is both a human health vulnerability as well as a fire-flow deficiency. The existing well is functioning but is also aging and reaching the end of its expected useful life, which means a catastrophic failure is increasingly likely. Well #1 is also deficient in the appropriate well-head sanitary protection because it lacks a concrete seal around its base. This leaves the system more vulnerable to the possibility of surface flow contamination, which would potentially occur with a severe flood event.

9.2. Adaptation

Adapting to climate change is a critical factor embedded in the CHWA water system's choice to pursue consolidation over the other available options. Climate change is increasing the severity of rain events as well as prolonging periods of drought. Due to these facts, floods are more extreme, water levels are unpredictable and dropping and larger wildfires are driven by extreme dryness. The historic seismic activity that resulted in the failure of Well #2 is also an ongoing threat to the remaining well. As a standalone system, CHWA is extremely vulnerable. The best way for the CHWA to serve its customers and protect the community from the harsh conditions of drought, fire and severe flooding is to consolidate with a neighboring water system.

9.3. Mitigation

The factors in the water system which require mitigation are the lack of system redundancy, inadequate fire flow, cross connection vulnerabilities, sanitary defects, and system pressure loss due to failure and maintenance. A new network of distribution piping and consolidation with a neighboring system is the recommended approach to mitigating these risks. This would effectively address each of the identified critical failure modes. This consolidation would allow the system to maintain fire flows consistent with the City's minimum standards outlined in the 2020 Hydraulic System Study (20psi @1500 gpm) by Carollo Engineers (Carollo), included as **Appendix C**. In addition, this would eliminate public health risks associated with pressure losses and potential for back-flows into the system which could result.

Section 10. List of Permits

The CHWA Project will need to comply with the requirements of the City and County, as well as additional regulatory agencies, if identified during the environmental permitting process. Identified required permits are summarized in this section.

10.1. Project Permitting

The Project is located within public right-of-way and private properties of CHWA and its members. Permits anticipated for construction include an encroachment permit from the County of Santa Cruz, and a water system modification permit from the City. Other jurisdictional agency permits are not anticipated but could be required if identified during the environmental permitting process.

10.1.1. County of Santa Cruz Encroachment Permit

The Project will be constructed within the County right-of-way. An encroachment permit from the County will need to be obtained for pipeline construction. Traffic control plans will be required as part of the encroachment permit application. Work within the County right-of-way will comply with County standards for potholing, trenching, and repaving. Requirements for repaving will be more precise once detailed design has started as they will depend on the water main alignment and the County's evaluation on pavement condition.

The City has an existing franchise agreement with the County for utilities within public roadways. Due to the significant scope and scale of the Project, a waiver under the franchise agreement is not anticipated, and a traditional encroachment permit process is anticipated for this Project.

10.1.2. City of Watsonville Water System Modification Permit

Typically, an encroachment permit from the City's Public Works department is required to perform work on the City's water system outside of City limits. However, the City does not require encroachment permits for work being performed by the City. Since the work to implement the recommended project will be performed by a contractor working directly for the City, a City encroachment permit will not be required.



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Appendix B

Crestwood Heights Water Association Project Biological Resources Report

The full text of this appendix is not included in this online copy of the IS/MND due to certain content within the files not meeting Web Content and Accessibility (WCAG) guidelines. This online version of the IS/MND has been formatted to comply with the Governor's Office of Land Use and Climate Innovation (LCI) guidance (formerly the California Office of Planning and Research) for required accessibility measures for public review.

For a full copy of the appendix, please reach out to the City of Watsonville via email at danielle.green@watsonville.gov.

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Crestwood Heights Water Association Project Biological Resources Report

Report Preparation Date Tuesday, March 31, 2026

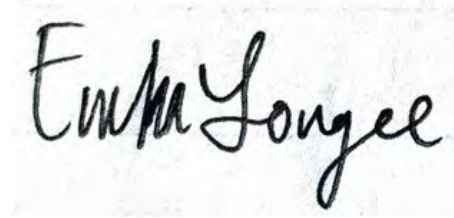
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Physical Address 118 Kingston Dr
Watsonville, CA, 95076

Applicant Crestwood Heights Water Association
118 Kingston Dr
Watsonville, CA, 95076

Reporting Biologist Rikki Lougee
Associate Environmental Scientist
Denise Duffy & Associates, Inc.
947 Cass Street, Suite 5
Monterey, California 93940
(831) 373-4341

As a County-approved biologist, I hereby certify that this Biological Resources Assessment was prepared according to the Guidelines established by the County of Santa Cruz Planning Department and that the statements furnished in the report and associated maps are true and correct to the best of my knowledge and belief; and I further certify that I was present throughout the site visit(s) associated with this report.

A handwritten signature in black ink on a light-colored background. The signature is written in a cursive style and reads "Erika Lougee".

Erika 'Rikki' Lougee, Associate Environmental Scientist
DENISE DUFFY & ASSOCIATES, INC.

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APPENDICES

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1.0 INTRODUCTION

1.1 Project Description

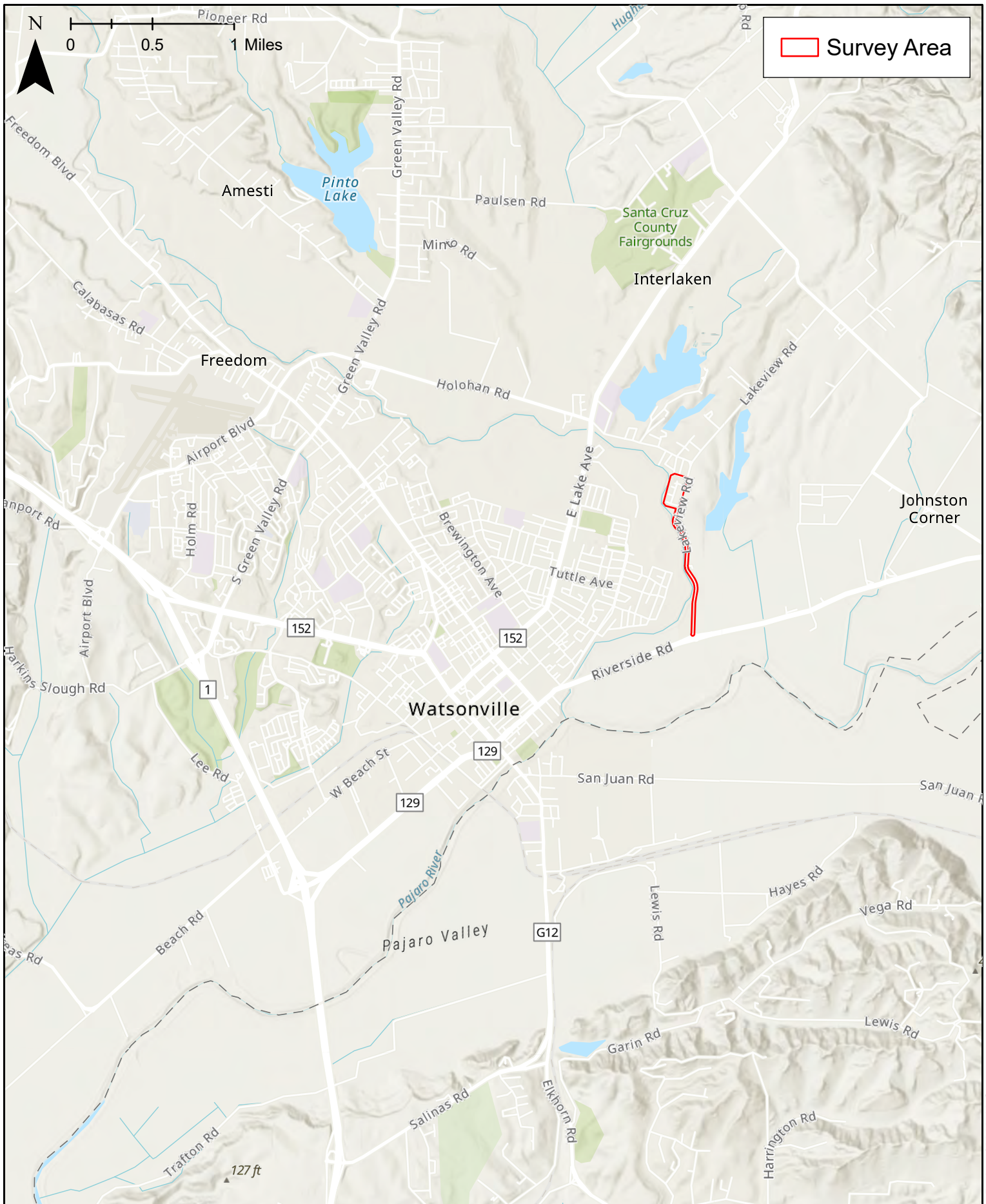
Denise Duffy & Associates, Inc. (DD&A) was contracted by Crestwood Heights Water Association (CHWA) to assess the biological resources within the proposed Crestwood Heights Water Association Project (project). The project is located just outside the City of Watsonville in unincorporated Santa Cruz County (**Figure 1**). The system is currently supplied by groundwater through a single primary, active well. A secondary stand-by well onsite is currently nonoperational due to past complications from regional seismic activity. The primary well satisfies overall capacity; however, the water system has difficulty meeting peak usage demand due to limited available storage.

The water system also experiences frequent maintenance issues that require mainline shutoff, thereby resulting in service termination throughout the community. The proposed project involves preparing a Drinking Water State Revolving Fund (DWSRF) application to provide planning and engineering services to consolidate the CHWA water system with the City of Watsonville's (City). After consolidation, the CHWA would be dissolved of its status as a mutual water company. Additionally, the proposed project would upgrade the current CHWA distribution infrastructure and install individual meters on each service connection to meet the City's standards. Per State standards, the consolidation design of the water system must incorporate two intertie locations to provide system redundancy. The water main alignment is located along Lakeview Road and adjacent residential streets. The project includes constructing laterals from the water main to 45 individual service connections, the locations of which are not yet known. The survey area evaluated for the purpose of this report includes a 50-foot buffer on the approximate water main alignment along Lakeview Road and the Crestwood Heights neighborhood (**Figure 2a-b**). The entire neighborhood is included in the survey area to include all potential impacts associated with constructing the individual service connections.

This report presents the findings of a biological resource assessment conducted by DD&A for the project. The emphasis of this study is to describe existing biological resources, identify any special-status species or sensitive habitats, assess potential impacts that may occur to biological resources within and adjacent to the survey area, and recommend appropriate avoidance, minimization, and mitigation measures necessary to reduce those impacts to a less-than-significant level in accordance with the California Environmental Quality Act (CEQA). This report was originally prepared in July 2023; however, it was revised in March 2026 to ensure no new circumstances have occurred which would alter the results of the original analysis.

1.2 Summary of Results

The field review of biological resources found that no special status plant or wildlife species are expected to occur within the survey area. However, raptors and other avian species protected under the California Fish and Game Code have the potential to nest within trees within and adjacent to the survey area. Fremont cottonwood forest (riparian) is listed as sensitive on the California Department of Fish and Wildlife's (CDFW's) *California Natural Communities List* (CDFW, 2025). Additionally, Salsipuedes Creek occurs directly adjacent to the survey area, and may be considered waters of the U.S. and/or state potentially subject to the jurisdiction of the Army Corps of Engineers (ACOE) and the Regional Water Quality Control Board (RWQCB).





<div data-bbox="77 1942 279 1984" data-label="Section-Header"> <h1>Survey Area</h1> </div>	<div data-bbox="812 1932 901 2037" data-label="Text"> <p>Date 3/31/2026</p> <p>Scale 1:4,000</p> </div>	<div data-bbox="941 1942 1023 2026" data-label="Image"> </div> <div data-bbox="1031 1953 1396 2016" data-label="Text"> <p>Denise Duffy & Associates, Inc. Planning and Environmental Consulting</p> </div>	<div data-bbox="1453 1932 1518 2016" data-label="Text"> <p>Figure 2a</p> </div>



Survey Area	Date 3/31/2026	 Denise Duffy & Associates, Inc. Planning and Environmental Consulting	Figure 2b
	Scale 1:4,000		

Potential impacts to these biological resources will be reduced to a less than significant level with the recommended mitigation measures provided below. All other species evaluated have a low potential to occur, are assumed unlikely to occur, or were determined not present within the survey area for the species-specific reasons presented in **Appendix A**.

2.0 METHODS

2.1 Personnel and Survey Dates

DD&A Assistant Environmental Scientist, Rikki Lougee, evaluated the survey area on March 30, 2023. As described above, the survey area encompasses the approximate water main alignment and the Crestwood Heights neighborhood to account for all impacts associated with installing individual meters on each service connection. Botanical survey methods included walking the survey area and using aerial maps to identify general and sensitive vegetation types as well as potential habitat for special-status plant species. Concurrently, reconnaissance-level wildlife habitat surveys were conducted to identify suitable habitat for special-status species within the survey area. Data collected during the surveys were used to assess the environmental conditions of the survey area and its surroundings, evaluate environmental constraints at the site and within the local vicinity, and provide a basis for recommendations to minimize and avoid impacts.

The survey area was evaluated for botanical resources following the applicable guidelines outlined in: *Guidelines for Conducting and Reporting Botanical Inventories for Federally listed, Proposed and Candidate Plants* (U.S. Fish and Wildlife Service [USFWS], 2000), *Protocols for Surveying and Evaluating Impacts to Special Status Native Plant Populations and Natural Communities* (California Department of Fish & Wildlife [CDFW], 2021), and *CNPS Botanical Survey Guidelines* (California Native Plant Society [CNPS], 2001).

2.2 Special-Status Species

Special-status species are those plants and animals that have been formally listed or proposed for listing as endangered or threatened or are candidates for such listing under the Federal Endangered Species Act (ESA) or the California Endangered Species Act (CESA). Listed species are afforded legal protection under the ESA and CESA. Species that meet the definition of rare or endangered under the CEQA Section 15380 are also considered special-status species. Animals identified as “species of special concern” on CDFW’s “Special Animals List” (most of which are species whose breeding populations in California may face extirpation if current population trends continue) meet this definition and are typically provided management consideration through the CEQA process, although they are not legally protected under the ESA or CESA. Additionally, CDFW also includes some animal species that are not assigned any of the other status designations on their “Special Animals” list; however, these species have no legal or protection status and are not discussed for the purposes of this report.

Plants listed as rare under the California Native Plant Protection Act (CNPPA) or included in CNPS California Rare Plant Ranks (CRPR; formerly known as CNPS Lists) 1A, 1B, 2A, and 2B are also treated as special-status species as they meet the definitions of Sections 2062 and 2067 of the CESA and in accordance with CEQA Guidelines Section 15380¹. In general, CDFW requires that plant species on CRPR 1A (Plants presumed extirpated in California and Either Rare or Extinct Elsewhere), CRPR 1B (Plants rare,

¹ CNPS initially created five CRPR to categorize degrees of concern; however, to better define and categorize rarity in California’s flora, the CNPS Rare Plant Program and Rare Plant Program Committee have developed the new CRPR 2A and CRPR 2B.

threatened, or endangered in California and elsewhere), CRPR 2A (Plants presumed extirpated in California, but more common elsewhere); and CRPR 2B (Plants rare, threatened, or endangered in California, but more common elsewhere) of the CNPS Inventory of Rare and Endangered Vascular Plants of California (CNPS, 2026) be fully considered during the preparation of environmental documents relating to CEQA.² In addition, species of vascular plants, bryophytes, and lichens listed as having special-status by CDFW are considered special-status plant species (CDFW, 2026a). CNPS CRPR 4 species (plants of limited distribution) may, but generally do not, meet the definitions of Sections 2062 and 2067 of the CESA, and are not typically considered in environmental documents relating to CEQA. While other species (i.e., CRPR 3 or 4 species) are sometimes found in database searches or within the literature, these were not included within the analysis as they did not meet the definitions of Section 2062 and 2067 of the CESA.

Raptors (e.g., eagles, hawks, and owls) and their nests are protected in California under Fish and Game Code Section 3503.5. Section 3503.5 states that it is “unlawful to take, possess, or destroy the nest or eggs of any such bird except otherwise provided by this code or any regulation adopted pursuant thereto.” In addition, fully protected species under the Fish and Game Code Section 3511 (birds), Section 4700 (mammals), Section 5515 (fish), and Section 5050 (reptiles and amphibians) are also considered special-status animal species. Species with no formal special-status designation but thought by experts to be rare or in serious decline may also be considered special-status animal species in some cases, depending on project-specific analysis and relevant, localized conservation needs or precedence.

2.3 Sensitive Habitats

Sensitive habitats include riparian corridors, wetlands, habitats for legally protected species, areas of high biological diversity, areas supporting rare or special-status wildlife habitat, and unusual or regionally restricted vegetation types. Vegetation types considered sensitive include those listed on the CDFW’s *California Natural Communities List* (i.e., those habitats that are rare or endangered within the borders of California) (CDFW, 2025), or those that are occupied by species listed under the ESA or are critical habitat in accordance with the ESA. Specific habitats may also be identified as sensitive in city or county general plans or ordinances. Sensitive habitats are regulated under federal regulations (such as the Clean Water Act [CWA] and Executive Order [EO] 11990 – Protection of Wetlands), state regulations (such as CEQA and the CDFW Streambed Alteration Program), or local ordinances or policies (such as city or county tree ordinances and general plan policies).

2.4 Data Sources

The primary literature and data sources reviewed to determine the occurrence or potential for occurrence of special-status species within the survey area are as follows:

- Current agency status information from USFWS and CDFW for species listed, proposed for listing, or candidates for listing as threatened or endangered under the ESA or CESA, and those considered CDFW “species of special concern,” including:
 - CNDDDB occurrence reports from the Watsonville East quadrangle and the eight surrounding quadrangles, including Loma Prieta, Mt. Madonna, Gilroy, Watsonville West, Chittenden, Moss Landing, Prunedale, and San Juan Batista (CDFW, 2026a; **Appendix B**); and

² CRPR 3 species (Plants about which we need more information - a review list) and CRPR 4 species (Plants of limited distribution - a watch list) may, but generally do not, meet the definitions of Sections 2062 and 2067 of the CESA, and are not typically considered in environmental documents relating to CEQA.

- USFWS IPaC Resource List (USFWS, 2026a; **Appendix C**).
- CDFW's Special Animals List (CDFW, 2026b); and
- The CNPS *Inventory of Rare and Endangered Vascular Plants of California* (CNPS, 2026).

In addition, the following literature and data sources were reviewed to determine the occurrence or potential for occurrence of other sensitive natural resources within the survey area:

- *California Natural Communities List* (CDFW, 2025);
- The U.S. Department of Agriculture (USDA) Natural Resources Conservation Service (NRCS) Web Soil Survey (USDA-NRCS, 2026);
- The National Wetlands Inventory Wetlands Mapper (USFWS, 2026b); and
- The National Hydrography Dataset (U.S. Geologic Survey [USGS], 2026).

From these resources, a list of special-status plant and wildlife species known or with the potential to occur in the vicinity of the survey area was created (**Appendix A**). This list presents these species along with their legal status, habitat requirements, and a brief statement of their likelihood to occur.

2.4.1 Botany

Vegetation types identified in *A Manual of California Vegetation* (Sawyer et.al., 2009) were utilized to determine if vegetation types identified as sensitive on CDFW's *California Natural Communities List* (CDFW, 2025) are present within the survey area. Information regarding the distribution and habitats of local and state vascular plants was also reviewed (Howitt and Howell, 1964 and 1973; Munz and Keck, 1973; Baldwin et al., 2012; Matthews and Mitchell, 2015; Jepson Flora Project, 2026). All plants with the appropriate blooming period observed within the survey area during the evaluation were identified to species or intraspecific taxon necessary to eliminate them as being special-status species using keys and descriptions in *The Jepson Manual: Vascular Plants of California, Edition 2* (Baldwin et al., 2012) and *The Plants of Monterey County an Illustrated Field Key* (Matthews and Mitchell, 2015). General habitat types were identified along with the dominant plant species in each habitat. Dominant plant species are those which are more numerous than their competitors in an ecological community or make up more of the biomass; generally, the species that are most abundant. Most ecological communities are defined by their dominant species.

2.4.2 Wildlife

The following literature and data sources were reviewed: CDFW reports on special-status wildlife (Remsen, 1978; Williams, 1986; Jennings and Hayes, 1994; Thelander, 1994; Thomson et. al, 2016); California Wildlife Habitat Relationships Program species-habitat models (Zeiner et al., 1988 and 1990); and general wildlife references (Stebbins, 1972, 1985, and 2003).

2.5 Regulatory Setting

The following discussion describes the major federal, state, and local laws regulating biological resources that may be applicable to the project.

2.5.1 Federal Regulations

Migratory Bird Treaty Act

The Migratory Bird Treaty Act (MBTA) of 1918 prohibits killing, possessing, or trading migratory birds except in accordance with regulation prescribed by the Secretary of the Interior. Most actions that result in taking or in permanent or temporary possession of a protected species constitute violations of the MBTA. The USFWS is responsible for overseeing compliance with the MBTA.

Clean Water Act

The U.S. Army Corps of Engineers (ACOE) and U.S. Environmental Protection Agency (EPA) regulate discharge of dredged and fill material into waters of the U.S. under Section 404 of the Clean Water Act (CWA). Waters of the U.S. are defined broadly as waters susceptible to use in commerce (including waters subject to tides, interstate waters, and interstate wetlands) and other waters (such as interstate lakes, rivers, streams, mudflats, sandflats, wetlands, sloughs, prairie potholes, wet meadows, playa lakes, or natural ponds) (33 CFR 328.3). Potential wetland areas are identified as “those areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soils conditions.”

Under Section 401 of the CWA, any applicant receiving a Section 404 permit from the ACOE must also obtain a Section 401 Water Quality Certification from the Regional Water Quality Control Board (RWQCB). A Section 401 Water Quality Certification is issued when a project is demonstrated to comply with state water quality standards and other aquatic resource protection requirements.

2.5.2 State Regulations

California Native Plant Protection Act

The California Native Plant Protection Act (CNPPA) of 1977 directed CDFW to carry out the legislature’s intent to “preserve, protect and enhance rare and Endangered plants in the State.” The CNPPA prohibits importing rare and Endangered plants into California, taking rare and Endangered plants, and selling rare and Endangered plants. The CESA and CNPPA authorized the Fish and Game Commission to designate endangered, threatened, and rare species and to regulate the taking of these species (§2050-2098, Fish and Game Code). Plants listed as rare under the CNPPA are not protected under CESA; however, these plants may not be taken or possessed at any time and no licenses or permits may be issued for their take except for collecting these species for necessary scientific research.

California Fish and Game Code

Birds. Section 3503 of the Fish and Game Code states that it is “unlawful to take, possess, or destroy the nest or eggs of any such bird except as otherwise provided by this code or any regulation adopted pursuant thereto.” Section 3503.5 prohibits the killing, possession, or destruction of any birds in the orders Falconiformes or Strigiformes (birds-of-prey). Section 3511 prohibits take or possession of fully protected birds. Section 3513 prohibits the take or possession of any migratory nongame birds designated under the federal Migratory Bird Treaty Act (MBTA). Section 3800 prohibits take of nongame birds.

Porter-Cologne Water Quality Control Act

The Porter-Cologne Water Quality Control Act of 1969 (Porter-Cologne) is California's statutory authority for the protection of water quality and applies to surface waters, wetlands, and groundwater, and to both point and nonpoint sources. Under the Porter-Cologne, the State Water Resources Control Board (State Board) has the ultimate authority over State water rights and water quality policy. However, Porter-Cologne also establishes nine RWQCBs to oversee water quality on a day-to-day basis at the local/regional level. The Project Study Area is located within Region 3 – Central Coast RWQCB. Porter-Cologne incorporates many provisions of the federal CWA, such as delegation to the State Board and RWQCBs of the National Pollutant Discharge Elimination System (NPDES) permitting program.

Under Porter-Cologne, the state must adopt water quality policies, plans, and objectives that protect the state's waters for the use and enjoyment of the people. Regional authority for planning, permitting, and enforcement is delegate to the nine RWQCBs. The regional boards are required to formulate and adopt water quality control plans for all areas in the region and establish water quality objectives in the plans. The Porter-Cologne sets forth the obligations of the State Board and RWQCBs to adopt and periodically update water quality control plans (basin plans). The act also requires waste dischargers to notify the RWQCBs of such activities through filing of Reports of Waste Discharge (RWD) and authorizes the State Board and RWQCBs to issue and enforce waste discharge requirements (WDRs), NPDES permits, Section 401 water quality certifications, or other approvals. The RWQCBs also have authority to issue waivers to RWD requirements and WDRs for broad categories of "low threat" discharge activities that have minimal potential for adverse water quality effects, when implemented according to prescribed terms and conditions.

The term "Waters of the State" is defined by Porter-Cologne as "any surface water or groundwater, including saline waters, within the boundaries of the state." The RWQCB protects all waters in its regulatory scope but has special responsibility for wetlands, riparian areas, and headwaters, including isolated wetlands, and waters that many not be regulated by the USACE under Section 404 of the CWA. Waters of the State are regulated by RWQCB under the State Water Quality Certification Program.

3.0 RESULTS

3.1 Vegetation Types

A majority of the survey area consists of developed areas including paved roads, driveways, sidewalks, landscaped areas, and residences (**Figure 3**). Approximately 15.9 acres of development occur within the survey area. Two vegetation types – ruderal/disturbed and riparian – also occur within the survey area and are discussed below.

Ruderal/Disturbed

- *A Manual of California Vegetation* classification(s): None
- *California Natural Communities List*: Not listed

Ruderal areas are those areas which have been disturbed by human activities and are devoid of vegetation or dominated by non-native annual grasses and other “weedy” species. Ruderal areas within the survey area occur along the margins of roadways and show evidence of human disturbance such as mowing and pedestrian use. Approximately 7.0 acres of ruderal/disturbed habitat occurs within the survey area (**Figure 3**). Dominant species within ruderal areas include non-native plants such as slender wild oat (*Avena barbata*), burr clover (*Medicago polymorpha*), and wild radish (*Raphanus sativa*). Ruderal communities are not included in *A Manual of California Vegetation* (Sawyer et al., 2009) and are not defined as sensitive by CDFW’s *California Natural Communities List* (CDFW, 2025).

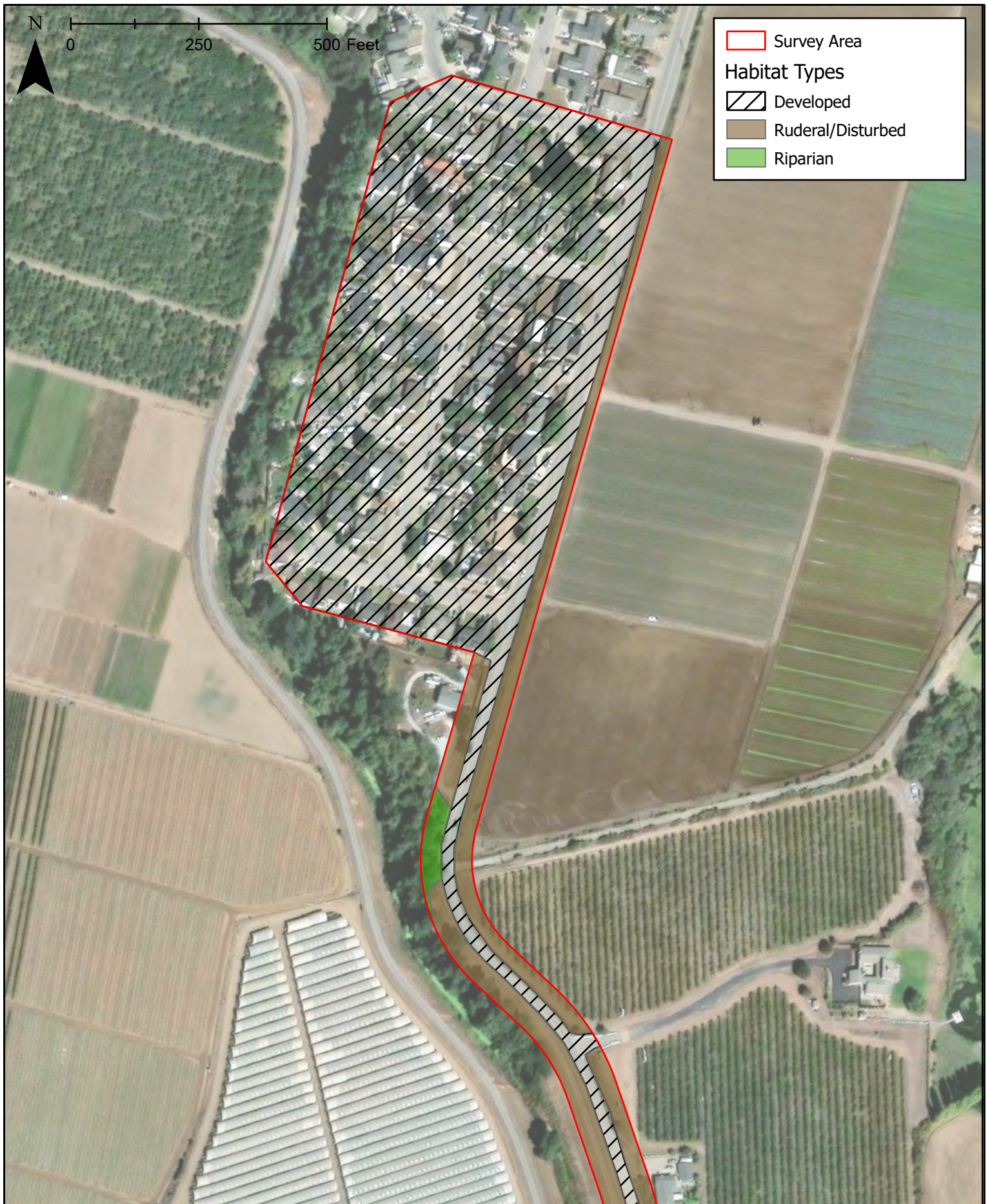
Ruderal and disturbed areas provide only low-quality habitat for plants and wildlife. Common wildlife species which do well in urbanized and disturbed areas that may occur within the ruderal habitat include American crow (*Corvus brachyrhynchos*), raccoon (*Procyon lotor*), striped skunk (*Mephitis mephitis*), scrub jay (*Aphelocoma californica*), European starling (*Sturnus vulgaris*), western fence lizard (*Sceloporus occidentalis*), and rock dove (*Columba livia*).

Riparian

- *A Manual of California Vegetation* classification(s): Fremont cottonwood woodland (*Populus fremontii* woodland alliance)
- *California Natural Communities List*: Sensitive

Riparian habitats are those plant communities supporting woody vegetation found along rivers, creeks, streams, canyon bottom drainages, and seeps. They can range from a dense thicket of shrubs to a closed canopy of large mature trees. There is an approximately 0.17-acre riparian area within the survey area. This habitat consists of a small portion of a larger riparian area adjacent to Salsipuedes Creek, most of which is located outside of the survey area (**Figure 3a**). This habitat is dominated by Fremont cottonwood (*Populus fremontii*) and arroyo willow (*Salix lasiolepis*) with an understory of cape ivy (*Delairea odorata*) and California blackberry (*Rubus ursinus*). Fremont cottonwood woodlands are considered sensitive by CDFW’s *California Natural Communities List* (CDFW, 2025).

Riparian areas provide habitat for many wildlife species, particularly birds and herpetofauna. Common species that may be found within riparian habitat include Sierran treefrog (*Pseudacris sierra*) and song sparrow (*Melospiza melodia*).



Vegetation Types

Date
3/31/2026
Scale
1:2,900



Denise Duffy & Associates, Inc.
Planning and Environmental Consulting

Figure
3a



Vegetation Types

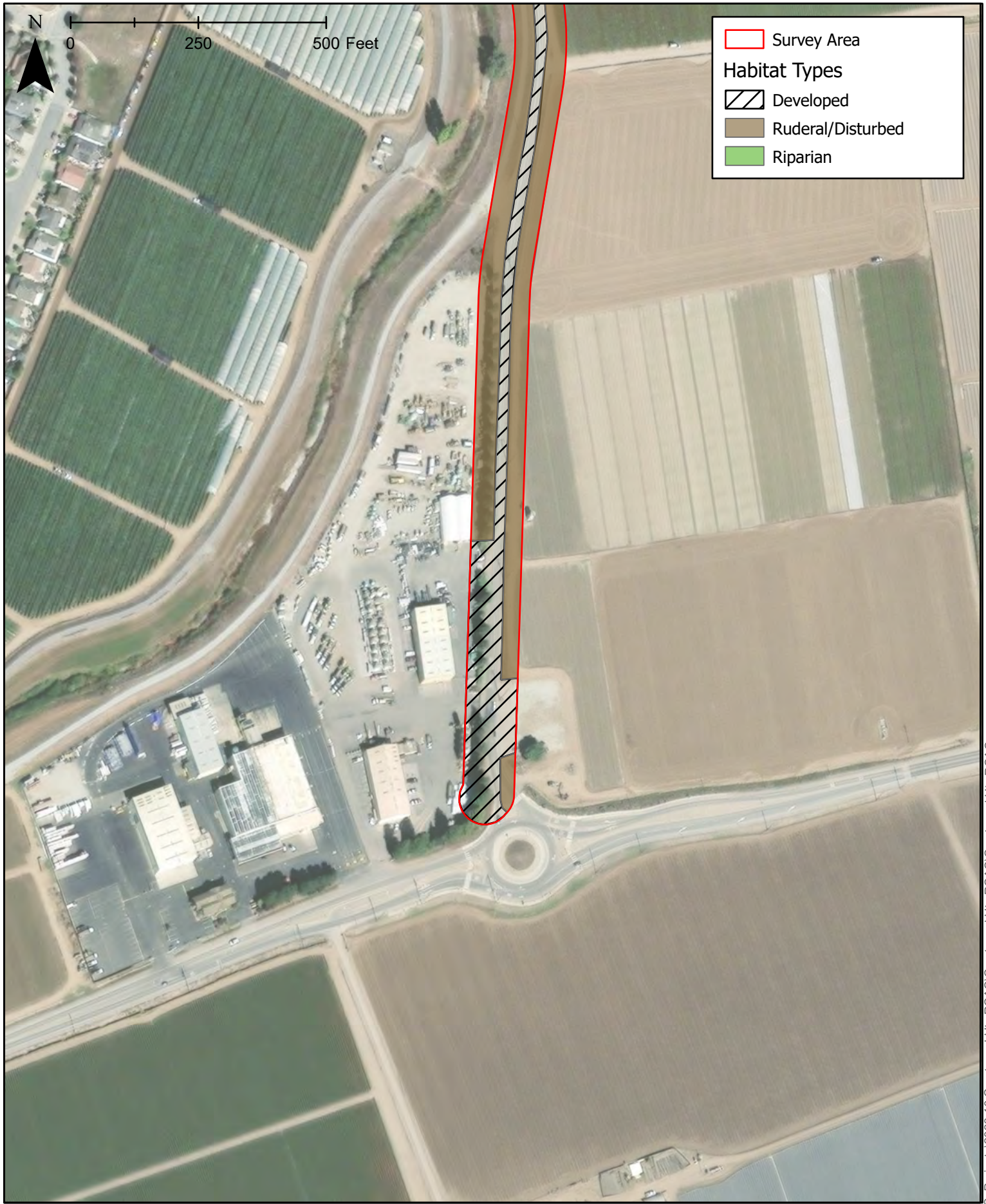
Date
3/31/2026

Scale
1:2,900



Denise Duffy & Associates, Inc.
Planning and Environmental Consulting

Figure
3b



Survey Area

Habitat Types

Developed

Ruderal/Disturbed

Riparian

Vegetation Types	Date 3/31/2026	 Denise Duffy & Associates, Inc. Planning and Environmental Consulting	Figure 3c
	Scale 1:2,900		

Path: C:\GIS\GIS_P\Projects\2023-10 Crestwood Hts RCAC\Crestwood Hts RCAC\Crestwood Hts RCAC.aprx

3.2 Sensitive Habitats

Fremont cottonwood forest (riparian) is listed as sensitive on the California Department of Fish and Wildlife's (CDFW's) *California Natural Communities List* (CDFW, 2025). No potential wetlands or waters of the U.S. or state were identified within the survey area; however, Salsipuedes Creek occurs directly adjacent to the survey area which may be considered waters of the U.S. and/or state. This resource is identified as freshwater forested/shrub wetland and riverine habitat by the National Wetland Inventory (USFWS, 2026b). Salsipuedes Creek is bordered by a levee and agricultural and urban development occur directly adjacent to the creek on either side. This resource contained flowing surface water during the time of the March 2023 survey.

3.3 Special-Status Species

Published occurrence data within the project area and surrounding USGS quadrangles were evaluated to compile a table of special-status species known to occur in the vicinity of the survey area (see "Methods"). Each of these species was evaluated for their likelihood to occur within and immediately adjacent to the survey area (**Appendix A**). Only the special-status species that are known to or have been determined to have a moderate or high potential to occur within the survey area and therefore could be impacted by the project are discussed below in Section 3.3.1. All other species evaluated are unlikely to occur or have a low potential to occur based on the species-specific reasons presented in **Appendix A**, are therefore unlikely to be impacted by the project, and are not discussed further.

3.3.1 Special Status Wildlife Species

Nesting Raptors and Other Protected Avian Species

Raptors, their nests, and other nesting birds are protected under the California Fish and Game Code. While the life histories of these species vary, overlapping nesting (approximately February through August) and foraging similarities allow for their concurrent discussion. Most raptors are breeding residents throughout most of the wooded portions of the state. Stands of live oak, riparian deciduous, or other forest habitats, as well as open grasslands, are used most frequently for nesting. Breeding occurs February through August, with peak activity May through July. Prey for these species includes small birds, small mammals, and some reptiles and amphibians. Many raptor species hunt in open woodland and habitat edges.

Suitable habitat for nesting avian species occurs within trees located within and adjacent to the survey area, particularly in riparian habitat. At the time of the March 30, 2023, survey, no active raptor, or other bird nests were observed within the survey area. However, mitigation measures presented below include preconstruction clearance surveys if construction is to be conducted within the breeding season. This measure will ensure that no impacts will occur to nesting birds as a result of the project.

4.0 IMPACTS AND MITIGATION MEASURES

Construction activities associated with the proposed project are not expected to impact special status plant or wildlife species. However, construction has the potential to impact nesting raptors and other avian species. Mitigation measures have been provided below to reduce potential impacts to a less-than-significant level in accordance with CEQA.

4.1 Impact Thresholds

The following section describes potential impacts to sensitive biological resources that may result from the project. In accordance with Appendix G of CEQA Guidelines, an impact is considered to be significant and require mitigation if it would result in any of the following:

- 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 CDFW or USFWS;
- b. Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, or regulations, or by CDFW or USFWS;
- c. Have a substantial adverse effect on state or federally protected wetlands (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling hydrological interruption, or other means;
- d. Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native nursery sites;
- e. Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance; or
- 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.

Recommendations are included below to avoid or minimize impacts to sensitive biological resources.

4.2 Impacts and Recommendations

Impact BIO-1: Nesting raptors and other avian species have the potential to occur within and adjacent to the survey area. Construction activities may result in disturbance of nests. This is a potentially significant impact that can be reduced to a less-than-significant level with implementation of the mitigation measures recommended below.

- BIO-1: To avoid/minimize impacts to nesting raptors and other avian species the following measures shall be adhered:
- a. If removal of trees/vegetation, grading activity, or other use of heavy equipment begins outside of the February 1 to August 31 breeding season, there will be no need to conduct a preconstruction survey for active nests.

- b. If removal of trees/vegetation, grading activity, or other use of heavy equipment is to commence between February 1 and August 31, a survey for active bird nests shall be conducted by a qualified biologist within two weeks prior to the start of such activity. The survey area shall include the survey area, and a survey radius around the survey area of 50 feet for MBTA birds and 250 feet for birds of prey.
- c. If no active nest of a bird of prey or MBTA bird is found, then no further avoidance and minimization measures are necessary.
- d. If active nest(s) of MBTA birds or birds of prey are found in the survey area, the following avoidance buffers shall be adhered to unless otherwise advised by CDFW or USFWS: Avoidance buffer of 50 feet for MBTA birds and 250 feet for birds of prey shall be established around the active nest(s). The biologist shall monitor the nest and advise the applicant when all young have fledged the nest. Removal of vegetation, grading activity, or other use of heavy equipment may begin after fledging is complete.
- e. If the biologist determines that a smaller avoidance buffer will provide adequate protection for nesting birds, a proposal for alternative avoidance/protective measures, potentially including a smaller avoidance buffer and construction monitoring, may be submitted to USFWS and CDFW for review and approval prior to removal of vegetation, grading activity, or other use of heavy equipment.
- f. If removal of vegetation, grading activity, or other use of heavy equipment stops for more than two weeks during the nesting season (February 1 - August 31) a new survey shall be conducted prior to re-commencement of construction.

Impact BIO-2: Riparian habitat, which is considered a sensitive habitat, occurs within the survey area. Wetlands or waters of the U.S. and/or state potentially subject to the jurisdiction of the ACOE and the RWQCB occur directly adjacent to the survey area; therefore, no direct impacts to potential wetlands or waters are expected to occur. However, impacts to these resources could occur if construction activities occur within these areas, occur outside of the proposed work limits, or if construction activities result in erosion and sedimentation to these adjacent sensitive habitats. Additionally, impacts to these resources could occur if an accident during construction were to result in the release of hazardous materials into the adjacent sensitive habitats. Implementation of standard erosion control measures and Mitigation Measures 2a through 2g would ensure avoidance of impacts during construction to sensitive habitats located within and adjacent to the project site.

BIO-2a: Riparian habitat shall be avoided to the extent feasible. If riparian habitat is impacted by the project, any loss of sensitive habitat shall be mitigated for at a 2:1 ratio for area lost. A restoration plan shall be prepared that details the locations to be restored; describes specific materials and methods for site preparation, planting, and weed control; as well as methods and requirements for monitoring, success criteria, and adaptive management measures.

BIO-2b: Prior to construction activities, the project proponent shall retain a qualified biologist to conduct an Employee Education Program for the construction crew. The biologist shall

meet with the construction crew at the project site at the onset of construction to educate the construction crew on the following: a) a review of the project boundaries; b) all sensitive habitats that may be present; c) the specific mitigation measures that will be incorporated into the construction effort; and d) the general provisions and protections afforded by the regulatory agencies.

- BIO-2c: Prior to construction, exclusionary fencing shall be placed around the riparian area and all potential waters of the U.S. and/or state located within 25 feet of construction impacts to preclude construction vehicles and personnel from impacting sensitive habitats. A qualified biologist or biological monitor shall supervise the installation of exclusionary fencing and monitor at least once per week until construction is complete to ensure that the protective exclusionary fencing remains intact.
- BIO-2d: Stationary equipment such as motors, generators, and welders located within 100 feet of sensitive habitats shall be stored overnight at a designated staging area and shall be positioned over drip pans.
- BIO-2e: Any hazardous or toxic materials deleterious to life that could be washed into adjacent sensitive habitats shall be contained in watertight containers.
- BIO-2f: Refueling of equipment shall take place within designated staging areas or at least 100 feet from potential wetlands and other waters of the U.S. and/or state or riparian areas.
- BIO-2g: All construction debris and associated materials stored in the staging area shall be removed from the work site upon completion of the project.

5.0 REFERENCES

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APPENDIX A

Special-Status Species Table

Special-Status Species Table

Loma Prieta, Mt. Madonna, Gilroy, Watsonville West, Watsonville East, Chittenden, Moss Landing, Prunedale, and San Juan Batista Quadrangles

Species	Status (Service/CDFW/CNPS)	General Habitat	Potential Occurrence within Survey Area
MAMMALS			
<i>Antrozous pallidus</i> Pallid bat	-- / CSC / --	Occurs in a wide variety of habitats including grasslands, shrublands, arid desert areas, oak savanna, coastal forested areas, and coniferous forests of the mountain regions of California. Most common in open, dry habitats with rocky areas for roosting. Day roosts include caves, crevices, mines, and occasionally hollow trees and buildings. Seems to prefer rocky outcrops, cliffs, and crevices with access to open habitats for foraging. Similar structures are used for night roosting and will also use more open sites such as eaves, awnings, and open areas under bridges for feeding roosts.	Low Suitable foraging and roosting habitat may be present within the riparian habitat within the survey area. The nearest CNDDDB occurrence is located approximately eight miles from the survey area; however, this is a historical non-specific occurrence from 1949.
<i>Corynorhinus townsendii</i> Townsend's big-eared bat	-- / CSC / --	Found primarily in rural settings from inland deserts to coastal redwoods, oak woodland of the inner Coast Ranges and Sierra foothills, and low to mid-elevation mixed coniferous-deciduous forests. Typically roost during the day in limestone caves, lava tubes, and mines, but can roost in buildings that offer suitable conditions. Night roosts are in more open settings and include bridges, rock crevices, and trees.	Low Suitable foraging and roosting habitat may be present within the riparian habitat within the survey area. The nearest CNDDDB occurrence is located approximately 17 miles from the survey area.
<i>Taxidea taxus</i> American badger	-- / CSC / --	Dry, open grasslands, fields, pastures savannas, and mountain meadows near timberline are preferred. The principal requirements seem to be sufficient food, friable soils, and relatively open, uncultivated grounds.	Unlikely No suitable habitat is present within the survey area. The nearest CNDDDB occurrence is located approximately 4.5 miles from the survey area; however, this is a historical occurrence from 1909.
<i>Sorex ornatus salarius</i> Monterey shrew	-- / CSC / --	Mostly moist or riparian woodland habitats, and within chaparral, grassland, and emergent wetland habitats where there is a thick duff or downed logs.	Low Suitable habitat is present in riparian habitat within the survey area; however, there is only one CNDDDB occurrence of this species within the quadrangles reviewed, located approximately seven miles from the survey area.
<i>Vulpes macrotis mutica</i> San Joaquin Kit fox	FE / ST / --	Open, level areas with loose-textured soils supporting scattered, shrubby vegetation with little human disturbance. Live in annual grasslands or grassy open stages dominated by scattered brush, shrubs, and scrub.	Not Present No suitable habitat is present within the survey area. There are no CNDDDB occurrences of this species within the quadrangles reviewed.

Species	Status (Service/CDFW/CNPS)	General Habitat	Potential Occurrence within Survey Area
BIRDS			
<i>Agelaius tricolor</i> Tricolored blackbird (nesting colony)	-- / SC&CSC / --	Nest in colonies in dense riparian vegetation, along rivers, lagoons, lakes, and ponds. Forages over grassland or aquatic habitats.	Low Suitable habitat is present in the riparian habitat within the survey area; however, the riparian area does not provide the dense canopy this species requires.
<i>Asio flammeus</i> Short-eared owl (nesting)	-- / CSC / --	Usually found in open areas with few trees, such as annual and perennial grasslands, prairies, meadows, dunes, irrigated lands, and saline and freshwater emergent marshes. Dense vegetation is required for roosting and nesting cover. This includes tall grasses, brush, ditches, and wetlands. Open, treeless areas containing elevated sites for perching, such as fence posts or small mounds, are also needed. Some individuals breed in northern California.	Unlikely No suitable habitat is present within the survey area. There is only one CNDDDB occurrence of this species within the quadrangles evaluated, located approximately eight miles from the survey area.
<i>Athene cunicularia</i> Burrowing owl (burrow sites & some wintering sites)	-- / CSC / --	Year-round resident of open, dry grassland and desert habitats, and in grass, forb and open shrub stages of pinyon-juniper and ponderosa pine habitats. Frequent open grasslands and shrublands with perches and burrows. Use rodent burrows (often California ground squirrel) for roosting and nesting cover. Pipes, culverts, and nest boxes may be substituted for burrows in areas where burrows are not available.	Unlikely No suitable habitat is present within the survey area. The nearest CNDDDB occurrence is located approximately seven miles from the survey area.
<i>Aquila chrysaetos</i> Golden eagle (nesting & wintering)	--/ CFP / --	Use rolling foot-hills, mountain terrain, wide arid plateaus deeply cut by streams and canyons, open mountain slopes, cliffs, and rocky outcrops. Nest in secluded cliffs with overhanging ledges as well as large trees.	Unlikely No suitable nesting or wintering habitat is present within the survey area. The nearest CNDDDB occurrence is located approximately 11 miles from the survey area.
<i>Brachyramphus marmoratus</i> Marbled murrelet	FT / SE / --	Occur year-round in marine subtidal and pelagic habitats from the Oregon border to Point Sal. Partial to coastlines with stands of mature redwood and Douglas-fir. Requires dense mature forests of redwood and/or Douglas-fir for breeding and nesting.	Unlikely No suitable habitat within the survey area. There are no CNDDDB occurrences of this species within the quadrangles reviewed.
<i>Coccyzus americanus occidentalis</i> Western yellow-billed cuckoo	FT / SE / --	Inhabits extensive deciduous riparian thickets or forests with dense, low-level or understory foliage, slow-moving watercourses, backwaters, or seeps. Willow almost always a dominant component of the vegetation.	Unlikely Suitable habitat is present in the riparian habitat within the survey area; however, the riparian area does not provide the dense canopy this species requires. There are no CNDDDB occurrences of this species within the quadrangles reviewed.

Species	Status (Service/CDFW/CNPS)	General Habitat	Potential Occurrence within Survey Area
<i>Charadrius alexandrinus nivosus</i> Western snowy plover (nesting)	FT / CSC / --	Sandy beaches on marine and estuarine shores, also salt pond levees and the shores of large alkali lakes. Requires sandy, gravelly or friable soil substrate for nesting.	Unlikely No suitable habitat within the survey area. There are no CNDDDB occurrences of this species within the quadrangles reviewed.
<i>Elanus leucurus</i> White-tailed kite (nesting)	-- / CFP / --	Open groves, river valleys, marshes, and grasslands. Prefer such area with low roosts (fences etc.). Nest in shrubs and trees adjacent to grasslands.	Low Trees within the survey area may provide suitable nesting habitat and adjacent agricultural fields may provide suitable foraging habitat. The nearest CNDDDB occurrence is approximately seven miles from the survey area.
<i>Empidonax trailii extimus</i> Southwestern willow flycatcher	FE / SE / --	Breeds in riparian habitat in areas ranging in elevation from sea level to over 2,600 meters. Builds nest in trees in densely vegetated areas. This species establishes nesting territories and builds and forages in mosaics of relatively dense and expansive areas of trees and shrubs, near or adjacent to surface water or underlain by saturated soils. Not typically found nesting in areas without willows (<i>Salix sp.</i>), tamarisk (<i>Tamarix ramosissima</i>), or both.	Unlikely Suitable habitat is present in the riparian habitat within the survey area; however, the riparian area does not provide the dense canopy this species requires. The CNDDDB does not report any occurrences of this species within the quadrangles evaluated.
<i>Falco peregrinus anatum</i> American peregrine falcon (nesting)	-- / CFP / --	Forages for other birds over a variety of habitats. Breeds primarily on rocky cliffs.	Unlikely No suitable nesting habitat is present within the survey area. The nearest CNDDDB occurrence is located approximately four miles from the survey area; however, this is a non-specific occurrence consisting of the entire Moss Landing quadrangle.
<i>Gymnogyps californianus</i> California condor	FE / SE / --	Roosting sites in isolated rocky cliffs, rugged chaparral, and pine covered mountains 2000-6000 feet above sea level. Foraging area removed from nesting/roosting site (includes rangeland and coastal area - up to 19-mile commute one way). Nest sites in cliffs, crevices, potholes.	Unlikely No suitable nesting habitat is present within the survey area. There are no CNDDDB occurrences of this species within the quadrangles reviewed.
<i>Rallus obsoletus obsoletus</i> California Ridgeway's rail	FE / SE&CFP /--	Salt and brackish marshes.	Unlikely No suitable habitat is present within the survey area. There is one CNDDDB occurrence of this species within the quadrangles reviewed, located approximately five miles from the survey area.

Species	Status (Service/CDFW/CNPS)	General Habitat	Potential Occurrence within Survey Area
<i>Riparia riparia</i> Bank swallow (nesting)	-- / ST / --	Nest colonially in sand banks. Found near water; fields, marshes, streams, and lakes.	Low No suitable nesting habitat is present within the survey area; however, suitable nesting habitat may be present in Salsipuedes Creek adjacent to the survey area. The nearest CNDDDB occurrence is located approximately 0.4 miles from the survey area; however, this is a non-specific occurrence from 1962.
<i>Vireo bellii pusillus</i> Least Bell's vireo	FE / SE / --	Riparian areas and drainages. Breed in willow riparian forest supporting a dense, shrubby understory. Oak woodland with a willow riparian understory is also used in some areas, and individuals sometimes enter adjacent chaparral, coastal sage scrub, or desert scrub habitats to forage.	Unlikely Suitable habitat is present in the riparian habitat within the survey area; however, the riparian area does not provide the dense canopy this species requires. The nearest CNDDDB occurrence is approximately nine miles from the survey area; however, this is a historical occurrence from 1932.
REPTILES AND AMPHIBIANS			
<i>Actinemys marmorata</i> Northwestern pond turtle	PT / CSC / --	Associated with permanent or nearly permanent water in a wide variety of habitats including streams, lakes, ponds, irrigation ditches, etc. Require basking sites such as partially submerged logs, rocks, mats of vegetation, or open banks.	Low No suitable aquatic habitat is present within the survey area and only low quality, fragmented upland habitat is present within ruderal habitat. Suitable aquatic habitat may be present in Salsipuedes Creek adjacent to the survey area; however, this does not appear to be a perennial water source. The nearest CNDDDB occurrence is located approximately 1.5 miles from the survey area in a small manmade agricultural pond.
<i>Ambystoma californiense</i> California tiger salamander	FT / ST / --	Annual grassland and grassy understory of valley-foothill hardwood habitats in central and northern California. Need underground refuges and vernal pools or other seasonal water sources.	Unlikely No suitable breeding habitat is present within the survey area and only low quality upland habitat is present within ruderal habitat. There are no CNDDDB occurrences or potential breeding resources within the dispersal range (1.3 miles, 2.2 km) of this species. The nearest CNDDDB occurrence is located approximately five miles (eight km) from the survey area in Buena Vista Pond, a known CTS breeding resource.

Species	Status (Service/CDFW/CNPS)	General Habitat	Potential Occurrence within Survey Area
<i>Ambystoma macrodactylum croceum</i> Santa Cruz long-toed salamander	FE / SE&CFP / --	Preferred habitats include ponderosa pine, montane hardwood-conifer, mixed conifer, montane riparian, red fir and wet meadows. Occurs in a small number of localities in Santa Cruz and Monterey Counties. Adults spend the majority of the time in underground burrows and beneath objects. Larvae prefer shallow water with clumps of vegetation.	Unlikely No suitable breeding habitat is present within the survey area and only poor-quality upland habitat is present within ruderal habitat. There are no CNDDDB occurrences or potential breeding resources within the dispersal range (1.0 mile, 1.6 km) of this species. The nearest CNDDDB occurrence is located approximately five miles (eight km) from the survey area in Buena Vista Pond, a known SCLTS breeding resource.
<i>Aneides niger</i> Santa Cruz black salamander	-- / CSC / --	Occurs in the fog belt of the outer Coastal Range in mesic forests. This species occurs in moist streamside microhabitats. This species is often found in shallow standing water or seeps. Small geographical range consisting of woodland habitat within the Santa Cruz Mountains in western Santa Clara, northern Santa Cruz, and southernmost San Mateo Counties.	Low Suitable habitat is present in riparian habitat within the survey area. The nearest CNDDDB occurrence is located approximately four miles from the survey area, with development including major roads and highways isolating the survey area from any documented occurrences.
<i>Anniella pulchra</i> Northern California legless lizard	-- / CSC / --	Requires moist, warm habitats with loose soil for burrowing and prostrate plant cover, often forages in leaf litter at plant bases; may be found on beaches, sandy washes, and in woodland, chaparral, and riparian areas.	Unlikely Suitable habitat is present in the riparian area within the survey area; however, suitable soil conditions are not present. The nearest CNDDDB occurrence is located approximately six miles from the survey area.
<i>Dicamptodon ensatus</i> California giant salamander	-- / CSC / --	Occurs within the Coast Range from just north of the southern border of Mendocino County to southern Santa Cruz County. Found in wet coastal forests in or around clear, cold permanent and semi-permanent streams and seepages. Typically, within elevations ranging from sea level to approximately 3000 feet.	Low Suitable habitat is present in riparian habitat within the survey area. The nearest CNDDDB occurrence is located approximately four miles from the survey area, with development including major roads and highways isolating the survey area from any documented occurrences.
<i>Phrynosoma blainvillii</i> Coast horned lizard	-- / CSC / --	Associated with open patches of sandy soils in washes, chaparral, scrub, and grasslands.	Unlikely No suitable habitat is present within the survey area. There is one CNDDDB occurrence of this species within the quadrangles reviewed, located approximately 13 miles from the survey area.
<i>Rana boylei</i> Foothill yellow-legged frog	-- / SC&CSC / --	Partly shaded, shallow streams and riffles with a rocky substrate in a variety of habitats, including hardwood, pine, and riparian forests, scrub, chaparral, and wet meadows. Rarely encountered far from permanent water.	Unlikely No suitable habitat is present within the survey area. The nearest CNDDDB occurrence is located approximately four miles from the survey area; however, this is a non-specific occurrence from 1970.

Species	Status (Service/CDFW/CNPS)	General Habitat	Potential Occurrence within Survey Area
<i>Rana draytonii</i> California red-legged frog	FT / CSC / --	Lowlands and foothills in or near permanent or late-season sources of deep water with dense, shrubby, or emergent riparian vegetation. During late summer or fall adults are known to utilize a variety of upland habitats with leaf litter or mammal burrows.	Unlikely No suitable breeding habitat is present within the survey area. There are no CNDDDB occurrences located within the known dispersal distance of this species (1.0 mile, 1.6 km). The nearest CNDDDB occurrence is located approximately 2.0 miles (3.3 km) from the survey area in the Watsonville Slough.
<i>Taricha torosa</i> Coast Range newt	-- / CSC / --	Occurs mainly in valley-foothill hardwood, valley-foothill hardwood-conifer, coastal scrub, and mixed chaparral but is known to occur in grasslands and mixed conifer types. Seek cover under rocks and logs, in mammal burrows, rock fissures, or man-made structures such as wells. Breed in intermittent ponds, streams, lakes, and reservoirs.	Unlikely Suitable habitat is present in riparian habitat within the survey area; however, there is only one CNDDDB occurrence within the quadrangles evaluated, located approximately ten miles from the survey area.
<i>Thamnophis sirtalis tetrataenia</i> San Francisco garter snake	FE / SE&CFP / --	An extremely scarce subspecies which only occurs in the vicinity of ponds and reservoirs in San Mateo County. Observed most often in the vicinity of standing water (mainly ponds, lakes, marshes, and sloughs); however, temporary ponds and other seasonal water bodies are also used. Emergent and bankside vegetation (such as cattails, bulrush, and spike rushes) are preferred for cover. Use open spaces between stream/pond habitats and grasslands for basking.	Unlikely No suitable habitat is present within the survey area. There are no CNDDDB occurrences of this species within the quadrangles reviewed.
FISH			
<i>Eucyclogobius newberryi</i> Tidewater goby	FE / CSC / --	Brackish water habitats, found in shallow lagoons and lower stream reaches. Tidewater gobies appear to be naturally absent (now and historically) from three large stretches of coastline where lagoons or estuaries are absent and steep topography or swift currents may prevent tidewater gobies from dispersing between adjacent localities. The southernmost large, natural gap occurs between the Salinas River in Monterey County and Arroyo del Oso in San Luis Obispo County.	Not Present No suitable obligate habitat is present within the survey area.

Species	Status (Service/CDFW/CNPS)	General Habitat	Potential Occurrence within Survey Area
<i>Hesperoleucus venustus subditus</i> Southern coastal roach	-- / CSC / --	Restricted to the drainages of Tomales Bay/northern SF Bay in the north and Monterey Bay in the south.	Not Present No suitable obligate habitat is present within the survey area.
<i>Lavinia exilicauda harengus</i> Monterey hitch (Pajaro/Salinas hitch)	-- / CSC / --	Found only within the Pajaro and Salinas River systems. Can occupy a wide variety of habitats, however, they are most abundant in lowland areas with large pools or small reservoirs that mimic such conditions. May be found in brackish water conditions within the Salinas River lagoon during the early summer months when the sandbar forms at the mouth of the river.	Not Present No suitable obligate habitat is present within the survey area.
<i>Oncorhynchus mykiss irideus</i> Steelhead (central California coast DPS)	FT / -- / --	Coastal perennial and near perennial streams, with suitable spawning and rearing habitat and no major barriers.	Not Present No suitable obligate habitat is present within the survey area.
<i>Oncorhynchus mykiss irideus</i> Steelhead (south-central California coast DPS)	FT / -- / --	Cold headwaters, creeks, and small to large rivers and lakes; anadromous in coastal streams.	Not Present No suitable obligate habitat is present within the survey area.
<i>Spirinchus thaleichthys</i> Longfin smelt	FC / ST / --	Euryhaline, nektonic & anadromous. Found in open waters of estuaries, mostly in middle or bottom of water column. Prefers salinities of 15-30 PPT, but can be found in completely freshwater to almost pure seawater.	Not Present No suitable obligate habitat is present within the survey area.
INVERTEBRATES			
<i>Bombus crotchii</i> Crotch bumble bee	-- / SC / --	Occurs in open grassland and scrub at relatively warm and dry sites. Requires plants that bloom and provide adequate nectar and pollen throughout the colony's life cycle, which is from early February to late October. Generally nests underground, often in abandoned mammal burrows. Within California this species is known to occur in the Mediterranean, Pacific Coast, Western Desert, as well as Great Valley and adjacent foothill regions.	Unlikely Low quality habitat is present within ruderal habitat within the survey area; however, there are likely not sufficient floral resources present to support this species. The nearest CNDDDB occurrence is located approximately 2.2 miles from the survey area; however, this is a non-specific occurrence from 1994.

Species	Status (Service/CDFW/CNPS)	General Habitat	Potential Occurrence within Survey Area
<i>Bombus occidentalis</i> Western bumble bee	-- / SC / --	Occurs in open grassy areas, urban parks, urban gardens, chaparral, and meadows. This species generally nest underground. Western bumble bee populations are currently largely restricted to high elevation sites in the Sierra Nevada.	Unlikely Low quality habitat is present within ruderal habitat within the survey area; however, there are likely not sufficient floral resources present to support this species. Additionally, the survey area is outside of the accepted range for this species.
<i>Danaus plexippus</i> Monarch butterfly	FC / -- / --	Overwinters in coastal California using colonial roosts generally found in Eucalyptus, pine and acacia trees. Overwintering habitat for this species within the Coastal Zone represents ESHA. Local ordinances often protect this species as well.	Unlikely No suitable habitat is present within the survey area and no overwintering populations have been documented within the survey area.
<i>Euphilotes enoptes smithi</i> Smith's blue butterfly	FE / -- / --	Most commonly associated with coastal dunes and coastal sage scrub plant communities in Monterey and Santa Cruz Counties. Plant hosts are <i>Eriogonum latifolium</i> and <i>E. parvifolium</i> .	Not Present No suitable habitat is present within the survey area. The host plant species were not identified during the March 2023 survey.
<i>Euphydryas editha bayensis</i> Bay checkerspot butterfly	FT / -- / --	Restricted to native grasslands on outcrops of serpentine soil in the vicinity of the San Francisco Bay. <i>Plantago erecta</i> is the primary host plant; <i>Castilleja densiflorus</i> and <i>Castilleja exserta</i> are secondary host plants.	Not Present No suitable habitat is present within the survey area. The host plant species were not identified during the March 2023 survey.
PLANTS			
<i>Arctostaphylos andersonii</i> Anderson's manzanita	-- / -- / 1B	Openings and edges of broadleaved upland forest, chaparral, and north coast coniferous forest at elevations of 60-760 meters. Evergreen shrub in the Ericaceae family; blooms November-May.	Not Present No suitable habitat is present within the survey area and this species was not identified during the March 2023 survey.
<i>Arctostaphylos hookeri</i> ssp. <i>hookeri</i> Hooker's manzanita	-- / -- / 1B	Closed-cone coniferous forest, chaparral, cismontane woodland, and coastal scrub on sandy soils at elevations of 85-536 meters. Evergreen shrub in the Ericaceae family; blooms January-June.	Not Present No suitable habitat is present within the survey area and this species was not identified during the March 2023 survey.
<i>Arctostaphylos pajaroensis</i> Pajaro manzanita	-- / -- / 1B	Chaparral on sandy soils at elevations of 30-760 meters. Evergreen shrub in the Ericaceae family; blooms December-March.	Not Present No suitable habitat is present within the survey area and this species was not identified during the March 2023 survey.
<i>Arenaria paludicola</i> Marsh sandwort	FE / SE / 1B	Known from only two natural occurrences in Black Lake Canyon and at Oso Flaco Lake. Sandy openings of freshwater of brackish marshes and swamps at elevations of 3-170 meters. Stoloniferous perennial herb in the Caryophyllaceae family; blooms May-August.	Not Present No suitable habitat is present within the survey area. The project site is outside of the accepted range of this species.

Species	Status (Service/CDFW/CNPS)	General Habitat	Potential Occurrence within Survey Area
<i>Balsamorhiza macrolepis</i> Big-scale balsamroot	-- / -- / 1B	Chaparral, cismontane woodland, and valley and foothill grassland, sometimes on serpentinite soils, at elevations of 90-1555 meters. Perennial herb in the Asteraceae family; blooms March-June.	Not Present No suitable habitat is present within the survey area and this species was not identified during the March 2023 survey.
<i>Calyptridium parryi</i> var. <i>hesseae</i> Santa Cruz Mountains pussypaws	-- / -- / 1B	Sandy or gravelly openings of chaparral and cismontane woodlands at elevations of 305-1530 meters. Annual herb in the Montiaceae family; blooms May-August.	Unlikely No suitable habitat is present within the survey area and the survey area is outside of the elevational range for this species.
<i>Castilleja rubicundula</i> ssp. <i>rubicundula</i> Pink creamsacs	-- / -- / 1B	Openings in chaparral, cismontane woodlands, meadows and seeps, and valley and foothill grasslands on serpentinite soils, at elevations of 20-910 meters. Annual herb in the Orobanchaceae family; blooms April-June.	Unlikely No suitable habitat is present within the survey area. There is one CNDDDB occurrence of this species within the quadrangles evaluated, located approximately seven miles from the survey area.
<i>Ceanothus ferrisiae</i> Coyote ceanothus	FE / -- / 1B	Chaparral, coastal scrub, and valley and foothill grassland on serpentinite soils, at elevations of 120-460 meters. Perennial evergreen shrub in the Rhamnaceae family; blooms January-May.	Unlikely No suitable habitat is present within the survey area and the survey area is outside the elevational range for this species. This species was not identified during the March 2023 survey.
<i>Centromadia parryi</i> ssp. <i>congdonii</i> Congdon's tarplant	-- / -- / 1B	Valley and foothill grassland on heavy clay, saline, or alkaline soils at elevations of 0-230 meters. Annual herb in the Asteraceae family; blooms May-November.	Unlikely No suitable habitat is present within the survey area. There is one CNDDDB occurrence of this species overlapping the survey area; however, this is a historical non-specific occurrence from 1909 reported as possibly extirpated.
<i>Chorizanthe pungens</i> var. <i>pungens</i> Monterey spineflower	FT / -- / 1B	Maritime chaparral, cismontane woodland, coastal dunes, coastal scrub, and valley and foothill grassland on sandy soils at elevations of 3-450 meters. Annual herb in the Polygonaceae family; blooms April-July.	Low Suitable habitat may be present within ruderal areas of the survey area; however, only marginally suitable soil conditions occur. The nearest CNDDDB occurrence is approximately two miles from the survey area.
<i>Chorizanthe robusta</i> var. <i>robusta</i> Robust spineflower	FE / -- / 1B	Openings in cismontane woodland, coastal dunes, maritime chaparral, and coastal scrub on sandy or gravelly soils at elevations of 3-300 meters. Annual herb in the Polygonaceae family; blooms April-September.	Low Suitable habitat may be present within ruderal areas of the survey area; however, only marginally suitable soil conditions occur. The nearest CNDDDB occurrence is approximately four miles from the survey area.
<i>Cirsium fontinale</i> var. <i>campylon</i> Mount Hamilton fountain thistle	-- / -- / 1B	Chaparral, cismontane woodland, and valley and foothill grassland on serpentinite seeps, at elevations of 100-890 meters. Perennial herb in the Asteraceae family; blooms February-October.	Not Present No suitable habitat is present within the survey area and this species was not identified during the March 2023 survey.

Species	Status (Service/CDFW/CNPS)	General Habitat	Potential Occurrence within Survey Area
<i>Cordylanthus rigidus</i> ssp. <i>littoralis</i> Seaside bird's-beak	-- / SE / 1B	Closed-cone coniferous forests, maritime chaparral, cismontane woodlands, coastal dunes, and coastal scrub on sandy soils, often on disturbed sites, at elevations of 0-425 meters. Annual hemi-parasitic herb in the Orobanchaceae family; blooms April-October.	Unlikely No suitable habitat is present within the survey area. The nearest CNDDDB occurrence is located approximately four miles from the survey area; however, this is a historical non-specific occurrence from 1930.
<i>Dudleya abramsii</i> ssp. <i>setchellii</i> Santa Clara Valley dudleya	-- / -- / 1B	Cismontane woodland and valley and foothill grasslands on rocky serpentinite soils, at elevations of 60-455 meters. Perennial herb in the Crassulaceae family; blooms April-October.	Unlikely No suitable habitat is present within the survey area. The nearest CNDDDB occurrence is located approximately 7.5 miles from the survey area.
<i>Ericameria fasciculata</i> Eastwood's goldenbush	-- / -- / 1B	Openings in closed-cone coniferous forest, maritime chaparral, coastal dunes, and coastal scrub on sandy soils at elevations of 30-275 meters. Evergreen shrub in the Asteraceae family; blooms July-October.	Unlikely No suitable habitat is present within the survey area. The nearest CNDDDB occurrence is located approximately ten miles from the survey area.
<i>Eriogonum nortonii</i> Pinnacles buckwheat	-- / -- / 1B	Chaparral and valley and foothill grassland on sandy soils, often on recent burns, at elevations of 300-975 meters. Annual herb in the Polygonaceae family; blooms May-September.	Unlikely No suitable habitat is present within the survey area. The survey area is outside the elevational range for this species.
<i>Eryngium aristulatum</i> var. <i>hooveri</i> Hoover's button-celery	-- / -- / 1B	Vernal pools at elevations of 3-45 meters. Annual/perennial herb in the Apiaceae family; blooms June-August.	Unlikely No suitable habitat within the survey area. The nearest CNDDDB occurrence is located approximately eight miles from the survey area.
<i>Erysimum ammodophilum</i> Sand-loving wallflower	-- / -- / 1B	Openings in maritime chaparral, coastal dunes, and coastal scrub on sandy soils at elevations of 0-60 meters. Perennial herb in the Brassicaceae family; blooms February-June.	Unlikely No suitable habitat is present within the survey area and this species was not identified during the March 2023 survey.
<i>Fritillaria liliacea</i> Fragrant fritillary	-- / -- / 1B	Cismontane woodland, coastal prairie, coastal scrub, and valley and foothill grassland, often serpentinite, at elevations of 3-410 meters. Bulbiferous perennial herb in the Liliaceae family; blooms February-April.	Unlikely No suitable habitat is present within the survey area and this species was not identified during the March 2023 survey.
<i>Gilia tenuiflora</i> ssp. <i>arenaria</i> Monterey gilia	FE / ST / 1B	Openings in maritime chaparral, cismontane woodland, coastal dunes, and coastal scrub on sandy soils at elevations of 0-45 meters. Annual herb in the Polemoniaceae family; blooms April-June.	Unlikely No suitable habitat is present within the survey area. The nearest CNDDDB occurrence is located approximately six miles from the survey area.
<i>Hoita strobilina</i> Loma Prieta hoita	-- / -- / 1B	Mesic areas of chaparral, cismontane woodland, and riparian woodland, usually on serpentinite soils, at elevations of 30-860 meters. Perennial herb in the Fabaceae family; blooms May-October.	Unlikely Suitable habitat is present in the riparian area within the survey area; however, suitable soil conditions do not occur.

Species	Status (Service/CDFW/CNPS)	General Habitat	Potential Occurrence within Survey Area
<i>Holocarpha macradenia</i> Santa Cruz tarplant	FT / SE / 1B	Coastal prairies and valley foothill grasslands, often clay or sandy soils, at elevations of 10-220 meters. Annual herb in the Asteraceae family; blooms June-October.	Unlikely No suitable habitat is present within the survey area. There are two CNDDDB occurrences within two miles of the survey area, both of which are reported as extirpated or possibly extirpated.
<i>Horkelia cuneata</i> var. <i>sericea</i> Kellogg's horkelia	-- / -- / 1B	Openings of closed-cone coniferous forests, maritime chaparral, coastal dunes, and coastal scrub on sandy or gravelly soils at elevations of 10-200 meters. Perennial herb in the Rosaceae family; blooms April-September.	Unlikely No suitable habitat is present within the survey area. There is one CNDDDB occurrence of this species within the quadrangles evaluated, located approximately five miles from the survey area.
<i>Legenere limosa</i> Legenere	-- / -- / 1B	Vernal pools and wetlands at elevations of 1-880 meters. Annual herb in the Campanulaceae family; blooms April- June.	Unlikely No suitable habitat is present within the survey area. There is one CNDDDB occurrence of this species within the quadrangles evaluated, located approximately 16.5 miles from the survey area.
<i>Lessingia micradenia</i> var. <i>glabrata</i> Smooth lessingia	-- / -- / 1B	Chaparral and cismontane woodlands on serpentinite soils, often on roadsides, at elevations of 120-420 meters. Annual herb in the Asteraceae family; blooms July-November.	Unlikely No suitable habitat is present within the survey area. The survey area is outside the elevational range for this species.
<i>Malacothamnus arcuatus</i> Arcuate bush-mallow	-- / -- / 1B	Chaparral and cismontane woodland at elevations of 15-355 meters. Perennial evergreen shrub in the Malvaceae family; blooms April-September.	Unlikely No suitable habitat is present within the survey area. The nearest CNDDDB occurrence is approximately eight miles from the survey area.
<i>Malacothamnus hallii</i> Hall's bushmallow	-- / -- / 1B	Chaparral and coastal scrub at elevations of 10-760 meters. Perennial evergreen shrub in the Malvaceae family; blooms May-October.	Unlikely No suitable habitat is present within the survey area.
<i>Monolopia gracilens</i> Woodland woollythreads	-- / -- / 1B	Openings of broadleaved upland forest, chaparral, cismontane woodland, North Coast coniferous forest, and valley and foothill grassland on serpentinite soils at elevations of 100-1200 meters. Annual herb in the Asteraceae family; blooms February-July.	Unlikely No suitable habitat is present within the survey area. The nearest CNDDDB occurrence is approximately 0.3 miles from the survey area; however, this is a historical non-specific occurrence from 1915.
<i>Pedicularis dudleyi</i> Dudley's lousewort	-- / SR / 1B	Maritime chaparral, cismontane woodland, North Coast coniferous forest, and valley and foothill grassland at elevations of 60-900 meters. Perennial herb in the Orbanaceae family; blooms April-June.	Unlikely No suitable habitat is present within the survey area. There is one CNDDDB occurrence of this species within the quadrangles evaluated, located approximately 8.5 miles from the survey area.
<i>Penstemon rattanii</i> var. <i>kleei</i> Santa Cruz Mountains beardtongue	-- / -- / 1B	Chaparral and lower montane and North Coast coniferous forests at elevations of 400-1100 meters. Perennial herb in the Plantaginaceae family; blooms May-June.	Unlikely No suitable habitat is present within the survey area. The survey area is outside the elevational range for this species.

Species	Status (Service/CDFW/CNPS)	General Habitat	Potential Occurrence within Survey Area
<i>Piperia yadonii</i> Yadon's rein orchid	FE / -- / 1B	Sandy soils in coastal bluff scrub, closed-cone coniferous forest, and maritime chaparral at elevations of 10-510 meters. Annual herb in the Orchidaceae family; blooms February-August.	Unlikely No suitable habitat is present within the survey area. The nearest CNDDDB occurrence is approximately four miles from the survey area.
<i>Plagiobothrys chorisianus</i> var. <i>chorisianus</i> Choris' popcorn-flower	-- / -- / 1B	Mesic areas of chaparral, coastal prairie, and coastal scrub at elevations of 15-160 meters. Annual herb in the Boraginaceae family; blooms March-June.	Unlikely No suitable habitat is present within the survey area. The nearest CNDDDB occurrence is approximately 3.2 miles from the survey area.
<i>Plagiobothrys diffusus</i> San Francisco popcorn-flower	-- / SE / 1B	Coastal prairie and valley and foothill grassland at elevations of 60-360 meters. Annual herb in the Boraginaceae family; blooms March-June.	Unlikely No suitable habitat is present within the survey area. The nearest CNDDDB occurrence is approximately 3.2 miles from the survey area.
<i>Puccinellia simplex</i> California alkali grass	-- / -- / 1B	Valley and foothill grasslands, chenopod scrub, meadows and seeps, and vernal pools. Found in alkaline, vernal mesic sinks, flats, and lake margins. Occurs at elevations of 2-930 meters. Annual herb in the Poaceae family; blooms March-May.	Unlikely No suitable habitat is present within the survey area. The nearest CNDDDB occurrence is approximately 6.7 miles from the survey area.
<i>Rosa pinetorum</i> Pine rose	-- / -- / 1B	Closed-cone coniferous forest at elevations of 2-300 meters. Perennial shrub in the Rosaceae family; blooms May-July. Possible hybrid of <i>R. spithamea</i> , <i>R. gymnocarpa</i> , or others; further study needed.	Unlikely No suitable habitat is present within the survey area. There is one CNDDDB occurrence of this species within the quadrangles reviewed, located approximately eight miles from the survey area.
<i>Streptanthus albidus</i> ssp. <i>peramoenus</i> Most beautiful jewel-flower	-- / -- / 1B	Chaparral, cismontane woodlands, and valley and foothill grasslands on serpentinite soils at elevations of 94-1000 meters. Annual herb in the Brassicaceae family; blooms March-October.	Unlikely No suitable habitat is present within the survey area. The nearest CNDDDB occurrence is approximately 6.5 miles from the survey area.
<i>Trifolium buckwestiorum</i> Santa Cruz clover	-- / -- / 1B	Gravelly margins of broadleaved upland forest, cismontane woodland, and coastal prairie at elevations of 105-610 meters. Annual herb in the Fabaceae family; blooms April-October.	Unlikely No suitable habitat is present within the survey area. The survey area is outside the elevational range for this species.
<i>Trifolium hydrophilum</i> Saline clover	-- / -- / 1B	Marshes and swamps, mesic and alkaline valley and foothill grassland, and vernal pools at elevations of 0-300 meters. Annual herb in the Fabaceae family; blooms April-June.	Unlikely No suitable habitat within the survey area. The nearest CNDDDB occurrence is approximately 6.7 miles from the survey area.

STATUS DEFINITIONS

Federal

FE = listed as Endangered under the federal Endangered Species Act

FT = listed as Threatened under the federal Endangered Species Act

FC = Candidate for listing under the federal Endangered Species Act

UR = Species that have been petitioned for listing under the ESA and for which a 90 day and/or 12 Month finding has not been published in the Federal Register, as well as species being reviewed through the candidate process but the CNOR has not yet been signed

-- = no listing

State

SE = listed as Endangered under the California Endangered Species Act

ST = listed as Threatened under the California Endangered Species Act

SC = Candidate for listing under California Endangered Species Act

SR = listed as Rare under the California Endangered Species Act

CFP = California Fully Protected Species

CSC = CDFW Species of Concern

-- = no listing

California Native Plant Society

1B = California Rare Plant Rank 1B species; plants rare, threatened, or endangered in California and elsewhere

2B = California Rare Plant Rank 2B species; plants rare, threatened, or endangered in California, but more common elsewhere

-- = no listing

POTENTIAL TO OCCUR

Present = known occurrence of species within the site; presence of suitable habitat conditions; or observed during field surveys

High = known occurrence of species in the vicinity from the CNDDB or other documentation; presence of suitable habitat conditions

Moderate = known occurrence of species in the vicinity from the CNDDB or other documentation; presence of marginal habitat conditions within the site

Low = species known to occur in the vicinity from the CNDDB or other documentation; lack of suitable habitat or poor quality

Unlikely = species not known to occur in the vicinity from the CNDDB or other documentation, no suitable habitat is present within the site

Not Present = species was not observed during surveys

APPENDIX B

California Natural Diversity Database Report



Selected Elements by Scientific Name

California Department of Fish and Wildlife

California Natural Diversity Database



Query Criteria: Quad (Loma Prieta (3712117) OR Mt. Madonna (3712116) OR Gilroy (3712115) OR Watsonville East (3612186) OR Watsonville West (3612187) OR Chittenden (3612185) OR Moss Landing (3612177) OR Prunedale (3612176) OR San Juan Bautista (3612175)) AND Taxonomic Group (Fish OR Amphibians OR Reptiles OR Birds OR Mammals OR Mollusks OR Arachnids OR Crustaceans OR Insects OR Ferns OR Gymnosperms OR Monocots OR Dicots OR Lichens OR Bryophytes)

Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
<i>Actinemys marmorata</i> northwestern pond turtle	ARAAD02031	Proposed Threatened	None	G2	SNR	SSC
<i>Adela oplerella</i> Opler's longhorn moth	IILEE0G040	None	None	G2	S2	
<i>Agelaius tricolor</i> tricolored blackbird	ABPBXB0020	None	Threatened	G3	S2	SSC
<i>Ambystoma californiense</i> pop. 1 California tiger salamander - central California DPS	AAAAA01181	Threatened	Threatened	G3T3	S3	WL
<i>Ambystoma macrodactylum croceum</i> Santa Cruz long-toed salamander	AAAAA01082	Endangered	Endangered	G5T1T2	S2	FP
<i>Anarhynchus nivosus nivosus</i> western snowy plover	ABNNB03031	Threatened	None	G3T3	S3	SSC
<i>Aneides niger</i> Santa Cruz black salamander	AAAAD01070	None	None	G2G3	S3	SSC
<i>Anniella pulchra</i> Northern California legless lizard	ARACC01020	None	None	G3	S2S3	SSC
<i>Antrozous pallidus</i> pallid bat	AMACC10010	None	None	G4	S3	SSC
<i>Aquila chrysaetos</i> golden eagle	ABNKC22010	None	None	G5	S3	FP
<i>Arctostaphylos andersonii</i> Anderson's manzanita	PDERI04030	None	None	G2	S2	1B.2
<i>Arctostaphylos hookeri</i> ssp. <i>hookeri</i> Hooker's manzanita	PDERI040J1	None	None	G3T2	S2	1B.2
<i>Arctostaphylos pajaricensis</i> Pajaro manzanita	PDERI04100	None	None	G1	S1	1B.1
<i>Asio flammeus</i> short-eared owl	ABNSB13040	None	None	G5	S2	SSC
<i>Astur cooperii</i> Cooper's hawk	ABNKC12040	None	None	G5	S4	WL
<i>Athene cunicularia</i> burrowing owl	ABNSB10010	None	Candidate Endangered	G4	S2	SSC
<i>Balsamorhiza macrolepis</i> big-scale balsamroot	PDAST11061	None	None	G2	S2	1B.2



Selected Elements by Scientific Name
California Department of Fish and Wildlife
California Natural Diversity Database



Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
<i>Bombus caliginosus</i> obscure bumble bee	IIHYM24380	None	None	G2G3	S1S2	
<i>Bombus crotchii</i> Crotch's bumble bee	IIHYM24480	None	Candidate Endangered	G2	S2	
<i>Bombus occidentalis</i> western bumble bee	IIHYM24252	None	Candidate Endangered	G3	S1	
<i>Bombus pensylvanicus</i> American bumble bee	IIHYM24260	None	None	G3G4	S2	
<i>Calyptridium parryi</i> var. <i>hesseae</i> Santa Cruz Mountains pussypaws	PDPOR09052	None	None	G3G4T2	S2	1B.1
<i>Castilleja rubicundula</i> var. <i>rubicundula</i> pink creamsacs	PDSCR0D482	None	None	G5T2	S2	1B.2
<i>Ceanothus ferrisiae</i> Coyote ceanothus	PDRHA041N0	Endangered	None	G1	S1	1B.1
<i>Centromadia parryi</i> ssp. <i>congdonii</i> Congdon's tarplant	PDAST4R0P1	None	None	G3T2	S2	1B.1
<i>Chorizanthe pungens</i> var. <i>pungens</i> Monterey spineflower	PDPGN040M2	Threatened	None	G2T2	S2	1B.2
<i>Chorizanthe robusta</i> var. <i>robusta</i> robust spineflower	PDPGN040Q2	Endangered	None	G2T1	S1	1B.1
<i>Cirsium fontinale</i> var. <i>campylon</i> Mt. Hamilton thistle	PDAST2E163	None	None	G2T2	S2	1B.2
<i>Clarkia concinna</i> ssp. <i>automixa</i> Santa Clara red ribbons	PDONA050A1	None	None	G5?T3	S3	4.3
<i>Coelus globosus</i> globose dune beetle	IICOL4A010	None	None	G1G2	S1S2	
<i>Cordylanthus rigidus</i> ssp. <i>littoralis</i> seaside bird's-beak	PDSCR0J0P2	None	Endangered	G5T2	S2	1B.1
<i>Corynorhinus townsendii</i> Townsend's big-eared bat	AMACC08010	None	None	G4	S2	SSC
<i>Danaus plexippus plexippus</i> pop. 1 monarch - California overwintering population	IILEPP2012	Proposed Threatened	None	G4T1T2Q	S2	
<i>Dicamptodon ensatus</i> California giant salamander	AAAAH01020	None	None	G3	S2S3	SSC
<i>Dipodomys venustus venustus</i> Santa Cruz kangaroo rat	AMAFD03042	None	None	G2T1	S1	
<i>Dudleya abramsii</i> ssp. <i>setchellii</i> Santa Clara Valley dudleya	PDCRA040Z0	Endangered	None	G4T2	S2	1B.1
<i>Elanus leucurus</i> white-tailed kite	ABNKC06010	None	None	G5	S3S4	FP
<i>Ericameria fasciculata</i> Eastwood's goldenbush	PDAST3L080	None	None	G2	S2	1B.1



Selected Elements by Scientific Name
California Department of Fish and Wildlife
California Natural Diversity Database



Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
<i>Eriogonum nortonii</i> Pinnacles buckwheat	PDPGN08470	None	None	G2	S2	1B.3
<i>Eryngium aristulatum</i> var. <i>hooveri</i> Hoover's button-celery	PDAP10Z043	None	None	G5T1	S1	1B.1
<i>Erysimum ammophilum</i> sand-loving wallflower	PDBRA16010	None	None	G2	S2	1B.2
<i>Eucyclogobius newberryi</i> tidewater goby	AFCQN04010	Endangered	None	G3	S3	SSC
<i>Euphilotes enoptes smithi</i> Smith's blue butterfly	IILEPG2026	Endangered	None	G5T2	S2	
<i>Euphydryas editha bayensis</i> Bay checkerspot butterfly	IILEPK4055	Threatened	None	G4G5T1	S3	
<i>Falco peregrinus anatum</i> American peregrine falcon	ABNKD06071	Delisted	Delisted	G4T4	S3S4	
<i>Fritillaria liliacea</i> fragrant fritillary	PML1L0V0C0	None	None	G2	S2	1B.2
<i>Gilia tenuiflora</i> ssp. <i>arenaria</i> Monterey gilia	PDPLM041P2	Endangered	Threatened	G3G4T2	S2	1B.2
<i>Gonidea angulata</i> western ridged mussel	IMBIV19010	None	None	G3	S2	
<i>Helminthoglypta sequoicola consors</i> redwood shoulderband	IMGASC2421	None	None	G2T1	S1	
<i>Hesperoleucus venustus subditus</i> southern coastal roach	AFCJB19032	None	None	GNRT2	S2	SSC
<i>Hoita strobilina</i> Loma Prieta hoita	PDFAB5Z030	None	None	G2?	S2?	1B.1
<i>Holocarpha macradenia</i> Santa Cruz tarplant	PDAST4X020	Threatened	Endangered	G1	S1	1B.1
<i>Horkelia cuneata</i> var. <i>sericea</i> Kellogg's horkelia	PDROS0W043	None	None	G4T1?	S1?	1B.1
<i>Lasiurus cinereus</i> hoary bat	AMACC05032	None	None	G3G4	S4	
<i>Lavinia exilicauda harengus</i> Monterey hitch	AFCJB19013	None	None	G4T3	S3	SSC
<i>Legenere limosa</i> legenere	PDCAM0C010	None	None	G2	S2	1B.1
<i>Lessingia micradenia</i> var. <i>glabrata</i> smooth lessingia	PDAST5S062	None	None	G2T2	S2	1B.2
<i>Malacothamnus arcuatus</i> var. <i>arcuatus</i> arcuate bushmallow	PDMAL0Q0E0	None	None	GNRT2	S2	1B.2
<i>Malacothamnus hallii</i> Hall's bushmallow	PDMAL0Q0F0	None	None	G2	S2	1B.2



Selected Elements by Scientific Name

California Department of Fish and Wildlife

California Natural Diversity Database



Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
<i>Microtus californicus halophilus</i> Monterey vole	AMAFF11036	None	None	G5T1	S2	
<i>Monolopia gracilens</i> woodland woollythreads	PDAST6G010	None	None	G3	S3	1B.2
<i>Oncorhynchus mykiss irideus pop. 8</i> steelhead - central California coast DPS	AFCHA0209G	Threatened	None	G5T3Q	S3	SSC
<i>Oncorhynchus mykiss irideus pop. 9</i> steelhead - south-central California coast DPS	AFCHA0209H	Threatened	None	G5T2Q	S2	SSC
<i>Optioservus canus</i> Pinnacles optioservus riffle beetle	IICOL5E020	None	None	G2	S1	
<i>Pedicularis dudleyi</i> Dudley's lousewort	PDSCR1K180	None	Rare	G2	S2	1B.2
<i>Penstemon rattanii var. kleei</i> Santa Cruz Mountains beardtongue	PDSCR1L5B1	None	None	G4T2	S2	1B.2
<i>Phrynosoma blainvillii</i> coast horned lizard	ARACF12100	None	None	G4	S4	SSC
<i>Piperia yadonii</i> Yadon's rein orchid	PMORC1X070	Endangered	None	G1	S1	1B.1
<i>Plagiobothrys chorisianus var. chorisianus</i> Choris' popcornflower	PDBOR0V061	None	None	G3T1Q	S1	1B.2
<i>Plagiobothrys diffusus</i> San Francisco popcornflower	PDBOR0V080	None	Endangered	G1Q	S1	1B.1
<i>Puccinellia simplex</i> California alkali grass	PMPOA53110	None	None	G2	S2	1B.2
<i>Rallus obsoletus obsoletus</i> California Ridgway's rail	ABNME05011	Endangered	Endangered	G3T1	S2	FP
<i>Rana boylei pop. 4</i> foothill yellow-legged frog - central coast DPS	AAABH01054	Threatened	Endangered	G3T2	S2	
<i>Rana draytonii</i> California red-legged frog	AAABH01022	Threatened	None	G2G3	S2S3	SSC
<i>Reithrodontomys megalotis distichlis</i> Salinas harvest mouse	AMAFF02032	None	None	G5T1	S2	
<i>Riparia riparia</i> bank swallow	ABPAU08010	None	Threatened	G5	S3	
<i>Rosa pinetorum</i> pine rose	PDROS1J0W0	None	None	G1Q	S1	1B.2
<i>Sorex ornatus salarius</i> Monterey shrew	AMABA01105	None	None	G5T1T2	S1S2	SSC
<i>Sorex vagrans paludivagus</i> Monterey vagrant shrew	AMABA01072	None	None	G5T1	S2	
<i>Spirinchus thaleichthys</i> longfin smelt	AFCHB03010	None	Threatened	G5	S1	



Selected Elements by Scientific Name
California Department of Fish and Wildlife
California Natural Diversity Database



Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
<i>Streptanthus albidus ssp. peramoenus</i> most beautiful jewelflower	PDBRA2G012	None	None	G2T2	S2	1B.2
<i>Taricha torosa</i> Coast Range newt	AAAAF02032	None	None	G4	S4	SSC
<i>Taxidea taxus</i> American badger	AMAJF04010	None	None	G5	S3	SSC
<i>Trifolium buckwestiorum</i> Santa Cruz clover	PDFAB402W0	None	None	G2	S2	1B.1
<i>Trifolium hydrophilum</i> saline clover	PDFAB400R5	None	None	G2	S2	1B.2
<i>Tryonia imitator</i> mimic tryonia (=California brackishwater snail)	IMGASJ7040	None	None	G2	S2	
<i>Vireo bellii pusillus</i> least Bell's vireo	ABPBW01114	Endangered	Endangered	G5T2	S3	

Record Count: 87

Appendix C

Crestwood Heights Water
Association Water System
Consolidation Project
CalEEMod Summary Report

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Crestwood Heights Water Association Water System Consolidation Project Summary Report

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1. Basic Project Information

1.1. Basic Project Information

Data Field	Value
Project Name	Crestwood Heights Water Association Water System Consolidation Project
Construction Start Date	6/1/2024
Lead Agency	City of Watsonville
Land Use Scale	Project/site
Analysis Level for Defaults	County
Windspeed (m/s)	1.80
Precipitation (days)	37.2
Location	36.925516078079184, -121.73275224214572
County	Santa Cruz
City	Unincorporated
Air District	Monterey Bay ARD
Air Basin	North Central Coast
TAZ	3126
EDFZ	6
Electric Utility	Pacific Gas & Electric Company
Gas Utility	Pacific Gas & Electric
App Version	2022.1.1.21

1.2. Land Use Types

Land Use Subtype	Size	Unit	Lot Acreage	Building Area (sq ft)	Landscape Area (sq ft)	Special Landscape Area (sq ft)	Population	Description
User Defined Linear	1.33	Mile	0.65	0.00	0.00	—	118	—

1.3. User-Selected Emission Reduction Measures by Emissions Sector

Sector	#	Measure Title
Construction	C-1-B	Use Cleaner-Fuel Equipment
Construction	C-2*	Limit Heavy-Duty Diesel Vehicle Idling
Construction	C-4*	Use Local and Sustainable Building Materials
Construction	C-5	Use Advanced Engine Tiers
Construction	C-6	Use Diesel Particulate Filters

* Qualitative or supporting measure. Emission reductions not included in the mitigated emissions results.

2. Emissions Summary

2.1. Construction Emissions Compared Against Thresholds

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

Un/Mit.	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	2.20	1.64	14.9	19.7	0.05	0.48	92.8	93.3	0.44	9.42	9.86	—	5,790	5,790	0.39	0.52	7.49	5,962
Mit.	2.20	1.64	14.9	19.7	0.05	0.48	92.8	93.3	0.44	9.42	9.86	—	5,790	5,790	0.39	0.52	7.49	5,962
% Reduced	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	1.39	1.02	9.66	12.7	0.03	0.30	61.9	62.2	0.27	6.28	6.56	—	3,781	3,781	0.26	0.35	0.13	3,890
Mit.	1.39	1.02	9.66	12.7	0.03	0.30	61.9	62.2	0.27	6.28	6.56	—	3,781	3,781	0.26	0.35	0.13	3,890
% Reduced	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Average Daily (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	0.35	0.26	2.55	3.09	0.01	0.07	15.6	15.7	0.07	1.59	1.66	—	988	988	0.07	0.10	0.60	1,019
Mit.	0.35	0.26	2.55	3.09	0.01	0.07	15.6	15.7	0.07	1.59	1.66	—	988	988	0.07	0.10	0.60	1,019
% Reduced	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	0.06	0.05	0.47	0.56	< 0.005	0.01	2.85	2.86	0.01	0.29	0.30	—	164	164	0.01	0.02	0.10	169
Mit.	0.06	0.05	0.47	0.56	< 0.005	0.01	2.85	2.86	0.01	0.29	0.30	—	164	164	0.01	0.02	0.10	169
% Reduced	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

6. Climate Risk Detailed Report

6.2. Initial Climate Risk Scores

Climate Hazard	Exposure Score	Sensitivity Score	Adaptive Capacity Score	Vulnerability Score
Temperature and Extreme Heat	N/A	N/A	N/A	N/A
Extreme Precipitation	N/A	N/A	N/A	N/A
Sea Level Rise	N/A	N/A	N/A	N/A
Wildfire	N/A	N/A	N/A	N/A
Flooding	N/A	N/A	N/A	N/A
Drought	N/A	N/A	N/A	N/A
Snowpack Reduction	N/A	N/A	N/A	N/A
Air Quality Degradation	N/A	N/A	N/A	N/A

The sensitivity score reflects the extent to which a project would be adversely affected by exposure to a climate hazard. Exposure is rated on a scale of 1 to 5, with a score of 5 representing the greatest exposure.

The adaptive capacity of a project refers to its ability to manage and reduce vulnerabilities from projected climate hazards. Adaptive capacity is rated on a scale of 1 to 5, with a score of 5 representing the greatest ability to adapt.

The overall vulnerability scores are calculated based on the potential impacts and adaptive capacity assessments for each hazard. Scores do not include implementation of climate risk reduction measures.

6.3. Adjusted Climate Risk Scores

Climate Hazard	Exposure Score	Sensitivity Score	Adaptive Capacity Score	Vulnerability Score
Temperature and Extreme Heat	N/A	N/A	N/A	N/A
Extreme Precipitation	N/A	N/A	N/A	N/A
Sea Level Rise	N/A	N/A	N/A	N/A
Wildfire	N/A	N/A	N/A	N/A
Flooding	N/A	N/A	N/A	N/A
Drought	N/A	N/A	N/A	N/A
Snowpack Reduction	N/A	N/A	N/A	N/A
Air Quality Degradation	N/A	N/A	N/A	N/A

The sensitivity score reflects the extent to which a project would be adversely affected by exposure to a climate hazard. Exposure is rated on a scale of 1 to 5, with a score of 5 representing the greatest exposure.

The adaptive capacity of a project refers to its ability to manage and reduce vulnerabilities from projected climate hazards. Adaptive capacity is rated on a scale of 1 to 5, with a score of 5 representing the greatest ability to adapt.

The overall vulnerability scores are calculated based on the potential impacts and adaptive capacity assessments for each hazard. Scores include implementation of climate risk reduction measures.

7. Health and Equity Details

7.3. Overall Health & Equity Scores

Metric	Result for Project Census Tract
CalEnviroScreen 4.0 Score for Project Location (a)	19.0
Healthy Places Index Score for Project Location (b)	34.0
Project Located in a Designated Disadvantaged Community (Senate Bill 535)	No
Project Located in a Low-Income Community (Assembly Bill 1550)	Yes
Project Located in a Community Air Protection Program Community (Assembly Bill 617)	No

a: The maximum CalEnviroScreen score is 100. A high score (i.e., greater than 50) reflects a higher pollution burden compared to other census tracts in the state.

b: The maximum Health Places Index score is 100. A high score (i.e., greater than 50) reflects healthier community conditions compared to other census tracts in the state.

7.5. Evaluation Scorecard

Health & Equity Evaluation Scorecard not completed.

Appendix D

Crestwood Heights Water Association System Consolidation Geotechnical Exploration Report

The full text of this appendix is not included in this online copy of the IS/MND due to certain content within the files not meeting Web Content and Accessibility (WCAG) guidelines. This online version of the IS/MND has been formatted to comply with the Governor's Office of Land Use and Climate Innovation (LCI) guidance (formerly the California Office of Planning and Research) for required accessibility measures for public review.

For a full copy of the appendix, please reach out to the City of Watsonville via email at danielle.green@watsonville.gov.

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**CRESTWOOD HEIGHTS WATER ASSOCIATION SYSTEM
CONSOLIDATION
WATSONVILLE, CALIFORNIA**

GEOTECHNICAL EXPLORATION

SUBMITTED TO

Mr. Nick Panofsky, PE
MNS Engineers, Inc.
811 El Capitan Way #130
San Luis Obispo, CA 93401

**PREPARED BY
ENGEO Incorporated**

May 11, 2023

**PROJECT NO.
22333.000.001**

Project No.
22333.000.001

May 11, 2023

Mr. Nick Panofsky, PE
MNS Engineers, Inc.
811 El Capitan Way #130
San Luis Obispo, CA 93401

Subject: Crestwood Heights Water Association System Consolidation
Watsonville, California

GEOTECHNICAL EXPLORATION

Dear Mr. Panofsky:

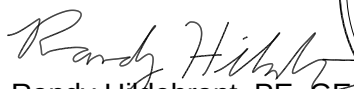
ENGEO prepared this geotechnical exploration report for the proposed Crestwood Heights Water Association (CHWA) - System Consolidation project located in Watsonville, California. We characterized the subsurface conditions at the site to provide geotechnical recommendations for planning, design, and construction. The accompanying report contains the findings of our recent exploration, and our conclusions and recommendations regarding the geotechnical aspects of the project.

The findings of our geotechnical exploration indicate that the site is suitable for the proposed project provided that the recommendations contained in this report are incorporated into planning, design and implemented during construction. The main geotechnical considerations for the project include presence existing asphalt pavements underlain by some layers of loose sand, presence of shallow groundwater, potential seismic induced settlement, and corrosion potential of soil in the pipeline zone.

Our experience and that of our profession clearly indicate that inherent risks associated with design, construction, and maintenance may be significantly lowered by using design geotechnical engineering firm to review the project plans, specifications and provide geotechnical observation and testing services during construction. We are pleased to have been of service to you on this project and are prepared to consult further with you and your design team as the project progresses.

Sincerely,

ENGEO Incorporated


Randy Hildebrant, PE, GE
Associate


Aryan Noroozi, EIT
Staff Engineer
rh/an/tpb/cjn



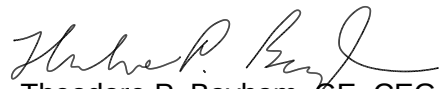

Theodore P. Bayham, GE, CEG
Principal

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1.0 INTRODUCTION

1.1 PURPOSE AND SCOPE

We prepared this geotechnical report for planning and design for the Crestwood Heights Water Association (CHWA) – System Consolidation project in Watsonville, California. The purpose of our study is to characterize subsurface conditions to provide conclusions and recommendations for proposed improvements. We prepared this report as outlined in our proposal dated December 29, 2022. MNS Engineers, Inc. authorized ENGEO to conduct the following scope of services.

- Reviewing available literature and geologic maps
- Performing eight soil borings
- Laboratory testing of materials
- Analyzing the geotechnical data
- Reporting our findings and recommendations

This report was prepared for the exclusive use of our client and their consultants for the design of this project. If any changes are made in the character, design, or layout of the development, we must be contacted to review the conclusions and recommendations contained in this report to evaluate whether modifications are recommended. This document may not be reproduced in whole or in part by any means whatsoever, nor may it be quoted or excerpted without our express written consent.

1.2 PROJECT LOCATION AND DESCRIPTION

As shown in the Vicinity Map (Figure 1), the new waterline will be constructed within the Crestwood Heights neighborhood and traverse within Lakeview Road from about Parkview Drive to Highway 129. According to the Draft Engineering Report dated December 7, 2022, prepared by MNS Engineers, Inc., the project consists of about 7,000 feet of 8-inch cement mortar-lined and epoxy-zinc-coated ductile iron pipe. We understand that the new waterline is planned to be less than 5 feet from the existing grade. Also, the project involves decommissioning two municipal supply wells.

2.0 FINDINGS

2.1 GEOLOGY AND FAULTING

Regional geologic mapping in the project vicinity is shown in Figure 3. The geologic mapping, prepared by Dibblee et al. (2006), indicates that the project alignment traverses through Quaternary alluvial deposits including Holocene surficial sediments (Qa) and Pleistocene older surficial sediments (Qoa). According to Dibblee et al., the Holocene surficial sediments (Qa) consist of alluvial pebble gravel, sand, and clay deposits. The Pleistocene older surficial deposits (Qoa) are described as dissected alluvial deposits consisting of mainly pebble gravel and sand.

Surficial geologic mapping (Figure 4) by Durpe et al. (1975) shows that the project is underlain by Holocene basin deposits (Qb) and alluvial deposits (Qal). The basin deposits (Qb) can be characterized by organic-rich clay and silty clay with locally interbedded thin layers of silt and silty

sand; however, the alluvial deposits (Qal) are characterized by unconsolidated, heterogeneous, moderately sorted silt and sand with lenses of clay and silty clay.

The site is not located within a currently designated Alquist-Priolo Earthquake Fault Zone and no known surface expression of active faults is believed to exist within the site. Fault rupture through the site, therefore, is not anticipated. The United States Geological Survey (USGS) Quaternary Faults and Folders database maps the Zayante-Vergeles fault zone generally trending from the northwest to the southeast through the Crestwood Heights neighborhood and across Lakeview Road. USGS considers the fault as late Quaternary and not active.

Numerous small earthquakes occur every year in the San Francisco Bay Region, and larger earthquakes have been recorded and can be expected to occur in the future. To determine nearby active faults that can generate strong seismic ground shaking at the site, we utilized the USGS Unified Hazard Tool* and deaggregated the hazard at the peak ground acceleration (PGA) for 2475-year return period, with the resulting faults listed below in Table 2.1-1.

TABLE 2.1-1: Active Faults Capable of Producing Significant Ground Shaking at the Site

SOURCE	R _{RUP}		MOMENT MAGNITUDE M _w
	(KM)	(MILES)	
San Andreas (Santa Cruz Mts) [5]	4.89	3.04	7.40
San Andreas (Santa Cruz Mts) [5]	4.89	3.04	7.38

*USGS Unified Hazard Tool - Edition: Dynamic Conterminous U.S. 2014 (update) (v4.2.0)

Latitude: 36.925336, **Longitude:** -121.732686

2.2 FIELD EXPLORATION

To characterize the subsurface conditions at the site, we advanced eight borings at the locations shown on the Site Plan in Figure 2. The borings were performed on April 6 and 7, 2023. Approximate ground surface elevations at exploration locations and the total exploration depths are summarized in Table 2.2-1. Exploration details are provided in the following sections. Elevations were obtained from Google Earth and should be considered approximate.

TABLE 2.2-1: Exploration Summary

EXPLORATION IDENTIFICATION	EXPLORATION METHOD	APPROXIMATE SURFACE ELEVATION (feet, WGS84)	MAXIMUM DEPTH (feet)
1-B1	Solid-Flight-Auger	77	16½
1-B2	Hollow-Stem-Auger	70	15
1-B3	Hollow-Stem-Auger	55	18½
1-B4	Hollow-Stem-Auger	53	15½
1-B5	Hollow-Stem-Auger	47	12½
1-B6	Hollow-Stem-Auger	42	14½
1-B7	Solid-Flight-Auger	66	11½
1-B8	Solid-Flight-Auger	58	15½

2.2.1 Borings

A representative from our firm observed the drilling and logged the subsurface conditions at boring locations. We retained the services of Britton Exploration to advance the borings with a CME 55 track-mounted drill rig using solid-flight-auger and hollow-stem-auger methods to depths ranging from 11½ to 18½ feet below existing ground surface (bgs). We obtained the necessary Encroachment permit from the County of Santa Cruz for our boring exploration.

We collected select soil samples using a 2½-inch inside diameter (I.D.) California-type split-spoon sampler fitted with 6-inch-long stainless-steel liners, or a 2-inch outside diameter (O.D.) standard penetration test (SPT) split-spoon sampler. We recorded the penetration of the sampler into the subsurface material as the number of blow counts needed to drive the sampler 18 inches in 6-inch increments with a 140-pound hammer through a 30-inch free-fall employing an automatic trip system. Unless otherwise indicated, the blows per foot recorded on the boring logs represent the accumulated number of blows to drive the last 1 foot of penetration; the blow counts have not been converted using any correction factors.

The boring logs are presented in Appendix A. The logs depict subsurface conditions at the exploration locations for the date of exploration; however, subsurface conditions may vary with time.

2.3 LABORATORY TESTING

Selected samples recovered during our field exploration were tested to determine the following soil characteristics.

TABLE 2.3-1: Laboratory Testing

CHARACTERISTIC	TEST METHOD
Moisture Content	ASTM D2216
Moisture Content and Unit Weight	ASTM D7263
Plasticity Index	ASTM D4318
Particle Size Distribution	ASTM D1140
Unconfined Compression	ASTM D2166

Laboratory test results from samples recovered are included on the associated boring log and in Appendix B.

2.4 SUBSURFACE CONDITIONS

Our borings encountered soil deposits, classified as alluvial and basin deposits, generally consisting of interlayers of lean clay, silt, and sand. The lean clay varies in sand content and ranges from medium stiff to hard in consistency. The silt is generally medium stiff to stiff, and sand ranges from very loose to medium dense. The sand is composed of poorly graded sand, silty sand, and clayey sand.

Borings 1-B2, 1-B3, 1-B4, 1-B5, 1-B6, and 1-B8 encountered loose sand within the upper 5 feet. Stiffness was generally correlated with field pocket pen test results, and density of granular layers using blow counts.

Refer to the Site Plan and exploration logs for specific subsurface conditions at each location. The logs contain the soil, color, consistency, and visual classification in general accordance with the Unified Soil Classification System. The logs graphically depict the subsurface.

2.5 GROUNDWATER CONDITIONS

Table 2.5-1 presents the measured depth to free groundwater encountered in our borings at the time of drilling.

TABLE 2.5-1: Groundwater Depth Observed During Drilling

EXPLORATION LOCATION	GROUNDWATER DEPTH OBSERVED DURING DRILLING (feet)
1-B3	16
1-B4	12
1-B5	10
1-B6	4
1-B7	8

It should be noted that the groundwater levels encountered in our borings generally correspond with relatively shallow water levels measured in nearby monitoring wells. Fluctuations in the level of groundwater should be expected because of variations in rainfall, irrigation practice, and other factors not evident at the time measurements were made.

2.6 SURFACE CONDITIONS

The alignment of the proposed pipeline is generally covered by existing asphalt pavement with areas of landscape having light to moderate growth of grasses, and some unpaved bare soil areas on the shoulder of Lakeview Road with clay, sand, and gravel.

3.0 CONCLUSIONS

The findings of our geotechnical exploration indicate that the site is suitable for the proposed project provided that the recommendations contained in this report are incorporated into planning, design and implemented during construction. The main geotechnical considerations for the project include presence existing pavement underlain by some layers of loose sand, presence of shallow groundwater, and corrosion potential of soil in the pipeline zone.

3.1 SHALLOW GROUNDWATER

We encountered shallow groundwater within some of our exploration locations, as previously discussed. Utility trenches greater than 4 feet may encounter groundwater, and soft subgrade conditions may be encountered above 4 feet.

It should be noted that the groundwater depths encountered during our exploration reflect the conditions that existed at the time of our exploration. Groundwater elevations may fluctuate with time based on rainfall, irrigation practices, leaking water transmission pipelines, and other conditions not apparent at the time of our exploration.

3.2 LIQUEFACTION HAZARD

Soil liquefaction results from loss of strength during cyclic loading, such as imposed by earthquakes. Soil most susceptible to liquefaction is clean, loose, saturated, uniformly graded, fine sand of Holocene age. Based on the observed shallow depth to groundwater and presence of loose sand with low blow counts, it is our opinion that there is moderate to high potential for liquefaction at the site during seismic shaking. If liquefaction occurs, some seismic-induced settlements are possible which may affect site improvements and areas along alignment. If further evaluation of liquefaction and potential adverse effect this would require further field exploration and evaluation which is beyond our current beyond the scope of services for this project.

3.3 SOIL CORROSION POTENTIAL

As part of this study, we obtained representative soil samples from select borings and submitted the sample to a qualified analytical lab for the determination of redox, pH, resistivity, sulfate, and chloride. The results are included in Appendix C and are summarized below.

TABLE 3.3-1: Corrosivity Test Results

SAMPLE LOCATION	DEPTH (feet)	REDOX (mV)	PH	RESISTIVITY (ohms cm)	CHLORIDE (ppm)	SULFATE (ppm)
1-B1	3.5	380	7.24	860	18	110
1-B4	3.5	330	7.48	2,200	N.D.	28
1-B6	3	270	7.68	870	N.D.	840
1-B8	3.5	310	7.78	11,000	N.D.	N.D.

N.D. – None Detected

According to CERCO Analytical, based on the resistivity measurements, samples collected from 1-B1 and 1-B6 are classified “Corrosive”, 1-B4 is classified as “moderately corrosive”, and 1-B8 is classified as “mildly corrosive”. All buried iron, steel, cast iron, ductile iron, galvanized steel and dielectric coated steel or iron should be properly protected against corrosion depending upon the critical nature of the structure. All buried metallic pressure piping such as ductile iron firewater pipeline should be protected against corrosion.

The chloride ion concentrations ranged from none detected to 18 mg/kg and were determined to be insufficient to attack steel embedded in a concrete mortar coating.

The sulfate ion concentrations ranged from none detected to 840 mg/kg and were determined to be sufficient to potentially be detrimental to reinforced concrete structures and cement mortar-coated steel at these locations. Concrete that comes into contact with soil should use sulfate resistant cement such as Type II, with a maximum water-to-cement ratio of 0.55.

The pH of the soil ranged from 7.24 to 7.78, which does not present corrosion problems for buried iron, steel, mortar-coated steel, and reinforced concrete structures.

The redox potentials range from 270 to 380 mV. All samples are indicative of potentially “slightly corrosive” soil resulting from anaerobic soil conditions.

A corrosion consultant should be retained to evaluate if specific corrosion recommendations are advised for the project.

4.0 PIPELINE DESIGN RECOMMENDATIONS

4.1 DESIGN GROUNDWATER LEVEL AND BUOYANCY

Based on the exploration locations performed for this study, the groundwater level ranges between 4 and 16 feet below the ground surface. We recommended underground utilities and structures be designed assuming a groundwater depth of 4 feet below the existing grade. Buoyancy should be incorporated into the design and construction.

4.2 THRUST BLOCK AND RESTRAINED LENGTHS

Thrust blocks or restrained joints are used to resist thrust forces that occur in pipelines when the pipeline changes direction, changes sizes, or stops. A thrust block may be constructed between the fitting and the undisturbed side or bottom of the trench. Thrust blocks should consider pipeline loads over a bearing area, without exceeding the bearing capacity of the soil or causing excessive movement.

An alternative method of providing thrust restraint is the use of restrained joints. Restrained joint systems function in a manner like thrust blocks, as the reaction of the entire restrained unit of piping with the soil balances the thrust forces. The objective in designing a joint thrust restraint system is to determine the length of pipe that should be restrained on each side of the focus of a thrust force. Based on our analysis, we estimate the strain to be about ½-inch for the provided passive resistances.

TABLE 4.2-1: Lateral Earth Pressures

CONDITION RELATIVE TO GROUNDWATER LEVEL	EFFECTIVE UNIT WEIGHT (pcf)	PASSIVE RESISTANCE (pcf)
Above	120	300
Below	58	145

A coefficient of friction of 0.30 may be used for the joint restraint design.

5.0 CONSTRUCTION RECOMMENDATIONS

The design team may consider the following guidelines in developing the Project's backfill specifications. The relative compaction and optimum moisture content of soil and aggregate base referred to in this report are based on the most recent ASTM D1557 test method. Compacted soil is not acceptable if it is unstable. It should exhibit only minimal flexing or pumping, as observed by our field representative. The term "moisture condition" refers to adjusting the moisture content of the soil by either drying if too wet or adding water if too dry.

5.1 OVER-OPTIMUM SOIL MOISTURE CONDITIONS

The contractor should anticipate encountering excessively over-optimum (wet) soil moisture conditions during winter or spring grading, or during or following periods of rain. In addition, wet soil conditions may be found in excavations. Wet soil can make proper compaction difficult or impossible. Wet soil conditions can be mitigated by:

1. Frequent spreading and mixing during warm dry weather.

2. Mixing with drier materials.
3. Mixing with a lime, lime-flyash, or cement product; or
4. Stabilizing with aggregate or geotextile stabilization fabric, or both.

Options 3 and 4 should be evaluated by ENGEO prior to implementation.

5.2 SELECTION OF MATERIALS AND FILL COMPACTION

The County of Santa Cruz Design Criteria December 2022 Edition Trench Section Figure EP-1, included as Figure 5 attached to the report, includes details on backfill material and compaction which generally consist of cement/sand slurry or sand bedding. Note 5 states that the backfill zone outside of roadways may use engineered fill in lieu of slurry.

We recommend the sand bedding consist of fine- to medium-grained sand or a well-graded mixture of sand and gravel, and that this material not be used within 1 foot of finish grades. In general, uniformly graded gravel should not be used for pipe or trench zone backfill due to the potential for migration of (1) soil into the relatively large void spaces present in this type of material, and (2) water along trenches backfilled with this type of material.

The Geotechnical Engineer's representative should be present during backfill operations. Fill should be placed in thin compacted lifts that do not exceed 8 inches or the depth of penetration of the compaction equipment used, whichever is less. The following a minimum recommended compaction specifications for various backfill materials:

TABLE 5.2-1: Compaction and Moisture Content Requirements Outside Existing Roadways

BACKFILL DESCRIPTION	MINIMUM RELATIVE COMPACTION (%)	MINIMUM MOISTURE CONTENT (percentage points above optimum moisture content)
General Fill Comprised of On-Site Soil	90	3
Import Non-Expansive Select Fill	90	0
Class 2 Aggregate Base	95	0

The contractor is responsible for conducting trenching and shoring in accordance with Cal/OSHA requirements. Jetting of backfill is not an acceptable means of compaction.

5.3 DEWATERING CONSIDERATIONS

Free groundwater may be encountered where excavations extend below depths where water was encountered in our exploratory borings. As such, the use of temporary dewatering measures may be necessary during utility excavations. Depending upon environmental permitting requirements, it may or may not be possible to discharge collected groundwater to the storm drain system. Additional sampling and testing of the groundwater may be required to obtain the appropriate discharge permit. Environmentally impacted groundwater may require discharge at an off-site facility.

In general, the water level should be maintained at least two feet below the bottom of excavations prior to and continuously during shoring installation and the construction process. The selection of equipment and method should be determined by the contractor. The dewatering system implemented should be selected, such that minimal impact on the groundwater level surrounding

the proposed excavations. In addition, the dewatering system should be designed to prevent pumping soil fines with the discharge water. Uncontrolled dewatering may cause settlement of the general area and may affect existing structures near the site.

It may be necessary to dewater the soil ahead of the excavation, such as by pumping from sumps. This will control the tendency for the bottom of the excavation to heave under hydrostatic pressures and to reduce inflow of soil or water from beneath temporary shoring, should shoring be utilized. Existing utilities may act as a conduit for subsurface water, requiring additional measures for dewatering control. We recommend that the contractor thoroughly evaluate the subsurface conditions before selecting a dewatering system.

Furthermore, if construction is performed during rainy months, it is of utmost importance that surface water runoff be diverted away from footing and undercrossing excavations by providing temporary berms and ditches. In addition, the surface runoff should be discharged into an outlet approved by the project Civil Engineer.

5.4 TRENCH SUBGRADE STABILIZATION

It is likely that groundwater will be encountered in deeper utility excavations. Groundwater can cause instability of the excavation sidewalls and bottom and create a difficult working condition. Saturated soft or loose soil may be encountered at the bottom of the excavation. Utility pipes and structures should only be placed on firm subgrade soil, otherwise pipe and structure integrity may be negatively impacted and alter the pipe alignment.

To create a stable trench bottom, we recommend excavating a minimum of 12 inches, placing an 8-ounce non-woven geotextile, such as Mirafi 180N, followed by ¾-inch clean crush rock. The rock should be consolidated with vibratory methods. The geotextile should extend up the sides of the trench and cover the top of the rock with a 12-inch minimum overlap. The rock should be fully encapsulated by the filter fabric.

5.5 PAVEMENTS

Performing R-value testing and providing pavement recommendation is outside of the scope of this report. We recommend after the construction of the pipeline, that the pavement, pavement subgrade and/or aggregate base should be restored in accordance with the County of Santa Cruz requirements.

6.0 CONSTRUCTION MONITORING

Our experience and that of our profession clearly indicate that the risk of costly design, construction, and maintenance problems can be significantly lowered by retaining the design geotechnical engineering firm to:

1. Review the improvement plans and specifications prior to construction to evaluate whether our recommendations have been implemented, and to provide additional or modified recommendations, as needed. This also allows us to check if any changes have occurred in the nature, design, or location of the proposed improvements and provides the opportunity to prepare a written response with updated recommendations.

2. Perform construction monitoring to check the validity of the assumptions we made to prepare this report. Earthwork operations should be performed under the observation of our representative to check that the site is properly prepared, the selected fill materials are satisfactory, and that placement and compaction of the fill has been performed in accordance with our recommendations and the project specifications. Sufficient notification to us prior to earthwork is important.

If we are not retained to perform the services described above, then we are not responsible for any party's interpretation of our report (and subsequent addenda, letters, and verbal discussions).

7.0 LIMITATIONS AND UNIFORMITY OF CONDITIONS

This report presents geotechnical recommendations for design of the improvements discussed in Section 1.2 for the Crestwood Heights Water Association System Consolidation project. If changes occur in the nature or design of the project, we should be allowed to review this report and provide additional recommendations, if any. It is the responsibility of the owner to transmit the information and recommendations of this report to the appropriate organizations or people involved in design of the project, including but not limited to developers, owners, buyers, architects, engineers, and designers. The conclusions and recommendations contained in this report are solely professional opinions and are valid for a period of no more than 2 years from the date of report issuance.

We strive to provide our professional services in accordance with generally accepted principles and practices currently employed in the area, there is no warranty, express or implied. There are risks of earth movement and property damages inherent in building on or with earth materials. We are unable to eliminate all risks or provide insurance; therefore, we are unable to guarantee or warrant the results of our services.

This report is based upon fields and other conditions discovered at the time of report preparation. We developed this report with limited subsurface exploration data. We assumed that our subsurface exploration data is representative of the actual subsurface conditions across the site. Considering possible underground variability of soil, rock, stockpiled material, and groundwater, additional costs may be required to complete the project. We recommend that the owner establish a contingency fund to cover such costs. If unexpected conditions are encountered, notify ENGEO immediately to review these conditions and provide additional and/or modified recommendations, as necessary.

Our services did not include excavation sloping or shoring, soil volume change factors, flood potential, or a geohazard exploration. In addition, our geotechnical exploration did not include work to determine the existence of possible hazardous materials. If any hazardous materials are encountered during construction, notify the proper regulatory officials immediately. This document must not be subject to unauthorized reuse, that is, reusing without written authorization of ENGEO. Such authorization is essential because it requires ENGEO to evaluate the document's applicability given new circumstances, not the least of which is passage of time.

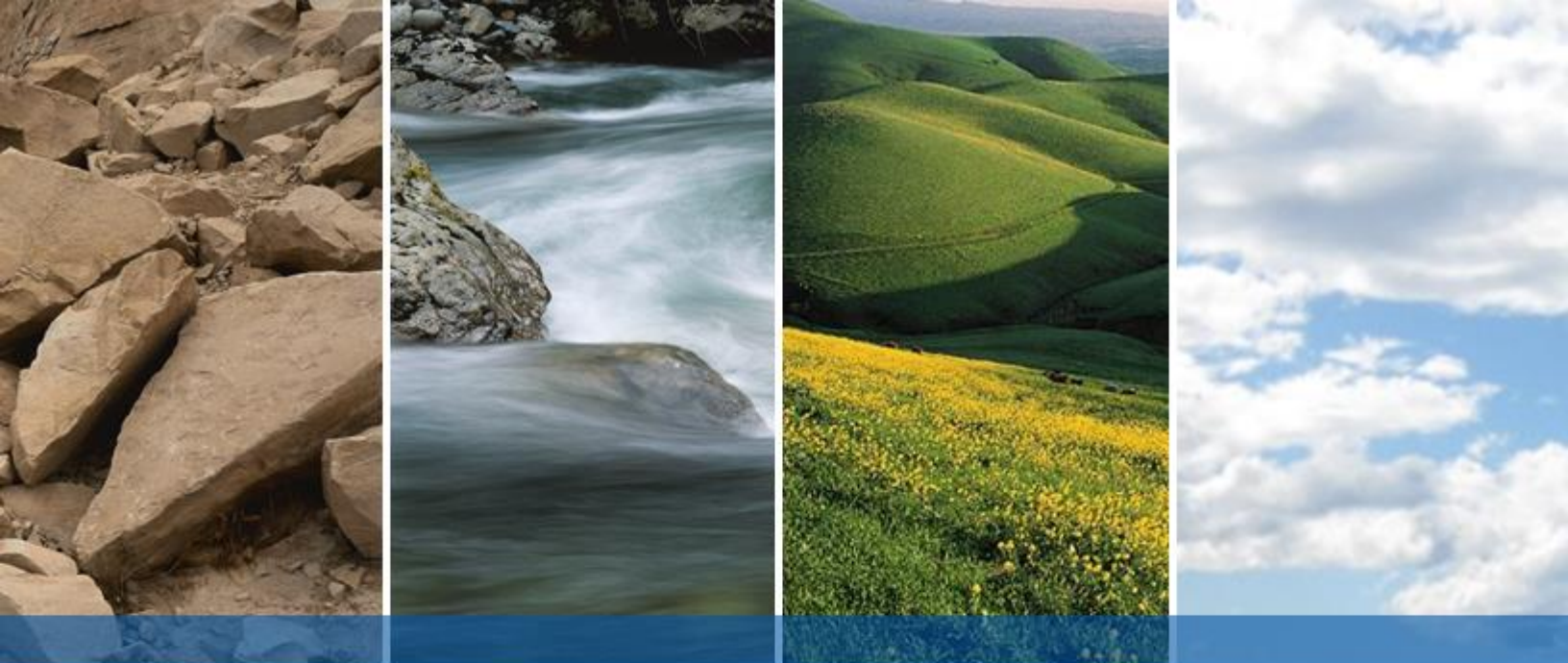
The actual field or other conditions will necessitate clarifications, adjustments, modifications, or other changes to ENGEO's documents. Therefore, ENGEO must be engaged to prepare the necessary clarifications, adjustments, modifications, or other changes before construction activities commence or further activity proceeds. If ENGEO's scope of services does not include on-site construction observation, or if other persons or entities are retained to provide such

services, ENGEO cannot be held responsible for any or all claims arising from or resulting from the performance of such services by other persons or entities, and from any or all claims arising from or resulting from clarifications, adjustments, modifications, discrepancies, or other changes necessary to reflect changed field or other conditions.

We determined the lines designating the interface between layers on the exploration logs using visual observations. The transition between the materials may be abrupt or gradual. The exploration logs contain information concerning samples recovered, indications of the presence of various materials such as clay, sand, silt, rock, existing fill, etc., and observations of groundwater encountered. The field logs also contain our interpretation of the subsurface conditions between sample locations. Therefore, the logs contain both factual and interpretative information. Our recommendations are based on the contents of the final logs, which represent our interpretation of the field logs.

SELECTED REFERENCES

- County of Santa Cruz. 2022. Design Criteria, Containing Standards for the Construction of Streets, Storm Drains, Sanitary Sewers, Water Systems, Driveways, Within the Unincorporated Portion of Santa Cruz County. December 2022 Edition.
- Dibblee, T.W. and Minch, J.A. (ed.), 2006, Geologic map of the Watsonville East quadrangle, Santa Clara, Santa Cruz, Monterey & San Benito Counties, California, Dibblee Geological Foundation, Dibblee Foundation Map DF-227, 1:24,000.
- Dupre, W.R., 1975, Maps showing geology and liquefaction potential of Quaternary deposits in Santa Cruz County, California, U.S. Geological Survey, Miscellaneous Field Studies Map MF-648, 1:62,500.
- MNS Engineering, Inc., Draft Engineering Report, Crestwood Heights Water Association System Consolidation Project, Watsonville, California, December 7, 2022.



FIGURES

FIGURE 1: Vicinity Map

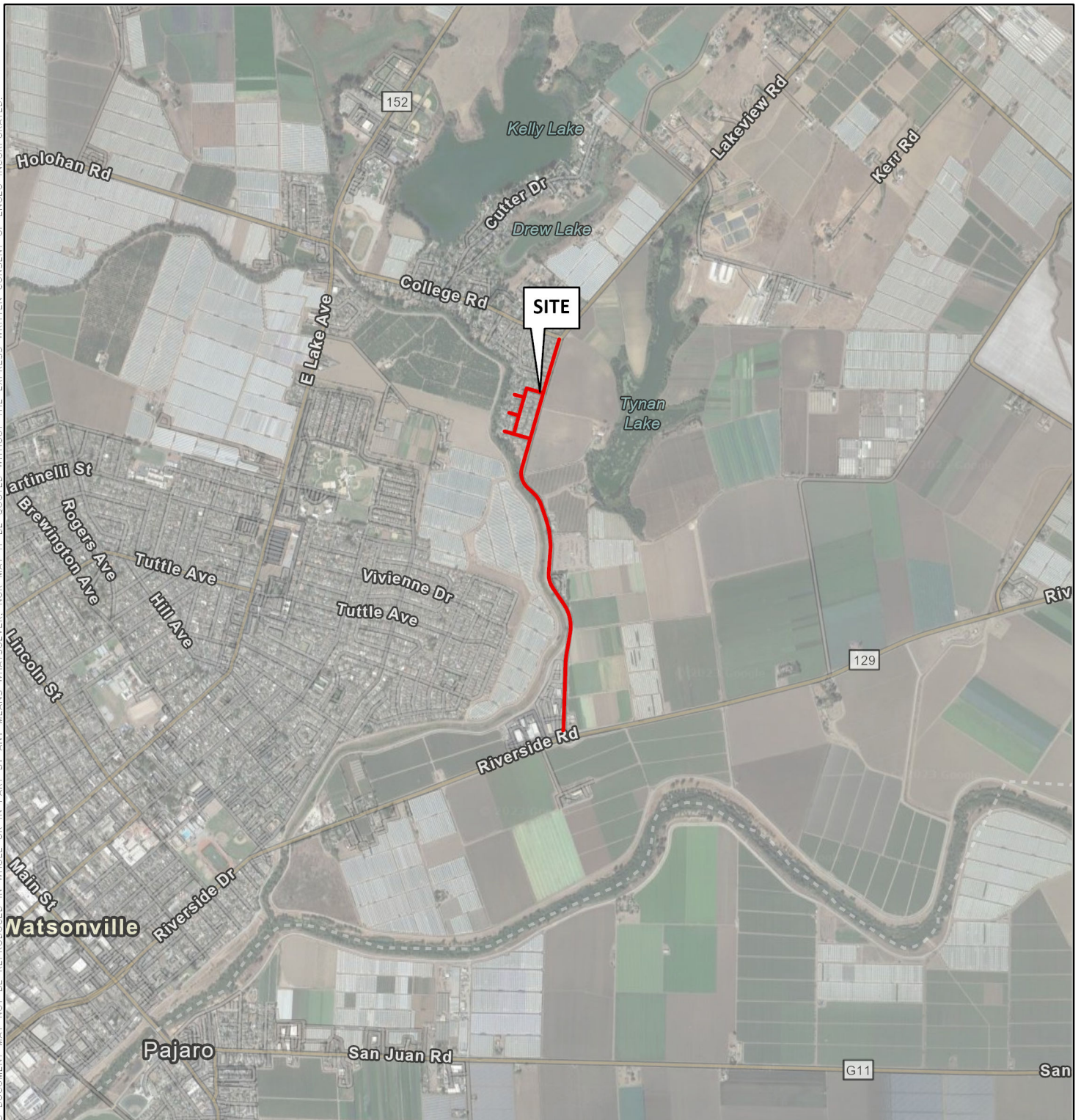
FIGURE 2: Site Plan

FIGURE 3: Regional Geologic Map

FIGURE 4: Regional Surficial Geologic Map

FIGURE 5: Trench Section

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0 1,000 2,000
FEET

BASEMAP SOURCE: GOOGLE EARTH MAPPING SERVICE 2022



VICINITY MAP
CRESTWOOD HEIGHTS WATER ASSOCIATION
SYSTEM CONSOLIDATION PROJECT
WATSONVILLE, CALIFORNIA

PROJECT NO. : 22333.000.001

SCALE: AS SHOWN

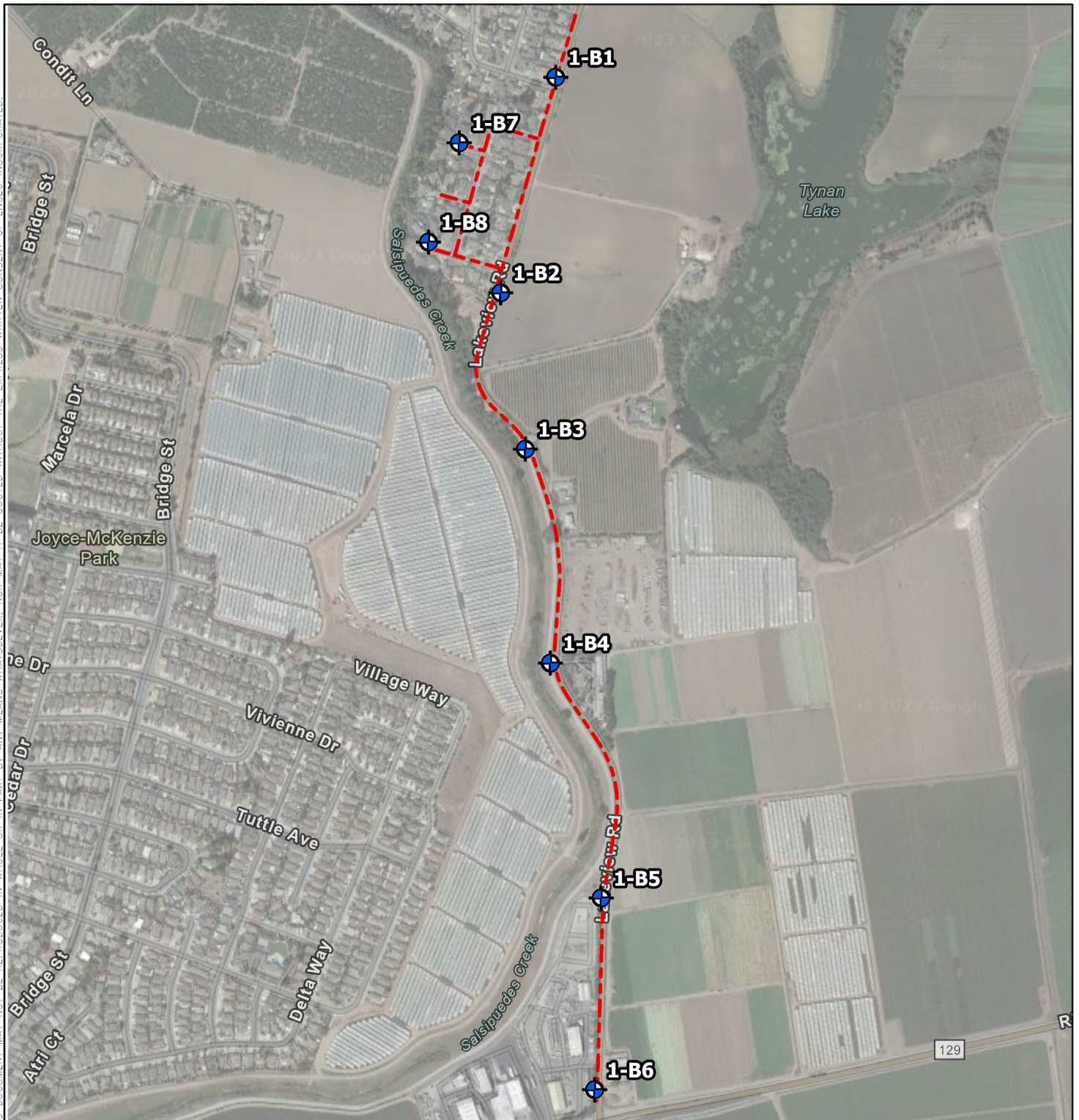
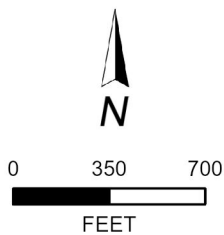
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CHECKED BY: TPB

FIGURE NO.

1

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EXPLANATION

ALL LOCATIONS ARE APPROXIMATE

--- ALIGNMENT

⊕ BORING (ENGEO, 2023)

BASEMAP SOURCE: GOOGLE EARTH MAPPING SERVICE 2022



SITE PLAN

CRESTWOOD HEIGHTS WATER ASSOCIATION
SYSTEM CONSOLIDATION PROJECT
WATSONVILLE, CALIFORNIA

PROJECT NO. : 22333.000.001

SCALE: AS SHOWN

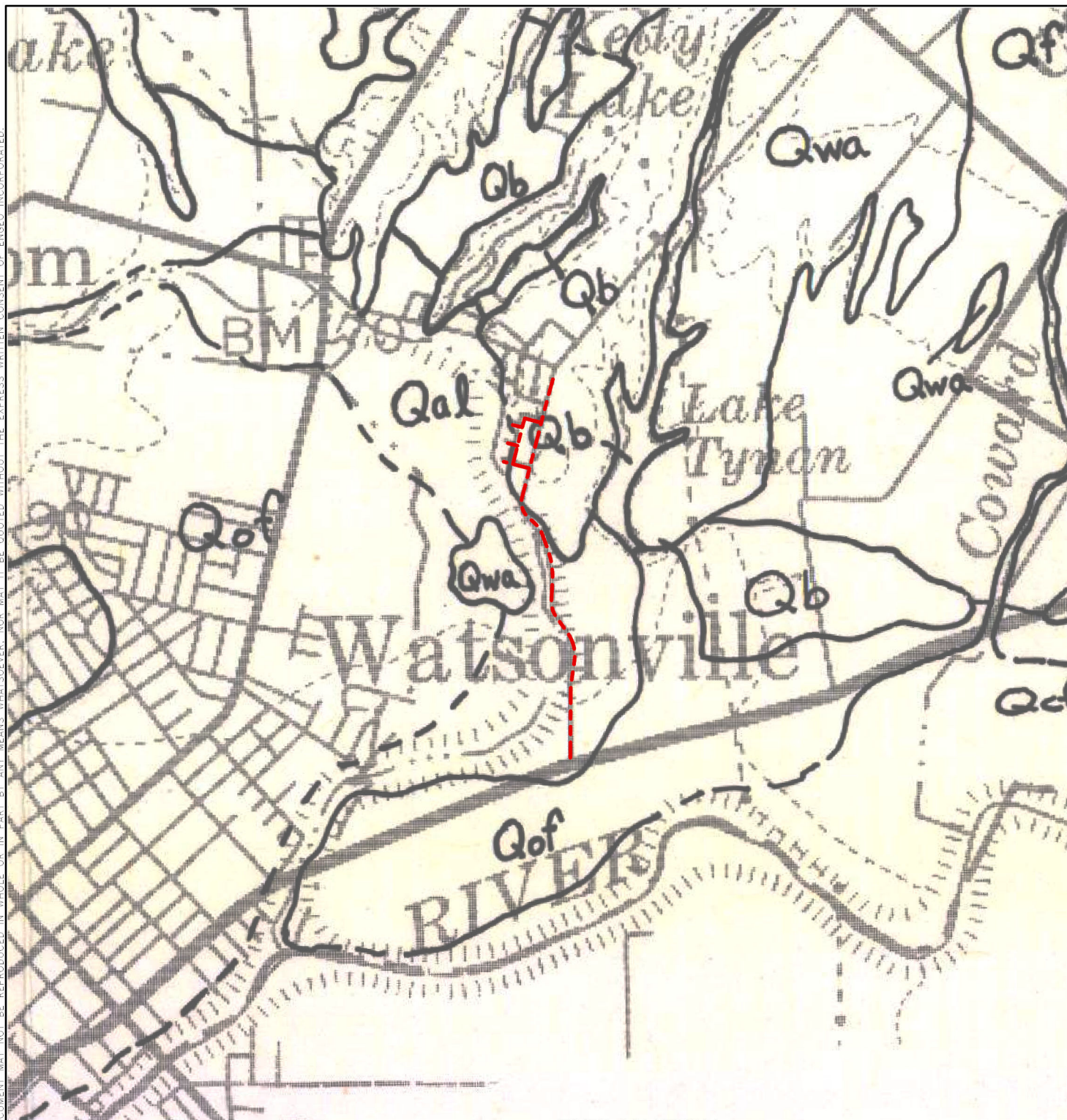
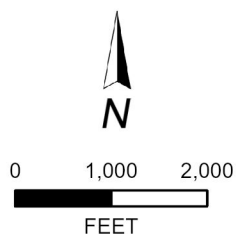
DRAWN BY: NLK

CHECKED BY: TPB

FIGURE NO.

2

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EXPLANATION

ALL LOCATIONS ARE APPROXIMATE

--- ALIGNMENT

- | | |
|------------|---------------------------------|
| Qal | ALLUVIAL DEPOSITS |
| Qof | OLDER FLOOD-PLAIN DEPOSITS |
| Qf | ALLUVIAL FAN DEPOSITS |
| Qb | BASIN DEPOSITS |
| Qwa | TERRACE DEPOSITS OF WATSONVILLE |

BASEMAP SOURCE: DUPRE, 1975



SURFICIAL GEOLOGIC MAP CRESTWOOD HEIGHTS WATER ASSOCIATION SYSTEM CONSOLIDATION PROJECT WATSONVILLE, CALIFORNIA

PROJECT NO. : 22333.000.001

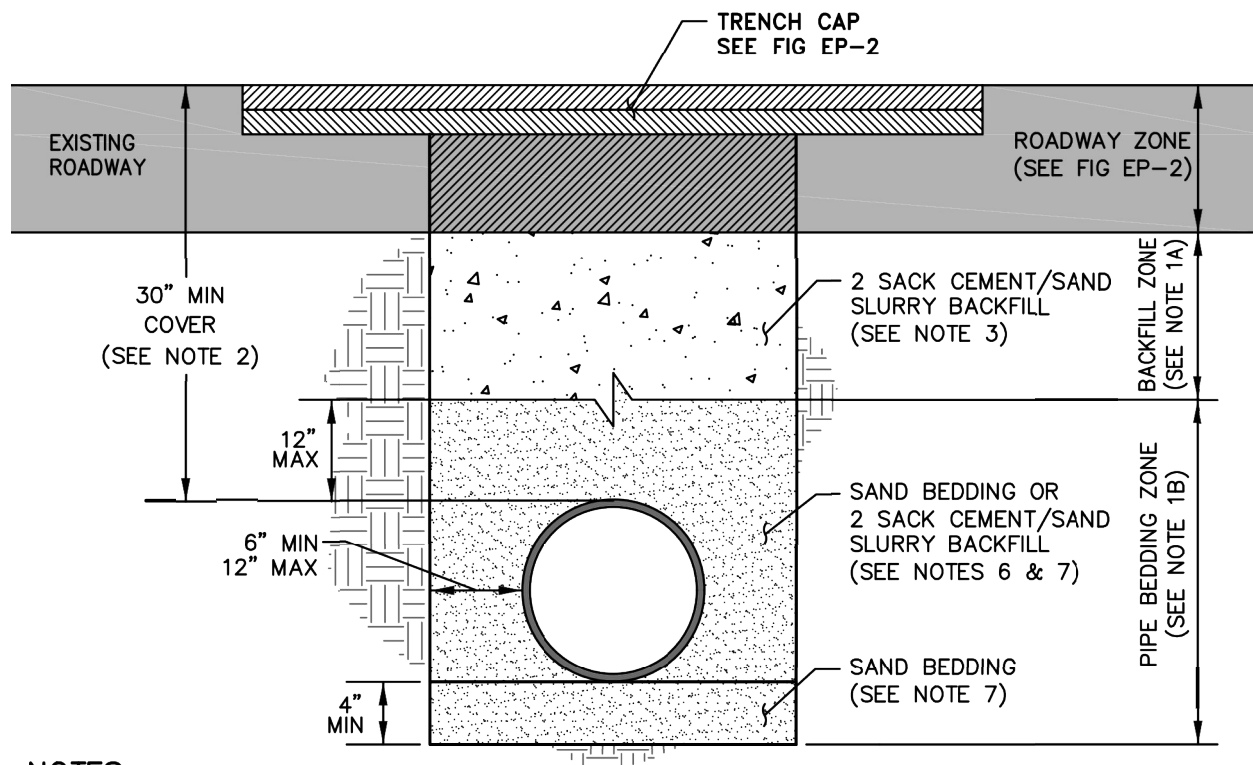
SCALE: AS SHOWN

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FIGURE NO.

4



NOTES:

1. TRENCH ZONES:
 - A. WITHIN BACKFILL ZONE, THIS AND OTHER COUNTY EP DETAILS SHALL GOVERN.
 - B. WITHIN PIPE BEDDING ZONE, APPLICABLE STANDARDS OF THE UTILITY AGENCY MAY BE USED IN PLACE OF THIS DETAIL.
2. ALL UNDERGROUND UTILITIES SHALL HAVE A MINIMUM COVER OF 30" FROM FINISH GRADE TO TOP OF UTILITY PIPE. WITH AUTHORIZATION FROM THE DIRECTOR, COVER MAY BE REDUCED TO AVOID INTERFERING WITH EXISTING UTILITIES, IN THIS CASE ADDITIONAL REQUIREMENTS MAY APPLY.
3. BACKFILL ZONE UNDER ROADWAYS SHALL CONSIST OF 2 SACK CEMENT/ SAND SLURRY BACKFILL, 1 SACK CEMENT/ SAND SLURRY MAY BE ALLOWED UNDER ROADWAYS AT THE DISCRETION OF THE COUNTY.
4. SPECIAL CONDITIONS (SUCH AS SAND ENCASEMENT) MAY BE REQUIRED WITHIN THE BACKFILL ZONE AT LOCATIONS WHERE THE TRENCH CROSSES OTHER UNDERGROUND UTILITIES. IN SUCH CASES, CROSSING SHALL BE CONSTRUCTED TO COMPLY WITH THE STANDARDS OF THE UTILITY BEING CROSSED.
5. BACKFILL ZONE OUTSIDE OF ROADWAYS MAY USE ENGINEERED FILL IN LIEU OF SLURRY, ENGINEERED FILL SHALL BE COMPACTED TO 90% MINIMUM RELATIVE COMPACTION, AND GROUND AT TOP OF TRENCH SHALL BE RESTORED TO PRE-PROJECT CONDITIONS OR AS OTHERWISE DIRECTED BY THE COUNTY.
6. 2 SACK CEMENT/SAND SLURRY SHALL BE MIXED IN A TRANSIT MIXER (CERTIFICATION TAGS REQUIRED) AND CONSIST OF 188 LB OF CEMENT FOR EACH CUBIC YARD OF MATERIAL.
7. SAND BEDDING SHALL CONSIST OF CLEAN SAND COMPACTED TO 95% RELATIVE COMPACTION MAY BE USED FOR PIPE BEDDING AND ENCASEMENT WITHIN PIPE BEDDING ZONE.
8. ANY EXCEPTIONS TO THIS DETAIL MUST BE APPROVED BY THE DIRECTOR.