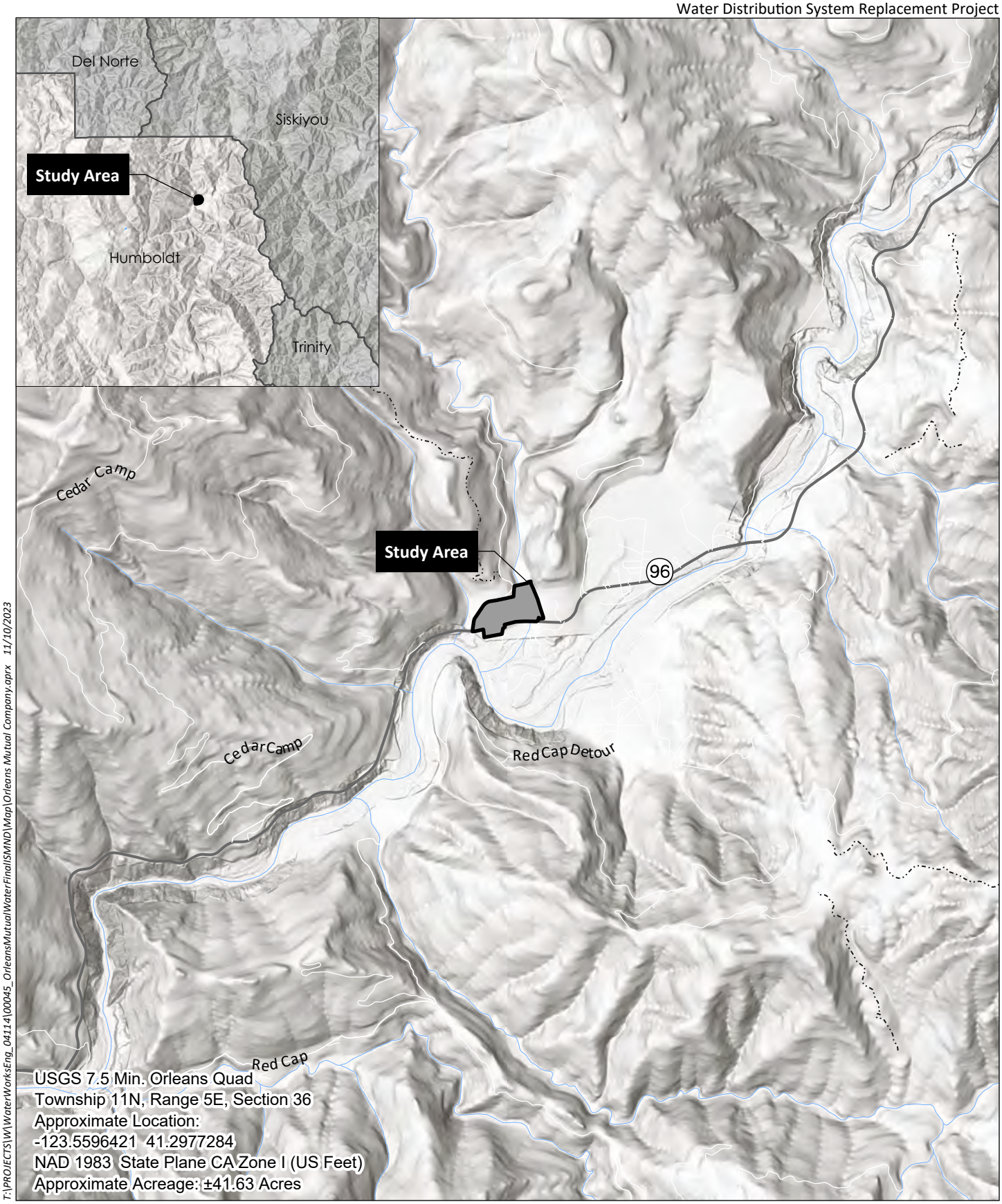
Appendix A

Figures



T:\PROJECTS\W\WaterWorksEng_04114\00045_OrleansMutualWaterFinalISMND\Map\Orleans Mutual Company.aprx 11/10/2023

Source: Base Map Layers (Esri, USGS, NGA, NASA)

HELIX Environmental Planning

Site and Vicinity Map

Figure 1

T:\PROJECTS\W\WaterWorksEng_04114\00045_OrleansMutualWaterFinalSMND\Map\Orleans Mutual Company.aprx 12/15/2023

0 300 Feet

Source: Aerial Imagery (Maxar, 8/16/2021)

HELIX Environmental Planning

Aerial Map

Figure 2

GENERAL NOTES:

1. AERIAL IMAGERY IS FROM AUTODESK ONLINE MAPS AND IS NOT BASED ON SURVEY. IMAGERY IS FOR REFERENCE ONLY.
2. PROPERTY LINES AND EASEMENTS PER SHARRAH DUNLAP SAWYER, INC. SURVEY, DATED JANUARY 2024.
3. LOCATION OF EXISTING WATER PIPING AND VALVES BASED ON COMBINATION OF FIELD SURVEY, HANDHELD GPS SURVEY BY WATER WORKS ENGINEERS, AND DESCRIPTIONS PROVIDED BY OMWC.

KEY NOTES: (#)

1. OVERHEAD CROSSING OF CREEK.
2. SR 96 CROSSING IN 8" CULVERT.
3. EXISTING SHUTOFF VALVES LOCATED BENEATH TRAVEL TRAILER.
4. EXISTING UTILITY EASEMENT.

LEGEND:

- PARCEL BOUNDARY
- EASEMENT/RIGHT-OF-WAY
- EXISTING PIPING
- START/END OF PIPE SEGMENT
- EXISTING SHUTOFF VALVE (SURVEY OR GPS LOCATED)
- EXISTING SHUTOFF VALVE (LOCATION TBD)

100 0 100 200 FEET
SCALE 1"=100'

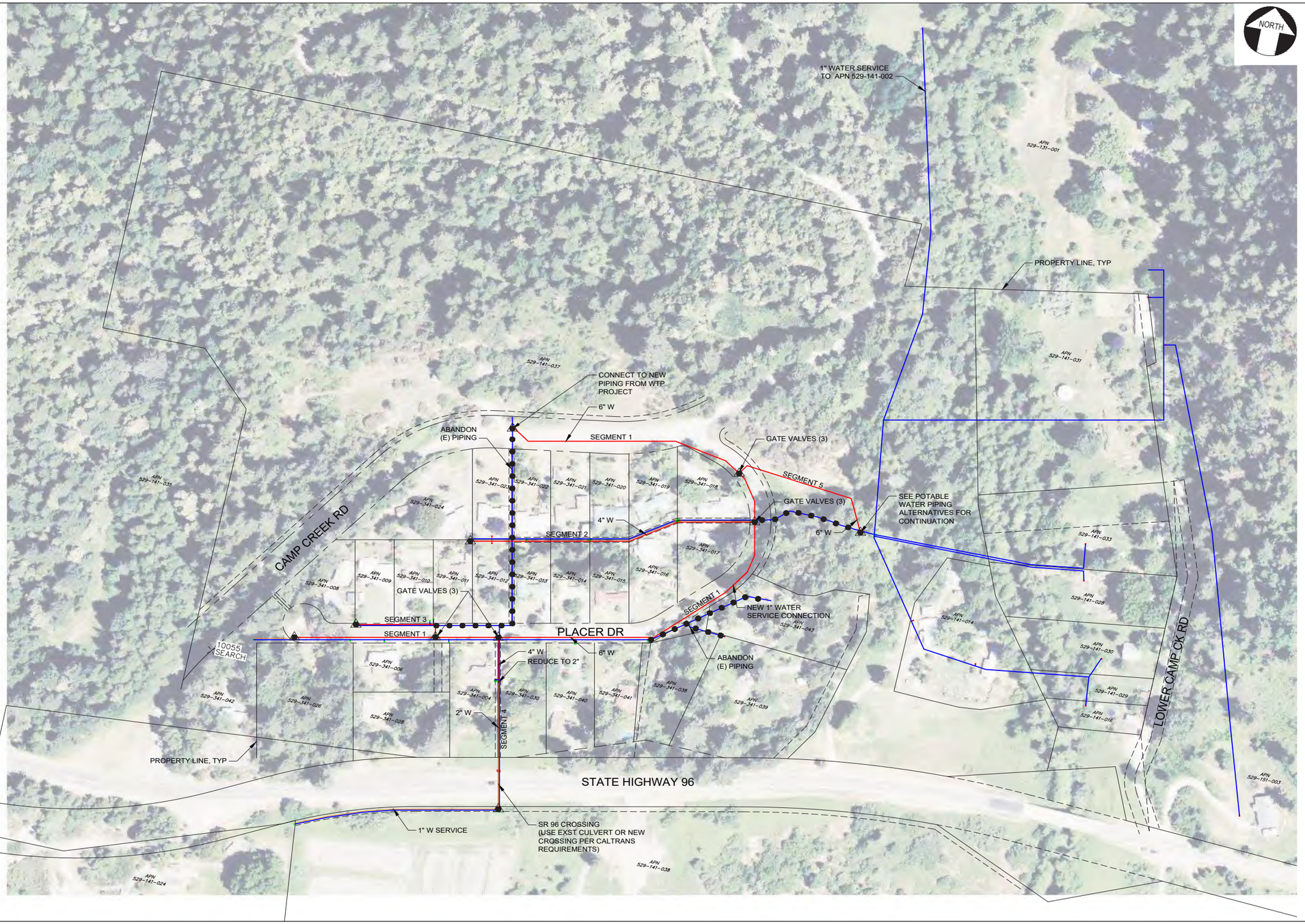
Source: Waterworks Engineers, 2024

T:\PROJECTS\W\WaterWorksEng_04114\00045_OrleansMutualWaterFinalISMND\Map\Fig3_ExistingWaterSystem_20240110.indd

HELIX Environmental Planning

Existing Water System

Figure 3



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3. LOCATION OF EXISTING WATER PIPING AND VALVES BASED ON COMBINATION OF FIELD SURVEY, HANDHELD GPS SURVEY BY WATER WORKS ENGINEERS, AND DESCRIPTIONS PROVIDED BY OMWC.
4. PROPOSED WATER MAIN ALIGNMENTS ARE APPROXIMATE, BASED ON AVAILABLE INFORMATION AT THE TIME. FINAL WATER MAIN ALIGNMENTS AND WATER SERVICE CONNECTION LOCATIONS TO BE DETERMINED FOLLOWING DETAILED TOPOGRAPHIC SURVEY FOR SELECTED ALTERNATIVE.
5. NEW WATER MAINS SHALL BE 4" C900 WITH DUCTILE IRON FITTINGS. LATERALS 2" AND SMALLER SHALL BE PVC SCH 80 OR HDPE PIPING.
6. ISOLATION VALVES SHALL BE PROVIDED AT ALL TEES ON WATER MAINS.
7. ALL NEW SERVICES WILL BE METERED.
8. EXISTING WATER LINES WILL BE ABANDONED IN PLACE UNLESS WITHIN THE WORK AREA OF THE NEW PIPING.

LEGEND:

- PARCEL BOUNDARY
- EASEMENT/RIGHT-OF-WAY
- EXISTING PIPING
- START/END OF PIPE SEGMENT
- EXISTING SHUTOFF VALVE (SURVEY OR GPS LOCATED)
- EXISTING SHUTOFF VALVE (LOCATION TBD)
- PROPOSED POTABLE WATER MAIN PIPING
- PROPOSED WATER SERVICE LINE
- PROPOSED FIRE HYDRANT
- ABANDONED PIPING

100 0 100 200 FEET
SCALE 1"=100'

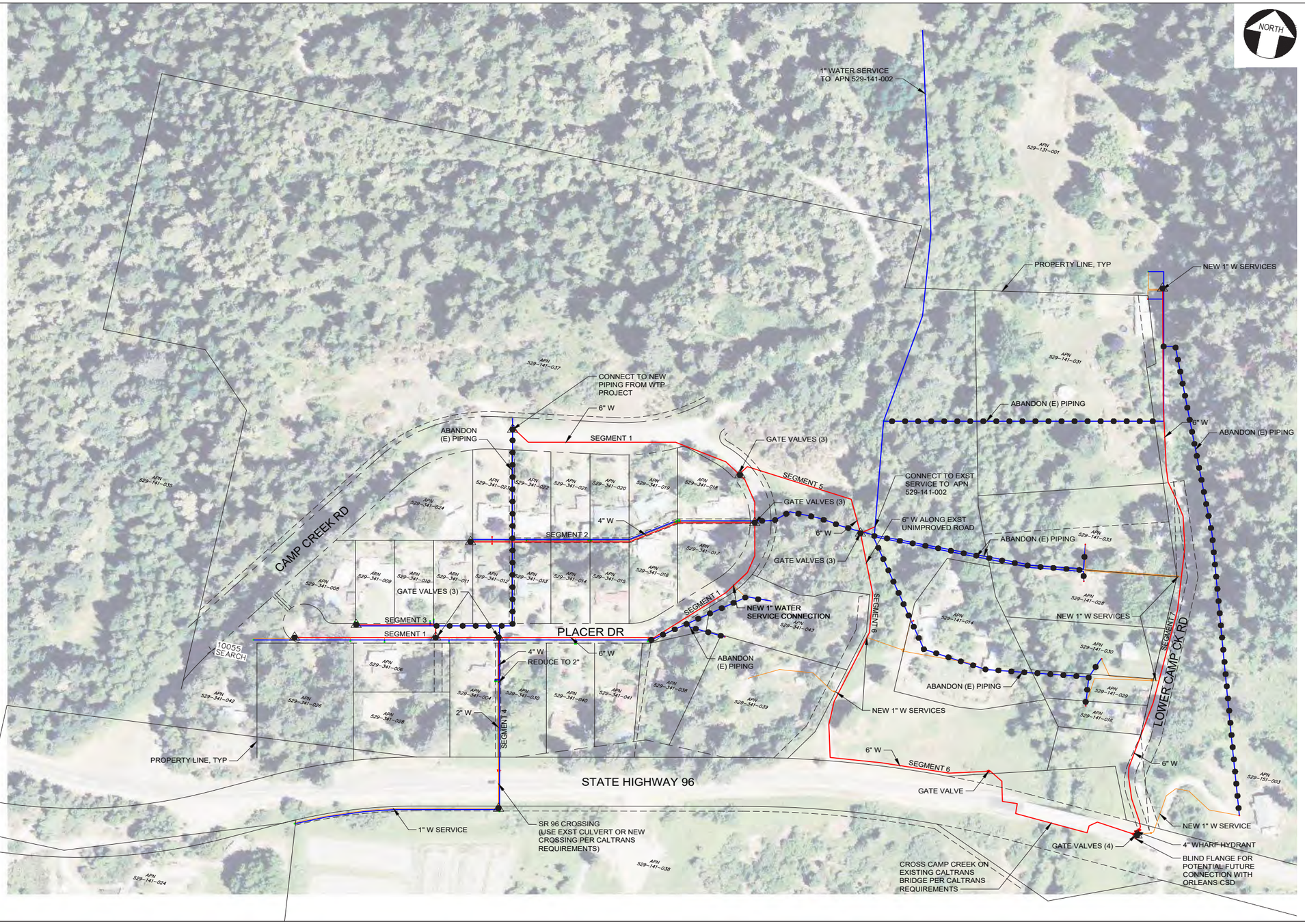
Source: Waterworks Engineers, 2024

T:\PROJECTS\W\WaterWorksEng_04114\00045_OrleansMutualWaterFinal\SMND\Map\Fig4_CrawfordHillSubdivision4lignment_20240110.indd

HELIX Environmental Planning

Crawford Hill Subdivision Alignment Map

Figure 4



GENERAL NOTES:

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2. PROPERTY LINES AND EASEMENTS PER SHARRAH DUNLAP SAWYER, INC. SURVEY, DATED JANUARY 2024.
3. LOCATION OF EXISTING WATER PIPING AND VALVES BASED ON COMBINATION OF FIELD SURVEY, HANDHELD GPS SURVEY BY WATER WORKS ENGINEERS, AND DESCRIPTIONS PROVIDED BY OMWC.
4. PROPOSED WATER MAIN ALIGNMENTS ARE APPROXIMATE, BASED ON AVAILABLE INFORMATION AT THE TIME. FINAL WATER MAIN ALIGNMENTS AND WATER SERVICE CONNECTION LOCATIONS TO BE DETERMINED FOLLOWING DETAILED TOPOGRAPHIC SURVEY FOR SELECTED ALTERNATIVE.
5. NEW WATER MAINS SHALL BE 4" C900 WITH DUCTILE IRON FITTINGS. LATERALS 2" AND SMALLER SHALL BE PVC SCH 80 OR HDPE PIPING.
6. ISOLATION VALVES SHALL BE PROVIDED AT ALL TEES ON WATER MAINS.
7. ALL NEW SERVICES WILL BE METERED.
8. EXISTING WATER LINES WILL BE ABANDONED IN PLACE UNLESS WITHIN THE WORK AREA OF THE NEW PIPING.

LEGEND:

- PARCEL BOUNDARY
- EASEMENT/RIGHT-OF-WAY
- EXISTING PIPING
- START/END OF PIPE SEGMENT
- EXISTING SHUTOFF VALVE (SURVEY OR GPS LOCATED)
- EXISTING SHUTOFF VALVE (LOCATION TBD)
- PROPOSED POTABLE WATER MAIN PIPING
- PROPOSED WATER SERVICE LINE
- PROPOSED FIRE HYDRANT
- ABANDONED PIPING

100 0 100 200 FEET
SCALE 1"=100'

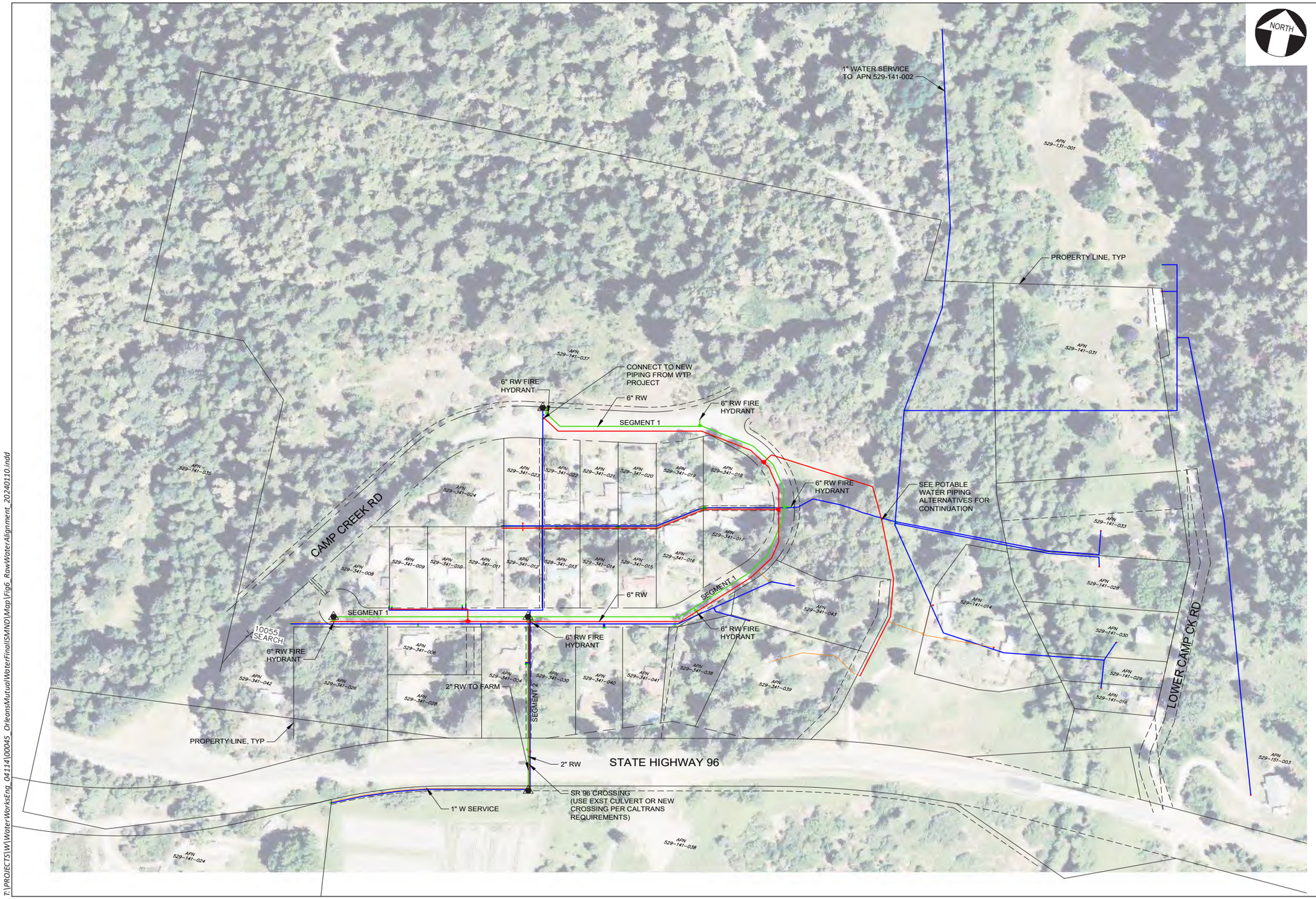
Source: Waterworks Engineers, 2024

T:\PROJECTS\W1\WaterWorksEng_04114\00045_OrleansMutualWaterFinalISMND\Map\Fig5_CampCreekCrossingAlignment_20240221.indd

HELIX Environmental Planning

Camp Creek Crossing Alignment Map

Figure 5



GENERAL NOTES:

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2. PROPERTY LINES AND EASEMENTS PER SHARRAH DUNLAP SAWYER, INC. SURVEY, DATED JANUARY 2024.
3. LOCATION OF EXISTING WATER PIPING AND VALVES BASED ON COMBINATION OF FIELD SURVEY, HANDHELD GPS SURVEY BY WATER WORKS ENGINEERS, AND DESCRIPTIONS PROVIDED BY OMWC.
4. PROPOSED POTABLE AND RAW WATER MAIN ALIGNMENTS ARE APPROXIMATE, BASED ON AVAILABLE INFORMATION AT THE TIME. FINAL PIPE ALIGNMENTS AND WATER SERVICE CONNECTION LOCATIONS TO BE DETERMINED FOLLOWING DETAILED TOPOGRAPHIC SURVEY FOR SELECTED ALTERNATIVE.
5. NEW RAW WATER MAINS SHALL BE 4" C900 WITH DUCTILE IRON FITTINGS. LATERALS 2" AND SMALLER SHALL BE PVC SCH 80 OR HDPE PIPING.

LEGEND:

- PARCEL BOUNDARY
- EASEMENT/RIGHT-OF-WAY
- EXISTING PIPING
- START/END OF PIPE SEGMENT
- EXISTING SHUTOFF VALVE (SURVEY OR GPS LOCATED)
- EXISTING SHUTOFF VALVE (LOCATION TBD)
- PROPOSED POTABLE WATER MAIN PIPING
- PROPOSED WATER SERVICE LINE
- PROPOSED FIRE HYDRANT
- PROPOSED RAW WATER PIPING
- ABANDONED PIPING

100 0 100 200 FEET
SCALE 1"=100'

Source: Waterworks Engineers, 2024

T:\PROJECTS\W1\WaterWorksEng_04114\00045_OrleansMutualWaterFinal\SMND\Map\Fig6_RawWaterAlignment_20240110.indd

HELIX Environmental Planning

Raw Water Alignment Map

Figure 6

Appendix B

CalEEMod Output Sheets

Orleans Phase 2 Detailed Report

Table of Contents

1. Basic Project Information

1.1. Basic Project Information

Data Field	Value
Project Name	Orleans Phase 2
Construction Start Date	5/1/2026
Lead Agency	—
Land Use Scale	Project/site
Analysis Level for Defaults	County
Windspeed (m/s)	2.90
Precipitation (days)	21.6
Location	41.298721460220634, -123.56004254763934
County	Humboldt
City	Unincorporated
Air District	North Coast Unified APCD
Air Basin	North Coast
TAZ	109
EDFZ	2
Electric Utility	Pacific Gas & Electric Company
Gas Utility	Pacific Gas & Electric
App Version	2022.1.1.22

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	1.32	Mile	2.05	0.00	—	—	—	—

1.3. User-Selected Emission Reduction Measures by Emissions Sector

No measures selected

2. Emissions Summary

2.1. Construction Emissions Compared Against Thresholds

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

Un/Mit.	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—
Unmit.	0.48	3.09	5.50	0.01	0.12	3.07	3.19	0.11	0.32	0.43	1,242
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—
Unmit.	0.51	4.08	6.74	0.01	0.16	3.07	3.19	0.15	0.32	0.43	1,511
Average Daily (Max)	—	—	—	—	—	—	—	—	—	—	—
Unmit.	0.20	1.36	2.38	< 0.005	0.05	1.05	1.10	0.05	0.11	0.16	542
Annual (Max)	—	—	—	—	—	—	—	—	—	—	—
Unmit.	0.04	0.25	0.43	< 0.005	0.01	0.19	0.20	0.01	0.02	0.03	89.8

2.2. Construction Emissions by Year, Unmitigated

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

Year	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2e
Daily - Summer (Max)	—	—	—	—	—	—	—	—	—	—	—
2026	0.48	3.09	5.50	0.01	0.12	3.07	3.19	0.11	0.32	0.43	1,242
Daily - Winter (Max)	—	—	—	—	—	—	—	—	—	—	—
2026	0.51	4.08	6.74	0.01	0.16	3.07	3.19	0.15	0.32	0.43	1,511

Average Daily	—	—	—	—	—	—	—	—	—	—	—
2026	0.20	1.36	2.38	< 0.005	0.05	1.05	1.10	0.05	0.11	0.16	542
Annual	—	—	—	—	—	—	—	—	—	—	—
2026	0.04	0.25	0.43	< 0.005	0.01	0.19	0.20	0.01	0.02	0.03	89.8

3. Construction Emissions Details

3.1. Mobilization (2026) - Unmitigated

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

Location	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—
Dust From Material Movement	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—
Dust From Material Movement	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—
Dust From Material Movement	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—
Worker	0.02	0.02	0.18	0.00	0.00	0.03	0.03	0.00	0.01	0.01	28.2
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	< 0.005	0.19	0.03	< 0.005	< 0.005	0.04	0.04	< 0.005	0.01	0.01	149
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	0.01	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	0.77
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	< 0.005	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	4.07
Annual	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	0.13
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.67

3.3. Demolition/Excavation/Installation (2026) - Unmitigated

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

Location	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.41	2.79	4.90	0.01	0.12	—	0.12	0.11	—	0.11	980
Dust From Material Movement	—	—	—	—	—	< 0.005	< 0.005	—	< 0.005	< 0.005	—
Onsite truck	< 0.005	0.02	0.01	< 0.005	< 0.005	2.94	2.94	< 0.005	0.29	0.29	8.90
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—

Off-Road Equipment	0.41	2.79	4.90	0.01	0.12	—	0.12	0.11	—	0.11	980
Dust From Material Movement	—	—	—	—	—	< 0.005	< 0.005	—	< 0.005	< 0.005	—
Onsite truck	< 0.005	0.02	0.01	< 0.005	< 0.005	2.94	2.94	< 0.005	0.29	0.29	8.92
Average Daily	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.15	1.00	1.76	< 0.005	0.04	—	0.04	0.04	—	0.04	352
Dust From Material Movement	—	—	—	—	—	< 0.005	< 0.005	—	< 0.005	< 0.005	—
Onsite truck	< 0.005	0.01	< 0.005	< 0.005	< 0.005	0.99	0.99	< 0.005	0.10	0.10	3.20
Annual	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.03	0.18	0.32	< 0.005	0.01	—	0.01	0.01	—	0.01	58.2
Dust From Material Movement	—	—	—	—	—	< 0.005	< 0.005	—	< 0.005	< 0.005	—
Onsite truck	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.18	0.18	< 0.005	0.02	0.02	0.53
Offsite	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—
Worker	0.06	0.05	0.55	0.00	0.00	0.08	0.08	0.00	0.02	0.02	84.6
Vendor	< 0.005	0.07	0.02	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	48.1
Hauling	< 0.005	0.16	0.02	< 0.005	< 0.005	0.03	0.03	< 0.005	0.01	0.01	121
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—
Worker	0.06	0.06	0.60	0.00	0.00	0.08	0.08	0.00	0.02	0.02	84.2
Vendor	< 0.005	0.07	0.02	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	48.0
Hauling	< 0.005	0.16	0.02	< 0.005	< 0.005	0.03	0.03	< 0.005	0.01	0.01	121
Average Daily	—	—	—	—	—	—	—	—	—	—	—

Worker	0.02	0.02	0.21	0.00	0.00	0.03	0.03	0.00	0.01	0.01	30.3
Vendor	< 0.005	0.02	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	17.2
Hauling	< 0.005	0.06	0.01	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	43.3
Annual	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	0.04	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	5.02
Vendor	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	2.85
Hauling	< 0.005	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	7.17

3.5. Backfill/Paving (2026) - Unmitigated

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

Location	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.44	3.37	6.05	0.01	0.15	—	0.15	0.14	—	0.14	944
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.03	0.19	0.35	< 0.005	0.01	—	0.01	0.01	—	0.01	54.3
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	0.04	0.06	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	9.00
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—
Worker	0.06	0.06	0.60	0.00	0.00	0.08	0.08	0.00	0.02	0.02	84.2
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.01	0.65	0.10	< 0.005	0.01	0.12	0.13	0.01	0.03	0.04	482
Average Daily	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	0.03	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	4.86
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	< 0.005	0.04	0.01	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	27.8
Annual	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	0.01	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	0.81
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	< 0.005	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	4.60

3.7. Demobilization (2026) - Unmitigated

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

Location	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Offsite	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—
Worker	0.02	0.02	0.20	0.00	0.00	0.03	0.03	0.00	0.01	0.01	28.1
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	< 0.005	0.20	0.03	< 0.005	< 0.005	0.04	0.04	< 0.005	0.01	0.01	148
Average Daily	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	0.01	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	0.77
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	< 0.005	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	4.07
Annual	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	0.13
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.67

4. Operations Emissions Details

4.10. Soil Carbon Accumulation By Vegetation Type

4.10.1. Soil Carbon Accumulation By Vegetation Type - Unmitigated

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

Vegetation	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—

Total	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—

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

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

Land Use	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—

4.10.3. Avoided and Sequestered Emissions by Species - Unmitigated

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

Species	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—

5. Activity Data

5.1. Construction Schedule

Phase Name	Phase Type	Start Date	End Date	Days Per Week	Work Days per Phase	Phase Description
Mobilization	Linear, Grubbing & Land Clearing	5/1/2026	5/14/2026	5.00	10.0	—
Demolition/Excavation/Installation	Linear, Grading & Excavation	5/15/2026	11/14/2026	5.00	131	—
Backfill/Paving	Linear, Paving	11/15/2026	12/14/2026	5.00	21.0	—
Demobilization	Linear, Trenching	12/15/2026	12/28/2026	5.00	10.0	—

5.2. Off-Road Equipment

5.2.1. Unmitigated

Phase Name	Equipment Type	Fuel Type	Engine Tier	Number per Day	Hours Per Day	Horsepower	Load Factor
Demolition/Excavation/Installation	Excavators	Diesel	Average	1.00	8.00	36.0	0.38
Demolition/Excavation/Installation	Rubber Tired Loaders	Diesel	Average	1.00	8.00	150	0.36
Demolition/Excavation/Installation	Off-Highway Trucks	Diesel	Average	1.00	2.00	376	0.38
Backfill/Paving	Rubber Tired Loaders	Diesel	Average	1.00	8.00	150	0.36
Backfill/Paving	Paving Equipment	Diesel	Average	1.00	8.00	89.0	0.36
Backfill/Paving	Rollers	Diesel	Average	1.00	8.00	36.0	0.38

5.3. Construction Vehicles

5.3.1. Unmitigated

Phase Name	Trip Type	One-Way Trips per Day	Miles per Trip	Vehicle Mix
Mobilization	—	—	—	—
Mobilization	Worker	4.00	9.53	LDA,LDT1,LDT2
Mobilization	Vendor	0.00	7.16	HHDT,MHDT
Mobilization	Hauling	2.00	20.0	HHDT
Mobilization	Onsite truck	—	—	HHDT
Demolition/Excavation/Installation	—	—	—	—
Demolition/Excavation/Installation	Worker	12.0	9.53	LDA,LDT1,LDT2
Demolition/Excavation/Installation	Vendor	2.00	7.16	HHDT,MHDT
Demolition/Excavation/Installation	Hauling	1.63	20.0	HHDT
Demolition/Excavation/Installation	Onsite truck	1.00	2.00	HHDT

Backfill/Paving	—	—	—	—
Backfill/Paving	Worker	12.0	9.53	LDA,LDT1,LDT2
Backfill/Paving	Vendor	0.00	7.16	HHDT,MHDT
Backfill/Paving	Hauling	6.50	20.0	HHDT
Backfill/Paving	Onsite truck	—	—	HHDT
Demobilization	—	—	—	—
Demobilization	Worker	4.00	9.53	LDA,LDT1,LDT2
Demobilization	Vendor	—	7.16	HHDT,MHDT
Demobilization	Hauling	2.00	20.0	HHDT
Demobilization	Onsite truck	—	—	HHDT

5.4. Vehicles

5.4.1. Construction Vehicle Control Strategies

Non-applicable. No control strategies activated by user.

5.5. Architectural Coatings

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

5.6. Dust Mitigation

5.6.1. Construction Earthmoving Activities

Phase Name	Material Imported (cy)	Material Exported (cy)	Acres Graded (acres)	Material Demolished (sq. ft.)	Acres Paved (acres)
Mobilization	—	—	2.05	0.00	—
Demolition/Excavation/Installation	—	1,700	2.05	0.00	—

5.6.2. Construction Earthmoving Control Strategies

Control Strategies Applied	Frequency (per day)	PM10 Reduction	PM2.5 Reduction
Water Exposed Area	2	61%	61%

5.7. Construction Paving

Land Use	Area Paved (acres)	% Asphalt

5.8. Construction Electricity Consumption and Emissions Factors

kWh per Year and Emission Factor (lb/MWh)

Year	kWh per Year	CO2	CH4	N2O
2026	0.00	204	0.03	< 0.005

5.18. Vegetation

5.18.1. Land Use Change

5.18.1.1. Unmitigated

Vegetation Land Use Type	Vegetation Soil Type	Initial Acres	Final Acres

5.18.1. Biomass Cover Type

5.18.1.1. Unmitigated

Biomass Cover Type	Initial Acres	Final Acres

5.18.2. Sequestration

5.18.2.1. Unmitigated

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

6. Climate Risk Detailed Report

6.1. Climate Risk Summary

Cal-Adapt midcentury 2040–2059 average projections for four hazards are reported below for your project location. These are under Representation Concentration Pathway (RCP) 8.5 which assumes GHG emissions will continue to rise strongly through 2050 and then plateau around 2100.

Climate Hazard	Result for Project Location	Unit
Temperature and Extreme Heat	13.1	annual days of extreme heat
Extreme Precipitation	23.9	annual days with precipitation above 20 mm
Sea Level Rise	—	meters of inundation depth
Wildfire	32.9	annual hectares burned

Temperature and Extreme Heat data are for grid cell in which your project are located. The projection is based on the 98th historical percentile of daily maximum/minimum temperatures from observed historical data (32 climate model ensemble from Cal-Adapt, 2040–2059 average under RCP 8.5). Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.
Extreme Precipitation data are for the grid cell in which your project are located. The threshold of 20 mm is equivalent to about ¾ an inch of rain, which would be light to moderate rainfall if received over a full day or heavy rain if received over a period of 2 to 4 hours. Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.
Sea Level Rise data are for the grid cell in which your project are located. The projections are from Radke et al. (2017), as reported in Cal-Adapt (Radke et al., 2017, CEC-500-2017-008), and consider inundation location and depth for the San Francisco Bay, the Sacramento-San Joaquin River Delta and California coast resulting different increments of sea level rise coupled with extreme storm events. Users may select from four scenarios to view the range in potential inundation depth for the grid cell. The four scenarios are: No rise, 0.5 meter, 1.0 meter, 1.41 meters
Wildfire data are for the grid cell in which your project are located. The projections are from UC Davis, as reported in Cal-Adapt (2040–2059 average under RCP 8.5), and consider historical data of climate, vegetation, population density, and large (> 400 ha) fire history. Users may select from four model simulations to view the range in potential wildfire probabilities for the grid cell. The four simulations make different assumptions about expected rainfall and temperature are: Warmer/drier (HadGEM2-ES), Cooler/wetter (CNRM-CM5), Average conditions (CanESM2), Range of different rainfall and temperature possibilities (MIROC5). Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.

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	3	0	0	N/A
Sea Level Rise	N/A	N/A	N/A	N/A
Wildfire	1	0	0	N/A

Flooding	0	0	0	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	3	1	1	3
Sea Level Rise	N/A	N/A	N/A	N/A
Wildfire	1	1	1	2
Flooding	1	1	1	2
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.

6.4. Climate Risk Reduction Measures

7. Health and Equity Details

7.1. CalEnviroScreen 4.0 Scores

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.

Indicator	Result for Project Census Tract
Exposure Indicators	—
AQ-Ozone	13.7
AQ-PM	0.77
AQ-DPM	2.13
Drinking Water	54.6
Lead Risk Housing	53.3
Pesticides	11.9
Toxic Releases	3.80
Traffic	0.56
Effect Indicators	—
CleanUp Sites	25.6
Groundwater	52.0
Haz Waste Facilities/Generators	35.6
Impaired Water Bodies	66.7
Solid Waste	98.8
Sensitive Population	—
Asthma	47.6
Cardio-vascular	78.1
Low Birth Weights	15.4
Socioeconomic Factor Indicators	—
Education	28.1
Housing	47.1
Linguistic	0.51
Poverty	66.9

Unemployment	4.89

7.2. Healthy Places Index Scores

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.

Indicator	Result for Project Census Tract
Economic	—
Above Poverty	17.04093417
Employed	4.606698319
Median HI	10.43243937
Education	—
Bachelor's or higher	50.58385731
High school enrollment	100
Preschool enrollment	56.08879764
Transportation	—
Auto Access	40.90850764
Active commuting	33.23495445
Social	—
2-parent households	18.90157834
Voting	36.160657
Neighborhood	—
Alcohol availability	97.0101373
Park access	37.39253176
Retail density	1.385859104
Supermarket access	32.87565764
Tree canopy	99.80751957
Housing	—
Homeownership	53.79186449

Housing habitability	30.36058001
Low-inc homeowner severe housing cost burden	22.17374567
Low-inc renter severe housing cost burden	68.90799435
Uncrowded housing	49.1979982
Health Outcomes	—
Insured adults	21.67329655
Arthritis	0.0
Asthma ER Admissions	52.9
High Blood Pressure	0.0
Cancer (excluding skin)	0.0
Asthma	0.0
Coronary Heart Disease	0.0
Chronic Obstructive Pulmonary Disease	0.0
Diagnosed Diabetes	0.0
Life Expectancy at Birth	50.9
Cognitively Disabled	29.3
Physically Disabled	32.1
Heart Attack ER Admissions	51.6
Mental Health Not Good	0.0
Chronic Kidney Disease	0.0
Obesity	0.0
Pedestrian Injuries	91.7
Physical Health Not Good	0.0
Stroke	0.0
Health Risk Behaviors	—
Binge Drinking	0.0
Current Smoker	0.0

No Leisure Time for Physical Activity	0.0
Climate Change Exposures	—
Wildfire Risk	59.6
SLR Inundation Area	0.0
Children	31.0
Elderly	57.9
English Speaking	96.2
Foreign-born	1.2
Outdoor Workers	29.8
Climate Change Adaptive Capacity	—
Impervious Surface Cover	98.0
Traffic Density	0.7
Traffic Access	0.0
Other Indices	—
Hardship	64.0
Other Decision Support	—
2016 Voting	16.7

7.3. Overall Health & Equity Scores

Metric	Result for Project Census Tract
CalEnviroScreen 4.0 Score for Project Location (a)	25.0
Healthy Places Index Score for Project Location (b)	27.0
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.

7.4. Health & Equity Measures

No Health & Equity Measures selected.

7.5. Evaluation Scorecard

Health & Equity Evaluation Scorecard not completed.

7.6. Health & Equity Custom Measures

No Health & Equity Custom Measures created.

8. User Changes to Default Data

Screen	Justification
Construction: Construction Phases	Construction schedule per project engineers.
Construction: Off-Road Equipment	Equipment estimated by project engineers.
Construction: Trips and VMT	Worker trips per project engineer based on a maximum of six workers per day. Vendor trips for exporting old pipe and importing new pipe. Paving haul trips based on estimated 68 loads of aggregate and asphalt, assuming 16 CY per tandem trailer load.

Appendix C

Biological Resources Assessment

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March 1, 2024 HELIX Project # 04114.00045.001

Joe Riess, P.E.
Water Works Engineers
P.O. Box 3150
Weaverville, CA 96093

Subject: Biological Resources Assessment Report for Orleans Mutual Water Company Water Distribution System Replacement Project, Orleans, Humboldt County, California

Dear Mr. Riess:

HELIX Environmental Planning, Inc. (HELIX) prepared this biological resources assessment report for the proposed project located adjacent to Placer Drive (Study Area) in the unincorporated community of Orleans, Humboldt County, California. The proposed project includes the replacement of an existing water distribution system on behalf of the Orleans Mutual Water Company (OMWC).

The purpose of our biological resources assessment report was to evaluate the potential for regionally occurring special-status plant and animal species or sensitive biological habitats to occur in the Study Area and/or be impacted by the proposed project. This letter report describes the methods and results of our biological resources assessment. All referenced figures are included in Attachment A.

PROJECT LOCATION AND DESCRIPTION

The Study Area is located along Placer Drive in the community of Orleans, off Highway 96, within an unincorporated area of Humboldt County (Figure 1). The Study Area is approximately 41.63 acres and is located within the U.S. Geological Survey 7.5-minute *Orleans, CA* topographic quadrangle Township 11 North, Range 5 East, Section 36. The approximate center of the Study Area is at latitude 41.2977284 and longitude -123.5596421, NAD 83 (Figures 1 and 2).

Under the proposed project, existing water distribution piping would be demolished or abandoned in place and replaced with new water alignment piping. The proposed project is divided into three water main alignments: the Crawford Hill Subdivision Alignment, the Camp Creek Crossing Alignment, and the Raw Water Alignment (Figures 6, 7, and 8). The Crawford Hill Subdivision Alignment would serve properties within the Crawford Hill Subdivision; the Camp Creek Crossing Alignment would serve properties on the eastern side of Placer Drive and along Lower Camp Creek Road, east of Camp Creek; the Raw Water Alignment would provide raw water for agricultural irrigation to the Tishaniik Farm. A turnout would be installed at the bottom of Lower Camp Creek Road for future consolidation with the

Orleans Community Services District (OCSD) and for water system redundancy. New non-potable fire hydrants would be installed at approximately 500 feet intervals along Camp Creek Road and Placer Drive.

Additionally, a total of 38 new water services would be installed at each active and inactive property to replace the services of the existing water mains. The new water services would include new water meters and customer-side isolation valves in separate valve boxes.

METHODS

Background Research

Background research was conducted to inform and create target species lists to focus the survey efforts. Accessible information in public databases pertaining to natural resources in the region of the Study Area was queried. The following site-specific published information was reviewed for this BRA:

- California Department of Fish and Wildlife (CDFW). 2024. California Natural Diversity Database (CNDDB); For Lonesome Ridge, Orleans, Bark Shanty Gulch, Somes Bar, Fish Lake, Orleans Mtn., Weitchpec, Hopkins Butte, and Salmon Mtn. USGS 7.5-minute series quadrangles, Sacramento, CA. Accessed [February 5, 2024];

- California Native Plant Society (CNPS). 2024. Inventory of Rare and Endangered Plants (online edition, v8-03 0.39) For: Lonesome Ridge, Orleans, Bark Shanty Gulch, Somes Bar, Fish Lake, Orleans Mtn., Weitchpec, Hopkins Butte, and Salmon Mtn. USGS 7.5-minute series quadrangles, Sacramento, CA. Accessed [February 5, 2024];

- U.S. Department of Agriculture (USDA), Natural Resource Conservation Service (NRCS). 2024. *Web Soil Survey*. Available at: http://websoilsurvey.sc.egov.usda.gov. [Accessed February 5, 2024];

- U.S. Fish and Wildlife Service (USFWS). 2024. Information for Planning and Consultation (IPaC). List of threatened and endangered species that may occur in your proposed project location and/or be affected by your proposed project. [Accessed February 5, 2024];

- U.S. Fish and Wildlife Critical Habitat Portal at: https://ecos.fws.gov/ecp/report/table/critical-habitat.html.

Special-Status Species Evaluation

Regulations pertaining to the protection of biological resources in the Study Area are summarized in Attachment B. For the purposes of this report, special-status species are those that fall into one or more of the following categories, including those:

- listed as endangered or threatened under the Federal Endangered Species Act (FESA; including candidates and species proposed for listing);

- listed as endangered or threatened under the California Endangered Species Act (CESA; including candidates and species proposed for listing);
- designated as rare, protected, or fully protected pursuant to California Fish and Game Code;
- designated a Species of Special Concern (SSC) by the CDFW;
- considered by CDFW to be a Watch List species with potential to become an SSC;
- defined as rare or endangered under Section 15380 of the California Environmental Quality Act (CEQA); or
- Having a California Rare Plant Rank (CRPR) of 1A, 1B, 2A, 2B, or 3.

In order to evaluate special-status species and/or their habitats with the potential to occur in the Study Area and/or be impacted by the proposed project, HELIX obtained lists of special-status species known to occur and/or that have the potential to occur in the Study Area and vicinity from the U.S. Fish and Wildlife Service (USFWS; USFWS 2024), the California Native Plant Society (CNPS; CNPS 2024), and the California Natural Diversity Database (CNDDB; CDFW 2024). Attachment C includes these lists of special-status plant and animal species occurring in the project region. The potential for these regionally occurring special-status species to occur in the Study Area is analyzed in Attachment D.

Reconnaissance Survey

A biological reconnaissance survey was conducted on November 21, 2023, by HELIX biologist Greg Davis. The Study Area was systematically surveyed on foot to ensure total search coverage; however, some areas were not accessed at the request of the tribal representative during the survey. All plant and animal species observed on-site during the surveys were recorded (Attachment E), and all biological communities occurring on-site were characterized. Following the field survey, the potential for each species identified in the database query to occur within the Study Area was determined based on the site survey, soils, habitats present within the Study Area, and species-specific information, as shown in Attachment D.

RESULTS

Environmental Setting

The Study Area is located in a rural, unincorporated portion of Humboldt County. The Study Area is located on the west side of Orleans, north of Highway 96 and the Klamath River. The community of Orleans is surrounded by the Six Rivers National Forest and the Marble Mountain Wilderness Area. Land uses within and surrounding the Study Area are residential and public land used for timber production, primarily within the Six Rivers National Forest. An aerial photograph of the Study Area is displayed on Figure 3.

Topography

Topography within the Study Area varies and includes relatively flat areas adjacent to State Route 96 (SR 96) and Camp Creek, as well as moderate to steep slopes in the northwestern portion of the Study Area with graded areas associated with a rural residential subdivision. Elevations range from 380 to 500 feet above mean sea level (MSL). Camp Creek flows through the eastern portion of the Study Area.

Soils

The Study Area contains three soil map units (NRCS 2024): Typic Xerofluvents-Riverwash association, 2 to 10 percent slopes, Pits and Dumps, and Hugo family, moderately deep, 50 to 70 percent slopes (Figure 4).

Typic Xerofluvents-Riverwash association, 2 to 10 percent slopes (100): these soils occur on baseslopes, alluvial fans, and toeslopes and consist of sandy and gravelly alluvium. A typical profile for Typic Xerofluvents-Riverwash association is gravelly sandy loam from 0 to 10 inches and stratified extremely gravelly loamy sand to silt loam from 10 to 60 inches. The depth to water table for Typic Xerofluvents-Riverwash association soils is greater than 80 inches. Typic Xerofluvents-Riverwash association soils are considered hydric when associated with alluvial fans.

Pits and Dumps (102): these soils occur on terraces, footslopes, and risers and consist of gravelly alluvium. A typical profile for Pits and Dumps soil is very bouldery from 0 to 4 inches. The depth to water table for Pits and Dumps soil is greater than 80 inches. Pits and Dumps soils are not rated as hydric by the NRCS.

Hugo family, moderately deep, 50 to 70 percent slopes (272): these soils occur on mountains and are derived from residuum weathered from metasedimentary rock. A typical soil profile for this map unit includes gravelly loam from 0 to 24 inches underlain by weathered bedrock from 24 to 34 inches. This soil map unit is not rated as hydric by the NRCS.

Hydrology

The Study Area is located within the Camp Creek hydrologic unit (HUC12: 180102090801). Waterways in the region of the Study Area, including Camp Creek, flow into the Klamath River and eventually to the Pacific Ocean.

Biological Communities

Eight biological communities were mapped within the Study Area, including rural residential, ruderal/disturbed areas, road, Douglas fir forest, mixed chaparral, irrigated row crop, montane riparian, and perennial drainage (Camp Creek). Biological communities are depicted on Figure 5 and are further discussed below. Mapped roads within the Study Area include SR 96, which are not further described in this document. A list of species observed during the biological reconnaissance survey is included in Attachment E. Representative site photographs are not included in this report at the request of the tribal representative present at the time of the survey.

Rural Residential

Approximately 23.83 acres of rural residential areas were mapped within the Study Area. This community includes existing residences and access roads associated with Placer Drive and Lower Camp Creek Road. These areas are relatively developed and include a mix of native and non-native species, which include ornamental plants, weeds, and native trees such as Douglas fir (*Pseudotsuga menziesii*).

Ruderal/Disturbed

Ruderal/disturbed habitat covers approximately 3.45 acres of the Study Area and occurs along roadways and previously cleared areas. This community occurs in areas that are heavily disturbed by past or ongoing human activities but retain a soil substrate. Ruderal/disturbed areas may be sparsely to densely vegetated, but do not support a recognizable community or species assemblage. Vegetative cover is usually herbaceous and dominated by a wide variety of weedy non-native species or a few ruderal native species. Dominant plants within this community include ripgut brome (*Bromus diandrus*), common velvet grass (*Holcus lanatus*), wild mustard (*Hirschfeldia incana*), yellow star-thistle (*Centaurea solstitialis*), stinkwort (*Dittrichia graveolens*), and Himalayan blackberry (*Rubus armeniacus*).

Douglas Fir

Douglas fir forested habitat covers approximately 5.63 acres of the Study Area. This community is present between Camp Creek and the subdivision associated with Placer Drive, as well as east of Lower Camp Creek Road. This community consists of stands dominated by Douglas fir and tanoak (*Notholithocarpus densiflorus*) and is interspersed with Pacific madrone (*Arbutus menziesii*), bigleaf maple (*Acer macrophyllum*), and black oak (*Quercus kelloggii*). This habitat type is frequently found on stream terraces, slopes, and ridges of all aspects. The understory is sparse, with dense leaf litter and small woody debris. The understory of this community includes evergreen huckleberry (*Vaccinium ovatum*), western sword fem (*Polystichum munitum*), and poison oak *(Toxicodendron diversilobum).*

Mixed Chaparral

Approximately 0.38 acre of mixed chaparral was mapped within the Study Area, which is associated with a remnant pile of tailings in the northern portion of the Study Area adjacent to Placer Drive. Dominant plant species within this community include Eastwood manzanita (*Arctostaphylos glandulosa*), toyon (*Heteromeles arbutifolia*), pacific madrone, poison oak, and licorice fern (*Polypodium glycyrrhiza*).

Irrigated Row Crop

Approximately 3.03 acres of irrigated row crop community was mapped within the southern portion of the Study Area. This community is associated with the Tishaniik Community Farm, which is situated south of SR 96. A portion of this community includes a thicket of arroyo willow (*Salix lasiolepis*) that follows the base of the fill slope of SR 96. The thicket of willow receives runoff from the adjacent roadway; however, hydric soils and/or wetland hydrology were not observed in the willow thicket at the time of the survey.

Montane Riparian

Approximately 2.36 acres of montane riparian habitat was mapped within the Study Area, which is associated with Camp Creek in the eastern portion of the Study Area. This community extends from the banks of Camp Creek to the adjacent low terraces to the west and east. Dominant plant species within this community include white alder (*Alnus rhombifolia*), big leaf maple, California hazel (*Corylus cornuta*), Pacific dogwood (*Cornus nuttallii*), and giant chain fern (*Woodwardia fimbriata*).

Perennial Drainage (Camp Creek)

Approximately 1.86 acres of perennial drainage (Camp Creek) was mapped within the Study Area, consisting of one perennial drainage that flows into the Klamath River approximately 0.2 miles north of the Study Area. The perennial drainage in the Study Area exhibits a well-defined ordinary high water mark (OHWM). The low flow channel exhibits an apparent bed and bank that transitions to a gently sloped and vegetated terrace in some areas, which is included within the active floodplain of Camp Creek. Perennial drainages are typically fed by waters from a groundwater table that supplies year-round water and are supplemented by precipitation and storm water runoff. After the initial onset of rains, these features have persistent flows throughout and past the end of the rainy season, with reduced flow before the onset of precipitation in the fall. Typically, these features exhibit a defined bed and bank and show signs of scouring because of rapid flow events. Within the Study Area, the bed of the perennial drainage consists of boulder, gravel, and cobble in riffle and run sections of the drainage. Camp Creek is known to support spawning salmonids such as Chinook salmon (*Oncorhynchus tshawytscha*) and coho salmon (*Oncorhynchus kisutch*). This community is heavily shaded by the tree species associated with the montane riparian habitat, some of which are growing within the active floodplain, and includes other plants such as umbrella plant (*Darmera peltata*), California blackberry (*Rubus ursinus*), and Himalayan blackberry.

Special-Status Species Evaluation

A total of 30 regionally occurring special-status plant species and 27 regionally occurring special-status wildlife species were identified during the database queries and desktop review and are evaluated in Attachment D.

Special-Status Plant Species

A total of 30 regionally occurring special-status plant species were identified during the database searches and desktop review. The Study Area does not provide habitat for the majority of the regionally-occurring special-status plant species, which are associated with high elevation habitats, serpentine soils, and certain wetland habitats that do not occur within the Study Area.

However, based on the results of the desktop review and biological reconnaissance survey, the Study Area provides suitable habitat for eight special-status plant species: Bald Mountain milk-vetch (*Astragalus umbraticus*), coast fawn lily (*Erythronium revolutum*), small groundcone (*Kopsiopsis hookeri*), white-flowered rein orchid (*Piperia candida*), crinkled rag lichen (*Platismatia lacunosa*), Hooker's catchfly (*Silene hookeri*), Marble Mountain campion (*Silene marmorensis*), and robust false lupine (*Thermopsis robusta*). These species are discussed below. Special-status species determined to have no

potential to occur in the Study Area or that are not expected to occur in the Study Area and be impacted by the proposed project (Attachment D) are not discussed further in this report.

Bald Mountain Milk-vetch

Federal status – None
State status – None
Other – California Rare Plant Rank (CRPR) 2B.2

Species Description

Bald Mountain milk-vetch is a perennial herb in the legume family (Fabaceae) that is classified with a California Rare Plant Rank (CRPR) of 2B by the CNPS, which are plants considered to be rare, threatened, or endangered in California but are more common elsewhere. This species is found in dry openings within cismontane woodland and lower montane coniferous forest, sometimes on roadsides, from 150 to 1,250 meters above MSL (CNPS 2024, CDFW 2024). The blooming period for this species is from May to August.

Survey History

Bald Mountain milk-vetch was not observed during the biological survey; however, the survey was conducted outside of the known blooming period for this species. There are no documented CNDDB records of this species within a five-mile radius of the site (CDFW 2024).

Habitat Suitability

Suitable habitat for this species is present in openings within the Douglas fir forest community, as well as in roadcuts along Camp Creek Road. This species may occur within the Study Area, given that is known to occur in the vicinity and suitable habitat is present.

Potential for Impacts

There is potential for direct and indirect effects to Bald Mountain milk-vetch if this species is present within the Study Area. The recommended mitigation measures for special-status plants in the following section would reduce potential impacts to this species to less than significant.

Coast Fawn Lily

Federal status – None
State status – None
Other – CRPR 2B.2

Species Description

Coast fawn lily is a perennial bulbiferous herb in the lily family (Liliaceae) that is classified with a CRPR of 2B by the CNPS. This species is found on mesic soils and streambanks in bogs and fens, broadleaved upland forest, and North Coast coniferous forest from 0 to 1,600 meters above MSL. The blooming

period for this species is from March to July, and can occasionally bloom as late as August. Associated species include Douglas fir, tanoak, and Pacific madrone (CNPS 2024).

Survey History

Coast fawn lily was not observed during the biological survey; however, the survey was conducted outside of the known blooming period for this species. The nearest extant occurrence is 8.5 miles south of the Study Area along a logging road (CDFW 2024).

Habitat Suitability

Suitable habitat for this species is present in the Douglas fir and montane riparian communities within the Study Area. This species may occur within the Study Area, given that is known to occur in the vicinity and suitable habitat is present.

Potential for Impacts

There is potential for direct and indirect effects to coast fawn lily if this species is present within the Study Area. The recommended mitigation measures for special-status plants in the following section would reduce potential impacts to this species to less than significant.

Small Groundcone

Federal status – None
State status – None
Other – CRPR 2B.3

Species Description

Small groundcone is a parasitic perennial rhizomatous herb in the broomrape family (Orobanchaceae) that is classified with a CRPR of 2B by the CNPS. This species is found in North Coast coniferous forest from 90 to 885 meters above MSL and blooms from April to August. Microsite habitat characteristics include shrubby places in open woods, generally found on salal (*Gaultheria shallon*) and occasionally on Pacific madrone (*Arbutus menziesii*) and Kinnikinnick (*Arctostaphylos uva-ursi*) (CNPS 2024).

Survey History

Small groundcone was not observed during the biological survey; however, the survey was conducted outside of the known blooming period for this species. There are no documented CNDDB records of this species within a five-mile radius of the Study Area (CDFW 2024).

Habitat Suitability

Pacific madrone, an occasional host plant of this species, was observed in the Douglas fir community within the Study Area, which provides suitable habitat for this species. This species may occur in the

Douglas fir community within the Study Area, given that is known to occur in the vicinity and suitable habitat is present.

Potential for Impacts

There is potential for direct and indirect effects to small groundcone if this species is present within the Study Area. The recommended mitigation measures for special-status plants in the following section would reduce potential impacts to this species to less than significant.

White-flowered Rein Orchid

Federal status – None
State status – None
Other – CRPR 1B.2

Species Description

White-flowered rein orchid is a perennial herb in the orchid family (Orchidaceae) that is classified with a CRPR of 1B by the CNPS, which are plants considered to be rare, threatened, or endangered in California and elsewhere. This species is found within broadleaved upland forests, lower montane coniferous forests, and North Coast coniferous forests from 30 to 1,310 meters above MSL. This species is sometimes found on serpentinite substrates and is generally associated with sites containing forest duff, mossy banks, rock outcrops, and muskeg. The blooming period for this species has been documented as early as March; however, it typically blooms between May and September (CDFW 2024, CNPS 2024).

Survey History

White-flowered rein orchid was not observed during the biological survey; however, the survey was conducted outside of the known blooming period for this species. The nearest extant occurrence is 6.5 miles west of the Study Area, which is described to be within Douglas fir forest (CDFW 2024).

Habitat Suitability

The Douglas fir community within the Study Area provides suitable habitat for this species. This species may occur in the Douglas fir community within the Study Area, given that is known to occur in the vicinity and suitable habitat is present.

Potential for Impacts

There is potential for direct and indirect effects to white-flowered rein orchid if this species is present within the Study Area. The recommended mitigation measures for special-status plants in the following section would reduce potential impacts to this species to less than significant.

Crinkled Rag Lichen

Federal status – None
State status – None
Other – CRPR 2B.3

Species Description

Crinkled rag lichen is an epiphytic foliose lichen that is classified with a CRPR of 2B by the CNPS. This species is found within North Coast coniferous forest and riparian woodland from 20 to 2,000 meters above MSL (CNPS 2024). This species is usually found growing on alder trees (*Alnus* spp.) and/or alder bark litterfall (CDFW 2024).

Survey History

Crinkled rag lichen would likely have been identifiable during the survey; however, its suitable habitat, the montane riparian community, was only partially accessible due to private property being present within the Study Area that could not be accessed. There are no documented CNDDB records of this species within a five-mile radius of the Study Area (CDFW 2024).

Habitat Suitability

The montane riparian community within the Study Area contains alders that provide suitable habitat/substrate for this species. This species may occur in the montane riparian community within the Study Area, given that is known to occur in the vicinity and suitable habitat is present.

Potential for Impacts

Direct and/or indirect effects to this species are not anticipated, given that the current designs do not indicate impacts to the montane riparian community. If future iterations of the project design were to include impacts to the montane riparian community, the recommended mitigation measures for special-status plants in the following section would reduce potential impacts to this species to less than significant.

Hooker's Catchfly

Federal status – None
State status – None
Other – CRPR 2B.2

Species Description

Hooker's catchfly is a perennial herb in the pink family (Caryophyllaceae) that is classified with a CRPR of 2B by the CNPS. This species is often found in grassy openings within chaparral, cismontane woodland, and lower montane coniferous forest from 150 to 1,260 meters above MSL. This species is sometimes found growing on rocky slopes and/or serpentine substrates. The blooming period for this species has been documented as early as March, but typically blooms between May and July (CDFW 2024, CNPS 2024).

Survey History

Hooker's catchfly was not observed during the biological survey; however, the survey was conducted outside of the known blooming period for this species. There are five reported CNDDB occurrences of this species within a five-mile radius of the Study Area, with the nearest being a historic occurrence from

1929 that overlaps the Study Area (CDFW 2024). The next nearest and more recent CNDDB occurrence is located approximately 3.7 miles to the north, which is from 2019 and is associated with an exposed serpentine road bank (CDFW 2024).

Habitat Suitability

Openings within the Douglas fir community in the Study Area provide suitable habitat for this species; however, the potential for this species to occur is low, given that it is typically observed growing on serpentine substrates, which do not occur in the Study Area.

Potential for Impacts

There is potential for direct and indirect effects to Hooker's catchfly if this species is present within the Study Area. The recommended mitigation measures for special-status plants in the following section would reduce potential impacts to this species to less than significant.

Marble Mountain Campion

Federal status – None
State status – None
Other – CRPR 1B.2

Species Description

Marble Mountain campion is a perennial herb in the pink family (Caryophyllaceae) that is classified with a CRPR of 1B by the CNPS. This species is found in broadleaf upland forests, chaparral, cismontane woodlands, and lower montane coniferous forests from 170 to 1,250 meters above MSL. The blooming period for this species is between June and August (CNPS 2024).

Survey History

Hooker's catchfly was not observed during the biological survey; however, the survey was conducted outside of the known blooming period for this species. The nearest extant occurrence is 6.2 miles east of the Study Area along the Salmon River Trail in an area with Douglas fir and tanoak (CDFW 2024).

Habitat Suitability

The Douglas fir community within the Study Area provides suitable habitat for this species. This species may occur in the Douglas fir community within the Study Area, given that is known to occur in the vicinity and suitable habitat is present.

Potential for Impacts

There is potential for direct and indirect effects to Marble Mountain campion if this species is present within the Study Area. The recommended mitigation measures for special-status plants in the following section would reduce potential impacts to this species to less than significant.

Robust False Lupine

Federal status – None
State status – None
Other – CRPR 1B.2

Species Description

Robust false lupine is a perennial rhizomatous herb in the legume family (Fabaceae) that is classified with a CRPR of 1B by the CNPS. This species is found within broadleaf upland forests and North Coast coniferous forests from 150 to 1,500 meters above MSL. Other ecological preferences of this species include growing along ridges and sometimes on serpentine substrates. The blooming period of this species is between May and July (CDFW 2024, CNPS 2024).

Survey History

Hooker's catchfly was not observed during the biological survey; however, the survey was conducted outside of the known blooming period for this species. There are 10 reported CNDDB occurrences of this species within a five-mile radius of the Study Area, with the nearest being a historic occurrence from 1931 that overlaps the Study Area (CDFW 2024). The next nearest and more recent CNDDB occurrence is located approximately 2.2 miles to the northwest along a ridgeline road, which is from 2009 (CDFW 2024).

Habitat Suitability

Although there are no ridgelines within the Study Area, the openings along the mid-slope Camp Creek Road and adjacent to the mixed chaparral community may provide marginal habitat for this species. This species may occur in the openings along the mid-slope Camp Creek Road and adjacent mixed chaparral community within the Study Area, given that is known to occur in the vicinity and marginal habitat is present.

Potential for Impacts

There is potential for direct and indirect effects to robust false lupine if this species is present within the Study Area. The recommended mitigation measures for special-status plants in the following section would reduce potential impacts to this species to less than significant.

Special-Status Wildlife Species

A total of 27 regionally occurring special-status wildlife species were identified during the database searches and desktop review. The Study Area does not provide habitat for the majority of the regionally-occurring special-status wildlife species, which are associated with aquatic habitats such as lakes and ponds, steep cliff faces, and old-growth forest habitat that do not occur within the Study Area.

The Study Area provides suitable habitat for 13 special-status wildlife species, including Klamath River lamprey (*Entosphenus similis*), coastal cutthroat trout (*Oncorhynchus clarkii clarkii*), coho salmon (*Oncorhynchus kisutch pop. 2*), Chinook salmon (*Oncorhynchus tshawytscha* pop. 30), Pacific tailed frog (*Ascaphus truei*), Del Norte salamander (*Plethodon elongatus*), foothill yellow-legged frog (*Rana boylii*

pop. 1), southern torrent salamander (*Rhyacotriton variegatus*), northern goshawk (*Accipiter gentilis*), ruffed grouse (*Bonasa umbellus*), bald eagle (*Haliaeetus leucocephalus*), osprey (*Pandion haliaetus*), and northern spotted owl (*Strix occidentalis caurina*), as well as habitat for other migratory birds and raptors. These species are discussed briefly below. Although marbled murrelet (*Brachyramphus marmoratus*) and Pacific marten (*Martes caurina*) are not expected to occur within the Study Area, they are discussed in this report due to the presence of designated Critical Habitat for these species in the Study Area. The remaining special-status species determined to have no potential to occur within the Study Area or that are not expected to occur in the Study Area and be impacted by the proposed project (Attachment D) are not discussed further in this report.

Klamath River Lamprey

Federal status – None
State status – None
Other – CDFW Species of Special Concern

Species Description

Klamath River lamprey are a species of fish that appear to be non-migratory and are resident in both rivers and lakes of the Klamath basin. Klamath River lamprey are thought to need cold, clear water for spawning and incubation (Moyle 2002). Adults typically use spawning gravel to build nests, while ammocoetes burrow in soft sediments for rearing (Kostow 2002). Ammocoetes also need larger substrates as they grow and algae for food in habitats with slow or moderately slow water velocities.

Survey History

Klamath River lamprey was not observed during the biological survey; however, the Klamath River is located approximately 0.1 mile south of the Study Area. There are no documented CNDDB occurrences of this species within a five-mile radius of the Study Area (CDFW 2024).

Habitat Suitability

This species' distribution in the lower Klamath River coincides with spawning Chinook and coho salmon, their main prey in the lower Klamath River (Moyle et al. 2015). Given that coho and Chinook salmon are known to occur within Camp Creek, this species may occur within the Study Area. However, Camp Creek within the Study Area is heavily shaded and likely does not produce abundant algae as a food source for ammocoetes, which lowers the potential for this species to occur.

Potential for Impacts

No direct impacts to potential habitat in Camp Creek would be anticipated as a result of the proposed project, as the project will not occur in Camp Creek. Indirect impacts associated with ground-disturbing activities, such as transport/deposition of deleterious substances to surface waters from adjacent work areas (e.g., sediment, petroleum products, etc.), could occur as a result of the proposed project.

The recommended mitigation measures for special-status fish species in the following section would reduce potential impacts to this species to less than significant.

Coastal Cutthroat Trout

Federal status – None
State status – None
Other – CDFW Species of Special Concern

Species Description

Coastal cutthroat trout usually inhabit and spawn in small to moderately large, clear, well-oxygenated, shallow rivers with gravel bottoms. The native range of the coastal cutthroat trout extends south from the southern coastline of the Kenai Peninsula in Alaska to the Eel River in Northern California. Coastal cutthroat trout are resident in tributary streams and rivers of the Pacific basin and are rarely found more than 100 miles (160 km) from the ocean (Behnke 2002).

Survey History

Coastal cutthroat trout was not observed during the biological survey; however, the Study Area is within the native range of this species. There are no documented CNDDB occurrences of this species within a five-mile radius of the Study Area (CDFW 2024).

Habitat Suitability

Camp Creek within the Study Area provides suitable habitat for this species, as it is a perennial drainage with suitable gravel substrate and is within 100 miles of the ocean. Additionally, Camp Creek is known to support salmonid species such as coho and Chinook salmon.

Potential for Impacts

No direct impacts to potential habitat in Camp Creek would be anticipated as a result of the proposed project, as the project will not occur in Camp Creek. Indirect impacts associated with ground-disturbing activities, such as transport/deposition of deleterious substances to surface waters from adjacent work areas (e.g., sediment, petroleum products, etc.), could occur as a result of the proposed project.

The recommended mitigation measures for special-status fish species in the following section would reduce potential impacts to this species to less than significant.

Coho Salmon – Southern Oregon/Northern California Coast (SONCC) ESU

Federal status – Threatened
State status – Threatened
Other – None

Species Description

Coho salmon are anadromous fish that spawn in small headwater streams and side channels with clean gravel beds. In California, these salmon return to their natal streams to spawn after 6 to 18 months in the ocean. Hatchlings mature in shaded, off-channel pools and oxbows that are protected from high winter flows. Juveniles migrate to the ocean to mature before returning upstream to spawn and die

(NMFS 2014). This ESU includes all naturally spawned populations of coho salmon in coastal streams between Cape Blanco, Oregon, and Santa Cruz, California (NMFS 2014). The National Marine Fisheries Service (NMFS) divided the California populations into five diversity strata, which each represent environmentally and ecologically similar regions: Klamath River, Trinity River, Eel River, Central Coastal, and Southern Coastal strata (Williams et al 2007). The largest remaining SONCC coho populations in California are in the Klamath, Trinity, Mad, Humboldt Bay, Eel, and Mattole drainages, with additional populations in some smaller coastal streams.

Survey History

Coho salmon was not observed during the biological survey; however, the Study Area is within the native range of this species. This species is known to occur within Camp Creek and the Klamath River downstream of the Study Area (CDFW 2012).

Habitat Suitability

Camp Creek within the Study Area provides suitable spawning and overwintering habitat for this species.

Potential for Impacts

No direct impacts to potential habitat in Camp Creek would be anticipated as a result of the proposed project, as the project will not occur in Camp Creek. Indirect impacts associated with ground-disturbing activities, such as transport/deposition of deleterious substances to surface waters from adjacent work areas (e.g., sediment, petroleum products, etc.), could occur as a result of the proposed project.

The recommended mitigation measures for special-status fish species in the following section would reduce potential impacts to this species to less than significant.

Chinook Salmon – Upper Klamath and Trinity River (UKTR) ESU

Federal status – Candidate
State status – Threatened
Other – CDFW Species of Special Concern

Species Description

This evolutionary significant unit (ESU) includes both spring- and fall-run Chinook salmon, which are anadromous salmonid fishes native to fresh and ocean waters of the North Pacific rim. Individuals within this ESU spawn in rivers and streams with cool, clear, water and suitable cobble and gravel substrate within the upper Klamath and Trinity River (UKTR) basins. Adult UKTR spring Chinook salmon enter the Klamath estuary in the spring and summer (March – July) for spawning, while the fall-run returns to the UKTR from August to October (CDFW 2020).

Survey History

Chinook salmon was not observed during the biological survey; however, the Study Area is within the native range of this species. This species is known to occur within Camp Creek and the Klamath River downstream of the Study Area (USFWS 2008).

Habitat Suitability

Camp Creek within the Study Area provides suitable spawning and overwintering habitat for this species.

Potential for Impacts

No direct impacts to potential habitat in Camp Creek would be anticipated as a result of the proposed project, as the project will not occur in Camp Creek. Indirect impacts associated with ground-disturbing activities, such as transport/deposition of deleterious substances to surface waters from adjacent work areas (e.g., sediment, petroleum products, etc.), could occur as a result of the proposed project.

The recommended mitigation measures for special-status fish species in the following section would reduce potential impacts to this species to less than significant.

Pacific Tailed Frog

Federal status – None
State status – None
Other – CDFW Species of Special Concern

Species Description

In California, this species occurs in coastal California from Mendocino to the Oregon border up to an elevation of nearly 2,000 meters (Jennings and Hayes 1994). This species requires cold, clear, and permanent water for all life stages, including larval development. This species is most commonly found in old growth forests that provide cold water conditions that this species requires (Jennings and Hayes 1994). This species is active from April through October which is typically when reproduction occurs. Eggs are deposited in strands on the underside of submerged rocks and metamorphosis typically takes two to three years (Jennings and Hayes 1994).

Survey History

Pacific tailed frog was not observed within the Study Area during the biological survey. There are four reported CNDDB occurrences of this species within a five-mile radius of the Study Area, with the nearest being located approximately 2.6 miles to the southwest within Red Cap Creek, south of the Klamath River (CDFW 2024).

Habitat Suitability

There is high potential for Pacific tailed frog to occur within the Study Area, given that Camp Creek provides suitable aquatic habitat and that this species is known to occur within close proximity to the Study Area. This species may also utilize adjacent uplands to Camp Creek as upland dispersal and/or refugia habitat.

Potential for Impacts

If Pacific tailed frog occupies the Study Area or areas adjacent to the Study Area during construction, potential adverse effects to the species could include take of individuals using upland areas for dispersal

and/or refugia during construction. This would be a potentially significant impact. No direct impacts to potential habitat in Camp Creek would be anticipated as a result of the proposed project, as the project will not occur in Camp Creek or the montane riparian community.

The recommended mitigation measures for special-status amphibian species in the following section would reduce potential impacts to this species to less than significant.

Del Norte Salamander

Federal status – None
State status – None
Other – CDFW Watchlist Species

Species Description

This species is found along the coast in far northwest California from near Orick, Humboldt County, east to near the Seiad Valley, Siskiyou County, and Salyer, Trinity County, and north into southwestern Oregon where they have been found inland along West Cow Creek in Douglas County. The species is terrestrial and strongly associated with moist talus in humid shaded and closed-canopy coastal forests of mixed hardwoods and conifers, but also found in rock rubble of old riverbeds, and under bark and logs on the forest floor, usually in rocky areas. It is especially attracted to older forests (Stebbins et al. 2012).

Survey History

Del Norte salamander was not observed within the Study Area during the biological survey. There are five reported CNDDB occurrences of this species within a five-mile radius of the Study Area, with the nearest being located approximately 0.5 mile to the west (CDFW 2024). This observation is from 1989 and is associated with Ullathorne Creek. This species was also observed within Camp Creek in 1995 approximately 0.6 mile upstream and to the north of the Study Area (CDFW 2024).

Habitat Suitability

There is a high potential for Del Norte salamander to occur within the Study Area, given that this species is known to occur within Camp Creek. This species may also utilize adjacent uplands to Camp Creek as upland dispersal and/or refugia habitat.

Potential for Impacts

If Del Norte salamander occupies the Study Area or areas adjacent to the Study Area during construction, potential adverse effects to the species could include take of individuals using upland areas for dispersal and/or refugia during construction. This would be a potentially significant impact. No direct impacts to potential habitat in Camp Creek would be anticipated as a result of the proposed project, as the project will not occur in Camp Creek or the montane riparian community.

The recommended mitigation measures for special-status amphibian species in the following section would reduce potential impacts to this species to less than significant.

Foothill Yellow-legged Frog

Federal status – None (see species description)
State status – None (see species description)
Other – CDFW Species of Special Concern

Species Description

The foothill yellow-legged frog (FYLF) range extends from the Transverse Mountains in southern California north to the Oregon border along the Coast Ranges in California (Zeiner *et al*. 2000). The range of FYLF in the Sierra Nevada exists from the Cascade crest and along the western side of the Sierra Nevada to Kern County. Isolated records of the FYLF are known from San Joaquin County and Los Angeles County. The elevational range of FYLF extends from sea level up to 6,370 feet above msl (Zeiner *et al.* 2000).

Two studies have identified geographic breaks in populations of FYLF which are currently recognized by the CDFW. Both studies, Peek (2018) and McCartney-Melstad (2018), reached similar conclusions; however, Peek identified a separate and divergent clade along the Feather River. CDFW recognizes the five clades of FYLF, which include:

1) Northwest/North Coast: north of San Francisco Bay in the Coast Ranges and east in Tehama County;

2) Northeast/Northern Sierra: northern El Dorado County (North Fork American River watershed, includes Middle Fork American River) and north in the Sierra Nevada to southern Plumas County (Upper Yuba River watershed);

3) East/Southern Sierra: El Dorado County (South Fork American River watershed) and south in the Sierra Nevada;

4) West/Central Coast: south of San Francisco Bay in the Coast Ranges to San Benito and Monterey counties, presumably east of the San Andreas Fault/Salinas Valley; and

5) Southwest/South Coast: presumably west of the San Andreas Fault/Salinas Valley in Monterey County and south in the Coast Ranges.

The project site is located in population 1, North Coast distinct population segment of FYLF, which does not currently warrant listing under FESA and/or CESA but is considered a species of special concern by CDFW.

The FYLF aquatic habitat consists of streams flowing through a variety of vegetation communities, such as valley foothill hardwood, riparian, hardwood-conifer, chaparral, wet meadow, ponderosa pine, and mixed pine. FYLF prefer stream habitat with some shading greater than 20 percent but seem to be absent from streams with a canopy closure of 90 percent or more. The most important characteristics for FYLF habitat include the stream order, minimum temperatures, frequency of precipitation, stream gradient, and elevation. Breeding and rearing habitat is generally located in gently flowing, low-gradient streams with variable substrates dominated by cobble and boulders. In larger streams, breeding sites are usually in depositional areas at the tail end of pools or near tributary confluences. In smaller

streams, egg masses are placed in similar locations amongst cobble in depositional areas near pools. Egg masses are typically attached to leeward sides of boulders or cobbles to avoid exposure to high velocity flows. Tadpoles tend to also occupy similar sites as the egg masses, which are typically more protected from scouring events. The presence of sediment may reduce refugia for tadpoles and increase the likelihood they will be washed downstream during periods of high flow (Hayes *et al*. 2016).

FYLF upland habitat and their activity during the nonbreeding season is poorly known. FYLF have been detected moving through uplands, but it is not known where they are going, such as terrestrial sites or smaller tributary streams. FYLF is generally considered to be closely associated with stream habitats and typically are found within 165 feet of stream habitat. FYLF have been detected under surface objects in terrestrial environments (Zeiner *et al.* 2000).

Breeding typically starts in spring after high velocity flows begin to subside and air and water temperatures begin to increase. FYLF typically lay eggs as early as March, but as late as June at higher elevations in the Sierra Nevada. Eggs typically hatch after one to three weeks, which is dependent upon the temperature, with cooler temperatures decreasing the hatching time. Larvae metamorphose in 3 to 4 months and cooler water also delays larval metamorphosis. Growth rates and timing of development are dependent on location, which varies with temperature and flow velocities (Hayes *et al.* 2016).

Survey History

FYLF was not observed in the Study Area during the biological survey; however, focused or USFWS protocol-level surveys were not conducted for FYLF. There are six reported CNDDB occurrences of this species within a five-mile radius of the Study Area, with the nearest being located approximately 0.1 mile to the south, which is associated with the Klamath River and the mouth of Camp Creek (CDFW 2024).

Habitat Suitability

Suitable habitat for FYLF is present in the Study Area. The Douglas fir and montane riparian communities provide suitable upland habitat, where this species could disperse or seek refuge. Camp Creek provides suitable aquatic habitat for breeding and larval development in a cold, clear, and rocky stream.

Potential for Impacts

If FYLF occupies the Study Area or areas adjacent to the Study Area during construction, potential adverse effects to the species could include take of individuals using upland areas for dispersal and/or refugia during construction. This would be a potentially significant impact. No direct impacts to potential habitat in Camp Creek would be anticipated as a result of the proposed project, as the project will not occur in Camp Creek or the montane riparian community.

The recommended mitigation measures for special-status amphibian species in the following section would reduce potential impacts to this species to less than significant.

Southern Torrent Salamander

Federal status – None
State status – None
Other – CDFW Species of Special Concern

Species Description

In California, this species ranges from Mendocino County to the Oregon border up to 1,200 meters in elevation. This species occurs in cold, permanent small streams and seeps with rocky habitats (Jennings and Hayes 1994). Old growth forests typically provide cooler and wetter climates that this species requires. Larvae may occur in slightly larger streams, but overall, this species is likely excluded from larger streams by the presence of the larger California giant salamander larvae (Jennings and Hayes 1994).

Survey History

Southern torrent salamander was not observed within the Study Area during the biological survey. There are four reported CNDDB occurrences of this species within a five-mile radius of the Study Area, with the nearest being located approximately 0.8 mile to the south, which is associated with occurrence described as being between Boise Creek and Orleans (CDFW 2024).

Habitat Suitability

There is high potential for southern torrent salamander to occur within the Study Area, given that suitable habitat is present, and that this species is known to occur within close proximity to the Study Area. This species may also utilize adjacent uplands to Camp Creek as upland dispersal and/or refugia habitat.

Potential for Impacts

If southern torrent salamander occupies the Study Area or areas adjacent to the Study Area during construction, potential adverse effects to the species could include take of individuals using upland areas for dispersal and/or refugia during construction. This would be a potentially significant impact. No direct impacts to potential habitat in Camp Creek would be anticipated as a result of the proposed project, as the project will not occur in Camp Creek or the montane riparian community.

The recommended mitigation measures for special-status amphibian species in the following section would reduce potential impacts to this species to less than significant.

Northern Goshawk

Federal status – None
State status – None
Other – CDFW Watchlist Species

Species Description

This species nests and forages in mature and old-growth forest stands in a broad range of conifer and coniferous hardwood types, including Pacific ponderosa, Jeffrey and lodgepole pine, mixed conifer, firs, and pinyon-juniper with relatively dense canopies. This species may also forage in meadow edges and open sagebrush. The typical nesting and fledgling period for this species is between March 1 and August 15 (Woodbridge and Hargis 2006).

Survey History

Northern goshawk was not observed within or adjacent to the Study Area during the biological survey. There is one reported CNDDB occurrence of this species within a five-mile radius of the Study Area, which is located approximately 4.6 miles to the west (CDFW 2024). This occurrence documents a nest that was active in 1979 and 1980, which produced two young in both years (CDFW 2024).

Habitat Suitability

Suitable nesting for northern goshawk is present in the Study Area, and suitable foraging habitat is present within and adjacent to the Study Area.

Potential for Impacts

If northern goshawk were to nest within or adjacent to the Study Area during construction, impacts to active nests could occur through noise, vibration, and the presence of construction equipment and personnel resulting in nest abandonment. Project activities such as clearing and grubbing, grading or other earthwork, or tree removal during the breeding season (February 1 through August 31) could result in injury or mortality of eggs and chicks directly through nest destruction or indirectly through forced nest abandonment due to noise and other disturbance. This would be a potentially significant impact.

The recommended mitigation measures for nesting migratory birds and raptors in the following section would reduce potential impacts to this species to less than significant.

Ruffed Grouse

Federal status – None
State status – None
Other – CDFW Watchlist Species

Species Description

This species is an uncommon local resident of riparian and surrounding conifer forests at low to middle elevations in northwestern California. Its distribution within California extends from northern Del Norte County south to southern Humboldt County and westward to northern Trinity County and southwestern Siskiyou County. It primarily forages on aspen, alder, and willow buds/catkins but also eats insects, fruits, and vegetation. It utilizes thickets of alder, maple, hawthorn, and other deciduous trees for summer/fall cover, and adjacent conifer stands, which are used for winter shelter and escape cover. It nests on the ground near base of tree, stump, log, or brush, near stream (Zeiner et al. 1990).

Survey History

Ruffed grouse was not observed within or adjacent to the Study Area during the biological survey. There are no documented CNDDB records of this species within a five-mile radius of the Study Area (CDFW 2024).

Habitat Suitability

The montane riparian and Douglas fir communities within the Study Area provide suitable foraging and nesting habitat for this species.

Potential for Impacts

If ruffed grouse were to nest within or adjacent to the Study Area during construction, impacts to nesting could occur through noise, vibration, and the presence of construction equipment and personnel. Project activities such as clearing and grubbing, grading or other earthwork, or tree removal during the breeding season (February 1 through August 31) could result in injury or mortality of eggs and chicks directly through nest destruction or indirectly through forced nest abandonment due to noise and other disturbance. This would be a potentially significant impact.

The recommended mitigation measures for nesting migratory birds and raptors in the following section would reduce potential impacts to this species to less than significant.

Bald Eagle

Federal status –Delisted
State status – Endangered
Other – CDFW Fully Protected

Species Description

Bald eagles require large bodies of water with an abundant fish population. This species also feeds on fish, carrion, small mammals, and waterfowl. In California, the nests are usually located within one mile of permanent water. Nests are most often situated in large, old growth, or dominant live trees with open branches such as ponderosa pine. The nests are usually placed 16 to 61 meters (50 to 200 feet) above ground in trees with a commanding view of the area (Zeiner et al. 1990).

Survey History

Bald eagles were not observed within or adjacent to the Study Area during the biological survey. There are two reported CNDDB occurrences of this species within a five-mile radius of the Study Area, with the nearest being located approximately 0.6 mile away on the south side of the Klamath River (CDFW 2024). This occurrence documents that a nest was discovered in 1995, with young fledging in 1995, 1996, and 1997 (CDFW 2024).

Habitat Suitability

Suitable nesting for bald eagle is present in the Study Area, and suitable foraging habitat is present adjacent to the Study Area. The Klamath River, located 0.1 mile south of the Study Area, provides suitable foraging habitat for bald eagle, and the species may nest within trees in the Study Area.

Potential for Impacts

If bald eagle were to nest within or adjacent to the Study Area during construction, impacts to nesting could occur through noise, vibration, and the presence of construction equipment and personnel. Project activities such as clearing and grubbing, grading or other earthwork, or tree removal during the breeding season (February 1 through August 31) could result in injury or mortality of eggs and chicks directly through nest destruction or indirectly through forced nest abandonment due to noise and other disturbance. This would be a potentially significant impact.

The recommended mitigation measures for nesting migratory birds and raptors in the following section would reduce potential impacts to this species to less than significant.

Osprey

Federal status – none
State status – None
Other – CDFW Watch List

Species Description

Osprey breed in Northern California from the Cascade Ranges southward to Lake Tahoe, and along the coast south to Marin County. They prey primarily on fish but also predate small mammals, birds, reptiles, and invertebrates. Foraging areas include open, clear waters of rivers, lakes, reservoirs, bays, estuaries, and surf zones. Nesting habitat for osprey include large trees, snags, and dead-topped trees in open forest habitats for cover and nesting (Zeiner et al. 1988-1990).

Survey History

Osprey was not observed in the Study Area during the biological survey. There are four reported CNDDB occurrences of this species within a five-mile radius of the Study Area, with the nearest being located approximately 2.3 miles to the northeast along the Klamath River (CDFW 2024).

Habitat Suitability

Suitable nesting habitat for osprey is present in the Study Area, and suitable foraging habitat for osprey is present along the Klamath River, located 0.1 mile south of the Study Area. Therefore, the species could potentially nest within the Study Area.

Potential for Impacts

If osprey were to nest within or adjacent to the Study Area during construction, impacts to nesting could occur through noise, vibration, and the presence of construction equipment and personnel. Project

activities such as clearing and grubbing, grading or other earthwork, or tree removal during the breeding season (February 1 through August 31) could result in injury or mortality of eggs and chicks directly through destruction or indirectly through forced nest abandonment due to noise and other disturbance. This would be a potentially significant impact.

The recommended mitigation measures for nesting migratory birds and raptors in the following section would reduce potential impacts to this species to less than significant.

Northern Spotted Owl

Federal status – Threatened
State status – Threatened
Other – CDFW Watch List

Species Description

Northern spotted owl (NSO) is found from southwestern British Columbia down through the western half of Washington, Oregon, and northern California south at least to Marin County. In California, it occurs in the Klamath Ranges, Cascade Range, and North Coast Ranges. Spotted owls have also been observed in the Santa Cruz Mountains in San Mateo and Santa Cruz counties, but the status of those populations is poorly known, and it is uncertain whether those birds are northern spotted owl or California spotted owl (*Strix occidentalis occidentalis*). NSO prefers late-stage and old-growth forests characterized by a dense, multilayered, multi-species canopy with large overstory trees and varied understory. Forest types it has been observed in include Douglas-fir, western hemlock (*Tsuga heterophylla*), grand fir (*Abies grandis*), white fir (*Abies concolor*), ponderosa pine (*Pinus ponderosa*), Shasta red fir (*Abies magnifica* var. *shastensis*), mixed evergreen, mixed conifer hardwood, redwood (*Sequoia sempervirens*), Bishop pine (*Pinus muricata*), and mixed evergreen deciduous forest. These forests typically are characterized by a high incidence of large trees with various deformities (large cavities, broken tops, mistletoe infections, and other evidence of decadence); large snags; large accumulations of fallen trees and other woody debris on the ground; and sufficient open space below the canopy for spotted owls to fly (USFWS 2011).

Although it is dependent on old-growth and late-successional forests, there is research that suggests that a mosaic of late-successional forest habitat interspersed with other seral stages may be superior to large, homogeneous expanses of older forest as habitat for the species, at least in areas where woodrats are a major component of the species' diet. Low- to moderate-severity wildfire may enhance habitat for the species by increasing habitat heterogeneity. Diet is variable dependent upon prey availability, but northern flying squirrel (*Glaucomys sabrinus*) (mainly in Washington and Oregon) and dusky-footed woodrat (*Neotoma fuscipes*) (mainly in the Oregon Klamath Ranges and California) dominate the diet both in terms of biomass and quantity. Spotted owl territories tend to be larger where flying squirrels are the primary prey and smaller where wood rats are the primary prey. Other prey occasionally taken include deer mice, (*Peromyscus* spp.), tree voles (*Arborimus* spp.), red-backed voles (*Myodes* spp.), gophers (Geomyidae), snowshoe hare (*Lepus americanus*), bushy-tailed wood rats (*Neotoma cinerea*), birds, and insects. Prey is generally taken using a sit-and-wait technique from a single perch each night.

Spotted owl pairs begin forming in February and are typically maintained until the death of one of the partners. Spotted owl uses existing nests, often of corvids, or platforms created by broken treetops or

limbs. A clutch of three to four eggs is laid from late March (occasionally as early as mid-March) to mid-April and incubated by the female for approximately 30 days. Young are brooded by the female for eight to 10 days while the male provides food. The flightless young leave the nest at approximately 35 days after hatching, and receive decreasing parental care at least until September, or until they become independent around November (USFWS 2011).

Survey History

NSO was not observed in the Study Area during the biological survey; however, this species is typically only detectable during protocol call surveys. The nearest observation of NSO is within 0.45 mile of the Study Area with a second observation within 0.9 mile. There are six observations of northern spotted owl within one mile of the Study Area and numerous observations of the species within five miles (CDFW 2024). At least five NSO activity centers are located within approximately two miles of the Study Area.

Habitat Suitability

Suitable nesting habitat for NSO is present adjacent to the Study Area but it is unlikely that the trees within the Study Area provide suitable nesting habitat for this species. The Douglas fir community within the Study Area lacks a multi-storied tree canopy or trees with suitable nesting platforms. Given the proximity of the Study area to suitable nesting habitat, the species may forage in the Study Area. The Study Area is surrounded by northern spotted owl Critical Habitat on all sides, although the Study Area itself is not within the Critical Habitat boundaries.

Potential for Impacts

Given that the proposed project will not modify spotted owl habitat (i.e., tree removal or land conversion), but will result in potential disturbance to NSO, it will likely represent short-term effects compared to the long-term effects of habitat modification. If NSO were to nest adjacent to the Study Area during construction, impacts to nesting could occur through noise, vibration, and the presence of construction equipment and personnel. Project activities such as clearing and grubbing, grading or other earthwork, or tree removal during the breeding season (February 1 through September 30) could result in forced nest abandonment due to noise and other disturbance to adjacent nesting habitat. This would be a potentially significant impact.

The recommended mitigation measures for northern spotted owl in the following section would reduce potential impacts to this species to less than significant.

Marbled Murrelet

Federal status – Threatened
State status – Endangered
Other status – None

Species Description

This species is pelagic, except during its nesting season where it will use old-growth, multi-layered canopied forests up to 50 miles inland from the coast. When nesting trees are not present, this species

will nest on the ground or amongst rocks. In California, nesting typically occurs in coastal redwood forest or Douglas fir forests (USFWS 1997).

Survey History

No marbled murrelet or potential nest sites for this species were observed in the Study Area during the biological reconnaissance survey. The nearest reported occurrence of marbled murrelet in the CNDDB is over 20 miles southwest of the Study Area along Redwood Creek within Redwood National Park (CDFW 2024).

Habitat Suitability

The Douglas fir community in the Study Area does not provide suitable nesting habitat for marbled murrelet. The Study Area lacks dense, mature, multi-layer old growth forest and is disturbed. The portion of the Study Area along Camp Creek overlaps designated Critical Habitat for this species; however, the site lacks the primary constituent elements of critical habitat, including old growth trees with the presence of deformities and/or large branches to use as a nesting platform.

Potential for Impacts

No impacts to marbled murrelet or suitable habitat for this species are anticipated as a result of the proposed project. Suitable nesting habitat is not present in or immediately adjacent to the Study Area. Pre-construction surveys will be conducted for migratory birds and raptors (see following section). If marbled murrelet is observed, coordination will be conducted with USFWS and CDFW to determine the appropriate nest buffer based on the location of the nest and the type of construction activity occurring within proximity to the nest.

The recommended mitigation measures for migratory birds and raptors in the following section would reduce potential impacts to this species to less than significant.

Pacific Marten

Federal status – Threatened
State status – Endangered
Other status – CDFW Species of Special Concern

Species Description

Pacific marten are found in coniferous and mixed conifer forests with more than 40% canopy closure typically from 1,350 to 3,200 meters above MSL and require old growth forests that consist primarily of fir and lodgepole pines with cavities for nesting and denning (Zielinski 2014). The species will also den under logs in the snow and form snow tunnels. Pacific marten are active year round, and typically avoid open areas with no canopy cover, but will forage in meadows, riparian areas and along streams (Zielinski 2014). When traveling, marten typically move along ridgetops and are capable of traveling up to 15 miles in a single night while foraging (Zeiner et al. 1990).

Survey History

No Pacific marten or potential den sites for this species were observed in the Study Area during the biological reconnaissance survey. There is one reported CNDDB occurrence of this species within a five-mile radius of the Study Area, which is located approximately 2.6 miles to the north (CDFW 2024). This is a historic observation from 1977 that describes the site as Douglas fir forest (CDFW 2024).

Habitat Suitability

The Douglas fir community in the Study Area does not provide suitable denning habitat for Pacific marten. The Study Area lacks dense, mature, multi-layer old growth forest and is disturbed. The northern portion of the Study Area, encompassing a portion of the proposed water distribution replacement project, overlaps designated proposed Critical Habitat for this species; however, the site lacks the primary constituent elements of the proposed critical habitat, including old growth trees with the presence of cavities to use as a den site.

Potential for Impacts

No impacts to Pacific marten or suitable habitat for this species are anticipated as a result of the proposed project. Suitable denning habitat is not present in or adjacent to the Study Area. No direct impacts to Pacific marten or potential habitat in the Study Area would be anticipated as a result of the proposed project as Pacific marten would not be expected to be present within the project footprint, and there is no suitable habitat for this species in the project footprint.

Migratory Birds and Raptors

As noted in Attachment B, migratory and non-game birds are protected during the nesting season by the federal Migratory Bird Treaty Act (MBTA) and California Fish and Game Codes. The Study Area and immediate vicinity provides nesting and foraging habitat for a variety of native birds. Nests were not observed during surveys; however, a variety of migratory birds have the potential to nest in and adjacent to the Study Area, in trees, shrubs, and on the ground in vegetation.

Project activities such as clearing and grubbing during the avian breeding season (February 1 through August 31) could result in injury or mortality of eggs and chicks directly through destruction or indirectly through forced nest abandonment due to noise and other disturbance. Destruction of active nests, eggs, and/or chicks would be a violation of the MBTA and Fish and Game Codes and a significant impact.

The recommended mitigation measures for nesting migratory birds and raptors in the following section would reduce potential impacts for nesting birds to less than significant.

Sensitive Habitats

Sensitive habitats include those that are of special concern to resource agencies or those that are protected under CEQA; Section 1600 of the California Fish and Game Code, which includes riparian areas; and/or Sections 401 and 404 of the Clean Water Act, which include wetlands and other waters of the U.S., and Critical Habitat protected under the ESA. Sensitive habitats or resource types within the Study Area are discussed below, including aquatic resources and riparian habitat.

Aquatic Resources and Riparian Habitat

The perennial drainage (Camp Creek) is the only aquatic resource within the Study Area. The Study Area also supports montane riparian habitat that parallels Camp Creek. The project has been designed to avoid direct impacts to Camp Creek and the montane riparian habitat by proposing to tie in water distribution lines to the existing infrastructure of the Camp Creek bridge crossing on SR 96. Camp Creek will not be developed as part of the proposed project, and there will be no direct impacts to aquatic resources or riparian habitat.

Streamside Management Areas

In addition to Camp Creek and the montane riparian habitat, the Streamside Management Area (SMA) associated with Camp Creek is considered a sensitive habitat. The Humboldt County General Plan defines SMAs for perennial drainages, such as Camp Creek, as being a buffer of 100 feet, measured as the horizontal distance from the top of bank or edge of riparian drip-line, whichever is greater, on either side of perennial streams (Humboldt County 2017). The proposed project may encroach on the SMA for Camp Creek; however, the recommended mitigation measures for SMAs in the following section would reduce potential impacts to less than significant.

Wildlife Migration Corridors

Wildlife corridors link areas of suitable wildlife habitat that are otherwise separated by rugged terrain, changes in vegetation, or human disturbance. This fragmentation of habitat can also occur when a portion of one or more habitats is converted into another habitat; for instance, when woodland or scrub habitat is altered or converted into grasslands after a disturbance such as fire, mudslide, or construction activities. Wildlife corridors mitigate the effects of this fragmentation by: (1) allowing animals to move between remaining habitats thereby permitting depleted populations to be replenished and promoting genetic exchange; (2) providing escape routes from fire, predators, and human disturbances, thus reducing the risk of catastrophic events (such as fire or disease) on population or local species extinction; and, (3) serving as travel routes for individual animals as they move within their home ranges in search of food, water, mates, and other needs.

The Study Area includes major roadways and residential properties but also supports a salmon bearing drainage, Camp Creek, as well as other natural habitats such as montane riparian and Douglas fir forest. The proposed project does not propose significant habitat modification that would inhibit wildlife from dispersing through the Study Area on a local level.

Critical Habitat

Portions of the Study Area are mapped as Critical Habitat for marbled murrelet and proposed Critical Habitat for Pacific marten. The Study Area does not support the primary constituent elements of either of these mapped Critical Habitats, and the proposed project would not significantly modify or convert forested habitat that may meet the criteria of the primary constituent elements over time.

RECOMMENDED MITIGATION MEASURES

Worker Environmental Awareness Training

Special-status plant and wildlife species have the potential to occur within the Study Area and be impacted by construction activities. As such, a qualified biologist should conduct an environmental awareness training for all project-related personnel before the initiation of work, including vegetation removal, grubbing, or other construction activities. The training should include information on the identification of special-status species that may be encountered, nesting birds and bird nests, and any other sensitive species or communities with the potential to occur onsite and required practices to implement before the start of construction. General measures that are being implemented to protect species that may occur onsite should be referenced, including penalties for non-compliance, and boundaries of the permitted disturbance zones. Upon completion of the training, all construction personnel shall sign a form stating that they have attended the training and understand all the measures. Proof of this instruction should be kept on file with the project proponent.

Special-Status Species

Special-Status Plants

The Study Area contains suitable habitat for Bald Mountain milk-vetch, coast fawn lily, small groundcone, white-flowered rein orchid, crinkled rag lichen, Hooker's catchfly, Marble Mountain campion, and robust false lupine. To avoid potential impacts to these species, the following measures are recommended:

- A qualified botanist should conduct a special-status plant survey within the appropriate identification (blooming) period before the initiation of any ground-disturbing activities. Based on the methodology described in the CDFW Protocols for Surveying and Evaluating Impacts to Special Status Native Plant Populations and Sensitive Natural Communities (CDFW 2018), it is recommended that two botanical surveys of the Study Area spread throughout the growing season, one in May and one in July, to satisfy the blooming periods for Bald Mountain milk-vetch, coast fawn lily, small groundcone, white-flowered rein orchid, crinkled rag lichen, Hooker's catchfly, Marble Mountain campion, and robust false lupine. These surveys should be spaced out between May and July to capture the floristic diversity at a level necessary to determine if special-status plants are present. If no special-status plants are observed, then a letter report documenting the survey results should be prepared and submitted to the project proponent, and no further measures are recommended.

- If special-status plants are observed within the Study Area, the location of the special-status plants should be marked with pin flags or other highly visible markers and may also be marked by GPS. The project proponent should determine if the special-status plant(s) onsite can be avoided by project design or utilize construction techniques to avoid impacts to the special-status plant species. All special-status plants to be avoided should have exclusion fencing or other highly visible material marking the avoidance area, and the avoidance area should remain in place throughout the entire construction period.

- If special-status plants are found within the Study Area and cannot be avoided, the project proponent should consult with the CDFW to determine appropriate measures to mitigate the loss of special-status plant populations. These measures may include gathering seed from impacted populations for planting within nearby appropriate habitat, preserving or enhancing existing offsite populations of the plant species affected by the project, or restoring suitable habitat for special-status plant species habitat as directed by the regulatory agencies.

Special-Status Amphibians

The Study Area provides potentially suitable habitat for Pacific tailed frog, Del Norte salamander, FYLF, and southern torrent salamander. In the absence of the proposed mitigation measures, potential adverse effects to these protected amphibian and reptile species could include take of individuals using upland areas for dispersal and/or refugia during construction. No direct impacts to potential habitat in Camp Creek would be anticipated as a result of the proposed project, as the project will not occur in Camp Creek or montane riparian habitat. Impacts that could harm Pacific tailed frog, Del Norte salamander, FYLF, and southern torrent salamander would be considered potentially significant. Potential indirect impacts could occur as a result of reduced water quality if contaminated runoff were to enter Camp Creek during and following construction. The following mitigation is recommended to avoid potential direct and indirect impacts to special-status amphibians:

- Before the commencement of construction, preconstruction surveys for Pacific tailed frog, Del Norte salamander, FYLF, and southern torrent salamander should be conducted in the Study Area within two weeks and immediately before the initiation of construction activities to ensure that Pacific tailed frog, Del Norte salamander, FYLF, and southern torrent salamander are not actively using the Study Area or adjacent areas as a dispersal corridor. Preconstruction surveys would be conducted by a qualified biologist familiar with all life stages and would cover all terrestrial and aquatic habitats on and immediately adjacent to the Study Area that are suitable for Pacific tailed frog, Del Norte salamander, FYLF, and southern torrent salamander dispersal.

- If any life stage of Pacific tailed frog, Del Norte salamander, FYLF, and/or southern torrent salamander (e.g., egg, juvenile, or adult) is detected within the Study Area during any surveys or monitoring for the project during construction, CDFW shall be notified within 48 hours. The biologist shall monitor the animal to make sure it is not harmed and that it leaves the site on its own. Construction activities will not be allowed within 100 feet of the animal.

- Clearing within the Study Area shall be confined to the minimum area necessary to facilitate construction. To ensure that construction equipment and personnel do not affect sensitive habitat outside of designated work areas, orange barrier fencing shall be erected to clearly define the habitat to be avoided. This will delineate the Environmentally Sensitive Area (ESA) on the project. The integrity and effectiveness of ESA fencing and erosion control measures shall be inspected daily. Corrective actions and repairs shall be carried out immediately for fence breaches and ineffective erosion control BMPs.

- Standard construction BMPs shall be implemented throughout construction to avoid and minimize adverse effects to the water quality within the Study Area. Appropriate erosion control measures shall be used (e.g., hay bales, filter fences, vegetative buffer strips, or other accepted equivalents) to reduce siltation and contaminated runoff from leaving the Study Area and

entering the riparian corridor or Camp Creek. The integrity and effectiveness of the BMPs shall be inspected daily by qualified project personnel and/or the site foreman. Corrective actions and repairs shall be carried out immediately.

- Construction by-products and pollutants such as petroleum products, chemicals, or other deleterious materials should not be allowed to enter Camp Creek. A plan for the emergency clean-up of any spills of fuel or other materials should be available when construction equipment is in use.

- Equipment shall be re-fueled and serviced at designated construction staging areas. All construction material and fill shall be stored and contained in a designated area that is located away from channel areas to prevent transport of materials into adjacent streams. The preferred distance is 100 feet from the wetted width of Camp Creek. In addition, a silt fence shall be installed to collect any discharge, and adequate materials should be available for spill clean-up and during storm events.

- Construction vehicles and equipment shall be monitored and maintained to prevent contamination of soil or water from external grease and oil or from leaking hydraulic fluid, fuel, oil, and grease. Leaking vehicles and equipment shall be removed from the site.

- Building materials storage areas containing hazardous or potentially toxic materials such as herbicides and petroleum products shall be located outside of the 100-year flood zone, have an impermeable membrane between the ground and the hazardous material, and shall be bermed to prevent the discharge of pollutants to ground water and runoff water. The bermed area shall at a minimum have the capacity to store the volume of material placed in it.

- All disturbed soils shall undergo erosion control treatment before October 15 and/or immediately after construction is terminated. Appropriate erosion control measures shall be used (e.g., hay bales, filter fences, vegetative buffer strips, or other accepted equivalents) to reduce siltation and contaminated runoff from leaving the Study Area. Erosion control blankets shall be installed on any disturbed soils steeper than a 2:1 slope or steeper.

- During Project activities, all trash that may attract predators shall be properly contained, removed from the work site, and disposed of regularly. Following construction, all trash and construction debris shall be removed from work areas.

- No monofilament plastic shall be used for erosion control.

Special-Status Fish

The perennial drainage (Camp Creek) provides potential spawning and/or rearing habitat for Klamath River lamprey, coastal cutthroat trout, coho salmon, and Chinook salmon within the Study Area. Although the current project activities do not propose work within Camp Creek, potential construction activities could potentially affect these species by increasing turbidity levels in the perennial drainage during project construction or through direct mortality associated in-stream work, if proposed in future iterations of the project design. Erosion control BMPs, such as the ones listed within the amphibian minimization and avoidance measures above, should be implemented during and following construction

to avoid sediment being placed into streams and their subsequent receiving waters. If BMPs are properly implemented, the project would be expected to have minimal temporary direct and/or indirect impacts to fish species and their habitat. If a project requires a 404 permit, the USACE would likely consult with NMFS regarding potential impacts to these species. If a project only requires a Streambed Alteration Agreement from CDFW, CDFW will require avoidance and minimization measures in the Streambed Agreement to avoid and minimize impacts to these species during construction. Potential avoidance and minimization measures may include but are not limited to seasonal work restrictions to avoid the spawning season of special-status fish, work setbacks from the perennial drainages, use of appropriate BMPs to avoid impacts to water quality during construction and minimizing the work area adjacent to the stream to avoid water quality impacts from operation and fueling of equipment.

Northern Spotted Owl

There are several documented Activity Centers and numerous observations for northern spotted owl (NSO) within two miles of the Study Area and there is potential for the species to occur in the surrounding Douglas fir forest. Before any ground-disturbing activities within 0.25 mile of suitable nesting, roosting, or foraging habitat for NSO, the following should be followed to reduce impacts to NSO to less than significant:

- A qualified biologist, familiar with the life history of the NSO, shall conduct pre-construction surveys for nests as described in the *Protocol for Surveying Proposed Management Activities That May Impact Northern Spotted Owls* (USFWS 2012). Surveys shall take place between March 15 and August 31.

  As per the USFWS's 2012 survey protocol, a one-year, six-visit survey can apply to noise-disturbance only actions. The USFWS's 2012 survey protocol states that six visits that cover all NSO habitat within a 0.25-mile buffer of the project area will be effective until the beginning of the following breeding season, which is generally between February 1 to September 30. If operations are not completed by year two, three spot-check survey visits each year should occur in years two and three or the project proponent can choose to utilize the two-year, six-visit survey protocol.

  - If NSO are determined to be present within 0.25 mile of the Study Area, then further mitigation measures will need to be developed as deemed satisfactory by the USFWS and CDFW.

  - If NSO surveys determine that no active NSO nests are present adjacent to the Study Area, then the project may proceed through the breeding season.

Northern Goshawk, Ruffed Grouse, Bald Eagle, Osprey, Other Raptors, and Migratory Birds

The Study Area and adjacent areas provide suitable nesting habitat for a variety of native birds, including native songbirds and raptors. Removal of vegetation containing active nests would potentially result in destruction of eggs and/or chicks; and noise, dust, and other anthropogenic stressors in the vicinity of an active nest could lead to forced nest abandonment and mortality of eggs and/or chicks. Needless destruction of eggs or chicks would be a violation of the California Fish and Game Code. Pre-

construction surveys should be conducted before project implementation to determine if nesting birds are present on or adjacent to the site, so that measures could be implemented if needed to avoid harming nesting birds.

The following mitigation is recommended to reduce potential project impacts to nesting birds:

- If project construction, including ground-disturbing or vegetation clearing and grubbing activities, commence during the avian breeding season (February 1 through August 31), a qualified biologist should conduct a pre-construction nesting bird survey no more than 14 days before initiation of project construction activities. The survey area should include suitable raptor nesting habitat within 500 feet of the project footprint (inaccessible areas outside of the Study Area can be surveyed from the site or from public roads using binoculars or spotting scopes). Pre-construction surveys are not required in areas where project construction activities have been continuous since before February 1, as determined by a qualified biologist. Areas that have been inactive for more than 14 days during the avian breeding season should be re-surveyed before the resumption of project construction activities. If no active nests are identified, no further mitigation is required. If active nests are identified, the following measure should be implemented:
    - A suitable buffer (up to 500 feet for raptors; 100 feet for passerines) should be established by a qualified biologist around active nests and no construction activities within the buffer should be allowed until a qualified biologist has determined that the nest is no longer active (i.e., the nestlings have fledged and are no longer reliant on the nest or the nest has failed). Encroachment into the buffer may occur at the discretion of a qualified biologist. Any encroachment into the buffer should be monitored by a qualified biologist to determine whether nesting birds are being impacted.

Sensitive Habitats

Aquatic Resources and Riparian Habitat

Sensitive habitats within the Study Area include the perennial drainage (Camp Creek) and montane riparian habitat. The perennial drainage (Camp Creek) within the Study Area is likely to be considered waters of the U.S. and State subject to USACE and RWQCB jurisdiction under Sections 404 and 401 of the CWA as well as subject to CDFW jurisdiction under Section 1600 of the Fish and Game Code. The montane riparian habitat also falls under the jurisdiction of Section 1600 of the California Fish and Game Code. These habitats are not expected to be impacted by the proposed project as currently described. If future iterations of the proposed project include impacts to either of these features, then a formal aquatic resources delineation should be submitted to the appropriate resource agencies to determine the extent of jurisdiction. In the event that any aquatic resources or riparian habitat are determined to be jurisdictional, the project proponent will be required to apply for appropriate permits and any mitigation measures contained in the permits will require implementation before impacting any on-site features or habitats deemed subject to regulation.

Streamside Management Areas

To comply with measure BR-P6 of the Humboldt County General Plan, development within Streamside Management Areas shall only be permitted where mitigation measures (Standards BR-S8 – Required Mitigation Measures, BR-S9 – Erosion Control, and BR-S10 – Development Standards for Wetlands) have been provided to minimize any adverse environmental effects and shall be limited to uses as described in Standard BR-S7 – Development within Streamside Management Areas (Humboldt County 2017). Further information regarding these mitigation measures is available in Chapter 10 of the Humboldt County General Plan.

SUMMARY/CONCLUSIONS

Study Area Conditions

The Study Area is located along Placer Drive in the community of Orleans, off SR 96 within an unincorporated area of Humboldt County. The Study Area supports sensitive habitats, including Camp Creek, montane riparian habitat, Streamside Management Areas, and mapped Critical Habitat for marbled murrelet and proposed Critical Habitat for Pacific Marten. Biological communities in the Study Area consist of rural residential properties, ruderal/disturbed land, major roadways (SR 96), Douglas fir forest, mixed chaparral, irrigated row crop, montane riparian, and perennial drainage (Camp Creek).

Special-Status Species

The Study Area provides suitable habitat for eight regionally-occurring special-status plant species: Bald Mountain milk-vetch, coast fawn lily, small groundcone, white-flowered rein orchid, crinkled rag lichen, Hooker's catchfly, Marble Mountain campion, and robust false lupine. The Study Area provides suitable habitat for thirteen regionally-occurring special-status wildlife species: Klamath River lamprey, coastal cutthroat trout, coho salmon, Chinook salmon, Pacific tailed frog, Del Norte salamander, foothill yellow-legged frog, southern torrent salamander, northern goshawk, ruffed grouse, bald eagle, osprey, and northern spotted owl. Implementation of the recommended mitigation measures would reduce the potential for project impacts to these species to less than significant.

Migratory Birds and Raptors

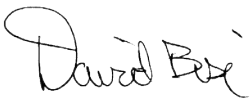
There is the potential for common native birds to nest in the Study Area or on adjacent properties where project activities could result in stress leading to nest failure. Implementation of the recommended mitigation measure for nesting bird surveys and northern spotted owl would reduce the potential for project impacts to nesting birds to less than significant.

Aquatic Resources and Riparian Habitat

The perennial drainage (Camp Creek) is the only aquatic resource within the Study Area, and will not be impacted as part of the proposed project and neither will the montane riparian habitat within the Study Area. However, the proposed project may occur within the Streamside Management Area of Camp Creek, which will require the implementation of BMPs to reduce potential impacts to less than significant.

I appreciate the opportunity to assist you on this project. Feel free to contact me with any questions at (916) 435-1205.

Sincerely,



David Bise
Biologist

Attachments:

Attachment A: Figures
Attachment B: Regulatory Context
Attachment C: Database Query Results
Attachment D: Potential for Special-status Species to Occur in the Study Area
Attachment E: Plant and Wildlife Species Observed in the Study Area

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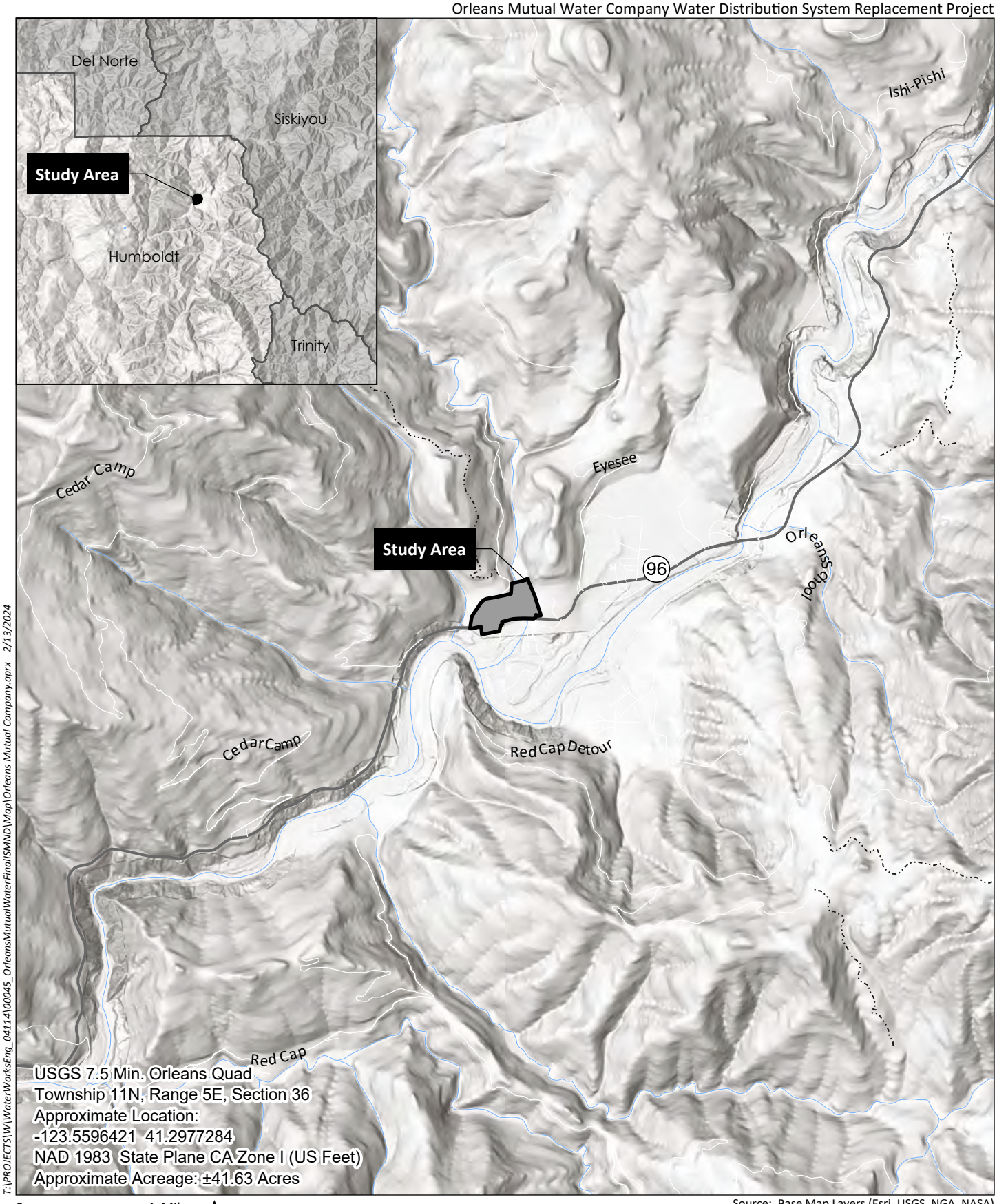
Attachment A

Figures



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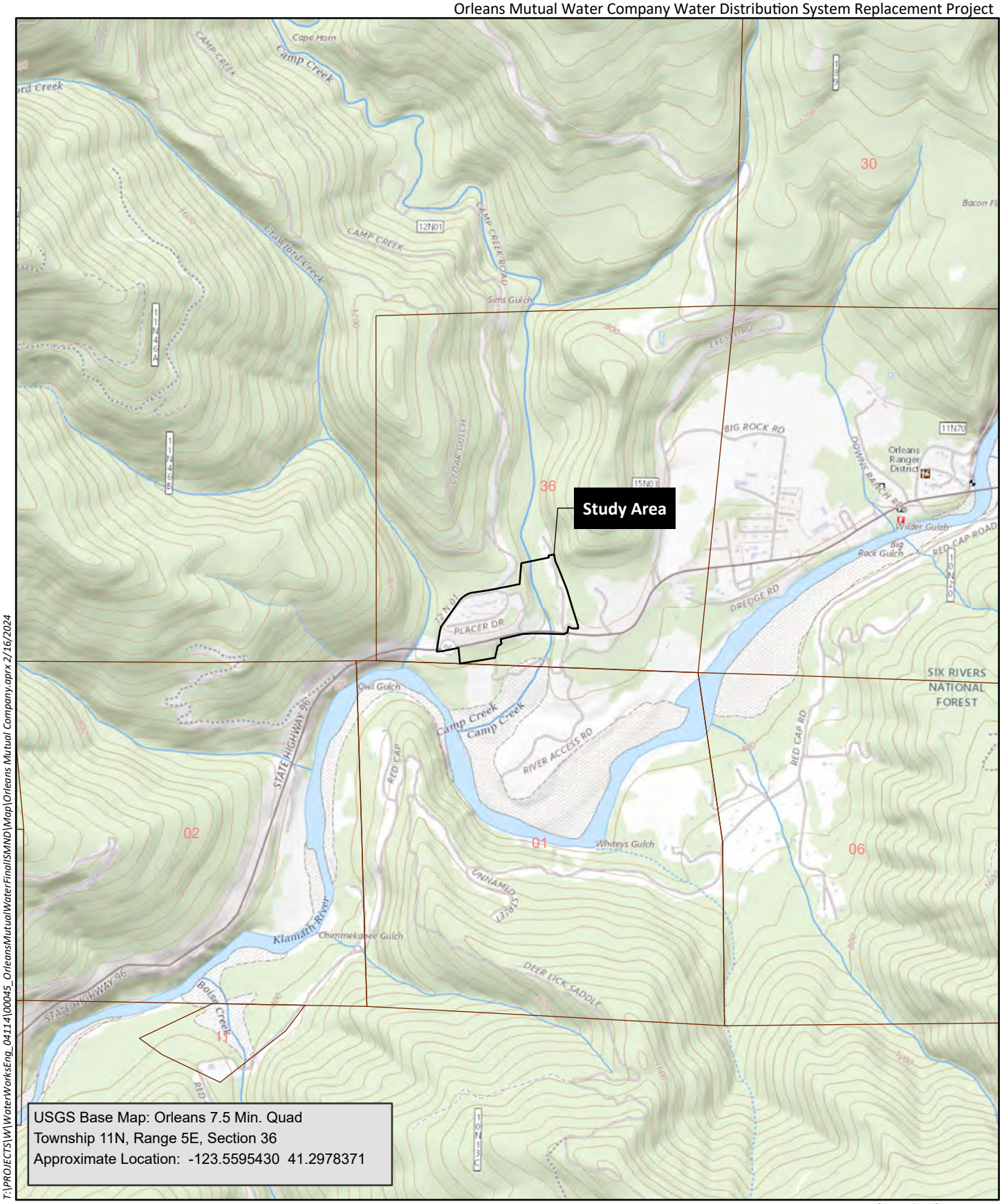
Source: Base Map Layers (Esri, USGS, NGA, NASA)

HELIX Environmental Planning

Site and Vicinity Map

Figure 1



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0 2,000 Feet

Source: USGS, The National Map, 2021

HELIX Environmental Planning

USGS Topographic Map

Figure 2

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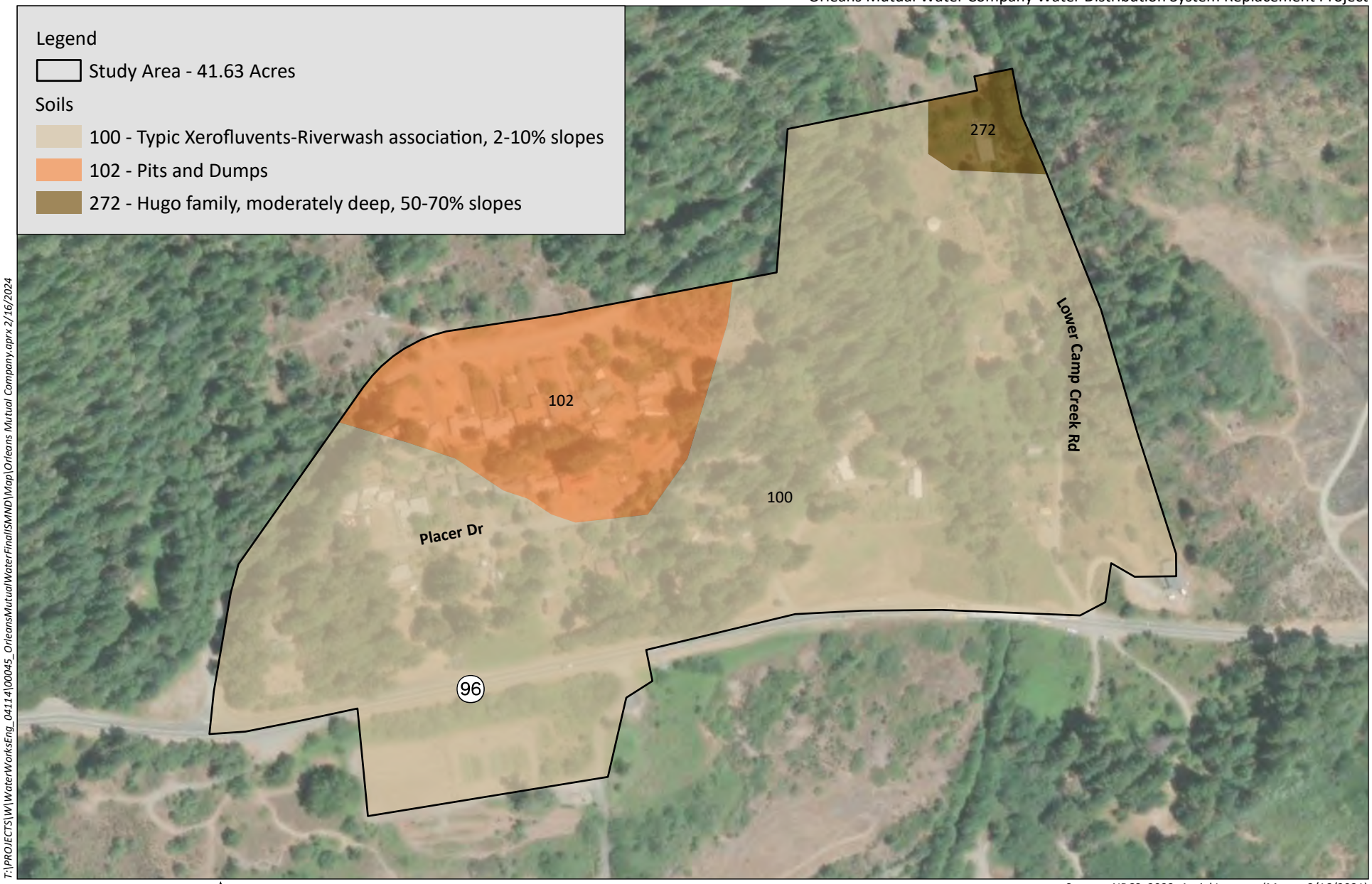
Source: Aerial Imagery (Maxar, 8/16/2021)

HELIX Environmental Planning

Aerial Map

Figure 3



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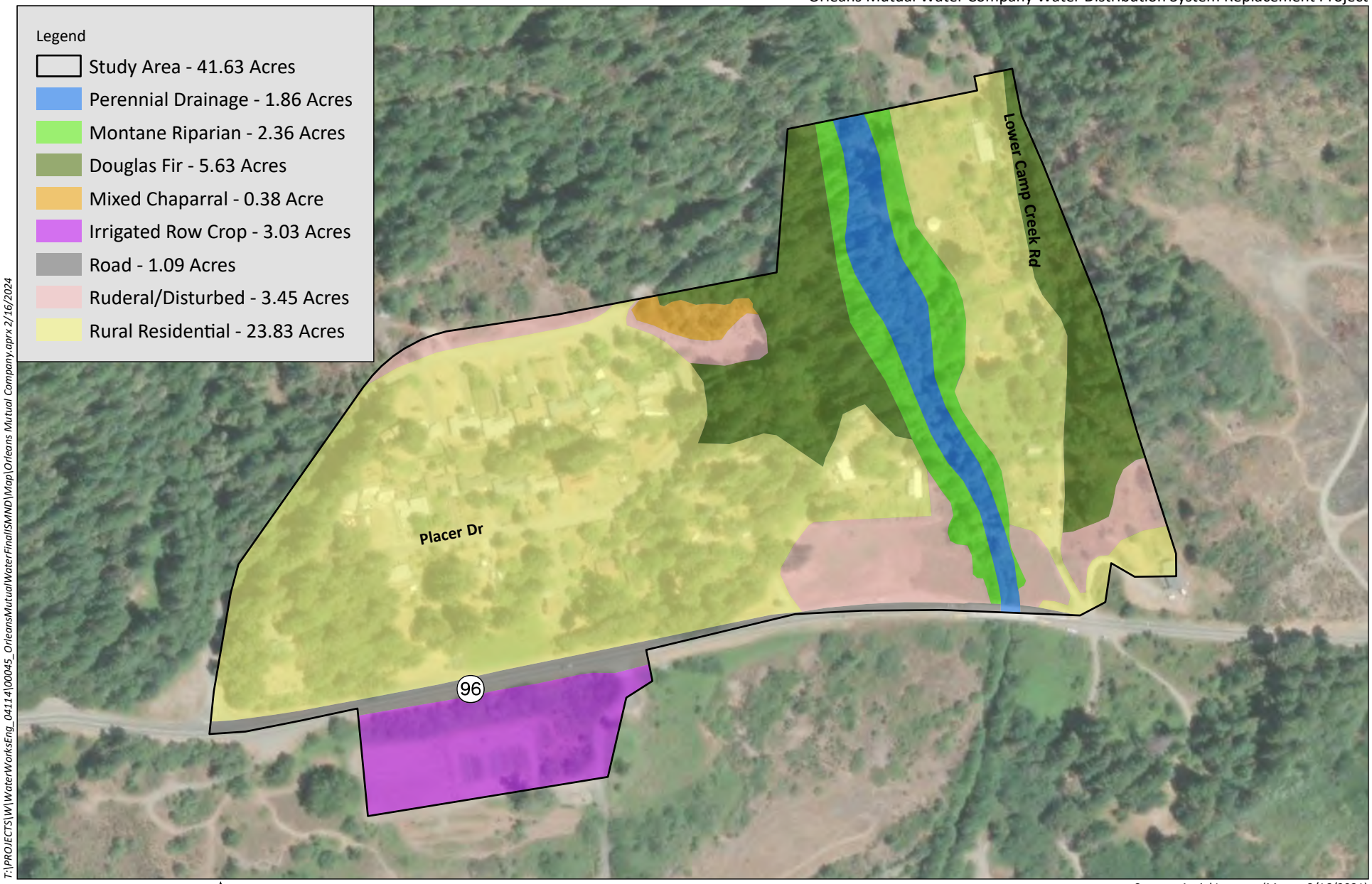
Source: NRCS, 2023; Aerial Imagery (Maxar, 8/16/2021)

HELIX Environmental Planning

Soils Map

Figure 4



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Source: Aerial Imagery (Maxar, 8/16/2021)

HELIX Environmental Planning

Biological Communities

Figure 5

GENERAL NOTES:

1. AERIAL IMAGERY IS FROM AUTODESK ONLINE MAPS AND IS NOT BASED ON SURVEY. IMAGERY IS FOR REFERENCE ONLY.
2. PROPERTY LINES AND EASEMENTS PER TRINITY VALLEY CONSULTING ENGINEERS SURVEY DATED 5/19/2022. PROPERTY LINES AND EASEMENTS ON EAST SIDE OF CAMP CREEK ARE STILL TO BE DETERMINED AND WILL BE SHOWN ON DESIGN DRAWINGS.
3. LOCATION OF EXISTING WATER PIPING AND VALVES BASED ON COMBINATION OF FIELD SURVEY BY TRINITY VALLEY CONSULTING ENGINEERS, HANDHELD GPS SURVEY BY WATER WORKS ENGINEERS, AND DESCRIPTIONS PROVIDED BY OMWC.

KEY NOTES: #

1. OVERHEAD CROSSING OF CREEK.
2. SR 96 CROSSING IN 8" CULVERT.
3. EXISTING SHUTOFF VALVES LOCATED BENEATH TRAVEL TRAILER.
4. EXISTING PIPING DOES NOT APPEAR TO BE WITHIN RECORDED EASEMENT. EXISTING EASEMENT LOCATIONS WILL BE REVIEWED DURING FINAL DESIGN WITH RESPECT TO ACTUAL PIPING LOCATIONS AND VACATED OR REPLACED AS NECESSARY.
5. PROPERTY LINE AND EASEMENT PER SURVEY PASS THROUGH EXISTING RESIDENCE ACCORDING TO AERIAL IMAGERY. EXISTING EASEMENT LOCATIONS WILL BE REVIEWED DURING FINAL DESIGN WITH RESPECT TO ACTUAL PIPING LOCATIONS AND VACATED OR REPLACED AS NECESSARY.

LEGEND:

- PARCEL BOUNDARY
- EASEMENT/RIGHT-OF-WAY
- EXISTING PIPING
- EXISTING SHUTOFF VALVE (SURVEY OR GPS LOCATED)
- EXISTING SHUTOFF VALVE (LOCATION TBD)

100 0 100 200 FEET
SCALE 1"=100'

Source: Waterworks Engineers, 2023

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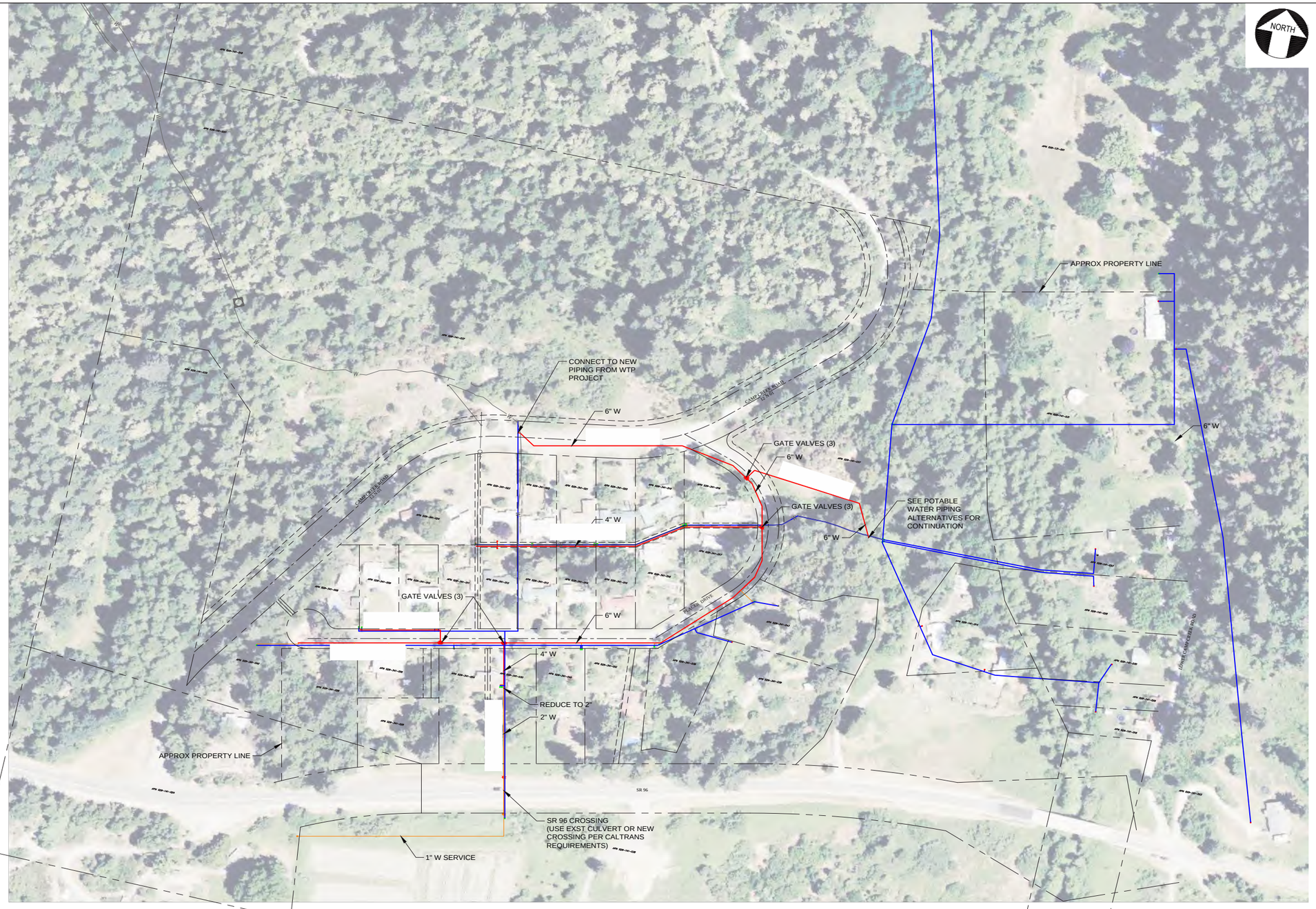
HELIX Environmental Planning

Existing Water System

Figure 6



GENERAL NOTES:

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2. PROPERTY LINES AND EASEMENTS PER TRINITY VALLEY CONSULTING ENGINEERS SURVEY DATED 5/19/2022. PROPERTY LINES AND EASEMENTS ON EAST SIDE OF CAMP CREEK ARE STILL TO BE DETERMINED AND WILL BE SHOWN ON DESIGN DRAWINGS.
3. LOCATION OF EXISTING WATER PIPING AND VALVES BASED ON COMBINATION OF FIELD SURVEY BY TRINITY VALLEY CONSULTING ENGINEERS, HANDHELD GPS SURVEY BY WATER WORKS ENGINEERS, AND DESCRIPTIONS PROVIDED BY OMWC.
4. PROPOSED WATER MAIN ALIGNMENTS ARE APPROXIMATE, BASED ON AVAILABLE INFORMATION AT THE TIME. FINAL WATER MAIN ALIGNMENTS AND WATER SERVICE CONNECTION LOCATIONS TO BE DETERMINED FOLLOWING DETAILED TOPOGRAPHIC SURVEY FOR SELECTED ALTERNATIVE.
5. EASEMENTS ON PRIVATE LANDS FOR NEW AND EXISTING PIPING NOT WITHIN RECORDED EASEMENTS ARE NOT SHOWN. EASEMENTS WILL BE CONFIRMED AND DEVELOPED FOR THE SELECTED ALTERNATIVE.
6. NEW WATER MAINS SHALL BE 4" C900 WITH DUCTILE IRON FITTINGS. LATERALS 2" AND SMALLER SHALL BE PVC SCH 80 OR HDPE PIPING.
7. ISOLATION VALVES SHALL BE PROVIDED AT ALL TEES ON WATER MAINS.
8. ALL NEW SERVICES WILL BE METERED.

LEGEND:

- PARCEL BOUNDARY
- EASEMENT/RIGHT-OF-WAY
- EXISTING PIPING
- EXISTING SHUTOFF VALVE (SURVEY OR GPS LOCATED)
- EXISTING SHUTOFF VALVE (LOCATION TBD)
- PROPOSED POTABLE WATER PIPING
- PROPOSED WATER SERVICE LINE
- PROPOSED MAINLINE WATER VALVE
- PROPOSED FIRE HYDRANT

100 0 100 200 FEET
SCALE 1"=100'

Source: Waterworks Engineers, 2023

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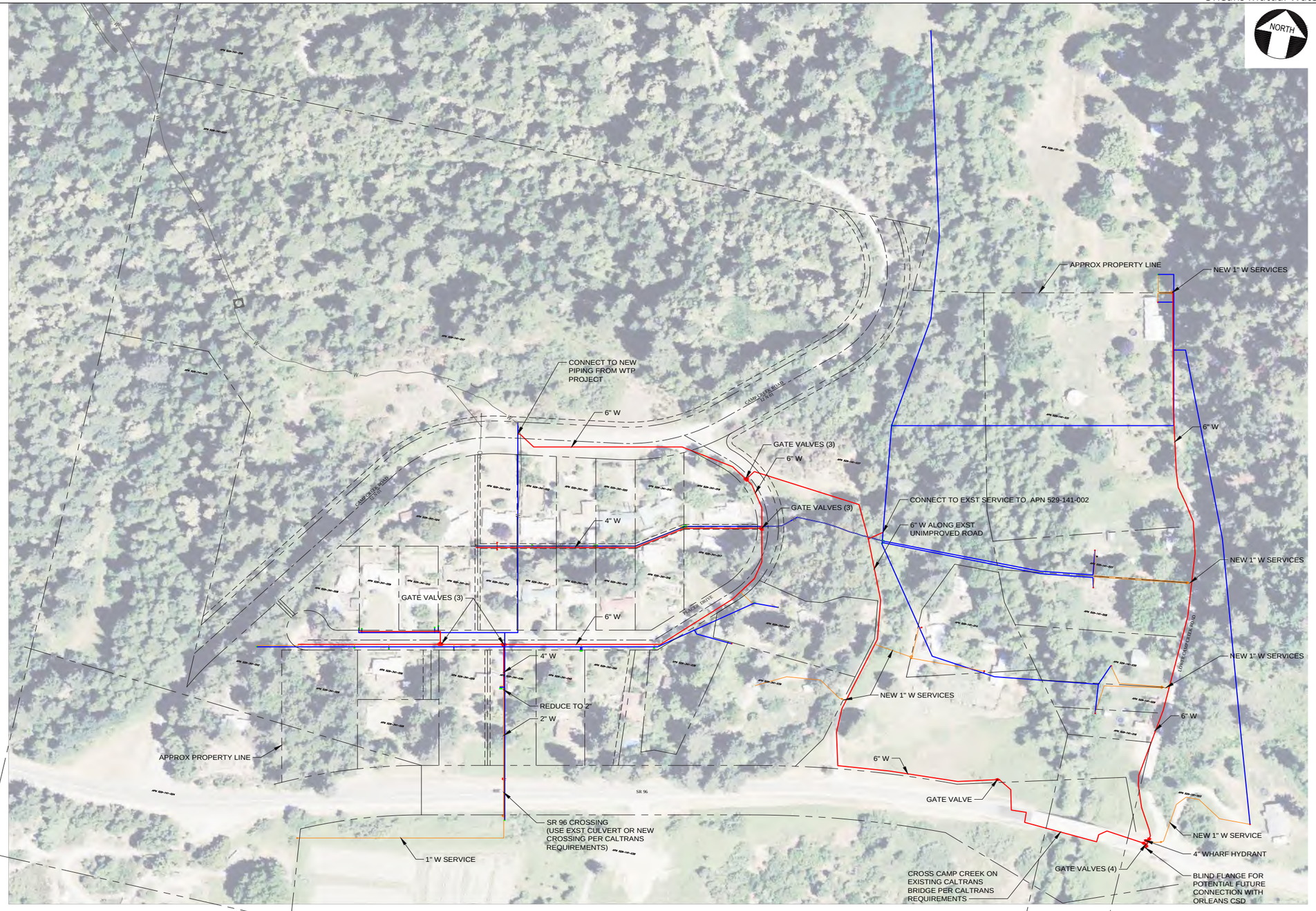
HELIX Environmental Planning

Crawford Hill Subdivision Alignment Map

Figure 7



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LEGEND:

- PARCEL BOUNDARY
- EASEMENT/RIGHT-OF-WAY
- EXISTING PIPING
- EXISTING SHUTOFF VALVE (SURVEY OR GPS LOCATED)
- EXISTING SHUTOFF VALVE (LOCATION TBD)
- PROPOSED POTABLE WATER PIPING
- PROPOSED WATER SERVICE LINE
- PROPOSED MAINLINE WATER VALVE
- PROPOSED FIRE HYDRANT

100 0 100 200 FEET
SCALE 1"=100'

Source: Waterworks Engineers, 2023

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HELIX Environmental Planning

Camp Creek Crossing Alignment Map

Figure 8

Attachment B

Regulatory Context

Regulatory Setting

Policies, regulations, and plans pertaining to the protection of biological resources in the Study Area are summarized in the following sections.

Federal Regulations

Federal Endangered Species Act

The U.S. Fish and Wildlife Service (USFWS) enforces the provisions stipulated within the Federal Endangered Species Act of 1973 (FESA; 16 USC 1531 et seq.). Species identified as federally threatened or endangered (50 CFR 17.11 and 17.12) are protected from take, defined as direct or indirect harm, unless a Section 10 permit is granted to an entity other than a federal agency or a Biological Opinion with incidental take provisions is rendered to a federal lead agency via a Section 7 consultation. Pursuant to the requirements of FESA, an agency reviewing a proposed project within its jurisdiction must determine whether any federally-listed species may be present in the study area and determine whether the proposed project will jeopardize the continued existence of or result in the destruction or adverse modification of critical habitat of such species (16 USC 1536 (a)[3], [4]). Other federal agencies designate species of concern (species that have the potential to become listed), which are evaluated during environmental review under the National Environmental Protection Act (NEPA) or California Environmental Quality Act (CEQA) although they are not otherwise protected under FESA.

Migratory Bird Treaty Act

The Migratory Bird Treaty Act (MBTA) of 1918 established federal responsibilities for the protection of nearly all species of birds, their eggs, and nests. The Migratory Bird Treaty Reform Act of 2004 further defined species protected under the act and excluded all non-native species. Section 16 U.S.C. 703–712 of the Act states “unless and except as permitted by regulations, it shall be unlawful at any time, by any means or in any manner, to pursue, hunt, take, capture, kill, attempt to take, capture, or kill” a migratory bird. A migratory bird is any species or family of birds that live, reproduce, or migrate within or across international borders at some point during their annual life cycle. Currently, there are 836 migratory birds protected nationwide by the Migratory Bird Treaty Act, of which 58 are legal to hunt. The U.S. Court of Appeals for the 9th Circuit (with jurisdiction over California) has ruled that the MBTA does not prohibit incidental take (952 F 2d 297 – Court of Appeals, 9th Circuit 1991).

Wild and Scenic Rivers Act of 1968

The National Wild and Scenic Rivers System was created by Congress in 1968 (Public Law 90-542; 16 U.S.C. 1271 et seq.) to preserve certain rivers with outstanding natural, cultural, and recreational values in a free-flowing condition for the enjoyment of present and future generations. The Act safeguards the special character of these rivers, while also recognizing the potential for their appropriate use and development. Rivers may be designated by Congress or the Secretary of the Interior. Each river is administered by either a federal or state agency. Designated segments need not include the entire river and may include tributaries. For federally administered rivers, the designated boundaries generally average one-quarter mile on either bank in the lower 48 states and one-half mile on rivers outside national parks in Alaska in order to protect river-related values.

State Jurisdiction

California Endangered Species Act

The California Endangered Species Act (CESA) (California Fish and Game Code Sections 2050 to 2097) is similar to the FESA. The California Fish and Wildlife Commission is responsible for maintaining lists of threatened and endangered species under CESA. CESA prohibits the take of listed and candidate (petitioned to be listed) species. "Take" under California law means to hunt, pursue, catch, capture, or kill, or attempt to hunt, pursue, catch capture, or kill (California Fish and Game Code, Section 86). The California Department of Fish and Wildlife (CDFW) can authorize take of a state-listed species under Section 2081 of the California Fish and Game Code if the take is incidental to an otherwise lawful activity, the impacts are minimized and fully mitigated, funding is ensured to implement and monitor mitigation measures, and CDFW determines that issuance would not jeopardize the continued existence of the species. A CESA permit must be obtained if a project will result in the "take" of listed species, either during construction or over the life of the project. For species listed under both FESA and CESA requiring a Biological Opinion under Section 7 of the FESA, CDFW may also authorize impacts to CESA species by issuing a Consistency Determination under Section 2080.1 of the Fish and Game Code.

California Code of Regulations Title 14 and California Fish and Game Code

The official listing of endangered and threatened animals and plants is contained in the California Code of Regulations Title 14 §670.5. A state candidate species is one that the California Fish and Game Code has formally noticed as being under review by CDFW to include in the state list pursuant to Sections 2074.2 and 2075.5 of the California Fish and Game Code.

Legal protection is also provided for wildlife species in California that are identified as "fully protected animals." These species are protected under Sections 3511 (birds), 4700 (mammals), 5050 (reptiles and amphibians), and 5515 (fish) of the California Fish and Game Code. These statutes prohibit take or possession of fully protected species at any time. CDFW is unable to authorize incidental take of fully protected species unless any such take authorization is issued in conjunction with the approval of a Natural Community Conservation Plan that covers the fully protected species (California Fish and Game Code Section 2835).

California Environmental Quality Act

Under the California Environmental Quality Act of 1970 (CEQA; Public Resources Code Section 21000 et seq.), lead agencies analyze whether projects would have a substantial adverse effect on a candidate, sensitive, or special-status species (Public Resources Code Section 21001(c)). These "special-status" species generally include those listed under FESA and CESA, and species that are not currently protected by statute or regulation, but would be considered rare, threatened, or endangered under the criteria included CEQA Guidelines Section 15380. Therefore, species that are considered rare are addressed under CEQA regardless of whether they are afforded protection through any other statute or regulation. The California Native Plant Society (CNPS) inventories the native flora of California and ranks species according to rarity; plants ranked as 1A, 1B, 2A, 2B, and 3 are generally considered special-status species under CEQA.[1]

[1] The California Rare Plant Rank system can be found at: http://www.cnps.org/cnps/rareplants/ranking.php.

Although threatened and endangered species are protected by specific federal and state statutes, CEQA Guidelines Section 15380(d) provides that a species not listed on the federal or state list of protected species may be considered rare if it can be shown to meet certain specified criteria. These criteria have been modeled after the definition in FESA and the section of the California Fish and Game Code dealing with rare or endangered plants and animals. Section 15380(d) allows a public agency to undertake a review to determine if a significant effect on species that have not yet been listed by either the USFWS or CDFW (i.e., candidate species) would occur.

Native Plant Protection Act

The California Native Plant Protection Act of 1977 (California Fish and Game Code Sections 1900-1913) empowers the Fish and Game Commission to list native plant species, subspecies, or varieties as endangered or rare following a public hearing. To the extent that the location of such plants is known, CDFW must notify property owners that a listed plant is known to occur on their property. Where a property owner has been so notified by CDFW, the owner must notify CDFW at least 10 days in advance of any change in land use (other than changing from one agricultural use to another), in order that CDFW may salvage listed plants that would otherwise be destroyed. Currently, 64 taxa of native plants have been listed as rare under the act.

Nesting Birds

California Fish and Game Code Subsections 3503 and 3800 prohibit the possession, take, or needless destruction of birds, their nests, and eggs, and the salvage of dead nongame birds. California Fish and Game Code Subsection 3503.5 protects all birds in the orders of Falconiformes and Strigiformes (birds of prey). Fish and Game Code Subsection 3513 states that it is unlawful to take or possess any migratory nongame bird as designated in the Migratory Bird Treaty Act or any part of such migratory nongame bird except as provided by rules and regulations adopted by the Secretary of the Interior under provisions of the Migratory Bird Treaty Act. The Attorney General of California has released an opinion that the Fish and Game Code prohibits incidental take.

Jurisdictional Waters

Federal Jurisdiction

On May 25, 2023, the United States (U.S.) Supreme Court issued a decision in the case of Sackett v. Environmental Protection Agency (Supreme Court of the United States 2023), which will ultimately influence how federal waters are defined. The May 25, 2023, Supreme Court decision in Sackett v. Environmental Protection Agency determined that “the CWA extends to only those ‘wetlands with a continuous surface connection to bodies that are “waters of the U.S.” in their own right,’ so that they are ‘indistinguishable’ from those waters.” The U.S. Environmental Protection Agency (USEPA) and the U.S. Army Corps of Engineers (USACE) after review of the decision issued a final rule to replace the 2023 rule that amends the "Revised Definition of “Waters of the U.S.” to conform key aspects of the regulatory text to the U.S. Supreme Court's May 25, 2023 decision in the case of *Sackett v. Environmental Protection Agency*.

Unless considered an exempt activity under Section 404(f) of the Federal Clean Water Act (CWA), any person, firm, or agency planning to alter or work in “waters of the U.S.,” including the discharge of dredged or fill material, must first obtain authorization from the USACE under Section 404 of the Clean Water Act (CWA; 33 USC 1344). Permits, licenses, variances, or similar authorization may also be

required by other federal, state, and local statutes. Section 10 of the Rivers and Harbors Act prohibits the obstruction or alteration of navigable waters of the U.S. without a permit from USACE (33 USC 403). Activities exempted under Section 404(f) are not exempted within navigable waters under Section 10.

The CWA (33 United States Code (USC) 1251-1376) provides guidance for the restoration and maintenance of the chemical, physical, and biological integrity of the nation's waters.

Section 401 requires that an applicant for a federal license or permit that allows activities resulting in a discharge to waters of the U.S. obtain a state certification that the discharge complies with other provisions of CWA. The Regional Water Quality Control Board (RWQCB) administers the certification program in California and may require State Water Quality Certification before other permits are issued.

Section 402 establishes a permitting system for the discharge of any pollutant (except dredged or fill material) into waters of the U.S.

Section 404 establishes a permit program administered by USACE that regulates the discharge of dredged or fill material into waters of the U.S. (including wetlands). Implementing regulations by USACE are found in 33 CFR Parts 320-332. The Section 404 (b)(1) Guidelines were developed by the USEPA in conjunction with USACE (40 CFR Part 230), allowing the discharge of dredged or fill material for non-water dependent uses into special aquatic sites only if there were no practicable alternative that would have less adverse impacts.

Regional Water Quality Control Board

Any action requiring a CWA Section 404 permit, or a Rivers and Harbors Act Section 10 permit, must also obtain a CWA Section 401 Water Quality Certification. The State of California Water Quality Certification (WQC) Program was formally initiated by the State Water Resources Control Board (SWRCB) in 1990 under the requirements stipulated by Section 401 of the CWA. Although the CWA is a federal law, Section 401 of the CWA recognizes that states have the primary authority and responsibility for setting water quality standards. In California, under Section 401, the State and Regional Water Boards are the authorities that certify that issuance of a federal license or permit does not violate California's water quality standards (i.e., that they do not violate Porter-Cologne and the Water Code). The WQC Program currently issues the WQC for discharges requiring USACE permits for fill and dredge discharges within Waters of the United States, and now also implements the State's wetland protection and hydromodification regulation program under the Porter Cologne Water Quality Control Act.

On May 28, 2020, the SWRCB implemented the State Wetland Definition and Procedures for Discharges of Dredged or Fill Material to Waters of the State (Procedures) for inclusion in the forthcoming Water Quality Control Plan for Inland Surface Waters and Enclosed Bays and Estuaries and Ocean Waters of California (SWRCB 2019). The Procedures consist of four major elements:

I. A wetland definition;

II. A framework for determining if a feature that meets the wetland definition is a water of the state;

III. Wetland delineation procedures; and

IV. Procedures for the submittal, review, and approval of applications for Water Quality Certifications and Waste Discharge Requirements for dredge or fill activities.

Under the Procedures and the State Water Code (Water Code §13050(e)), "Waters of the State" are defined as "any surface water or groundwater, including saline waters, within the boundaries of the state." "Waters of the State" includes all "Waters of the U.S."

More specifically, a wetland is defined as: "*An area is wetland if, under normal circumstances, (1) the area has continuous or recurrent saturation of the upper substrate caused by groundwater, or shallow surface water, or both; (2) the duration of such saturation is sufficient to cause anaerobic conditions in the upper substrate; and (3) the area's vegetation is dominated by hydrophytes or the area lacks vegetation*." The wetland definition encompasses the full range of wetland types commonly recognized in California, including some features not protected under federal law, and reflects current scientific understanding of the formation and functioning of wetlands (SWRCB 2019).

Unless excluded by the Procedures, any activity that could result in the discharge of dredged or fill material to Waters of the State, which includes Waters of the U.S. and non-federal Waters of the State, requires the filing of an application under the Procedures.

The Porter-Cologne Water Quality Control Act (Porter-Cologne Act, Water Code Section 13000 et seq.) is California's statutory authority for the protection of water quality in conjunction with the federal CWA. The Porter-Cologne Act requires the SWRCB and RWQCBs under the CWA to adopt and periodically update water quality control plans, or basin plans. Basin plans are plans in which beneficial uses, water quality objectives, and implementation programs are established for each of the nine regions in California. The Porter-Cologne Act also requires dischargers of pollutants or dredged or fill material to notify the RWQCBs of such activities by filing Reports of Waste Discharge and authorizes the SWRCB and RWQCBs to issue and enforce waste discharge requirements, National Pollution Discharge Elimination System (NPDES) permits, Section 401 water quality certifications, or other approvals.

California Department of Fish and Wildlife

The CDFW is a trustee agency that has jurisdiction under Section 1600 et seq. of the California Fish and Game Code. Under Sections 1602 and 1603, a private party must notify CDFW if a proposed project will "substantially divert or obstruct the natural flow or substantially change the bed, channel, or bank of streambeds…except when the department has been notified pursuant to Section 1601." Additionally, CDFW asserts jurisdiction over native riparian habitat adjacent to aquatic features, including native trees over four inches in diameter at breast height (DBH). If an existing fish or wildlife resource may be substantially adversely affected by the activity, CDFW may propose reasonable measures that will allow protection of those resources. If these measures are agreeable to the parties involved, they may enter into an agreement with CDFW identifying the approved activities and associated mitigation measures. Generally, CDFW recommends submitting an application for a Streambed Alteration Agreement (SAA) for any work done within the lateral limit of water flow or the edge of riparian vegetation, whichever is greater.

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Attachment C

Database Query Results

CALIFORNIA NATIVE PLANT SOCIETY

CNPS Rare Plant Inventory

Search Results

30 matches found. Click on scientific name for details

Search Criteria: CRPR is one of [**1A:1B:2A:2B:3**] , 9-Quad include [**4112345:4112335:4112334:4112346:4112336:4112344:4112324:4112325:4112326**]

▲ SCIENTIFIC NAME	COMMON NAME	FAMILY	LIFEFORM	BLOOMING PERIOD	FED LIST	STATE LIST	CA RARE PLANT RANK	GENERAL HABITATS	MICROHABITATS	LOWEST ELEVATION (M)	HIGHEST ELEVATION (M)
Astragalus umbraticus	Bald Mountain milk-vetch	Fabaceae	perennial herb	May-Aug	None	None	2B.2	Cismontane woodland, Lower montane coniferous forest	Roadsides (sometimes)	150	1250
Buxbaumia viridis	green shield-moss	Buxbaumiaceae	moss		None	None	2B.2	Lower montane coniferous forest, Subalpine coniferous forest, Upper montane coniferous forest		975	2200
Carex halliana	Oregon sedge	Cyperaceae	perennial rhizomatous herb	(May)Jul-Sep	None	None	2B.3	Meadows and seeps, Subalpine coniferous forest, Upper montane coniferous forest		1370	2105
Carex hystericina	porcupine sedge	Cyperaceae	perennial rhizomatous herb	May-Jun	None	None	2B.1	Marshes and swamps (streambanks)		610	2400
Carex praticola	northern meadow sedge	Cyperaceae	perennial herb	May-Jul	None	None	2B.2	Meadows and seeps (mesic)		0	3200

Cornus unalaschkensis	bunchberry	Cornaceae	perennial rhizomatous herb	May-Jul	None	None	2B.2	Bogs and fens, Meadows and seeps, North Coast coniferous forest		60	1920
Epilobium oreganum	Oregon fireweed	Onagraceae	perennial herb	Jun-Sep	None	None	1B.2	Bogs and fens, Lower montane coniferous forest, Meadows and seeps, Upper montane coniferous forest	Mesic	500	2240
Erythronium oregonum	giant fawn lily	Liliaceae	perennial herb	Mar-Jun(Jul)	None	None	2B.2	Cismontane woodland, Meadows and seeps	Openings, Rocky, Serpentinite (sometimes)	100	1150
Erythronium revolutum	coast fawn lily	Liliaceae	perennial bulbiferous herb	Mar-Jul(Aug)	None	None	2B.2	Bogs and fens, Broadleafed upland forest, North Coast coniferous forest	Mesic, Streambanks	0	1600
Gentiana plurisetosa	Klamath gentian	Gentianaceae	perennial herb	Jul-Sep	None	None	1B.3	Lower montane coniferous forest, Meadows and seeps, Upper montane coniferous forest	Mesic	1200	1900
Gilia capitata ssp. *pacifica*	Pacific gilia	Polemoniaceae	annual herb	Apr-Aug	None	None	1B.2	Chaparral (openings), Coastal bluff scrub, Coastal prairie, Valley and foothill grassland		5	1665

Iliamna latibracteata	California globe mallow	Malvaceae	perennial herb	Jun-Aug	None	None	1B.2	Chaparral (montane), Lower montane coniferous forest, North Coast coniferous forest (mesic), Riparian scrub (streambanks)	Burned areas (often)	60	2000
Juncus dudleyi	Dudley's rush	Juncaceae	perennial herb	Jul-Aug	None	None	2B.3	Lower montane coniferous forest (mesic)		365	2000
Kopsiopsis hookeri	small groundcone	Orobanchaceae	perennial rhizomatous herb (parasitic)	Apr-Aug	None	None	2B.3	Lower montane coniferous forest, North Coast coniferous forest, Upper montane coniferous forest		90	885
Lewisia cotyledon var. *heckneri*	Heckner's lewisia	Montiaceae	perennial herb	(Apr)May-Jul	None	None	1B.2	Lower montane coniferous forest (rocky)		225	2100
Lewisia cotyledon var. *howellii*	Howell's lewisia	Montiaceae	perennial herb	Apr-Jul	None	None	3.2	Broadleafed upland forest, Chaparral, Cismontane woodland, Lower montane coniferous forest	Rocky	150	2010
Lewisia kelloggii ssp. *hutchisonii*	Hutchison's lewisia	Montiaceae	perennial herb	(Apr)May-Aug	None	None	3.2	Upper montane coniferous forest	Openings	765	2365
Lomatium martindalei	Coast Range lomatium	Apiaceae	perennial herb	May-Jun(Aug)	None	None	2B.3	Coastal bluff scrub, Lower montane coniferous forest, Meadows and seeps		240	3000

Montia howellii	Howell's montia	Montiaceae	annual herb	(Feb)Mar-May	None	None	2B.2	Meadows and seeps, North Coast coniferous forest, Vernal pools	Roadsides (sometimes), Vernally Mesic	0	835
Oenothera wolfii	Wolf's evening-primrose	Onagraceae	perennial herb	May-Oct	None	None	1B.1	Coastal bluff scrub, Coastal dunes, Coastal prairie, Lower montane coniferous forest	Mesic (usually), Sandy	3	800
Piperia candida	white-flowered rein orchid	Orchidaceae	perennial herb	(Mar-Apr)May-Sep	None	None	1B.2	Broadleafed upland forest, Lower montane coniferous forest, North Coast coniferous forest	Serpentinite (sometimes)	30	1310
Platismatia lacunosa	crinkled rag lichen	Parmeliaceae	foliose lichen (epiphytic)		None	None	2B.3	North Coast coniferous forest, Riparian woodland		20	2000
Prosartes parvifolia	Siskiyou bells	Liliaceae	perennial bulbiferous herb	May-Sep	None	None	1B.2	Lower montane coniferous forest, Upper montane coniferous forest	Burned areas, Disturbed areas, Roadsides (often)	700	1525
Rorippa columbiae	Columbia yellow cress	Brassicaceae	perennial rhizomatous herb	May-Sep	None	None	1B.2	Lower montane coniferous forest, Meadows and seeps, Playas, Vernal pools	Mesic	1200	1800
Schoenoplectus subterminalis	water bulrush	Cyperaceae	perennial rhizomatous herb (aquatic)	Jun-Aug(Sep)	None	None	2B.3	Bogs and fens, Marshes and swamps (montane lake margins)		750	2250

Sidalcea elegans	Del Norte checkerbloom	Malvaceae	perennial rhizomatous herb	May-Jul	None	None	3.3	Chaparral, Lower montane coniferous forest	Serpentinite	215	1365
Sidalcea oregana ssp. *eximia*	coast checkerbloom	Malvaceae	perennial herb	Jun-Aug	None	None	1B.2	Lower montane coniferous forest, Meadows and seeps, North Coast coniferous forest		5	1340
Silene hookeri	Hooker's catchfly	Caryophyllaceae	perennial herb	(Mar)May-Jul	None	None	2B.2	Chaparral, Cismontane woodland, Lower montane coniferous forest	Openings (often), Rocky (sometimes), Serpentinite (sometimes), Slopes (sometimes)	150	1260
Silene marmorensis	Marble Mountain campion	Caryophyllaceae	perennial herb	Jun-Aug	None	None	1B.2	Broadleafed upland forest, Chaparral, Cismontane woodland, Lower montane coniferous forest		170	1250
Thermopsis robusta	robust false lupine	Fabaceae	perennial rhizomatous herb	May-Jul	None	None	1B.2	Broadleafed upland forest, North Coast coniferous forest		150	1500

Showing 1 to 30 of 30 entries

Suggested Citation:

California Native Plant Society, Rare Plant Program. 2024. Rare Plant Inventory (online edition, v9.5). Website https://www.rareplants.cnps.org [accessed 13 February 2024].

Selected Elements by Scientific Name

California Department of Fish and Wildlife

California Natural Diversity Database

Query Criteria: Quad IS (Lonesome Ridge (4112346) OR Orleans (4112335) OR Orleans Mtn. (4112334) OR Bark Shanty Gulch (4112345) OR Somes Bar (4112344) OR Fish Lake (4112336) OR Weitchpec (4112326) OR Hopkins Butte (4112325) OR Salmon Mtn. (4112324))

Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
Accipiter atricapillus American goshawk	ABNKC12061	None	None	G5	S3	SSC
Acipenser medirostris pop. 2 green sturgeon - northern DPS	AFCAA01032	None	None	G2T1	S1	SSC
Ancotrema voyanum hooded lancetooth	IMGAS36130	None	None	G1G2	S1S2	
Anomobryum julaceum slender silver moss	NBMUS80010	None	None	G5?	S2	4.2
Aplodontia rufa humboldtiana Humboldt mountain beaver	AMAFA01017	None	None	G5TNR	SNR	
Ardea herodias great blue heron	ABNGA04010	None	None	G5	S4	
Ascaphus truei Pacific tailed frog	AAABA01010	None	None	G4	S3S4	SSC
Astragalus umbraticus Bald Mountain milk-vetch	PDFAB0F990	None	None	G4	S2	2B.2
Atractelmis wawona Wawona riffle beetle	IICOL58010	None	None	G3	S1S2	
Bombus occidentalis western bumble bee	IIHYM24252	None	Candidate Endangered	G3	S1	
Bombus suckleyi Suckley's cuckoo bumble bee	IIHYM24350	None	Candidate Endangered	G2G3	S1	
Bonasa umbellus ruffed grouse	ABNLC11010	None	None	G5	S3S4	WL
Carex halliana Oregon sedge	PMCYP035M0	None	None	G4G5	S2	2B.3
Carex hystericina porcupine sedge	PMCYP036D0	None	None	G5	S2	2B.1
Carex praticola northern meadow sedge	PMCYP03B20	None	None	G5	S2	2B.2
Coptis laciniata Oregon goldthread	PDRAN0A020	None	None	G4?	S3?	4.2
Cornus unalaschkensis bunchberry	PDCOR010F0	None	None	G5	S2	2B.2
Corynorhinus townsendii Townsend's big-eared bat	AMACC08010	None	None	G4	S2	SSC

Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
Cottus klamathensis polyporus Lower Klamath marbled sculpin	AFC4E02153	None	None	G4T2T4	S2S4	SSC
Cypseloides niger black swift	ABNUA01010	None	None	G4	S3	SSC
Emys marmorata western pond turtle	ARAAD02030	Proposed Threatened	None	G3G4	S3	SSC
Entosphenus similis Klamath River lamprey	AFBAA02140	None	None	G3G4Q	S3	SSC
Epilobium oreganum Oregon fireweed	PDONA060P0	None	None	G2	S2	1B.2
Erythronium oregonum giant fawn lily	PMLIL0U0C0	None	None	G5	S2	2B.2
Erythronium revolutum coast fawn lily	PMLIL0U0F0	None	None	G4G5	S3	2B.2
Falco peregrinus anatum American peregrine falcon	ABNKD06071	Delisted	Delisted	G4T4	S3S4	
Gentiana plurisetosa Klamath gentian	PDGEN060V0	None	None	G2G3	S2	1B.3
Gilia capitata ssp. pacifica Pacific gilia	PDPLM040B6	None	None	G5T3	S2	1B.2
Gonidea angulata western ridged mussel	IMBIV19010	None	None	G3	S2	
Haliaeetus leucocephalus bald eagle	ABNKC10010	Delisted	Endangered	G5	S3	FP
Helminthoglypta hertleini Oregon shoulderband	IMGASC2280	None	None	G3Q	S1S2	
Helminthoglypta talmadgei Trinity shoulderband	IMGASC2630	None	None	G2	S2	
Iliamna latibracteata California globe mallow	PDMAL0K040	None	None	G2G3	S2	1B.2
Juncus dudleyi Dudley's rush	PMJUN01390	None	None	G5	S1	2B.3
Klamath/No Coast Spring Run Chinook/Summer Steelhead Stream Klamath/No Coast Spring Run Chinook/Summer Steelhead Stream	CARB2333CA	None	None	GNR	SNR	
Klamath/North Coast Fall/Winter Run Chinook Salmon River Klamath/North Coast Fall/Winter Run Chinook Salmon River	CARB2332CA	None	None	GNR	SNR	
Klamath/North Coast Interior Headwater Fishless Stream Klamath/North Coast Interior Headwater Fishless Stream	CARB2220CA	None	None	GNR	SNR	
Klamath/North Coast Rainbow Trout Stream Klamath/North Coast Rainbow Trout Stream	CARB2312CA	None	None	GNR	SNR	

Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
Kopsiopsis hookeri small groundcone	PDORO01010	None	None	G4?	S1S2	2B.3
Lewisia cotyledon var. heckneri Heckner's lewisia	PDPOR04052	None	None	G4T3	S3	1B.2
Lomatium martindalei Coast Range lomatium	PDAPI1B140	None	None	G5	S2	2B.3
Margaritifera falcata western pearlshell	IMBIV27020	None	None	G5	S1S2	
Martes caurina humboldtensis Humboldt marten	AMAJF01012	Threatened	Endangered	G4G5T1	S1	SSC
Mielichhoferia elongata elongate copper moss	NBMUS4Q022	None	None	G5	S3S4	4.3
Monadenia marmarotis marble sideband	IMGASC7060	None	None	G1	S1	
Montia howellii Howell's montia	PDPOR05070	None	None	G3G4	S2	2B.2
Oenothera wolfii Wolf's evening-primrose	PDONA0C1K0	None	None	G2	S1	1B.1
Oncorhynchus clarkii clarkii coast cutthroat trout	AFCHA0208A	None	None	G5T4	S3	SSC
Oncorhynchus tshawytscha pop. 30 chinook salmon - upper Klamath and Trinity Rivers ESU	AFCHA02056	Candidate	Threatened	G5T2Q	S2	SSC
Pandion haliaetus osprey	ABNKC01010	None	None	G5	S4	WL
Pekania pennanti Fisher	AMAJF01020	None	None	G5	S2S3	SSC
Piperia candida white-flowered rein orchid	PMORC1X050	None	None	G3?	S3	1B.2
Platismatia lacunosa crinkled rag lichen	NLLEC2Q010	None	None	G4	S2?	2B.3
Plethodon elongatus Del Norte salamander	AAAAD12050	None	None	G4	S3	WL
Prosartes parvifolia Siskiyou bells	PMLIL0R014	None	None	G2	S2	1B.2
Ptilidium californicum Pacific fuzzwort	NBHEP2U010	None	None	G4G5	S3S4	4.3
Rana boylii pop. 1 foothill yellow-legged frog - north coast DPS	AAABH01051	None	None	G3T4	S4	SSC
Rana cascadae Cascades frog	AAABH01060	None	Candidate Endangered	G3	S3	SSC
Rhyacotriton variegatus southern torrent salamander	AAAAJ01020	None	None	G3?	S2S3	SSC

Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
Rorippa columbiae Columbia yellow cress	PDBRA27060	None	None	G3	S2	1B.2
Schoenoplectus subterminalis water bulrush	PMCYP0Q1G0	None	None	G5	S3	2B.3
Sidalcea oregana ssp. eximia coast checkerbloom	PDMAL110K9	None	None	G5T1	S1	1B.2
Silene hookeri Hooker's catchfly	PDCAR0U2M0	None	None	G4	S2	2B.2
Silene marmorensis Marble Mountain campion	PDCAR0U0Z0	None	None	G2	S2	1B.2
Thermopsis robusta robust false lupine	PDFAB3Z0D0	None	None	G2	S2	1B.2
Vespericola karokorum Karok hesperian	IMGASA4040	None	None	G2	S2	

Record Count: 66

United States Department of the Interior

FISH AND WILDLIFE SERVICE
Arcata Fish And Wildlife Office
1655 Heindon Road
Arcata, CA 95521-4573
Phone: (707) 822-7201 Fax: (707) 822-8411

In Reply Refer To: February 13, 2024
Project Code: 2024-0016353
Project Name: Orleans Mutual Water Company, Water Distribution System Replacement Project

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

To Whom It May Concern:

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

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

The purpose of the Act is to provide a means whereby threatened and endangered species and the ecosystems upon which they depend may be conserved. Under sections 7(a)(1) and 7(a)(2) of the Act and its implementing regulations (50 CFR 402 *et seq.*), Federal agencies are required to utilize their authorities to carry out programs for the conservation of threatened and endangered species and to determine whether projects may affect threatened and endangered species and/or designated critical habitat.

A Biological Assessment is required for construction projects (or other undertakings having similar physical impacts) that are major Federal actions significantly affecting the quality of the human environment as defined in the National Environmental Policy Act (42 U.S.C. 4332(2)(c)). For projects other than major construction activities, the Service suggests that a biological

evaluation similar to a Biological Assessment be prepared to determine whether the project may affect listed or proposed species and/or designated or proposed critical habitat. Recommended contents of a Biological Assessment are described at 50 CFR 402.12.

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

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

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

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

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

Attachment(s):

- Official Species List

OFFICIAL SPECIES LIST

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

This species list is provided by:

Arcata Fish And Wildlife Office
1655 Heindon Road
Arcata, CA 95521-4573
(707) 822-7201

PROJECT SUMMARY

Project Code: 2024-0016353

Project Name: Orleans Mutual Water Company, Water Distribution System Replacement Project

Project Type: Water Supply Pipeline - Maintenance/Modification - Below Ground

Project Description: The general project objectives include the replacement of aging water mains with new water mains in readily accessible location, adding water meters to each property in accessible location, adding raw water mains to an agricultural property located on the southside of State Route 96, and planning for a potential intertie with the neighboring Orleans Community Service District for water system redundancy.

Project Location:

The approximate location of the project can be viewed in Google Maps: https://www.google.com/maps/@41.298363699999996,-123.5606085719578,14z

Counties: Humboldt County, California

ENDANGERED SPECIES ACT SPECIES

There is a total of 7 threatened, endangered, or candidate species on this species list.

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

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

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

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

MAMMALS

NAME	STATUS
Pacific Marten, Coastal Distinct Population Segment *Martes caurina* There is **proposed** critical habitat for this species. Your location overlaps the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/9081	Threatened

BIRDS

NAME	STATUS
Marbled Murrelet *Brachyramphus marmoratus* Population: U.S.A. (CA, OR, WA) There is **final** critical habitat for this species. Your location overlaps the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/4467	Threatened
Northern Spotted Owl *Strix occidentalis caurina* There is **final** critical habitat for this species. Your location does not overlap the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/1123	Threatened
Western Snowy Plover *Charadrius nivosus nivosus* Population: Pacific Coast population DPS-U.S.A. (CA, OR, WA), Mexico (within 50 miles of Pacific coast) There is **final** critical habitat for this species. Your location does not overlap the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/8035	Threatened
Yellow-billed Cuckoo *Coccyzus americanus* Population: Western U.S. DPS There is **final** critical habitat for this species. Your location does not overlap the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/3911	Threatened

REPTILES

NAME	STATUS
Northwestern Pond Turtle *Actinemys marmorata* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/1111	Proposed Threatened

INSECTS

NAME	STATUS
Monarch Butterfly *Danaus plexippus* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/9743	Candidate

CRITICAL HABITATS

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

NAME	STATUS
Marbled Murrelet *Brachyramphus marmoratus* https://ecos.fws.gov/ecp/species/4467#crithab	Final
Pacific Marten, Coastal Distinct Population Segment *Martes caurina* https://ecos.fws.gov/ecp/species/9081#crithab	Proposed

IPAC USER CONTACT INFORMATION

Agency: Private Entity
Name: Greg Davis
Address: 1677 Eureka Road, Suite 100
City: Roseville
State: CA
Zip: 95661
Email gregd@helixepi.com
Phone: 9164351202

Attachment D

Potential for Special-status Species to Occur in the Study Area

Scientific Name/ Common Name[1]	Status[2]	Habitat, Ecology and Life History	Potential to Occur[3]
Plants			
Astragalus umbraticus Bald Mountain milk-vetch	--/--/2B.2	A perennial herb found in dry openings within cismontane woodland and lower montane coniferous forest, sometimes on roadsides, from 150 – 1,250 meters elevation. Blooms May – August (CDFW 2024, CNPS 2024).	**May occur.** Openings within the Douglas fir forest community, as well as roadcuts along Camp Creek Road, provide suitable habitat for this species. There are no documented CNDDB records of this species within a 5-mile radius of the site (CDFW 2024).
Buxbaumia viridis green shield-moss	--/--/2B.2	A moss found on fallen, decorticated wood or humus in lower montane coniferous forests, subalpine coniferous forests, and upper montane coniferous forests from 975 – 2,2000 meters elevation. No bloom period (CNPS 2024).	**Will not occur.** The Study Area is located outside of the elevational range of this species.
Carex halliana Oregon sedge	--/--/2B.3	A perennial herb often found in pumice soils within meadows, seeps, and subalpine and upper montane coniferous forest from 1,370 – 2,105 meters elevation. Blooms (May) July - September (CDFW 2024, CNPS 2024).	**Will not occur.** The Study Area is located outside of the elevational range of this species.
Carex hystericina porcupine sedge	--/--/2B.1	A perennial rhizomatous herb found in wet places, such as stream edges, marshes, and swamps from 610 – 915 meters elevation. Blooms May – June (CDFW 2024, CNPS 2024).	**Will not occur.** The Study Area is located outside of the elevational range of this species.
Carex praticola northern meadow sedge	--/--/2B.2	A perennial herb found in mesic meadows and seeps from 0 – 3,200 meters elevation. Blooms May – July (CNPS 2024).	**Will not occur.** There are no mesic meadows or seeps within the Study Area to support this species. Additionally, there are no documented CNDDB records of this species within a 5-mile radius of the Study Area (CDFW 2024).
Cornus unalaschkensis bunchberry	--/--/2B.2	A perennial rhizomatous herb found in bogs, fens, meadows, seeps, and moist areas within North Coast coniferous forests from 60 – 1,920 meters elevation. Several populations at the southern end of its distribution in CA are extirpated. Blooms May-July (CNPS 2024).	**Will not occur.** There is no suitable bog, fen, meadow, or seep habitat, or mesic North Coast coniferous forest sites, within the Study Area to support this species. The nearest reported occurrence for the species is 13.8 miles northeast of the Study Area and is from 1975 (CDFW 2024).

Scientific Name/ Common Name[1]	Status[2]	Habitat, Ecology and Life History	Potential to Occur[3]
Epilobium oreganum Oregon fireweed	--/--/1B.2	A perennial herb found on mesic soils within bogs, fens, lower montane coniferous forest, meadows, seeps, and upper montane coniferous forest from 500 – 2,240 meters elevation. This species is typically found in and/or near springs and bogs. Blooms June – September. (CDFW 2024, CNPS 2024).	**Will not occur.** The Study Area is located outside of the elevational range of this species.
Erythronium oreganum giant fawn lily	--/--/2B.2	A perennial rhizomatous herb found in rocky openings within cismontane woodlands, meadows, and seeps from 100 – 1,435 meters elevation. This species is sometimes found growing on serpentine soils but occurs on other soils as well. Blooms from March – June (CDFW 2024, CNPS 2024).	**Will not occur.** Suitable rocky openings associated with cismontane woodlands are not present within the Study Area. Additionally, there are no documented CNDDB records of this species within a 5-mile radius of the Study Area (CDFW 2024).
Erythronium revolutum coast fawn lily	--/--/2B.2	A perennial bulbiferous herb found on mesic soils and streambanks in bogs and fens, broadleafed upland forest, and North Coast coniferous forest from 0 – 1,600 meters elevation. Blooms March – July (August). Associated species include Douglas fir, tanoak, and Pacific madrone (CNPS 2024).	**May occur.** Suitable habitat for this species is present in the Douglas fir and montane riparian communities within the Study Area. The nearest extant occurrence is 8.5 miles south of the Study Area along a logging road (CDFW 2024).
Gentiana plurisetosa Klamath gentian	--/--/1B.3	A perennial herb found on mesic soils in meadows, seeps, and lower and upper montane coniferous forests from 1,200 – 1,900 meters elevation. Blooms July – September (CNPS 2024).	**Will not occur.** The Study Area is located outside of the elevation range of this species.
Gilia capitata ssp. *pacifica* Pacific gilia	--/--/1B.2	An annual herb found in coastal bluff scrub, chaparral openings, coastal prairies, and valley and foothill grassland from 5 – 1,665 meters elevation. Blooms April – August (CNPS 2024).	**Will not occur.** Although mixed chaparral habitat is mapped within the Study Area, it is associated with a disturbed tailings site within Douglas fir forest and is not suitable habitat for this species. Additionally, there are no documented CNDDB records of this species within a 5-mile radius of the site (CDFW 2024).

Scientific Name/ Common Name[1]	Status[2]	Habitat, Ecology and Life History	Potential to Occur[3]
Iliamna latibracteata California globe mallow	--/--/1B.2	A perennial bulbiferous herb found within montane chaparral, lower montane coniferous forest, mesic North Coast coniferous forests, and streambanks in riparian scrub from 60 – 2,000 meters elevation. Other ecological preferences of this species include growing within seepage areas in silty clay loam soils, as well as often being found in recently burned areas. Blooms June – August (CDFW 2024, CNPS 2024).	**Not expected.** Based on existing CNDDB records in the area, this species is associated with full sun to partly shaded sites and is often found in wet streamside areas in response to fire or in relatively open riparian scrub habitat (CDFW 2024). Given that Camp Creek is heavily shaded, it is not expected that this species will occur within the Study Area (CDFW 2024). Additionally, there are no documented CNDDB records of this species within a 5-mile radius of the Study Area (CDFW 2024).
Juncus dudleyi Dudley's rush	--/--/2B.3	A perennial herb found in wet areas within lower montane coniferous forests from 365 – 2,000 meters elevation. Blooms July – August (CNPS 2024).	**Will not occur.** There is no suitable mesic montane forest habitat within the Study Area to support this species and the site is located outside of the elevational range of this species. There is one reported CNDDB occurrence of this species that overlaps the Study Area and is associated with a historic, buffered occurrence centered on Orleans from 1944 (CDFW 2024).
Kopsiopsis hookeri small groundcone	--/--/2B.3	A parasitic perennial rhizomatous herb found in North Coast coniferous forest from 90 – 885 meters elevation. Blooms April – August. Microsite habitat characteristics include shrubby places in open woods, generally found on salal (*Gaultheria shallon*) and occasionally on Pacific madrone (*Arbutus menziesii*) and Kinnikinnick (*Arctostaphylos uva-ursi*) (CNPS 2024).	**May occur.** Pacific madrone, an occasional host plant of this species, was observed in the Douglas fir community within the Study Area, which provides suitable habitat for this species. There are no documented CNDDB records of this species within a 5-mile radius of the Study Area (CDFW 2024).

Scientific Name/ Common Name[1]	Status[2]	Habitat, Ecology and Life History	Potential to Occur[3]
Lewisia cotyledon var. *heckneri* Heckner's lewisia	--/--/1B.2	A perennial herb found in coastal bluff scrub, lower montane coniferous forests, meadows, and seeps from 225 – 3,000 meters elevation. This species generally occurs in crevices in cliffs and rocky slopes of granite or basalt (Jepson eFlora 2024). Blooms May – June (August) (CNPS 2024).	**Will not occur.** There are no suitable substrates within the Study Area to support this species. There is one reported CNDDB occurrence of this species within a 5-mile radius of the Study Area, which is generally mapped as the entire Weitchpec 7.5-minute quadrangle to the southwest (CDFW 2024). This occurrence is a historic record from 1942 that describes the associated habitat as serpentinized bluffs (CDFW 2024).
Lewisia cotyledon var. *howellii* Howell's lewisia	--/--/3.2	A perennial herb found in rocky areas within broadleafed upland forest, chaparral, cismontane woodland, and lower montane coniferous forest from 150 – 2,010 meters elevation. Blooms April – June (CNPS 2024).	**Will not occur.** Although mixed chaparral habitat is mapped within the Study Area, it is associated with a disturbed tailings site within Douglas fir forest and is not suitable habitat for this species. Additionally, there are no documented CNDDB records of this species within a 5-mile radius of the site (CDFW 2024).
Lewisia kelloggii ssp. *hutchinsonii* Hutchinson's lewisia	--/--/3.2	A perennial herb found in opening within upper montane coniferous forest from 765 – 2,365 meters elevation. Blooms May – August (CNPS 2024).	**Will not occur.** The Study Area is located outside of the elevation range of this species.
Lomatium martindalei Coast Range lomatium	--/--/2B.3	A perennial herb found within lower montane coniferous forest, coastal bluff scrub, meadows, and seeps from 225 – 3,000 meters elevation. This species is generally associated with bogs and seeps along creeks and on ridgetops, often on serpentine (CDFW 2024). Blooms May – June (CNPS 2024).	**Will not occur.** There are no bogs or seeps within the Study Area to support this species. Additionally, the Study Area is outside the elevational range of this species and there are no documented CNDDB records of this species within a 5-mile radius of the site (CDFW 2024).
Montia howellii Howell's montia	--/--/2B.2	An annual herb found on vernally mesic soils in vernal pools, north coast coniferous forest, meadows and seeps from 0 – 835 meters elevation. Blooms (February) March – May. Microsite habitat characteristics include vernally wet areas with compacted soils (CDFW 2024, CNPS 2024).	**Will not occur.** There are no suitable vernally wet areas with compacted soils within the Study Area to support this species. Additionally, there are no documented CNDDB records of this species within a 5-mile radius of the Study Area (CDFW 2024).

Scientific Name/ Common Name[1]	Status[2]	Habitat, Ecology and Life History	Potential to Occur[3]
Oenothera wolfii Wolf's evening-primrose	--/--/1B.1	A perennial herb found on sandy, usually mesic soils in coastal bluff scrub, coastal dunes, coastal prairies, and lower montane coniferous forests from 3 – 800 meters elevation. Blooms May – October (CNPS 2024).	**Will not occur.** There are no suitable sandy soils within the Study Area to support this species. There is one reported CNDDB occurrence of this species that overlaps the Study Area and is associated with a historic buffered occurrence from 1945 that is described to be between Orleans and Camp Creek in the Klamath River canyon (CDFW 2024). It is likely that this occurrence is associated with the sandy banks of the Klamath River, however detailed information is not provided in the CNDDB record.
Piperia candida white-flowered rein orchid	--/--/1B.2	A perennial herb found within broadleafed upland forests, lower montane coniferous forests, and North Coast coniferous forests from 30 – 1,310 meters elevation. This species is sometimes found on serpentinite substrates and is generally associated with sites containing forest duff, mossy banks, rock outcrops, and muskeg. Blooms (March – April) May – September (CDFW 2024, CNPS 2024).	**May occur.** The Douglas fir community within the Study Area provides suitable habitat for this species. The nearest extant occurrence is 6.5 miles west of the Study Area, which is described to be within Douglas fir forest (CDFW 2024).
Platismatia lacunosa crinkled rag lichen	--/--/2B.3	An epiphytic foliose lichen found within North Coast coniferous forest and riparian woodland from 20 – 2,000 meters elevation (CNPS 2024). This species is usually found growing on alder trees (*Alnus* spp.) and/or alder bark litterfall (CDFW 2024).	**May occur.** The montane riparian community within the Study Area contains alders that provide suitable habitat for this species. There are no documented CNDDB records of this species within a 5-mile radius of the Study Area.
Prosartes parvifolia Siskiyou bells	--/--/1B.2	A perennial bulbiferous herb found in burned and/or disturbed areas, often on roadsides, within upper and lower montane coniferous forests from 700 – 1,525 meters elevation. Blooms May – September (CNPS 2024).	**Will not occur.** The Study Area is located outside of the elevational range of this species.

Scientific Name/ Common Name[1]	Status[2]	Habitat, Ecology and Life History	Potential to Occur[3]
Rorippa columbiae Columbia yellow cress	--/--/1B.2	A perennial rhizomatous herb found on mesic soils in lower montane coniferous forests, meadows, seeps, playas, and vernal pools from 1,200 – 1,800 meters elevation. Blooms May – September (CNPS 2024).	**Will not occur.** The Study Area is located outside of the elevational range of this species. There is one reported CNDDB occurrence of this species that overlaps the Study Area and is associated with a historic buffered occurrence centered on Orleans from 1956 (CDFW 2024). The record further describes that the observation is associated with a fig tree riffle at Woodson Mine, which is associated with Orleans Mountain.
Schoenoplectus subterminalis water bulrush	--/--/2B.3	A perennial rhizomatous aquatic herb found in bogs, fens, and montane lake margins from 750 – 2,250 meters elevation. Blooms June – August (September) (CNPS 2024).	**Will not occur.** There is no suitable bog, fen, or montane lake habitat in the Study Area to support this species. Additionally, the site is outside of the elevational range of this species.
Sidalcea elegans Del Norte checkerbloom	--/--/3.3	A perennial rhizomatous herb found in serpentinite soils in chaparral and lower montane coniferous forests from 215 – 1,365 meters elevation. Blooms May – July (CNPS 2024).	**Will not occur.** The Study Area does not contain serpentinite substrates to support this species.
Sidalcea oregana ssp. *eximia* coast checkerbloom	--/--/1B.2	A perennial herb found within lower montane coniferous forest, meadows, seeps, and North Coast coniferous forest from 5 – 1,340 meters elevation. Other ecological preferences of this species include growing near meadows within gravelly soil. Blooms June – August (CDFW 2024, CNPS 2024).	**Will not occur.** There is no suitable meadow habitat within or adjacent to the Study Area to support this species. Additionally, the are no documented CNDDB records of this species within a 5-mile radius of the Study Area (CDFW 2024).

Scientific Name/ Common Name[1]	Status[2]	Habitat, Ecology and Life History	Potential to Occur[3]
Silene hookeri Hooker's catchfly	--/--/2B.2	A perennial herb often found in grassy openings within chaparral, cismontane woodland, and lower montane coniferous forest from 150 – 1,260 meters elevation. This species is sometimes found growing on rocky slopes and/or serpentine substrates. Blooms (March) May – July (CDFW 2024, CNPS 2024).	**May occur.** Openings within the Douglas fir community in the Study Area provide suitable habitat for this species. There are five reported CNDDB occurrences of this species within a 5-mile radius of the Study Area, with the nearest being a historic occurrence from 1929 that overlaps the site (CDFW 2024). The next nearest and more recent CNDDB occurrence is located approximately 3.7 miles to the north, which is from 2019 and is associated with an exposed serpentine roadbank (CDFW 2024).
Silene marmorensis Marble Mountain campion	--/--/1B.2	A perennial herb found in broadleaf upland forests, chaparral, cismontane woodlands, and lower montane coniferous forests from 170 – 1,250 meters elevation. Blooms June and August (CNPS 2024).	**May occur.** The Douglas fir community within the Study Area provides suitable habitat for this species. The nearest extant occurrence is 6.2 miles east of the Study Area along the Salmon River Trail in an area with Douglas fir and tanoak (CDFW 2024).
Thermopsis robusta robust false lupine	--/--/1B.2	A perennial rhizomatous herb found within broadleaf upland forests and North Coast coniferous forests from 150 – 1,500 meters elevation. Other ecological preferences of this species include growing along ridges and sometime in serpentine substrates. Blooms May – July (CDFW 2024, CNPS 2024).	**May occur.** Although there are no ridgelines within the Study Area, the openings along the mid-slope Camp Creek Road and adjacent to the mixed chaparral community may provide marginal habitat for this species. There are 10 reported CNDDB occurrences of this species within a 5-mile radius of the Study Area, with the nearest being a historic occurrence from 1931 that overlaps the site (CDFW 2024). The next nearest and more recent CNDDB occurrence is located approximately 2.2 miles to the northwest along a ridgeline road, which is from 2009 (CDFW 2024).

Scientific Name/ Common Name[1]	Status[2]	Habitat, Ecology and Life History	Potential to Occur[3]
Animals			
Invertebrates			
Bombus occidentalis western bumble bee	--/SCE/--	Bumble bees are primitively eusocial insects that live in underground colonies made up of one queen, female workers, and reproductive members of the colony. New colonies are initiated by solitary queens, generally in the early spring, which typically occupy abandoned rodent burrows (Thorp et al. 1983). This species is a generalist forager and have been reported visiting a wide variety of flowering plants. A short-tongued bumble bee; select food plants include *Melilotus* spp., *Cirsium* spp., *Trifolium* spp., *Centaurea* spp., *Eriogonum* spp., and *Chrysothamnus* spp. (Koch et al. 2012). This species has a short tongue and typically prefers open flowers with short corollas but is known to chew through the base of flowers with long corollas. The flight period for queens in California is from early February to late November, peaking in late June and late September. New queens hibernate over the winter and initiate a new colony the following spring (Thorp et al. 1983). Rare throughout its range and in decline west of the Sierra Nevada crest.	**Will not occur.** The Study Area is outside of the known range of this species (CDFW 2023). There is one reported CNDDB occurrence of this species that overlaps the Study Area and is associated with a buffered occurrence centered on Orleans from 1968 (CDFW 2024).

Scientific Name/ Common Name[1]	Status[2]	Habitat, Ecology and Life History	Potential to Occur[3]
Bombus suckleyi Suckley's cuckoo bumble bee	--/SCE/--	Suckley's bumble bee is a social-parasite, it invades the nests of the host bumble bees, including the western bumble bee, and relies on host species workers to provision its larvae. Suckley's bumble bee inhabits western meadows at a wide range of elevations. Suckley's bumble bee relies on flowers through the entire growing season. The species is a generalist forager and has been reported on a wide range of flowers mostly in the sunflower family and some in the legume family. The nests that host Suckley's bumble bee are primarily underground cavities that have been created naturally or by other animals such as abandoned rodent nests (Hatfield and LeBuhn 2007).	**Not expected.** The Study Area is located within the known range of this species but is outside of the range of its primary host (western bumble bee). This species has only been documented breeding amongst colonies of western bumble bee but has been recorded present at colonies of yellow-banded bumble bee (*B. terricola*), red-belted bumble bee (*B. rufocinctus*), yellow bumble bee (*B. fervidus*), Nevada bumble bee (*B. nevadensis*), and white-shouldered bumble bee (*B. appositus*) (Thorp et al. 1983, Williams et al. 2014). This species is generally associated with habitats that support its host species, which include open grassy areas, chaparral and shrub areas, and open mountain meadows (Williams et al. 2014). This species is not expected to occur within the Study Area given that the site is outside of the range of this species primary host and that it generally lacks expansive areas of the previously mentioned habitats. There is one reported CNDDB occurrence of this species that overlaps the Study Area and is associated with a buffered occurrence centered on Orleans from 1968 (CDFW 2024).

Scientific Name/ Common Name[1]	Status[2]	Habitat, Ecology and Life History	Potential to Occur[3]
Danaus plexippus monarch butterfly	FCE/--/--	The federal listing on December 17, 2020 was for overwintering populations of Monarch butterflies that roost in wind protected tree groves, especially with Eucalyptus sp., and species of pine or cypress with nectar and water sources nearby. Winter roost sites extend along the coast from Mendocino County to Baja California. As caterpillars, monarchs feed exclusively on the leaves of milkweed (*Asclepias* sp.) (Nial et al. 2019; USFWS 2020). Monarch butterfly migration routes pass east over the Sierra Nevada in the fall and back to the California coast in the spring (USFWS 2020). The overwintering population is located along the Coast while summer breeding areas occur in interior California and North America with spring breeding areas located further east (USFWS 2020).	**Will not occur.** There are no wind protected tree groves or host plants in the Study Area. There are no documented CNDDB occurrences for monarch butterfly within a 5-mile radius of the Study Area (CDFW 2024).
Fishes			
Cottus klamathensis polyporus Lower Klamath marbled sculpin	--/--/SSC	Found in n the Klamath River drainage from Iron Gate Dam downstream to the mouth of the Trinity River (Moyle 2002). The species appears to prefer areas with summer temperatures of 15-20°C, in coarse substrates (cobble and gravel) where water velocities ranged from slow to swift, in streams with widths greater than 20 meters (Bond et al. 1988).	**Not expected.** The portion of Camp Creek within the Study Area is less than 20 meters in width and likely isn't wide enough to support the habitat requirements of this species. This species is more likely to utilize Camp Creek at its confluence with the Klamath River, which is outside of the Study Area. There are two reported CNDDB occurrences of this species within a 5-mile radius of the Study Area, with the nearest being located approximately 0.5 mile to the southwest (CDFW 2024). This occurrence is documented within the Klamath River near the mouth of Ullathorne Creek (CDFW 2024).

Scientific Name/ Common Name[1]	Status[2]	Habitat, Ecology and Life History	Potential to Occur[3]
Entosphenus similis Klamath River lamprey	--/--/SSC	Klamath River lamprey appear to be non-migratory and are resident in both rivers and lakes of the Klamath basin. Klamath River lamprey are thought to need cold, clear water (Moyle 2002) for spawning and incubation. Adults typically use spawning gravel to build nests, while ammocoetes burrow in soft sediments for rearing (Kostow 2002). Ammocoetes also need larger substrates as they grow and algae for food in habitats with slow or moderately slow water velocities.	**May occur.** This species' distribution in the lower Klamath River coincides with the those of spawning Chinook and coho salmon, their main prey in the lower Klamath River (Moyle et al. 2015). Given that coho and Chinook salmon are known to occur within Camp Creek, this species may occur within the Study Area. However, Camp Creek within the Study Area is heavily shaded and likely does not produce abundant algae as a food source for ammocoetes, which lowers the potential for this species to occur.
Oncorhynchus clarkii clarkii coastal cutthroat trout	--/--/SSC	Coastal cutthroat trout usually inhabit and spawn in small to moderately large, clear, well-oxygenated, shallow rivers with gravel bottoms. The native range of the coastal cutthroat trout extends south from the southern coastline of the Kenai Peninsula in Alaska to the Eel River in Northern California. Coastal cutthroat trout are resident in tributary streams and rivers of the Pacific basin and are rarely found more than 100 miles (160 km) from the ocean (Behnke 2002).	**High.** Camp Creek within the Study Area provides suitable habitat for this species.

Scientific Name/ Common Name[1]	Status[2]	Habitat, Ecology and Life History	Potential to Occur[3]
Oncorhynchus kisutch pop. 2 Coho salmon Southern Oregon/Northern California Coast (SONCC) Evolutionarily Significant Unit (ESU)	FT/ST/--	Coho salmon are anadromous fish that spawn in small headwater streams and side channels with clean gravel beds. In California, these salmon return to their natal streams to spawn after 6-18 months in the ocean. Hatchlings mature in shaded, off-channel pools and oxbows that are protected from high winter flows. Juveniles migrate to the ocean to mature before retuning upstream to spawn and die (NMFS 2014). This ESU includes all naturally spawned populations of coho salmon in coastal streams between Cape Blanco, Oregon and Santa Cruz, California (NMFS 2014). The National Marine Fisheries Service (NMFS) divided the California populations into five diversity strata, which each represent environmentally and ecologically similar regions: Klamath River, Trinity River, Eel River, Central Coastal, and Southern Coastal strata (Williams et al 2007). The largest remaining SONCC coho populations in California are in the Klamath, Trinity, Mad, Humboldt Bay, Eel and Mattole drainages, with additional populations in some smaller coastal streams.	**High.** Camp Creek within the Study Area provides suitable habitat for this species. This species is also known to occur within Camp Creek (CDFW 2012).
Oncorhynchus tshawytscha pop. 30 chinook salmon - upper Klamath and Trinity Rivers (UKTR) ESU	FCE/ST/SSC	This ESU (evolutionary significant unit) includes both spring- and fall-run Chinook salmon, which are anadromous salmonid fishes native to fresh and ocean waters of the North Pacific rim. Individuals within this ESU spawn in rivers and streams with cool, clear, water and suitable cobble and gravel substrate within the upper Klamath and Trinity River basins. Adult UKTR spring Chinook salmon enter the Klamath estuary in the spring and summer (March – July) for spawning, while the fall run return to the UKTR from August to October (CDFW 2020).	**High.** Camp Creek within the Study Area provides suitable habitat for this species.

Scientific Name/ Common Name[1]	Status[2]	Habitat, Ecology and Life History	Potential to Occur[3]
Amphibians			
Ascaphus truei Pacific tailed frog	--/--/SSC	In California, this species occurs in coastal California from Mendocino to the Oregon border up to an elevation of nearly 2,000 meters (Jennings and Hayes 1994). This species requires cold, clear and permanent water for all life stages including larval development. This species is most commonly found in old growth forests that provide conditions for cold water conditions that this species requires (Jennings and Hayes 1994). This species is active from April through October which is typically when reproduction occurs. Eggs are deposited in strands on the underside of submerged rocks and metamorphosis typically takes 2 to 3 year (Jennings and Hayes 1994).	**High.** Camp Creek within the Study Area provides suitable habitat for this species. There are four reported CNDDB occurrences of this species within a 5-mile radius of the Study Area, with the nearest being located approximately 2.6 miles to the southwest within Red Cap Creek, south of the Klamath River (CDFW 2024).
Plethodon elongatus Del Norte salamander	--/--/WL	Found along the coast in far northwest California from near Orick, Humboldt County, east to near the Seiad Valley, Siskiyou county and Salyer, Trinity County, and north into southwestern Oregon where they have been found inland along West Cow Creek in Douglas County. The species is terrestrial, strongly associated with moist talus in humid shaded and closed-canopy coastal forests of mixed hardwoods and conifers, but also found in rock rubble of old riverbeds, and under bark and logs on forest floor, usually in rocky areas. Especially attracted to older forests (Stebbins et al. 2012).	**High.** The montane riparian habitat associated with Camp Creek, as well as the adjacent Douglas fir community, provides suitable habitat for this species. There are five reported CNDDB occurrences of this species within a 5-mile radius of the Study Area, with the nearest being located approximately 0.5 mile to the west (CDFW 2024). This observation is from 1989 and is associated with Ullathorne Creek. This species was also observed within Camp Creek in 1995 approximately 0.6 mile upstream and to the north of the Study Area (CDFW 2024).

Scientific Name/ Common Name[1]	Status[2]	Habitat, Ecology and Life History	Potential to Occur[3]
Rana boylii pop. 1 foothill yellow-legged frog – north coast DPS	--/--/SSC	The foothill yellow-legged frog occurs along the coast ranges from Oregon to Los Angeles and along the western side of the Sierra Nevada. This species uses perennial rocky streams in a wide variety of habitats up to 6,400 feet above msl. This species rarely ventures far from water, is usually found basking in the water, or under surface debris or underground within 165 feet of water. Eggs are laid in clusters attached to gravel or rocks along stream margins in flowing water. Tadpoles typically require up to four months to complete aquatic development. Breeding typically follows winter rainfall and snowmelt, which varies based upon location (Jennings and Hayes 1994).	**High.** Camp Creek and the associated montane riparian habitat within the Study Area provides suitable habitat for this species. There are six reported CNDDB occurrences of this species within a 5-mile radius of the Study Area, with the nearest being located approximately 0.1 mile to the south, which is associated with the Klamath River and the mouth of Camp Creek (CDFW 2024).
Rana cascadae Cascades frog	--/SCE/SSC	Historically, this frog was found in fragmented populations in extreme northern California, from the edge of the northern Sierra Nevada mountains to Mt. Lassen, Mt. Shasta, the Marble Mountains, and the Trinity Alps. It is now missing from an estimated 50 percent of its former range in California, and most of its former southernmost locations, including Mt. Lassen. Inhabits wet mountain areas in open coniferous forests to near timberline, including small streams, small pools in meadows, lakes, bogs, ponds, and marshy areas near streams. Typically found in water with no predatory fishes between 2,100 and 8,000 feet in elevation (Stebbins et al. 2012).	**Will not occur.** The elevation of the Study Area is below the species' elevational range.

Scientific Name/ Common Name[1]	Status[2]	Habitat, Ecology and Life History	Potential to Occur[3]
Rhyacotriton variegatus southern torrent salamander	--/--/SSC	In California, this species ranges from Mendocino County to the Oregon border up to 1,200 meters elevation. This species occurs in cold, permanent small streams and seeps with rocky habitats (Jennings and Hayes 1994). Old growth forests typically provide cooler and wetter climates that this species requires. Larvae may occur in slightly larger streams, but overall, this species is likely excluded from larger streams by the presence of the larger California giant salamander larvae (Jennings and Hayes 1994).	**High.** Camp Creek and the associated montane riparian habitat within the Study Area provides suitable habitat for this species. There are four reported CNDDB occurrences of this species within a 5-mile radius of the Study Area, with the nearest being located approximately 0.8 mile to the south, which is associated with occurrence described as being between Boise Creek and Orleans (CDFW 2024).
Reptiles			
Emys marmorata western pond turtle	FPT/--/SSC	Occurs in a variety of aquatic habitats; typically, semi-permanent ponds, lakes, streams, irrigation ditches, canals, marshes, or pools in intermittent drainages. Prefers areas lined with abundant vegetation and either rocky or muddy substrates. Requires basking sites such as logs, rocks, cattail mats or exposed banks. Active from February to November, and breeding occurs from April to May. Females typically nest in compact and dry soils from 3 to 400 meters from water, with a preference for south facing slopes between 0 and 60 degrees with little vegetation cover, however pond turtles occurring in forested areas will select nest sites under forest canopy that is more open. Overwintering occurs in upland terrestrial habitats close to water sources in open areas (up to 500 meters from water), in which they will bury themselves under loose soil where leaf litter is present (USFWS 2023).	**Not expected.** This species may pass through Camp Creek while dispersing but given that the Camp Creek is heavily shaded and lacking suitable basking sites, it is unlikely that this species would utilize the Study Area for nesting/overwintering. There are no documented CNDDB records of this species within a 5-mile radius of the Study Area (CDFW 2024).

Scientific Name/ Common Name[1]	Status[2]	Habitat, Ecology and Life History	Potential to Occur[3]
Birds			
Accipiter gentilis northern goshawk	--/--/WL	Nests and forages in mature and old-growth forest stands in a broad range of conifer and coniferous hardwood types, including Pacific Ponderosa, Jeffrey and lodgepole pine, mixed conifer, firs, and pinyon-juniper with relatively dense canopies. May also forage in meadow edges and open sagebrush. Nesting and fledgling period: March 1 – August 15 (Woodbridge and Hargis 2006).	**May occur.** The Douglas fir community provides suitable nesting and foraging habitat for this species. There is one reported CNDDB occurrence of this species within a 5-mile radius of the Study Area, which is located approximately 4.6 miles to the west (CDFW 2024). This occurrence documents a nest that was active in 1979 and 1980, which produced two young in both years (CDFW 2024).
Bonasa umbellus ruffed grouse	--/--/WL	Uncommon local resident of riparian and surrounding conifer forests at low to middle elevations in northwestern California. Its distribution within California extends from northern Del Norte County south to southern Humboldt County and westward to northern Trinity County and southwestern Siskiyou County. Primarily forages on aspen, alder, and willow buds/catkins but also eats insects, fruits, and vegetation. Utilizes thickets of alder, maple, hawthorn, and other deciduous trees for summer/fall cover, and adjacent conifer stands, which are used for winter shelter and escape cover. Nest on the ground near base of tree, stump, log, or brush, near stream (Zeiner et al. 1990).	**May occur.** The montane riparian and Douglas fir communities provide suitable foraging and nesting habitat for this species. There are no documented CNDDB records of this species within a 5-mile radius of the Study Area (CDFW 2024).

Scientific Name/ Common Name[1]	Status[2]	Habitat, Ecology and Life History	Potential to Occur[3]
Brachyramphus marmoratus marbled murrelet	FT/SE/--	This species is pelagic, except during nesting season where it will use old-growth, multi-layered canopied forests up to 50 miles inland from the coast. When nesting trees are not present, this species will nest on the ground or amongst rocks. In California, nesting typically occurs in coastal redwood forest or Douglas fir forests (USFWS 1997). Within the Final Critical Habitat Determination for marbled murrelet, the following primary constituent elements are described: (1) Individual trees with potential nesting platforms, and (2) forested areas within 0.5 mile (0.8 kilometer) of individual trees with potential nesting platforms, and with canopy height of at least one-half the site-potential tree height. This includes all such forest, regardless of continuity (USFWS 2016).	**Not expected.** The Study Area is located within mapped Critical Habitat but does not support the primary constituent elements of Critical Habitat for this species. Although Douglas fir forest habitat is present within the Study Area, the individual trees within this community lack suitable platforms for this species to utilize as nesting habitat. Additionally, there are no documented CNDDB occurrences of this species within a 5-mile radius of the Study Area (CDFW 2024). Therefore, the site is not likely to support this species even though the Study Area is mapped as Critical Habitat. Due to the presence of Critical Habitat in the project site, this species is discussed within the report body of this text.
Charadrius alexandrinus nivosus western snowy plover	FT/--/SSC	Federal listing applies only to coastal populations that nest on sand beaches above the high tide line. Interior populations nest on barren to sparsely vegetated flats along the shores of lakes, braided river systems, salt ponds, and agricultural sumps. Adults feed on insects and brine shrimp (Shuford and Garaldi 2008).	**Will not occur.** There is no suitable habitat within the Study Area to support this species.
Coccyzus americanus yellow-billed cuckoo	FT/--/SSC	Yellow-billed cuckoos are found in deciduous forests with gaps and clearings. The species primarily feeds on insects, especially tent caterpillars. In the West, this species is rare and restricted to the cottonwood-dominated forests that line larger rivers running through arid country (Hughes 1999).	**Will not occur.** There is no suitable cottonwood dominated riparian habitat in or adjacent to the Study Area.

Scientific Name/ Common Name[1]	Status[2]	Habitat, Ecology and Life History	Potential to Occur[3]
Cypseloides niger black swift	--/--/SSC	Nests in moist crevice or cave on sea cliffs above the surf, or on cliffs behind, or adjacent to, waterfalls in deep canyons. Forages widely over many habitats. In migration, rare and irregular outside the breeding range; does not winter in California (Zeiner et al. 1990).	**Will not occur.** The Study Area does not contain suitable cliff or canyon habitat to support nesting for this species. There is one reported CNDDB occurrence of this species that overlaps the Study Area and is associated with a buffered occurrence centered on Orleans from 1982 (CDFW 2024).
Falco peregrinus anatum American peregrine falcon	FD/SD/--	Raptor that breeds on steep cliff faces near wetlands. Nests are minimal and may consist of a scrape and are located high on protected ledges or cliffs, including manmade structures. Forages on the wing by swooping on flying prey (Zeiner et al. 1990).	**Will not occur.** The Study Area does not contain suitable cliff or ledge habitat to support nesting for this species.
Haliaeetus leucocephalus bald eagle	FD/SE/FP	Requires large bodies of water with an abundant fish population. Feeds on fish, carrion, small mammals, and water-fowl. Nests are usually located within a 1-mile radius of water. Nests are most often situated in large trees with a commanding view of the area (Zeiner et al. 1990).	**May occur.** Trees within and adjacent to the Study Area provide suitable habitat for this species and the Klamath River adjacent to the site provides suitable foraging habitat. There are two reported CNDDB occurrences of this species within a 5-mile radius of the Study Area, with the nearest being located approximately 0.6 mile away on the south side of the Klamath River (CDFW 2024). This occurrence documents that a nest was discovered in 1995, with young fledging in 1995, 1996, and 1997 (CDFW 2024).
Pandion haliaetus osprey	--/--/WL	Osprey breed in Northern California from the Cascade Ranges southward to Lake Tahoe, and along the coast south to Marin County. They prey primarily on fish but also predate small mammals, birds, reptiles, and invertebrates. Foraging areas include open, clear waters of rivers, lakes, reservoirs, bays, estuaries, and surf zones. Habitat and nesting requirements include large trees, snags, and dead-topped trees in open forest habitats for cover and nesting (Zeiner et al. 1988-1990).	**May occur.** Trees within and adjacent to the Study Area provide suitable habitat for this species and the Klamath River adjacent to the site provides suitable foraging habitat. There are four reported CNDDB occurrences of this species within a 5-mile radius of the Study Area, with the nearest being located approximately 2.3 miles to the northeast along the Klamath River (CDFW 2024).

Scientific Name/ Common Name[1]	Status[2]	Habitat, Ecology and Life History	Potential to Occur[3]
Strix occidentalis caurina northern spotted owl	FT/ST/--	Northern spotted owl resides in dense, old-growth, multi-layered mixed conifer, redwood, and Douglas-fir habitats, from sea level up to approximately 7,600 ft. Northern spotted owl is found from British Colombia south through northwestern California south to San Francisco (Zeiner *et al.* 1990).	**May occur.** It is unlikely that trees in the Douglas fir community within the Study Area provide suitable nesting habitat for this species, however suitable nesting habitat is present adjacent to the Study Area to the north. Most of the Study Area is open or consists of rural residential areas that do not provide habitat for this species. There are several activity centers for this species reported in the CNDDB within a 2-mile radius of the site, with the nearest activity center located less than one mile to the northeast of the Study Area (CDFW 2024).
Mammals			
Corynorhinus townsendii Townsend's big-eared bat	--/--/SSC	Widely distributed throughout California except alpine and subalpine habitats. This species eats moths, beetle and other insects which it catches on the wing or by gleaning from vegetation. Typically found near water since it is poor at concentrating its urine. This species uses caves, mines, tunnels, buildings and human made structures for roosting. Maternity roosts are typically in warm sites. Hibernation sites are typically cold, but not freezing. This species is very sensitive to disturbance and may abandon its roost after one visit (Zeiner et al. 1990).	**Will not occur.** The Study Area does not contain suitable roosting habitat for this species. In addition, the overall level of urban development in areas adjacent to the Study Area provide a deterrent to use of the Study Area by this species.

Scientific Name/ Common Name[1]	Status[2]	Habitat, Ecology and Life History	Potential to Occur[3]
Martes caurina humboldtensis Pacific marten; Coastal Distinct Population Segment	FT/SE/SSC	A genetically distinct subspecies of the Pacific marten. Coniferous and mixed conifer forests with more than 40% canopy closure typically from 1,350 – 3,200 m amsl (Zielinski 2014). Requires old growth forests that consist primarily of fir and lodgepole pines with cavities for nesting and denning (Zielinski 2014). Will also den under logs in the snow and form snow tunnels. Active year round, and typically avoids open areas with no canopy cover, but will forage in meadows, riparian areas and along streams (Zielinski 2014). Capable of traveling up to 15 miles in a single night while foraging (Zeiner et al. 1990). When traveling, marten typically moves along ridgetops.	**Not expected.** There is no suitable old growth canopied forest habitat in the Study Area. The Study Area is located within mapped Critical Habitat but does not provide any of the primary constituent elements of Critical Habitat for this species. The presence of cavities to use as a den site is one of the primary constituent elements for the species. The majority of the trees in the Study Area are relatively uniform in age, with no apparent cavities noted. While this species could pass through the site while dispersing, the site does not provide suitable denning habitat for this species. There is one reported CNDDB occurrence of this species within a 5-mile radius of the Study Area, which is located approximately 2.6 miles to the north (CDFW 2024). This is a historic observation from 1977 that describes the site as Douglas fir forest (CDFW 2024). Due to the presence of Critical Habitat in the project site, this species is discussed in the text.

Scientific Name/ Common Name[1]	Status[2]	Habitat, Ecology and Life History	Potential to Occur[3]
Pekania pennanti Fisher	FPT/ST/SSC	This species is found in coniferous and mixed conifer and hardwood forests, typically in mature forest cover. Riparian forests and habitat close to open water such as streams are important. Cavities and branches in trees, snags, stumps, rock piles, and downed timber are used as resting sites, and large diameter live, or dead trees are selected for natal and maternal dens (Zeiner et al. 1990). Fisher is currently found in the northern Cascade and southern Sierra Nevada mountain ranges (north of Shasta County and south of Mariposa County).	**Not expected.** While this species could pass through the Study Area while dispersing, there is no suitable old growth forest habitat for fisher in the Study Area. In addition, the overall level of urban development in areas adjacent to the Study Area function as a deterrent to use of the project area by this species. There are 11 reported CNDDB occurrences of this species within a 5-mile radius of the Study Area, with the nearest being located approximately 0.6 mile away and south of the Klamath River (CDFW 2024). This observation does not have a specified date but is described as being prior to 1987 in the vicinity of Red Cap Road between Chimmekanee Gulch and the Klamath River (CDFW 2024).

[1] Sensitive species reported in CNDDB or CNPS on the "Lonesome Ridge, Orleans, Bark Shanty Gulch, Somes Bar, Fish Lake, Orleans Mtn., Weitchpec, Hopkins Butte, and Salmon Mtn" USGS quads, or in USFWS lists for the project site.

[2] Status is as follows: Federal (ESA) listing/State (CESA) listing/other CDFW status or CRPR. F = Federal; S = State of California; E = Endangered; T = Threatened; C = Candidate; FP=Fully Protected; SSC=Species of Special Concern; WL=Watch List.

[3] Status in the Project site is assessed as follows. **Will Not Occur**: Species is either sessile (i.e., plants) or so limited to a particular habitat that it cannot disperse on its own and/or habitat suitable for its establishment and survival does not occur on the project site; **Not Expected**: Species moves freely and might disperse through or across the project site, but suitable habitat for residence or breeding does not occur on the project site, potential for an individual of the species to disperse through or forage in the site cannot be excluded with 100% certainty; **Presumed Absent:** Habitat suitable for residence and breeding occurs on the project site; however, focused surveys conducted for the current project were negative; **May Occur**: Species was not observed on the site and breeding habitat is not present but the species has the potential to utilize the site for dispersal, **High**: Habitat suitable for residence and breeding occurs on the project site and the species has been recorded recently on or near the project site, but was not observed during surveys for the current project; **Present**: The species was observed during biological surveys for the current project and is assumed to occupy the project site or utilize the project site during some portion of its life cycle.

CRPR = California Rare Plant Rank: 1B – rare, threatened, or endangered in California and elsewhere; 2B – rare, threatened, or endangered in California but more common elsewhere. Extension codes: .1 – seriously endangered; .2 – moderately endangered.

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Attachment E

Plant and Wildlife Species Observed in the Study Area

Table E-1. Plant Species Observed in the Study Area

Family	Species Name	Common Name	Status[1]
Native			
Anacardiaceae	*Toxicodendron diversilobum*	poison-oak	--
Athyriaceae	*Athyrium filix-femina*	lady fern	--
Betulaceae	*Alnus rhombifolia*	white alder	--
	Corylus cornuta	California hazel	--
Blechnaceae	*Woodwardia fimbriata*	giant chain fern	--
Caprifoliaceae	*Lonicera hispidula*	pink honeysuckle	-
Cornaceae	*Cornus nuttallii*	Pacific dogwood	--
Dryopteridaceae	*Polystichum munitum*	western swordfern	--
Ericaceae	*Arbutus menziesii*	Pacific madrone	--
	Arctostaphylos glandulosa	Eastwood manzanita	--
	Vaccinium parvifolium	California red huckleberry	--
	Vaccinium ovatum	evergreen huckleberry	--
Fagaceae	*Notholithocarpus densiflorus*	tanoak	--
	Quercus chrysolepis	canyon live oak	--
	Quercus garryana	Oregon white oak	--
	Quercus kelloggii	black oak	--
Hydrangeaceae	*Whipplea modesta*	common whipplea	--
Lauraceae	*Umbellularia californica*	bay laurel	--
Montiaceae	*Claytonia perfoliata*	miner's lettuce	--
Papaveraceae	*Eschscholzia californica*	California poppy	--
Pinaceae	*Pinus sabiniana*	gray pine	
	Pseudotsuga menziesii	Douglas fir	--
Polypodiaceae	*Polypodium glycyrrhiza*	licorice fern	--
Pteridaceae	*Adiantum jordanii*	maiden hair fern	
	Pentagramma triangularis	gold back fern	--
Rosaceae	*Heteromeles arbutifolia*	toyon	--
	Rubus ursinus	California blackberry	
Salicaceae	*Salix lasiolepis*	arroyo willow	--
Sapindaceae	*Acer macrophyllum*	big leaf maple	--
Saxifragaceae	*Darmera peltata*	umbrella plant	--
Non-native			
Araliaceae	*Hedera helix*	English ivy	High
Asteraceae	*Centaurea solstitialis*	yellow starthistle	High
	Cirsium vulgare	bull thistle	Moderate
	Dittrichia graveolens	stinkwort	Moderate
	Hypochaeris radicata	wild dandelion	Moderate
Brassicaceae	*Hirschfeldia incana*	wild mustard	Moderate
Fabaceae	*Cytisus scoparius*	Scotch broom	High
Geraniaceae	*Geranium molle*	Crane's bill geranium	--
Myrsinacaeae	*Lysimachia arvensis*	scarlet pimpernel	--
Phytolaccaceae	*Phytolacca americana*	American pokeweed	--
Plantaginaceae	*Plantago lanceolata*	English plantain	Limited
Poaceae	*Avena fatua*	wild oats	Moderate
	Bromus diandrus	ripgut brome	Moderate
	Cynodon dactylon	Bermuda grass	Moderate
	Cynosurus echinatus	bristly dogtail grass	Moderate
	Festuca perennis	Italian ryegrass	Moderate

Family	Species Name	Common Name	Status[1]
Poaceae (cont.)	*Holcus lanatus*	common velvetgrass	Moderate
	Paspalum dilatatum	dallisgrass	--
Polygonaceae	*Rumex crispus*	curly dock	Limited
Rosaceae	*Rubus armeniacus*	Himalayan blackberry	High

[1] Status of native species is federal listing/state listing/California Rare Plant Rank; Status for non-native species is California Invasive Species Council invasiveness rating.

Table E-2. Wildlife Species Observed in the Study Area

Order/Family	Species Name	Common Name	Status[1]
Birds			
Cathartiformes			
Cathartidae	*Cathartes aura*	turkey vulture	--
Columbiformes			
Columbidae	*Zenaida macroura*	mourning dove	--
Galliformes			
Phasianidae	*Meleagris gallopavo*	wild turkey	--
Passeriformes			
Corvidae	*Aphelocoma californica*	California scrub jay	--
	Corvus brachyrhynchos	American crow	--
	Corvus corax	common raven	--
	Cyanocitta stelleri	Stellar's jay	--
Mimidae	*Mimus polyglottos*	northern mockingbird	--
Passerellidae	*Melospiza melodia*	song sparrow	--
	Melozone crissalis	California towhee	--
Turdidae	*Turdus migratorius*	American robin	--
Tyrannidae	*Sayornis nigricans*	black phoebe	--

[1] Status for animal species is ESA/CESA listing or other sensitivity.

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Appendix D

Preliminary Engineering Report

Orleans Mutual Water Company
Water Distribution System Replacement Project
Preliminary Engineering Report

02/13/2024

Date: February 13, 2024
Prepared by: Rachel MacLean, PE
Reviewed by: Joe Riess, PE

Contents

Tables

Figures

1 Background

The Orleans Mutual Water Company (OMWC) was organized in 1981 to serve the residents and landowners in a small subdivision west of Orleans, California. Its purpose was to manage a small water treatment and distribution system for the benefit of the shareholders. Franklin Delaney originally built the water system in the mid-1960s to serve the Crawford Hill Subdivision which he had built, and to serve an additional area south of Highway 96. He held a water right for direct diversion from Crawford Creek. When the parcel (APN 529-141-037) was sold that now holds the treatment plant and its associated infrastructure to the Karuk Tribe Housing Authority (KTHA), the water right transferred to the Karuk Tribe with the parcel. The treatment plant and infrastructure remain in the name of the OMWC.

1.1 Water Treatment System

The water treatment system includes a diversion from Crawford Creek on National Forest, a redwood raw water storage tank, two pressure filters, a coagulant pump, a chlorine pump, two booster pumps and associated appurtenances. The booster pumps run continuously to supply water at 30 to 90-psi, but there is currently no standby power available to run the pumps. A small solar system with batteries is used to run the chemical pumps and instrumentation. During the frequent power outages, treated water flows by gravity with a minimum pressure of approximately 20-psi.

The State Water Resources Control Board (SWRCB) has indicated that the current system is noncompliant with current state requirements, and therefore awarded a planning grant to the OMWC in 2017 for the design of a new water treatment plant and storage tank. The design was completed to a 90-percent level and the CEQA documents drafted. The OMWC is currently in the process of applying for construction funding to complete the design and environmental documents, obtain permits, and construct the project.

1.2 Water Distribution System

The water distribution system main piping is comprised primarily of asbestos cement (AC) piping from the treatment plant to and through most of the subdivision. Water service piping is a mix of galvanized steel and PVC pipe. There are currently 38 unmetered water services. The water mains in the subdivision are primarily within the Camp Creek Road and Placer Drive right of way (ROW) and within 10’ easements between properties. Camp Creek Road and Placer Drive are both County roads. At the south end of the subdivision, water piping crosses under State Highway 96 (Hwy 96) through an 8-inch culvert to provide water to one shareholder on a private parcel south of Hwy 96 and also to the Karuk Tribe’s Tishaniik Farm.

Heading east from the subdivision, at the apex of curve of Placer Drive, piping transitions to a mix of galvanized steel and polyethylene. A manifold with valves splits flow to four separate overhead crossings of Camp Creek to serve properties on Lower Camp Creek Road, which were made shareholders as provided for in the OMWC by-laws. The creek crossings consist of polyethylene piping suspended from cables that are susceptible to damage from falling trees, high water, and forest fires. Two pressure regulators in the lower part of the system regulate pressure down to 60-psi for 7 connections. Four wharf hydrants are provided across the system, but capacity is limited due to pipe size and booster pumping capacity, so these hydrants cannot adequately support fire suppression efforts.

2 Purpose of Project

The OMWC has developed the Water Distribution System Replacement Project (Project) in response to a deteriorating system and to meet the requirements of the SWRCB. Due to the age and condition of the existing water mains, frequent repairs are necessary to provide residents with a reliable water supply. Since the water services are not metered, it is difficult to identify leaks in the system, determine their source, and encourage conservation. Potable water is currently used at the Tishaniik farm for drinking water and washing produce only. Due to the water main pipe size and the need to boost pressure, there are no fire hydrants (other than the small wharf hydrants) that can reasonably provide water for fire suppression.

The purpose of this Project is to address these issues by making the following upgrades:

1. Replace water distribution AC mains with new piping that meets current standards for size, material and construction to provide a more reliable water system that is less prone to leaks, breakage, and collapse,
2. Install water meters at each service to meet SWRCB standards, encourage water conservation, determine and control water usage, and assist with leak detection,
3. Install raw water piping to the Tishaniik farm for agricultural purposes to meet the Karuk Tribe's request,
4. Install fire hydrants on raw water piping, which will allow higher fire flows and volumes than the current system can provide,
5. Construct a new pipe crossing over Camp Creek that is not susceptible to damage from falling trees, high water, and forest fires,
6. Install a turnout for future consolidation with the Orleans Community Services District's (OCSD) water system at the bottom of Lower Camp Creek Road,

This Project is funded by the Karuk Tribe using grant monies from the American Rescue Plan Act (ARPA) of 2021 (Agreement Number #23-A-026).

3 Project Location

The Project is located one mile west of Orleans, California in Humboldt County (see Figure 1 and Figure 2). The distribution system serves shareholders in the OMWC who own privately held parcels (including the KTHA) along Camp Creek Road, Placer Drive, Hwy 96 and Lower Camp Creek Road.

Figure 1: Vicinity Map

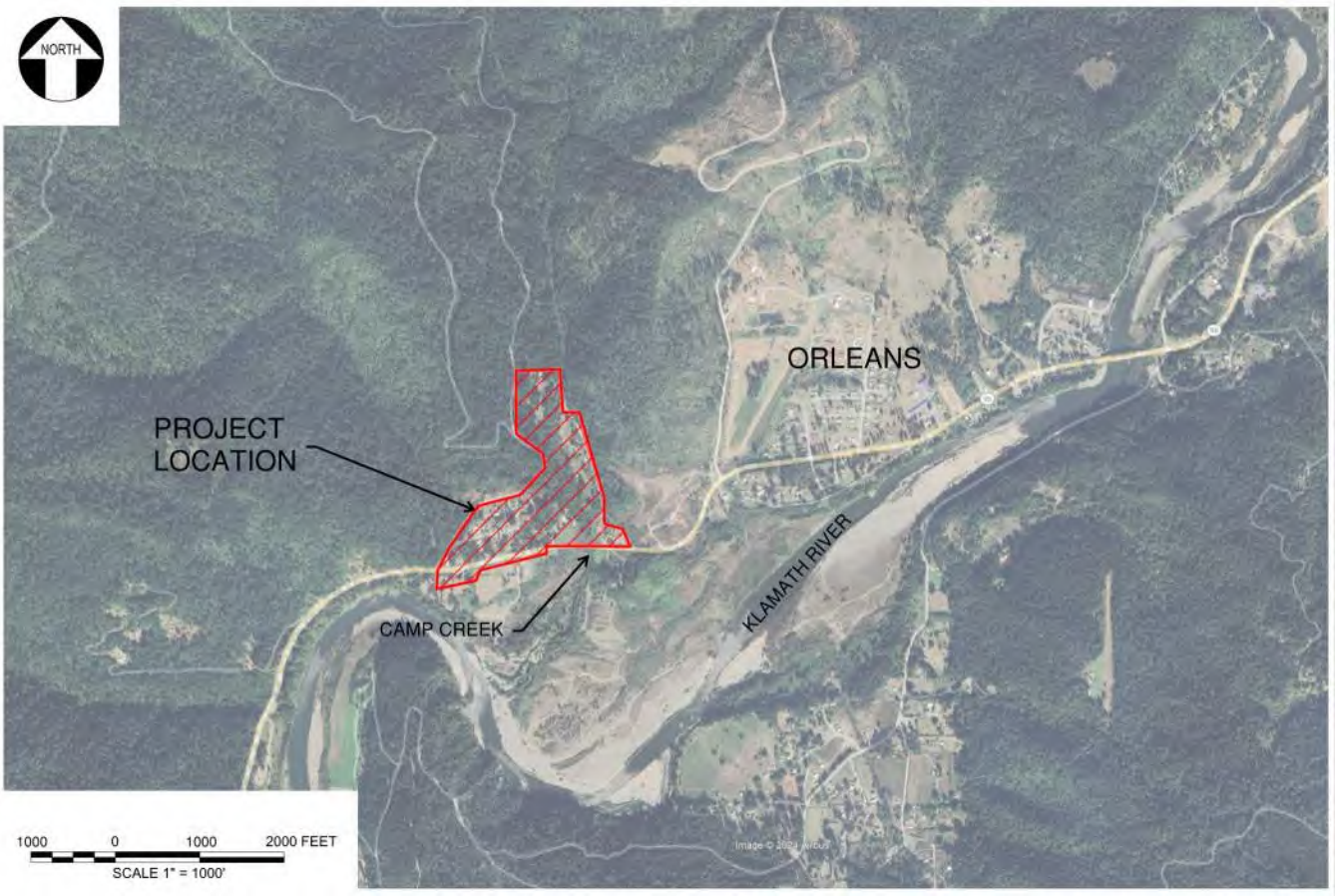


Figure 2: Location Map

A map of the existing distribution system was developed using a combination of field survey by Sharrah Dunlap Sawyer (SDS), handheld GPS survey by Water Works Engineers, and descriptions provided by the OMWC. The existing distribution system, including estimated customer shutoff valve locations, is shown in Figure 3 and described in Section 4 of this report. Figure 3 also shows property lines and easements, developed from recent title reports.

4 Existing Water Distribution System Layout

The components of the existing water system are shown in multiple segments, as described below and as shown in Figure 3.

4.1 Segment 1

The existing water main starts at the water treatment plant and follows an unimproved access road to Camp Creek Road. A small wharf hydrant is located adjacent to the water main on the north side of Camp Creek Road. The piping then crosses Camp Creek Road heading south and continues across the center of the subdivision, over a small hill, to Placer Drive following property lines within a 10’ wide easement for the water line. The water main then heads west briefly before turning south to cross Placer Drive.

4.2 Segment 2

At the top of the hill behind the first property, the water main branches off Segment 1 and heads west one pair of parcels and east 5 pairs of parcels within a 10' wide easement to Placer Drive. Twelve properties on the hill are served from the piping running within this 10' wide east-west easement.

4.3 Segment 3

Immediately before Segment 1 heads south to cross Placer Drive, the water main branches and continues west along the north shoulder of Placer Drive. Four properties are served by this segment of piping.

4.4 Segment 4

After Segment 1 crosses Placer Drive, the water main branches and heads west to the end of the cul-de-sac and east along the south shoulder of Placer Drive. Eleven properties are served by this segment of piping, including a lower parcel that is accessed from a driveway off Hwy 96.

4.5 Segment 5

After Segment 1 crosses Placer Drive, near where Segment 4 branches from it, a 2-inch water line extends south from Placer Drive in a 10' wide easement between two properties down a hill to Hwy 96. Along this segment there are two water services near the end of the western property's driveway beneath an old travel trailer. At the bottom of the hill, a 2-inch galvanized steel pipe crosses under Hwy 96 through an 8-inch culvert. At the end of the pipe, the pipe transitions to 1.5-inch polyethylene piping and branches to serve the two properties on the south side of the highway, including the Tishaniik farm which includes a water mater. The polyethylene piping is routed above-ground through the blackberries and is prone to damage.

4.6 Segment 6

This segment of the water main begins at the east end of Segment 2 on the inner curve of Placer Drive. From there, a 1.5-inch galvanized steel pipe extends through a narrow vegetated area to the east and ends at a pressure reducing valve and manifold from which Segments 7, 10, 11 and 12 begin. Piping branching from this segment serve three parcels on the west side of Camp Creek and seven parcels on the east side of Camp Creek. Vehicular access to this segment is not possible due to the extensive vegetation and narrow width in a hillside cut.

4.7 Segment 7

This segment begins at the manifold at the end Segment 6 and heads north through 1.5-inch polyethylene piping until Segments 8 and 9 branch from it.

4.8 Segment 8

This segment begins at the end of Segment 7 and heads east as 1.5-inch polyethylene piping. The piping goes through a short section of 3-inch galvanized steel pipe (casing) through a hillside cut before being suspended across Camp Creek via an overhead cable system. The east end of the overhead crossing ends at a winch assembly that allows the cable to be lowered to access the pipe for maintenance or replacement. This segment of pipe serves three properties, plus one property at the end of Segment 13.

4.9 Segment 9

This segment begins at the end of Segment 7 and heads north as 1-inch polyethylene piping to serve one shareholder property to the north of the subdivision that is accessed from USFS Road 12N01/11N45 off of Camp Creek Road.

4.10 Segment 10

This segment begins at the manifold at the end Segment 6 and heads east as 1-inch polyethylene where it crosses Camp Creek via an overhead cable system. This segment serves one property.

4.11 Segment 11

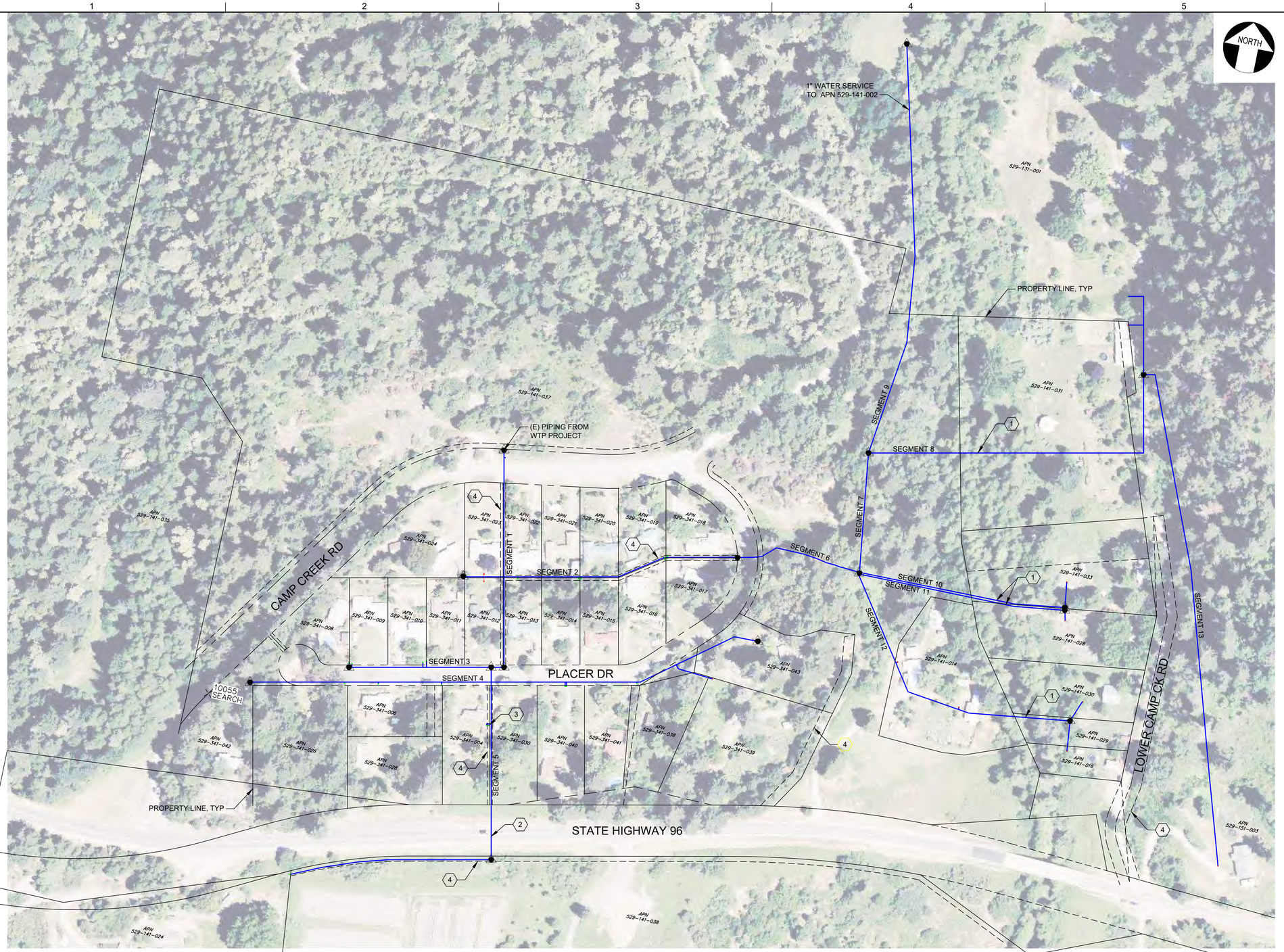
This segment begins at the manifold at the end of Segment 6 and heads southeast as 1-inch polyethylene where it crosses Camp Creek via an overhead cable system. This segment serves one property.

4.12 Segment 12

This segment begins at the manifold at the end of Segment 6 and heads south-southeast as 1.5-inch galvanized steel piping. The piping branches and transitions to 1-inch polyethylene piping and heads east where it crosses Camp Creek via an overhead cable system to serve two properties. The piping also continues south from the branch to serve two homes on a single parcel on the west side of Camp Creek.

4.13 Segment 13

This segment branches from Segment 8 along Lower Camp Creek Road and consists of a 1-inch polyethylene pipe that heads along an old two-track road south to serve one KTHA home on Karuk Tribal Trust land at the bottom of Lower Camp Creek Road.



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2. PROPERTY LINES AND EASEMENTS PER SHARRAH DUNLAP SAWYER, INC. SURVEY, DATED JANUARY 2024.
3. LOCATION OF EXISTING WATER PIPING AND VALVES BASED ON COMBINATION OF FIELD SURVEY, HANDHELD GPS SURVEY BY WATER WORKS ENGINEERS, AND DESCRIPTIONS PROVIDED BY OMWC.

KEY NOTES: (#)

1. OVERHEAD CROSSING OF CREEK.
2. SR 96 CROSSING IN 8" CULVERT.
3. EXISTING SHUTOFF VALVES LOCATED BENEATH TRAVEL TRAILER.
4. EXISTING UTILITY EASEMENT.

LEGEND:

- PARCEL BOUNDARY
- EASEMENT/RIGHT-OF-WAY
- EXISTING PIPING
- START/END OF PIPE SEGMENT
- EXISTING SHUTOFF VALVE (SURVEY OR GPS LOCATED)
- EXISTING SHUTOFF VALVE (LOCATION TBD)

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DESIGN	J. RIESS
DRAWN	J. RIESS
CHECKED	XXX
APPROVED	XXX

WATERWORKS ENGINEERS
REDDING, CALIFORNIA

ORLEANS MUTUAL WATER COMPANY

WATER DISTRIBUTION SYSTEM UPGRADE PROJECT

ORLEANS, CALIFORNIA

CIVIL

EXISTING WATER SYSTEM LAYOUT

DATE	JANUARY 2024
PROJECT NO.	23-034
DRAWING NO.	FIGURE 3
SHEET NO.	XX

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5 Overall Project Description

Under this project, the existing distribution piping will be demolished or abandoned in place and replaced with new piping. Existing easements will be utilized to the extent possible for the pipeline alignments and new easements established where necessary. New water services will be installed from the new water mains in accessible locations. Water meters and new customer-side shutoff valves will be installed at each of the 38 active water service connections near the location of the existing service connection shutoff valves. Inactive services will also receive new water services and meter connections, but no meters will be installed until the services become active. The new water meters will be sized to meet current California fire code requirements and will likely be 1-inch meters. All meters will be radio-read capable, likely via a portable receiver rather than an automated meter reading (AMR) system typical of larger water systems to reduce cost and complexity.

The project is divided into three main areas: the Crawford Hill Subdivision, the Camp Creek Crossing and the Raw Water System. One set of segments was identified and evaluated to serve properties within the Crawford Hill Subdivision as a direct replacement of the existing system in this area. To serve properties to the east of Placer Drive and along Lower Camp Creek Road on the east side of Camp Creek, three alternatives for the creek crossing were identified and evaluated. To provide raw water for agricultural irrigation to the Tishaniik farm, two alternatives were identified and evaluated for the raw water main, though one was eliminated prior to detailed evaluation due to obvious environmental challenges.

6 Crawford Hill Subdivision

The majority of the new distribution mains within the Crawford Hill Subdivision will be installed parallel to the existing piping within existing easements and ROWs, minimizing new ground disturbance or a need for new easements. Therefore, only one set of segments was considered for piping in this area. The components of the proposed piping system layout in the Crawford Hill Subdivision area are shown in multiple segments, as described below and as shown in Figure 4.

6.1 Segment 1

The main difference between the existing and proposed water main segments is that, rather than cutting over the hill between houses to go from Camp Creek Road to Placer Drive (existing Segment 1), the piping will be routed east along the shoulder of Camp Creek Road and then south and to the end of Placer Drive, eliminating the piping described as Segments 1 and 4 in the existing system. The piping in the existing north-south easements between Camp Creek Road and Placer Drive (existing Segment 1) will be abandoned as part of the project due to difficulties constructing the new piping while keeping the existing water system in service and ongoing poor access for future maintenance.

6.2 Segment 2

Piping will branch off the Segment 1 water main at the eastern apex of Placer Drive and run west through the existing 10’ wide easement to serve properties on the hill as they are currently (new Segment 2), including a spur to a shareholder parcel (APN 529-341-024).

6.3 Segment 3

The new Segment 3 water main will be like the existing Segment 3 but will only span two properties rather than four since two of the properties north of existing Segment 3 have water connections from Segment 2.

6.4 Segment 4

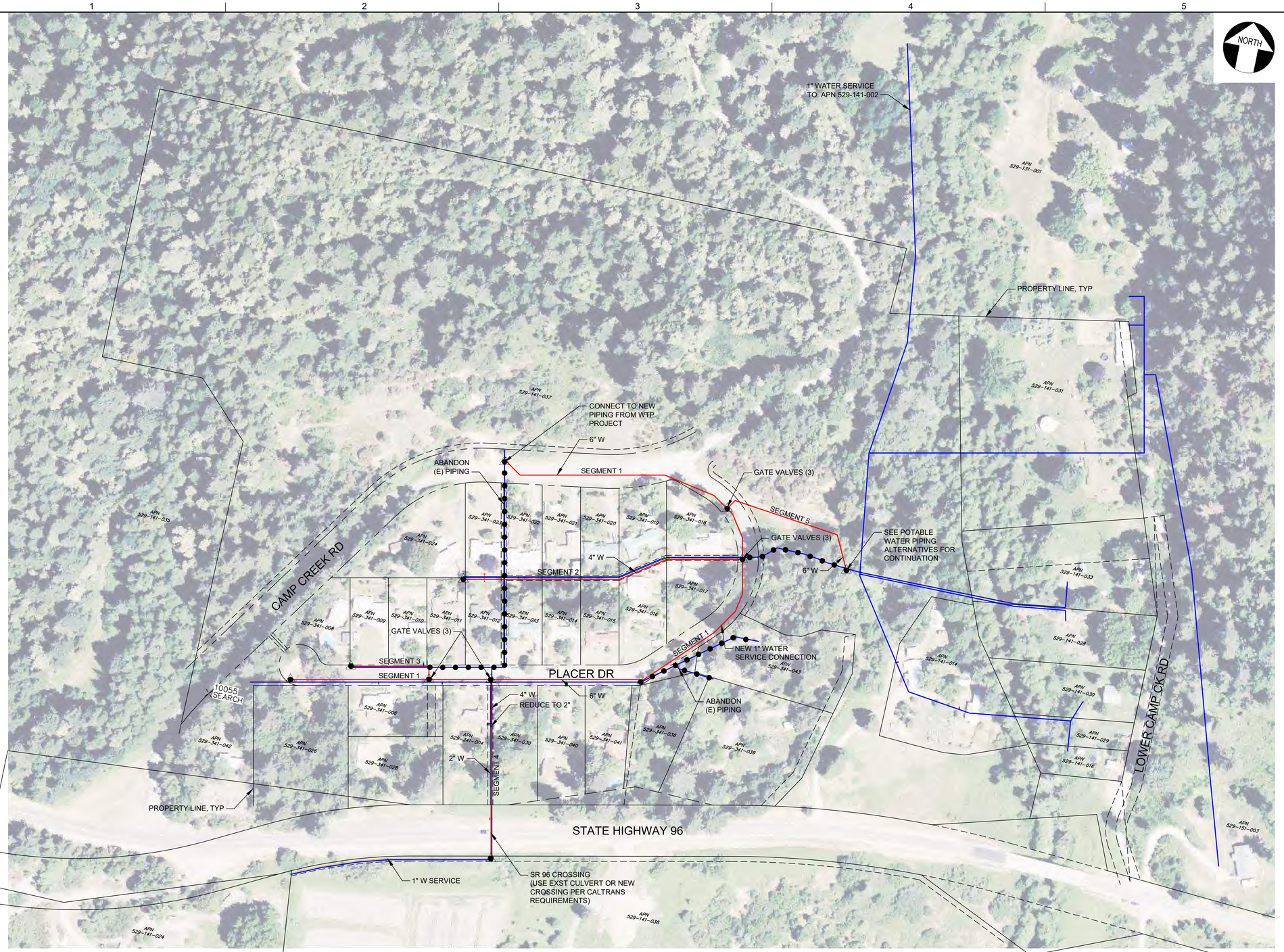
Segment 4 will be in the same alignment as existing Segment 5 and will include a 4-inch main to two water connections in the existing 10-ft wide easement. From here, the pipeline will reduce to 2-inch and continue south to cross Hwy 96 through the existing 8-inch culvert to serve the properties on the south side of the highway utilizing an existing 10-ft wide easement along the north edge of the farm property to access the property to the west of the farm.

6.5 Segment 5

Existing Segment 6 will be abandoned, and a new Segment 5 will be constructed within an existing unimproved roadway in a more accessible location for construction and future access. New Segment 5 ends at the starting segment described in the Camp Creek Crossing Segment Alternatives description, below.

6.6 Easements

A new utility easement will be required for new Segment 5 water main piping east of Placer Drive on the larger parcel owned by the KTHA (APN 529-141-037). All other water mains will be installed within the County ROW, Caltrans ROW or existing easements.



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5. NEW WATER MAINS SHALL BE 4" C900 WITH DUCTILE IRON FITTINGS. LATERALS 2" AND SMALLER SHALL BE PVC SCH 80 OR HDPE PIPING.
6. ISOLATION VALVES SHALL BE PROVIDED AT ALL TEES ON WATER MAINS.
7. ALL NEW SERVICES WILL BE METERED.
8. EXISTING WATER LINES WILL BE ABANDONED IN PLACE UNLESS WITHIN THE WORK AREA OF THE NEW PIPING.

LEGEND:

- PARCEL BOUNDARY
- EASEMENT/RIGHT-OF-WAY
- EXISTING PIPING
- START/END OF PIPE SEGMENT
- EXISTING SHUTOFF VALVE (SURVEY OR GPS LOCATED)
- EXISTING SHUTOFF VALVE (LOCATION TBD)
- PROPOSED POTABLE WATER MAIN PIPING
- PROPOSED WATER SERVICE LINE
- PROPOSED FIRE HYDRANT
- ABANDONED PIPING

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PRELIMINARY NOT FOR CONSTRUCTION

DESIGN J. RIESS
DRAWN J. RIESS
CHECKED XXX
APPROVED XXX

WATERWORKS ENGINEERS
REDDING, CALIFORNIA

ORLEANS MUTUAL WATER COMPANY

WATER DISTRIBUTION SYSTEM UPGRADE PROJECT

ORLEANS, CALIFORNIA

CIVIL

PROPOSED POTABLE WATER PIPING CRAWFORD HILL SUBDIVISION

DATE JANUARY 2024
PROJECT NO. 23-034
DRAWING NO. FIGURE 4
SHEET NO. XX

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7 Camp Creek Crossing Alternatives

Three Camp Creek crossing alternatives were identified to provide water to properties to the east of Placer Drive, including properties on the east side of Camp Creek along Lower Camp Creek Road:

- Alternative 1: Utilize existing California Department of Transportation (Caltrans) bridge
- Alternative 2: Construct new utility bridge
- Alternative 3: Utilize only one of the existing overhead creek crossings

A new 6-inch water main would be installed for Alternatives 1 & 2. Alternative 3 would utilize a 4-inch line to cross Camp Creek. For Alternatives 1 and 2, the water main would cross Camp Creek along or near Hwy 96 and then follow Lower Camp Creek Road north until the final service connection. Alternative 3 would cross Camp Creek higher upstream, then branch into a north and south component to serve properties along Lower Camp Creek Road. Individual service lines with water meters will be installed off the new water mains at each service connection, ideally adjacent to property lines and roadways for improved access for meter reads and maintenance.

Comparative level cost estimates were developed for these alternatives for items that are unique to each alternative for analysis purposes only. Cost estimates did not included items common to all alternatives, such as water main piping within the Crawford Hill Subdivision or along Lower Camp Creek Road.

7.1 Alternative 1: Utilize Existing Caltrans Bridge

An existing Caltrans bridge on Hwy 96 (Bridge Number 4-66) crosses Camp Creek at the southeast edge of the project area. As-built drawings of the bridge obtained from Caltrans show that the bridge was originally constructed in 1949. The Christmas flood of 1964, a major flood event for surrounding areas, damaged the bridge and it was rebuilt in 1966. The bridge is a three-span steel girder bridge with a concrete deck that is just over 150 ft long.

The proposed water main segments for this alternative are shown in Figure 5, along with Crawford Hill Subdivision segments which are common to all alternatives. These alternative segments will begin at the east end of the Crawford Hill Subdivision Segment 5 near the existing manifold where flow is distributed to the four existing overhead creek crossings. From this point, the water main heads south to an existing private driveway and then east along a private parcel parallel to Hwy 96 ROW (Segment 6). Near the west end of the Caltrans bridge, the pipeline heads south and enters the Hwy 96 ROW. The pipeline then crosses Camp Creek beneath the existing Caltrans bridge and then continues east to the bottom of Lower Camp Creek Road. At this point, a turnout consisting of a wharf hydrant, tee, shutoff valve and blind flange or pipe cap will be provided to accommodate a potential future intertie with the OCSD's water system. From this point, a 6-inch water main will be installed in the shoulder of Lower Camp Creek Road to serve eight properties along Lower Camp Creek Road (Segment 7).

Caltrans provides requirements for utilities in bridges in their "Memo to Designer 16-1 Bridge Water and Sewer Lines" (Memo to Designers), dated September 2018 (see Appendix A). The Memo to Designers was used as the basis for the crossing preliminary design. Major requirements from the Memo to Designers include the following:

- Water pipelines in or on bridge structures must be encased. Casing to extend the greater of:
    - 5-ft beyond the approach slab

    - 20-ft beyond the abutment backwall
    - 5-ft beyond the wing walls
- Casing must be grouted in the abutment wall.
- Water lines shall be welded steel or ductile iron.
- Forced balanced flanged double ball expansion joint is required for seismic expansion in the pipe.
- If seismic assembly is provided in a vault outside of the bridge structure, provide drainpipe in the vault.
- Install shut off valve at the ends of the water pipe. The shut off valves should be located outside of the bridge structure.

To accommodate Caltrans requirements and meet the objectives of the project, the following are included in Alternative 1:

- Installation of new 6-inch welded steel carrier water pipeline within a 10-inch welded steel casing. Casing to be provided within the bridge and extend 20-ft beyond the abutment backwalls on each side.
- Two 6-inch forced balanced flanged double ball expansion fittings will be placed on either side of the bridge outside of the abutment. Expansion fittings will not be encased.
- Two 6-inch isolation valves will be installed on either side of the bridge outside the limits of the pipe casing.

Per conversations with Caltrans, nothing should be attached to the bridge steel members and the pipeline should not be installed on the upstream side of the bridge. A conceptual sketch of the bridge crossing was developed with the use of the Caltrans as-built drawings for the bridge, as shown in Figure 6 and Figure 7. These sketches show the new pipeline being underneath the bridge, suspended from the concrete desk with pipe supports. This alternative will provide the new pipeline protection during flooding events if water were to reach or overtop the bridge.

7.1.1 Permitting & Easements

This alternative will require a Caltrans encroachment permit for the approaches as well as for the piping to be suspended form the bridge itself. During the encroachment permit process, the design will be reviewed by a Caltrans structural bridge reviewer. While Caltrans does not provide preliminary reviews with the structural bridge reviewer, the reviewer may be able to take a conceptual look at the design and check for major issues. Final structural review will be through the encroachment permit process.

A new utility easement will be required for piping east of Placer Drive on the larger parcel owned by the KTHA (APN 529-141-037). All other water mains will be installed within the County ROW, Caltrans ROW or existing easements.

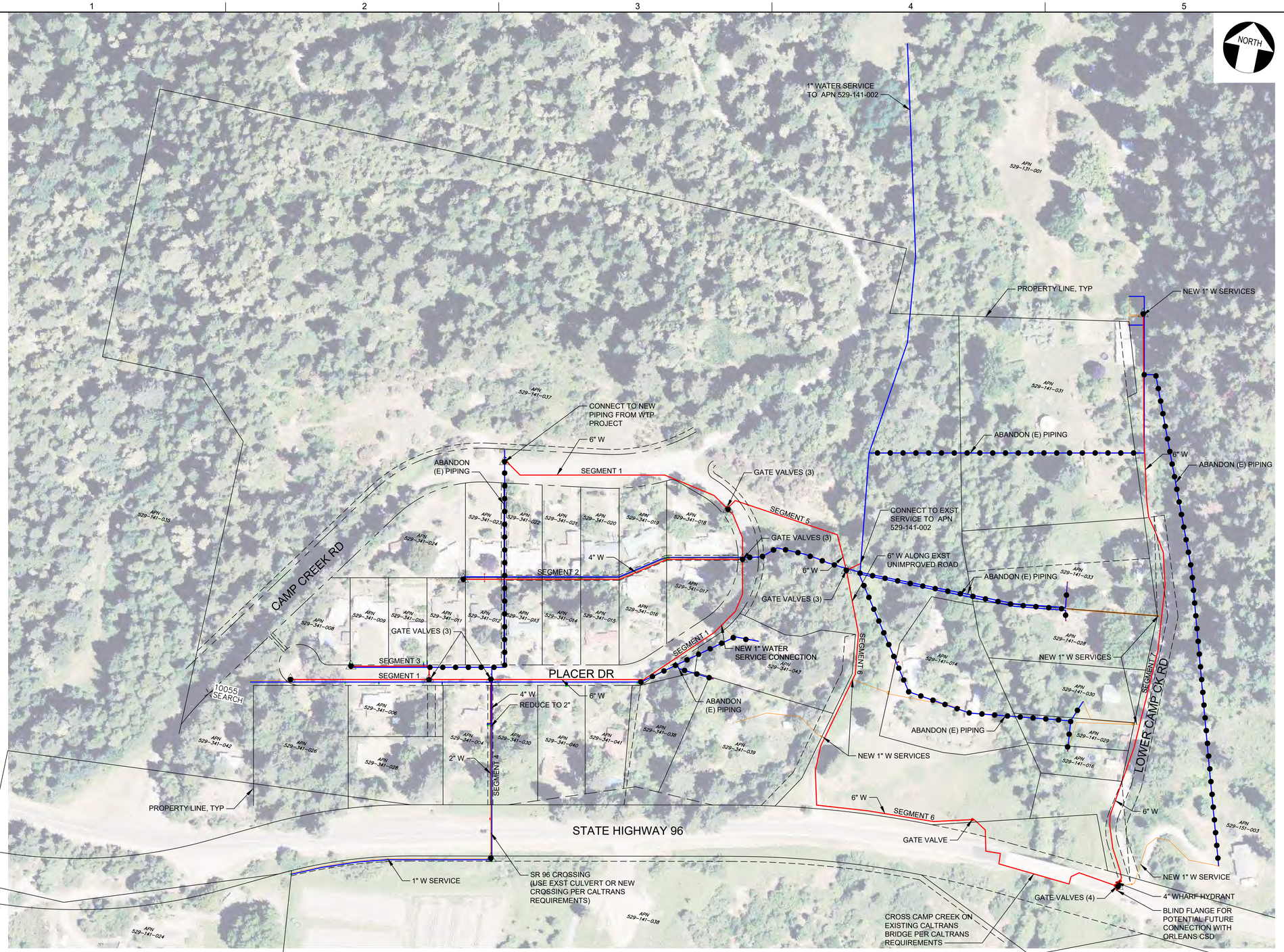
7.1.2 Comparative Cost Estimate

A comparative level cost estimate was developed for Alternative 1 as shown in Table 2.

Table 1: Camp Creek Crossing Alternative 1 Comparative Cost Estimate

Items	Value[1]
Site Work	$20,000
Major Equipment	$12,400
Major Piping & Valves	$132,300
Major Structural	$4,000
Subtotal	**$168,700**
Design Contingency (50%)	$84,400
Rounded Total Capital Project Cost	**$253,100**

1. Based on 2023 dollars.



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ORLEANS, CALIFORNIA

CIVIL

PROPOSED POTABLE WATER PIPING ALTERNATIVE 1 CAMP CREEK CROSSING CALTRANS BRIDGE CROSSING

DATE JANUARY 2024
PROJECT NO. 23-034
DRAWING NO. FIGURE 5
SHEET NO. XX

FILENAME:L:\CAD\Projects\23-034 OMWC Distribution System Design\07 Drawings\22-034D Pipe Alignments.dwg

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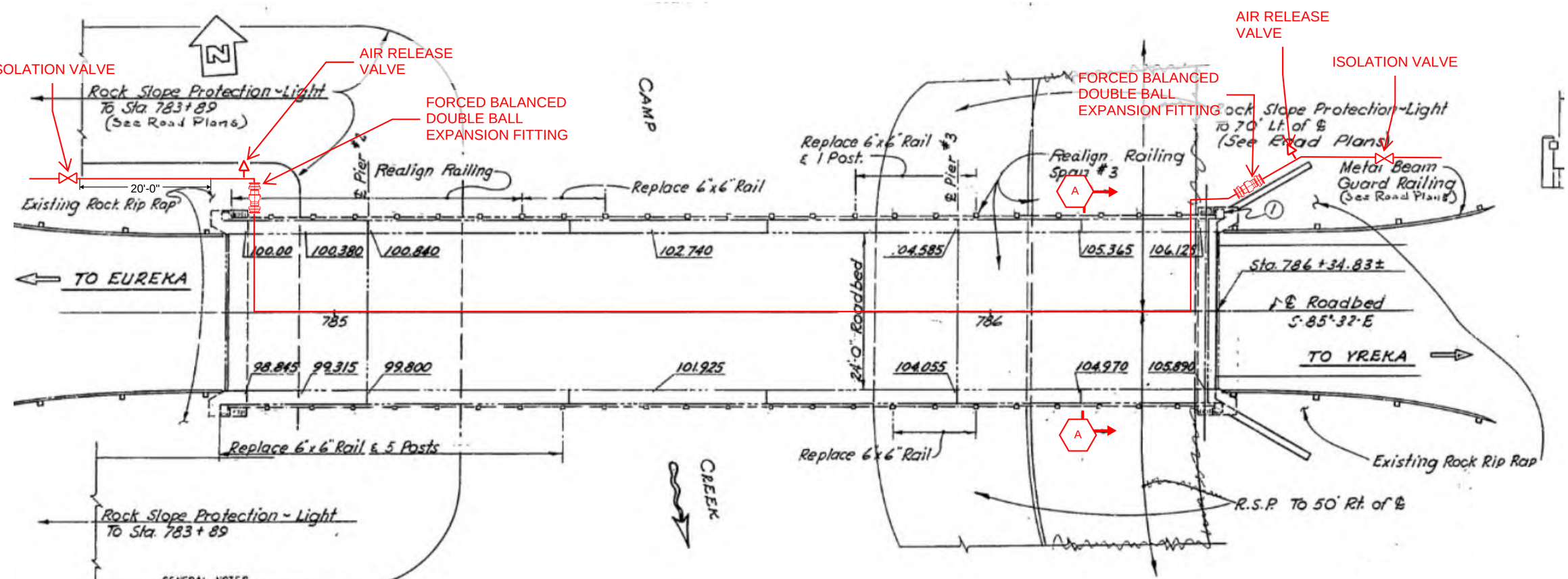
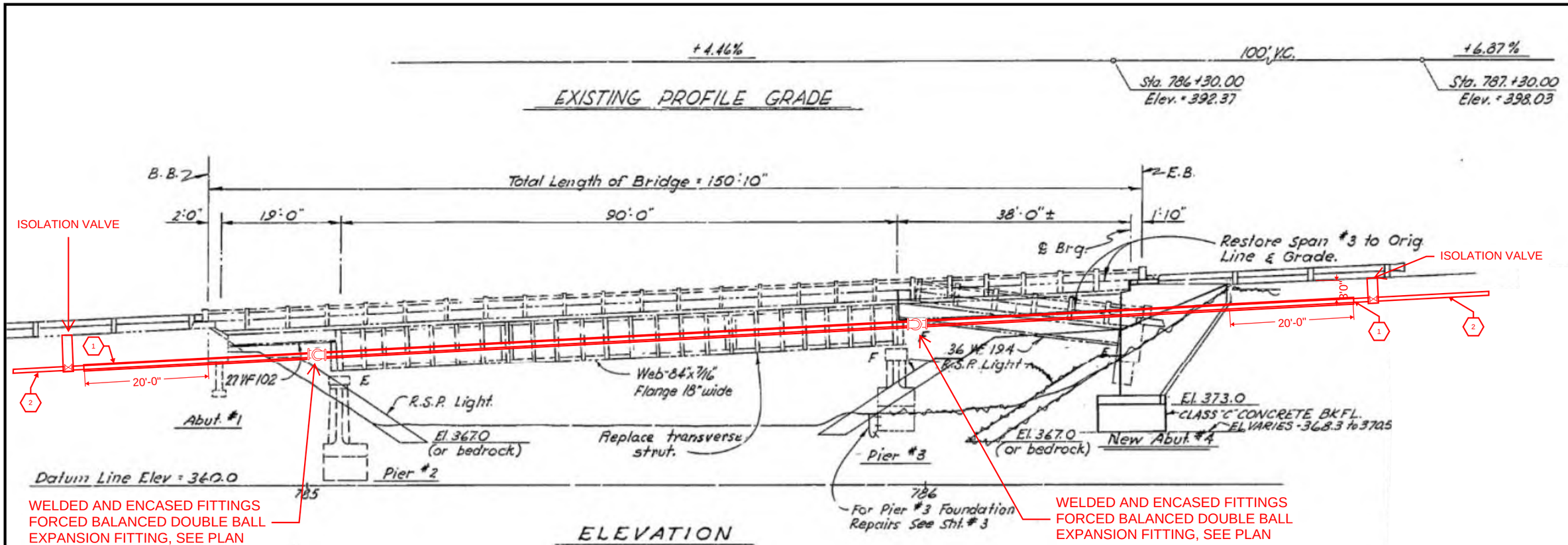
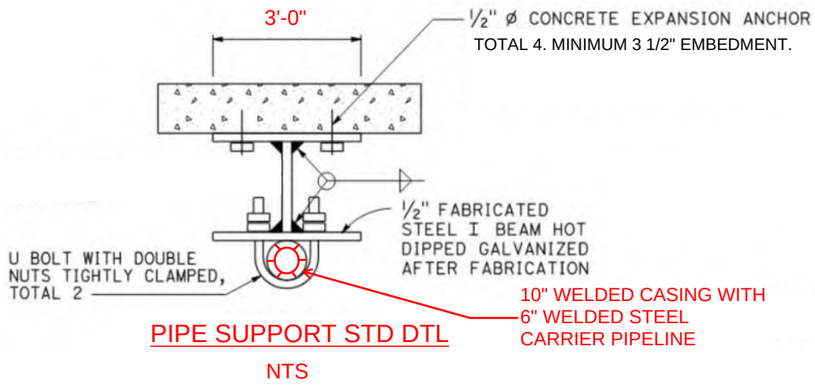


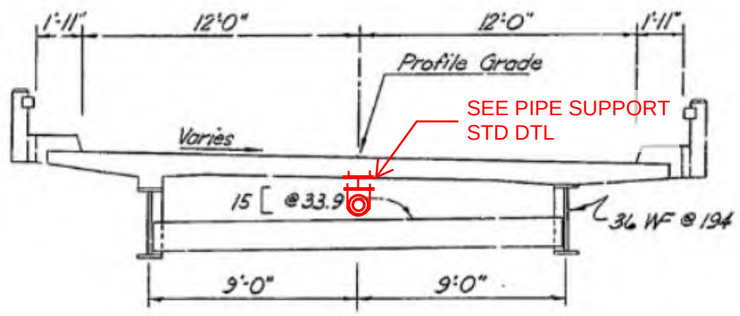
ORLEANS MUTUAL WATER COMPANY WATER DISTRIBUTION SYSTEM REPLACMENT PROJECT	**ALTERNATIVE 1: CALTRANS BRIDGE PLAN**	WATERWORKS ENGINEERS	FIGURE 6





PIPE SUPPORT STD DTL

NTS



SECTION A-A

Scale NTS

KEY NOTES:

1. 6-IN WELDED STEEL CARRIER PIPE WITH 10-IN WELDED STEEL CASING TO EXTEND 20-FT BEYOND ABUTMENT BACKWALL
2. 6-IN C900 PIPING INSTALLED PAST ISOLATION VALVE

GENERAL NOTES:

1. PROVIDE PIPE SUPPORT EVERY 10-FT MAXIMUM

ORLEANS MUTUAL WATER COMPANY WATER DISTRIBUTION SYSTEM REPLACEMENT PROJECT	**ALTERNATIVE 1: CALTRANS BRIDGE ELEVATION & SECTION**	WATERWORKS ENGINEERS	FIGURE 7

7.2 Alternative 2: Construct New Utility Bridge

Alternative 2 includes the construction of a new utility bridge outside of the Caltrans ROW on the KTHA parcel APN 529-141-037. This would avoid Caltrans bridge crossing permit review and special Caltrans design requirements. However, additional easements would be needed and a new pipe bridge infrastructure designed, approved, and constructed. A site plan showing the new water main segments for this alternative is provided in Figure 8. The segments are the same as Alternative 1 from the end of the Crawford Hill Subdivision Segment 5 to just northwest of the Caltrans bridge (Segment 6). Like in Alternative 1, after crossing Camp Creek the water main would follow a 6-inch water main would be installed in the shoulder of Lower Camp Creek Road to serve eight properties along Lower Camp Creek Road (Segment 7).

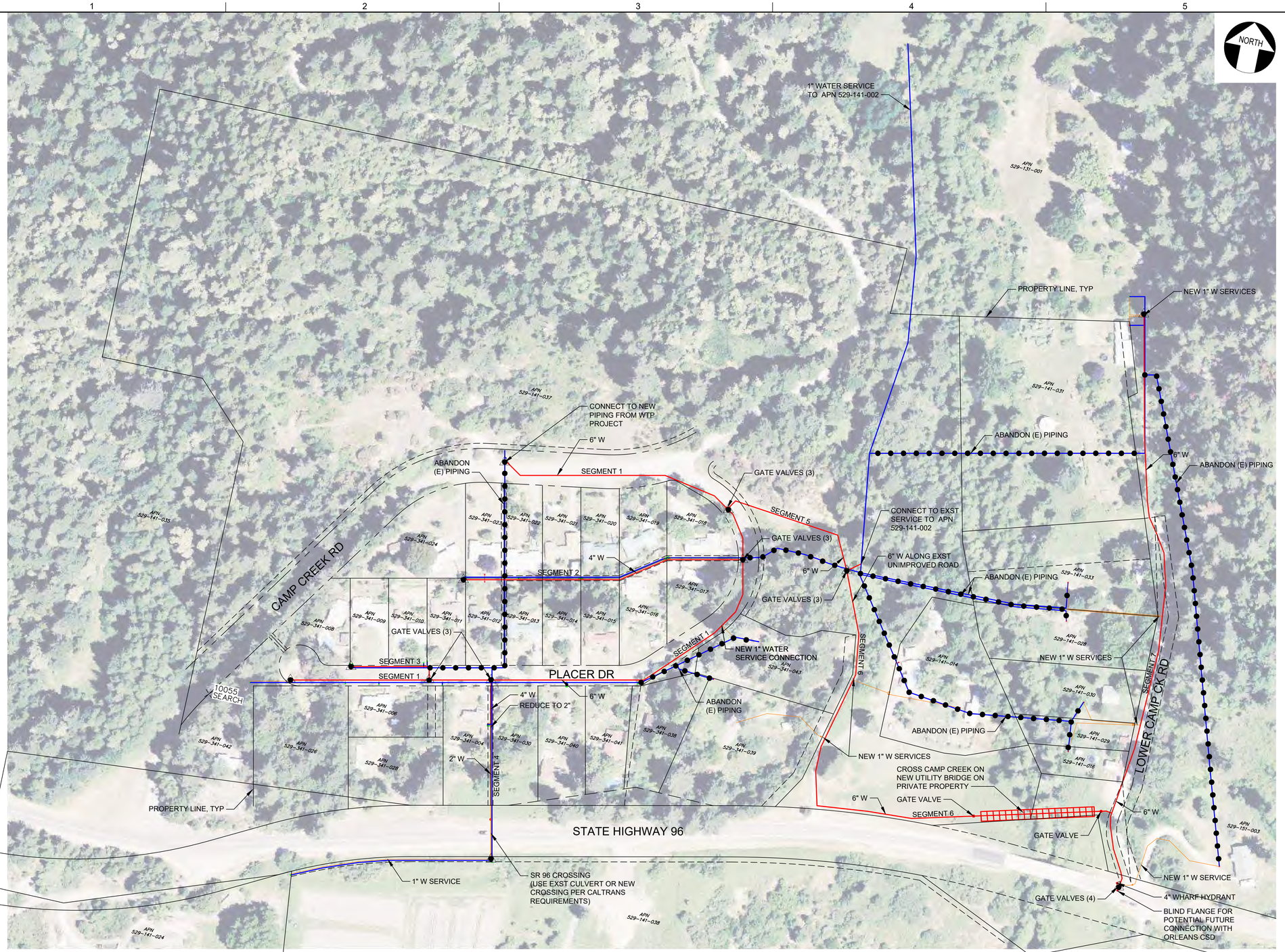
As shown in Figure 8, Alternative 2 includes the construction of a new steel truss utility bridge. Additionally, this type of bridge could be made to also function as a pedestrian bridge across Camp Creek if desired. There is currently no dedicated pedestrian crossing for Camp Creek, and the Caltrans Hwy 96 bridge is narrow and crossing pedestrians typically walk within the roadway. A pedestrian bridge would not only provide a safe way to cross Camp Creek, but it would also keep the pipeline out of plain sight where it would more likely be tampered with or vandalized. A suspension type bridge was initially considered. However, a suspension bridge would typically be more expensive than a steel truss bridge and would not provide a pedestrian crossing option. Therefore, the suspension bridge was not considered further.

For Alternative 2, a prefabricated steel truss utility bridge would be designed and constructed to span Camp Creek. Ideally the abutments would be constructed outside of any environmentally sensitive areas (outside of areas designated as wetlands or waters of the US or California). The location of the abutments will determine the length of the bridge, and the abutments would be designed to be safe from scouring from the creek. Additionally, the groundwater level would need to be determined to evaluate how much dewatering would be required during the construction of the abutments. An environmental assessment and scouring assessment would likely be required to determine the depth and location of the abutments. A geotechnical analysis would be required to assist in the design of the abutments. It is estimated that the bridge would likely be approximately 100-ft long.

The following design criteria were used in development of this alternative:

- Length: Approximately 100-ft
- Width: 10-ft (typical pedestrian bridge width)
- Loading:
    - Live load for typical pedestrian bridge
    - Dead load includes self-weight of bridge and weight of pipeline
- Deck: Cast-in-place Concrete
- Finish: Weathering Steel

The new 6-inch mainline could be welded steel or ductile iron pipe and would likely be attached to the bridge using roller type pipe supports. The pipeline would not be required to be encased. However, it is recommended that forced balanced flanged double ball expansion joints be installed at either end of the bridge for seismic concerns. A conceptualized sketch of a steel truss utility/pedestrian bridge is shown in Figure 9.



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SCALE 1"=100'

GENERAL NOTES:

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3. LOCATION OF EXISTING WATER PIPING AND VALVES BASED ON COMBINATION OF FIELD SURVEY, HANDHELD GPS SURVEY BY WATER WORKS ENGINEERS, AND DESCRIPTIONS PROVIDED BY OMWC.
4. PROPOSED WATER MAIN ALIGNMENTS ARE APPROXIMATE, BASED ON AVAILABLE INFORMATION AT THE TIME. FINAL WATER MAIN ALIGNMENTS AND WATER SERVICE CONNECTION LOCATIONS TO BE DETERMINED FOLLOWING DETAILED TOPOGRAPHIC SURVEY FOR SELECTED ALTERNATIVE.
5. NEW WATER MAINS SHALL BE 4" C900 WITH DUCTILE IRON FITTINGS. LATERALS 2" AND SMALLER SHALL BE PVC SCH 80 OR HDPE PIPING.
6. ISOLATION VALVES SHALL BE PROVIDED AT ALL TEES ON WATER MAINS.
7. ALL NEW SERVICES WILL BE METERED.
8. EXISTING WATER LINES WILL BE ABANDONED IN PLACE UNLESS WITHIN THE WORK AREA OF THE NEW PIPING.

LEGEND:

- PARCEL BOUNDARY
- EASEMENT/RIGHT-OF-WAY
- EXISTING PIPING
- START/END OF PIPE SEGMENT
- EXISTING SHUTOFF VALVE (SURVEY OR GPS LOCATED)
- EXISTING SHUTOFF VALVE (LOCATION TBD)
- PROPOSED POTABLE WATER MAIN PIPING
- PROPOSED WATER SERVICE LINE
- PROPOSED FIRE HYDRANT
- ABANDONED PIPING

VERIFY SCALE

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NO	DATE	REVISION	BY	APVD

PRELIMINARY NOT FOR CONSTRUCTION

DESIGN	J. RIESS
DRAWN	J. RIESS
CHECKED	XXX
APPROVED	XXX

WATERWORKS ENGINEERS

REDDING, CALIFORNIA

ORLEANS MUTUAL WATER COMPANY

WATER DISTRIBUTION SYSTEM UPGRADE PROJECT

ORLEANS, CALIFORNIA

CIVIL

PROPOSED POTABLE WATER PIPING ALTERNATIVE 2 CAMP CREEK CROSSING NEW BRIDGE CROSSING

DATE	JANUARY 2024
PROJECT NO.	23-034
DRAWING NO.	FIGURE 8
SHEET NO.	XX

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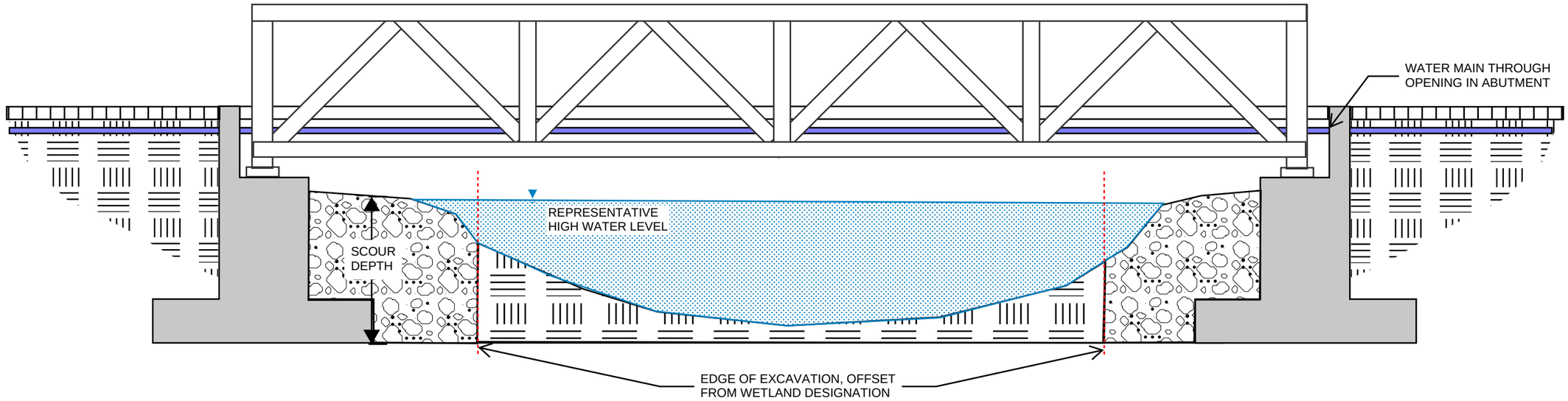
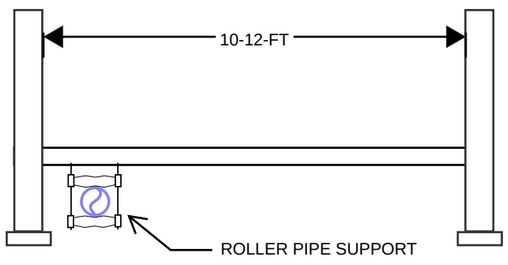




ORLEANS MUTUAL WATER COMPANY WATER DISTRIBUTION SYSTEM REPLACEMENT PROJECT	**ALTERNATIVE 2: STEEL TRUSS UTILITY BRIDGE**	WATERWORKS ENGINEERS	FIGURE 9

7.2.1 Permitting & Easements

In Alternative 2, the new pipeline would be placed outside of Caltrans right of way. Therefore, a Caltrans encroachment permit would not be required for the Camp Creek crossing portion of the project.

A new utility easement will be required for piping east of Placer Drive on the larger parcel owned by the KTHA (APN 529-141-037). All other water mains will be installed within the County ROW, Caltrans ROW or existing easements.

7.2.2 Comparative Cost Estimate

A comparative level cost estimate was developed for Alternative 1 as shown in Table 2.

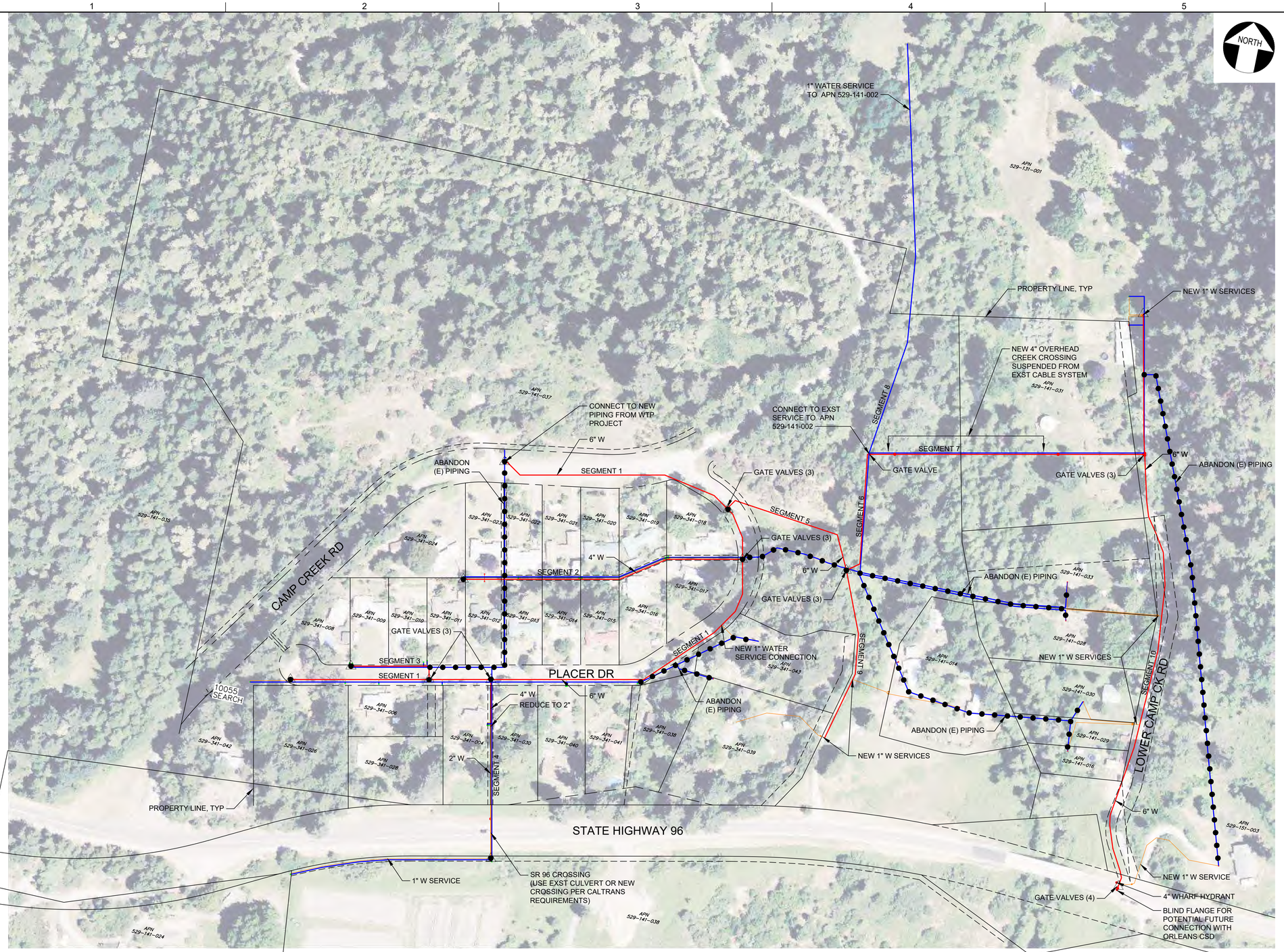
Table 2: Camp Creek Crossing Alternative 2 Comparative Cost Estimate

Items	Value[1]
Site Work	$30,000
Major Equipment	$12,400
Major Piping & Valves	$84,500
Major Structural	$550,000
Subtotal	**$676,900**
Design Contingency (50%)	$339,000
Rounded Total Capital Project Cost	**$1,015,900**

1. Based on 2023 dollars.

7.3 Alternative 3: Utilize Existing Overhead Creek Crossing

Under this alternative, the water main segments would start at the east end of the Crawford Hill Subdivision segments (end of Segment 5) and head north following the existing piping to the northernmost creek crossing. From here, this alternative uses the existing cable system to suspend a new 4-inch pipeline from the existing cable system. After crossing Camp Creek, the new water main continues east to Lower Camp Creek Road, and then branches to the north and south to follow the road in both directions to the service connections as described under Alternative 1 (Segment 10 for this alternative). A site plan showing the new pipeline segments is shown in Figure 10.



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5. NEW WATER MAINS SHALL BE 4" C900 WITH DUCTILE IRON FITTINGS. LATERALS 2" AND SMALLER SHALL BE PVC SCH 80 OR HDPE PIPING.
6. ISOLATION VALVES SHALL BE PROVIDED AT ALL TEES ON WATER MAINS.
7. ALL NEW SERVICES WILL BE METERED.
8. EXISTING WATER LINES WILL BE ABANDONED IN PLACE UNLESS WITHIN THE WORK AREA OF THE NEW PIPING.

LEGEND:

- PARCEL BOUNDARY
- EASEMENT/RIGHT-OF-WAY
- EXISTING PIPING
- START/END OF PIPE SEGMENT
- EXISTING SHUTOFF VALVE (SURVEY OR GPS LOCATED)
- EXISTING SHUTOFF VALVE (LOCATION TBD)
- PROPOSED POTABLE WATER MAIN PIPING
- PROPOSED WATER SERVICE LINE
- PROPOSED FIRE HYDRANT
- ABANDONED PIPING

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SCALE 1"=100'

VERIFY SCALE
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NO	DATE	REVISION	BY	APVD

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DRAWN J. RIESS
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APPROVED XXX

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REDDING, CALIFORNIA

ORLEANS MUTUAL WATER COMPANY
WATER DISTRIBUTION SYSTEM UPGRADE PROJECT
ORLEANS, CALIFORNIA

CIVIL
PROPOSED POTABLE WATER PIPING
ALTERNATIVE 3 CAMP CREEK CROSSING
EXISTING OVERHEAD CROSSING

DATE JANUARY 2024
PROJECT NO. 23-034
DRAWING NO. FIGURE 10
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7.3.1 Permitting & Easements

This alternative will require clearing of upland vegetation to install the piping from near the existing manifold north to the cable crossing. Since the existing cable system will be utilized, and the piping can be installed from the east end from a clearing on private property, no special permits are anticipated to be required.

The existing piping and overhead creek crossings on the larger parcel owned by the KTHA (APN 529-141-037) are not within any recorded easements. Therefore, a new utility easement will be required for existing and new water main piping on this parcel under this alternative. All other water mains will be installed within the County ROW, Caltrans ROW or existing easements.

7.3.2 Comparative Cost Estimate

A comparative level cost estimate was developed for Alternative 3 as shown in Table 3.

Table 3: Camp Creek Crossing Alternative 3 Comparative Cost Estimate

Items	Value[1]
Site Work	$15,000
Major Equipment	$0
Major Piping & Valves	$54,000
Major Structural	$0
Subtotal	**$69,000**
Design Contingency (50%)	$35,000
Rounded Total Capital Project Cost	**$104,000**

1. Based on 2023 dollars.

7.4 Alternative Comparison and Recommendation

The three creek crossing alternatives were compared based on their respective comparative level cost estimates, advantages and disadvantages, as shown in Table 4.

Table 4: Camp Creek Crossing Alternative Comparative Cost, Advantages and Disadvantages

Alternative	Relative Advantages and Disadvantages
Alternative 1: Utilize Existing Caltrans Bridge Comparative Cost: $253,100	Advantages: • Minimal construction, uses existing infrastructure • Best protected from flooding, wildfire and vandalism • Moderate cost Disadvantages: • Additional Caltrans permitting required
Alternative 2: Construct New Utility Bridge Comparative Cost: $1,015,900	Advantages: • No Caltrans permitting required • Could provide new pedestrian path to cross Camp Creek if desired Disadvantages: • May become an attractive nuisance subject to vandalism • More prone to flood damage • Highest cost
Alternative 3: Utilize Existing Overhead Creek Crossing Comparative Cost: $104,000	Advantages: • Minimal construction, uses existing infrastructure • No Caltrans permitting required • Lowest cost Disadvantages: • Capacity limited to what the existing crossing can suspend • Piping susceptible to damage during floods, wildfires, falling trees and vandalism • Water main would need to be routed across private property through existing yard • Would require more routine maintenance

While Alternative 3 is the simplest and least expensive option, it is not recommended as the new pipeline would be susceptible to damage and would likely require more maintenance in the future. The recommended alternative for the Camp Creek crossing is Alternative 1, as it is the least cost alternative with the highest level of protection for the piping.

8 Raw Water Alternatives

In addition to replacing the potable water distribution piping, this project will include the design for a new raw water pipeline to provide untreated water to the agricultural property on the south side of Hwy 96 (Tishaniik farm, APN 529-141-038). Under either alternative the static water pressure at the farm is approximately 50 psi, at which a 2-inch pipe size is more than adequate for irrigation purposes.

Two alternative alignments were evaluated for the new raw water main:

- Alternative 1: Existing Highway Crossing Alignment
- Alternative 2: Camp Creek Road Alignment

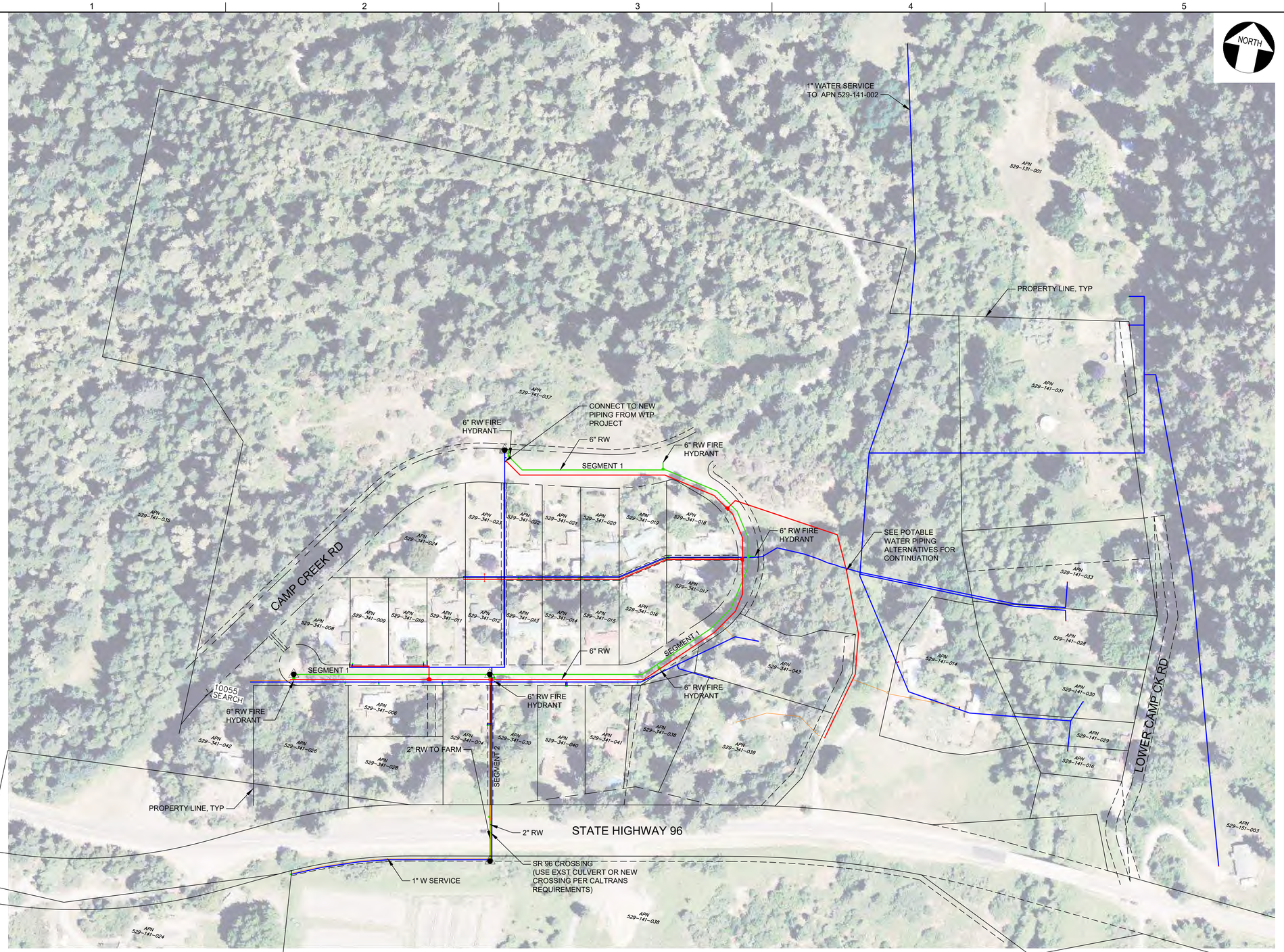
8.1 Alternative 1: Existing Highway Crossing

Alternative 1 includes a new 6-inch raw water main that passes through the subdivision parallel to the new potable water mains. 6-inch piping is proposed to support new non-potable fire hydrants that will be installed at approximately 500-ft intervals along Camp Creek Road and Placer Drive. These hydrants will provide more flow and volume than is possible if the hydrants were installed on the potable water mains. From Placer Drive, a 2-inch raw water main heads south through an existing easement down to Hwy 96 and through an existing culvert crossing (see Figure 11). For this alternative, the highway crossing is shared with the new potable water service line crossing.

8.2 Alternative 2: Camp Creek Road Alignment

Alternative 2 would include a new 2-inch raw water main following along Camp Creek Road to Hwy 96, crossing the highway at the Camp Creek Road intersection and then turning east and running parallel to Hwy 96 to the Tishaniik farm property (see Figure 12). This alternative uses a smaller main size than Alternative 1 because no fire hydrants would be installed. This alignment will require new easements on two private parcels (APNs 529-341-042 and 529-141-024) plus an encroachment permit from Caltrans for a new highway crossing. Additionally, this alignment will require excavating along Camp Creek Road through an unstable area with a limited shoulder.

Because Alternative 2 would require additional easements, a new Hwy 96 crossing, require work within an unstable roadway, and precludes the crucial installation of fire hydrants, this alternative was eliminated from further analysis. Therefore, the Alternative 1 raw water alignment is recommended.



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- PROPOSED WATER SERVICE LINE
- PROPOSED FIRE HYDRANT
- PROPOSED RAW WATER PIPING
- ABANDONED PIPING

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APPROVED XXX

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REDDING, CALIFORNIA

ORLEANS MUTUAL WATER COMPANY
WATER DISTRIBUTION SYSTEM UPGRADE PROJECT
ORLEANS, CALIFORNIA

CIVIL
PROPOSED RAW WATER PIPING
ALTERNATIVE 1-EXISTING HIGHWAY CROSSING

DATE JANUARY 2024
PROJECT NO. 23-034
DRAWING NO. FIGURE 11
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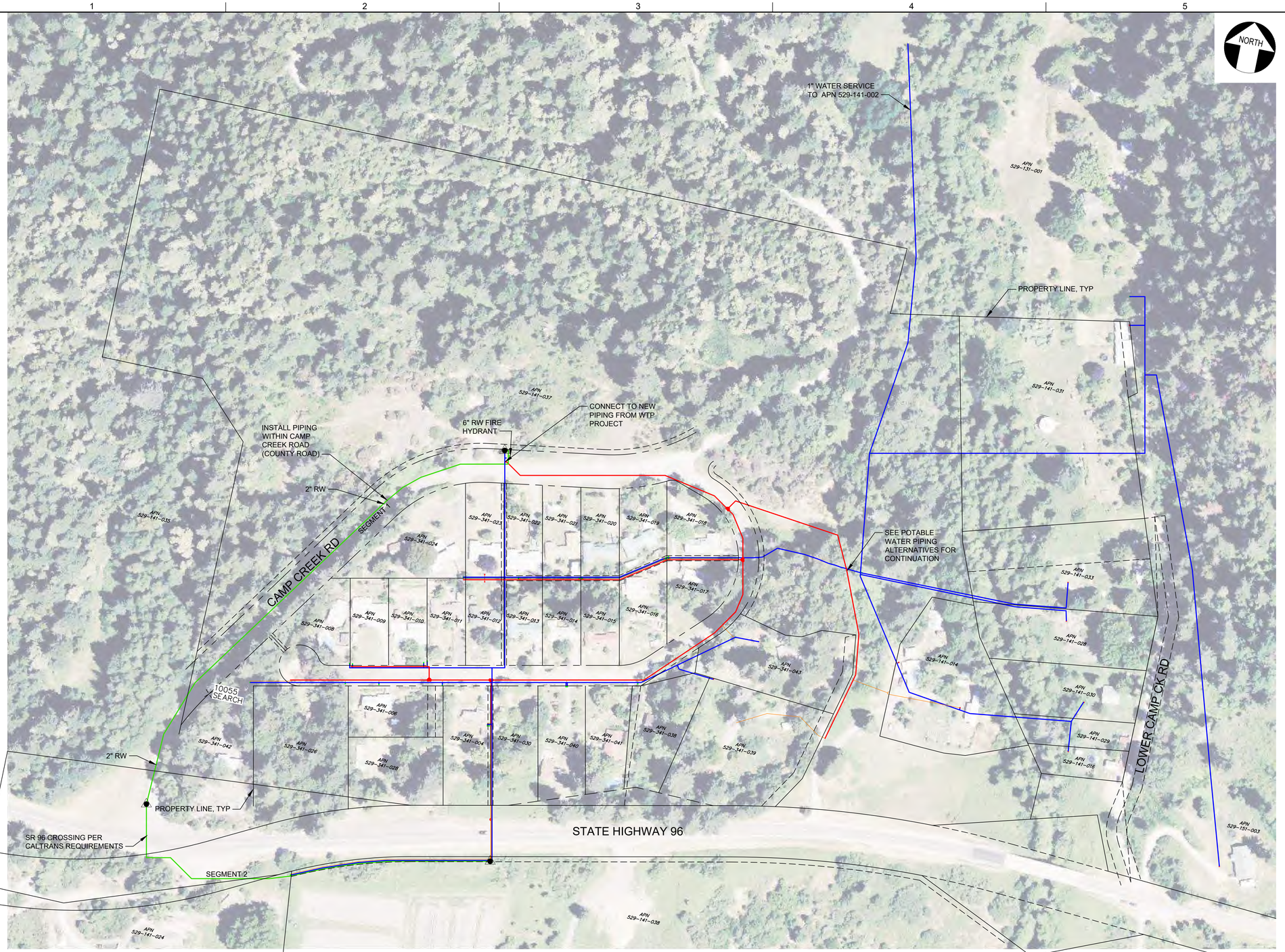

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- PROPOSED FIRE HYDRANT
- PROPOSED RAW WATER PIPING
- ABANDONED PIPING

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ORLEANS, CALIFORNIA

CIVIL
PROPOSED RAW WATER PIPING
ALTERNATIVE 2-CAMP CREEK ROAD ALIGNMENT

DATE JANUARY 2024
PROJECT NO. 23-034
DRAWING NO. FIGURE 12
SHEET NO. XX

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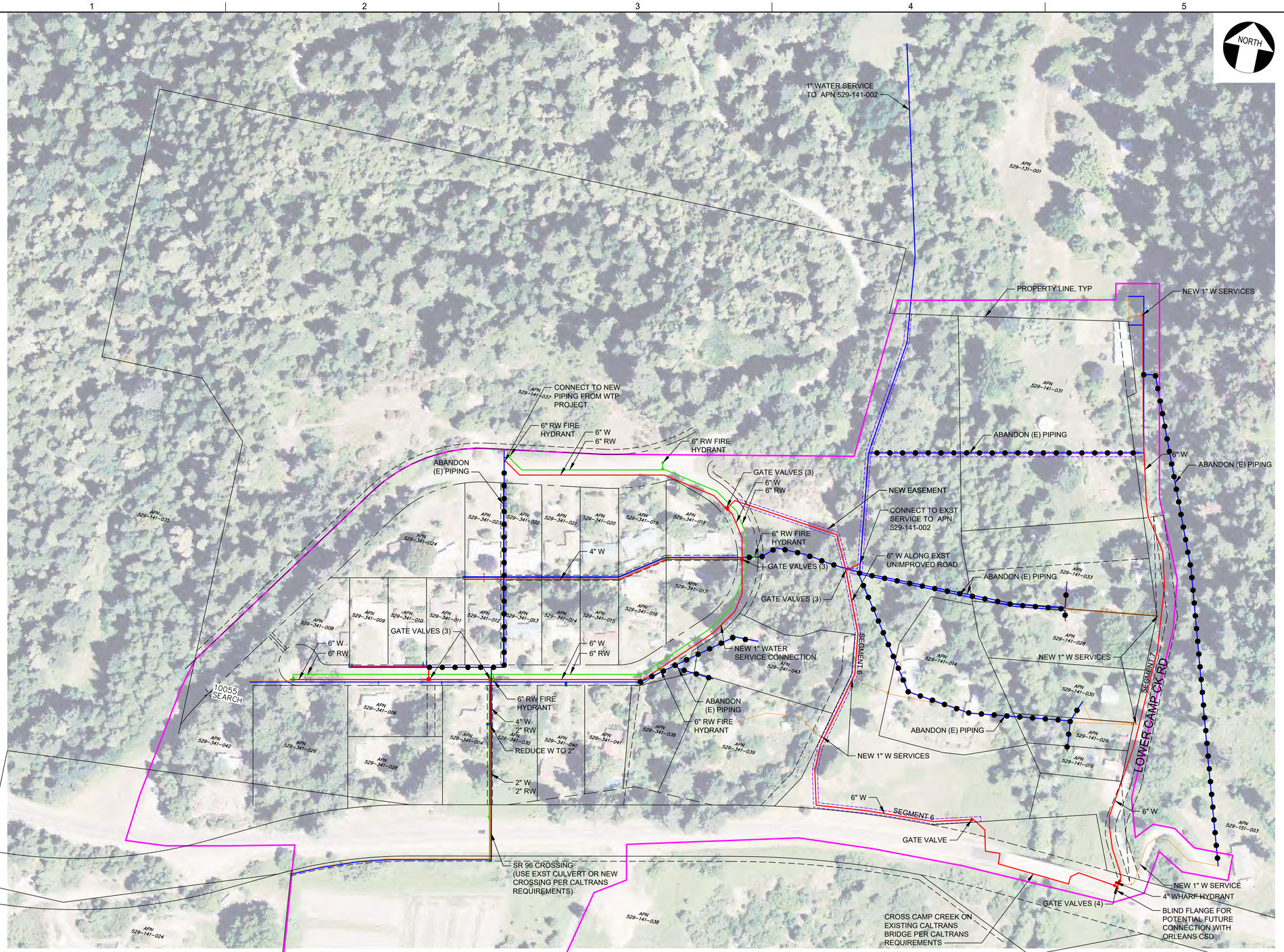
9 Proposed Project Description

Based on the alternative analyses presented in Sections 7 and 8 above, the proposed project includes the Crawford Hill Subdivision segments, Alternative 1 Camp Creek Crossing (utilize Caltrans bridge) segments, and Alternative 1 Raw Water Alignment (utilize existing highway crossing). A summary of the proposed project improvements is as listed below:

1. New water mains to serve the Crawford Hill Subdivision, properties to the east including along Lower Camp Creek Road, and properties south of State Hwy 96,
2. New Camp Creek crossing utilizing the existing Caltrans bridge,
3. new water main along Lower Camp Creek Road with a turnout for potential future connection with the Orleans Community Service District's water system,
4. New water main isolation valves, blow-offs and air release valves,
5. New water meters and customer-side shutoff valves at each property to serve existing and future connections,
6. New raw water pipeline with water meter to serve the Tishaniik farm,
7. Demolition or abandonment of existing distribution piping,
8. New easements and encroachments on private and public lands for water distribution infrastructure.

A plan of the proposed project is shown in Figure 13.



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- PROPOSED WATER SERVICE LINE
- PROPOSED FIRE HYDRANT
- ABANDONED PIPING
- PROPOSED RAW WATER PIPING
- AREA OF POTENTIAL EFFECTS (APE)
- PROPOSED NEW EASEMENT

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SCALE 1"=100'

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WATER DISTRIBUTION SYSTEM UPGRADE PROJECT

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PROPOSED PROJECT

DATE	JANUARY 2024
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DRAWING NO.	FIGURE 13
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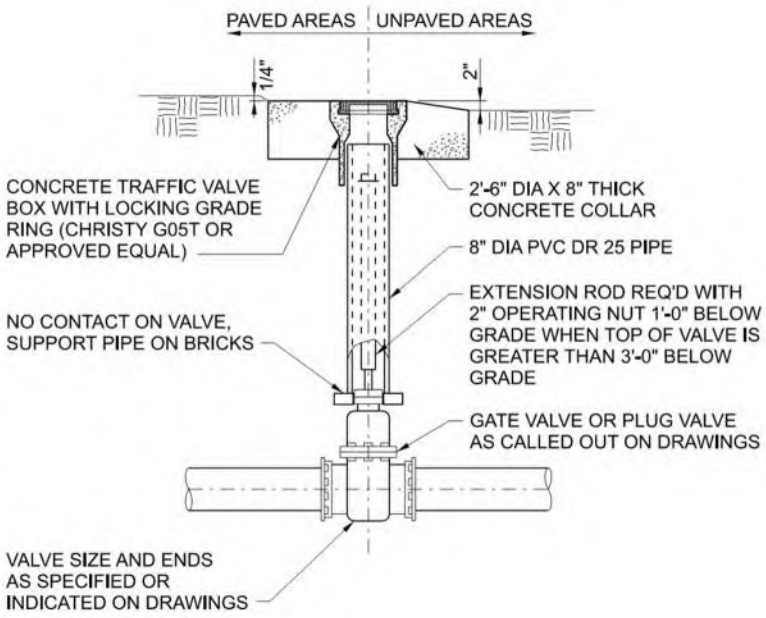
9.1 Material Selection

Under this project, the existing distribution piping will be demolished or abandoned in place and replaced with new C900 polyvinyl chloride (PVC) piping with restrained ductile iron fittings. C900 piping is commonly used for water distribution systems due to its high pressure rating, resistance to internal and external corrosion, and durability. New water services will be constructed of high-density polyethylene (HDPE) piping. HDPE is commonly used for smaller water service lines (3-inch and smaller), whereas C900 is commonly used for larger water service mains (4-inch and greater).

The piping crossing the Caltrans bridge will be 6-inch welded steel piping within a 10-inch welded steel casing to meet Caltrans design standards. The casing will extend 20-ft beyond the Caltrans bridge abutment backwalls on either side of the bridge. Additionally, two 6-inch forced balanced flanged double ball expansion fittings will be placed on either side of the bridge just outside of the abutment. The expansion fittings will not be encased.

New 6-inch buried gate valves will be installed at each tee or cross within the new distribution system. Additionally, a valve will be installed on either side of the Caltrans bridge crossing for isolation. A typical buried gate valve detail is shown in Figure 14. Buried gate valves have little maintenance requirements and can be operated with a 2-inch nut with a wrench from ground level.

Figure 14: Buried Gate Valve Detail



9.2 Water Meter Installation

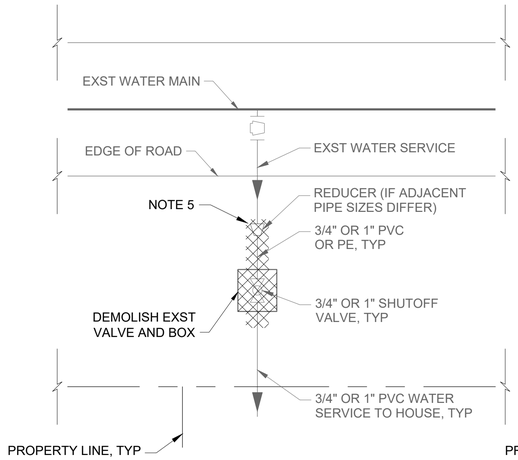
Thirty-eight (38) new water services will be installed at each active and inactive service connection to replace the services off the existing water mains, near the location of the existing service connection shutoff valve where possible. Water services will include new water meters and customer-side isolation valves in separate valve boxes. The new water meters will meet current California fire code requirements and will likely be 1-inch meters. All meters will be radio-read capable, likely via a portable receiver rather than an automated meter reading (AMR)

system typical of larger water systems to reduce complexity. Typical water meter installation detail can be seen in Figure 15.

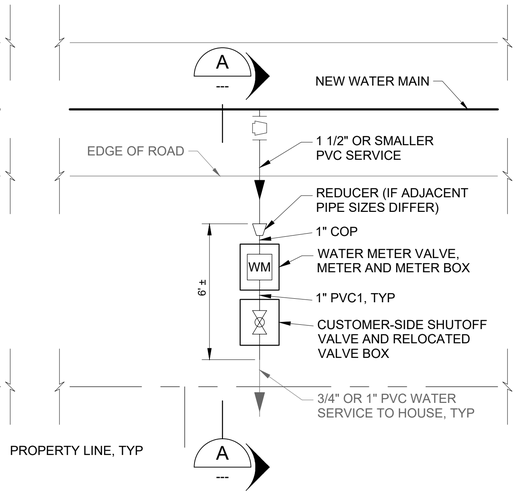
During installation of the water services, service to each property will be temporarily shut off for up to 4 hours. Property owners will be notified in advance of the shutdown. Temporary piping will be used where necessary to limit the shutdown duration.

10 Easement Requirements

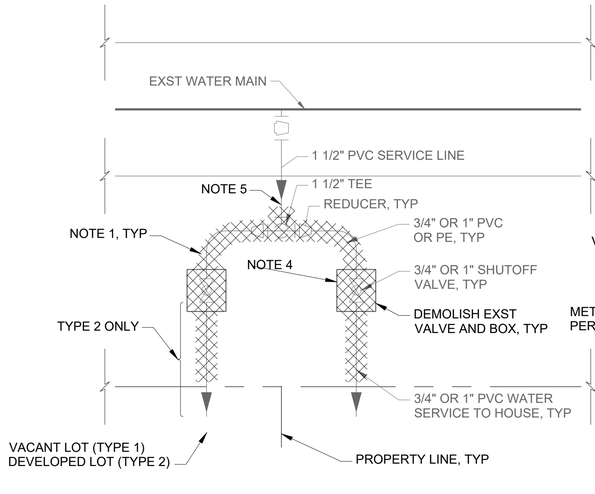
A new utility easement will be required for water main piping east of Placer Drive on the larger parcel owned by the KTHA (APN 529-141-037). All other water mains and water meters will be installed within the County ROW, Caltrans ROW or existing easements.



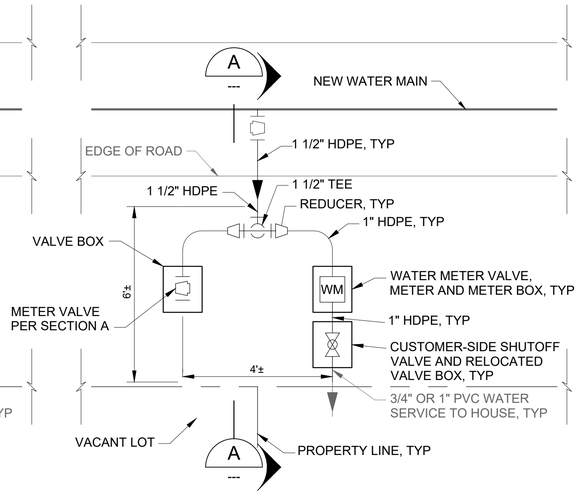
EXISTING SERVICE DEMOLITION



SINGLE METER INSTALLATION



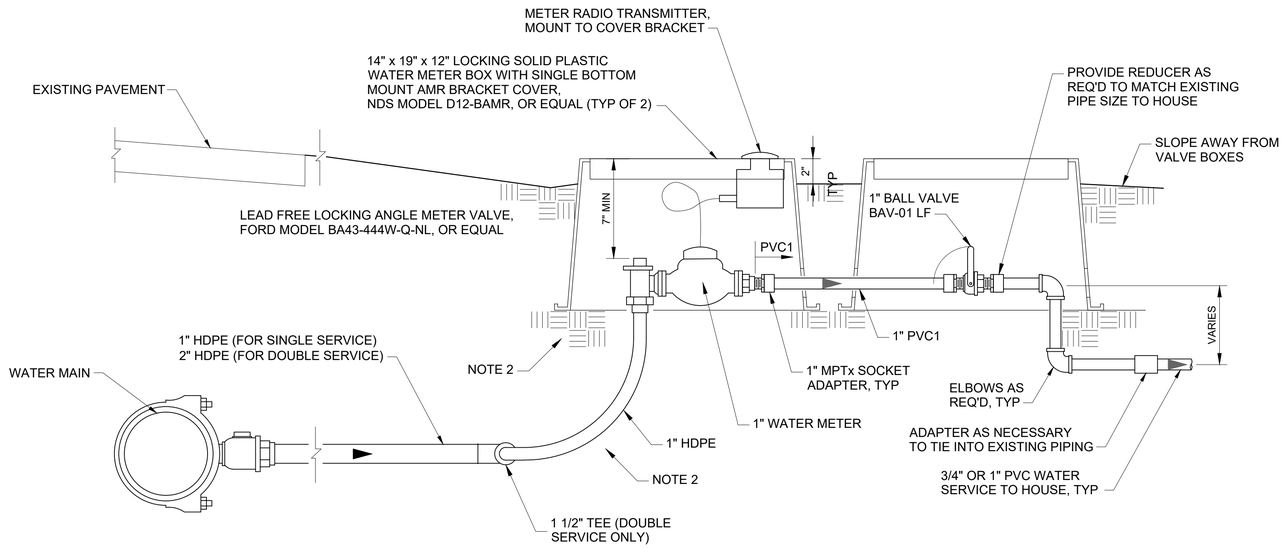
EXISTING SERVICE DEMOLITION



SINGLE METER INSTALLATION (TYPE 1)

1 SINGLE SERVICE

XXX NTS

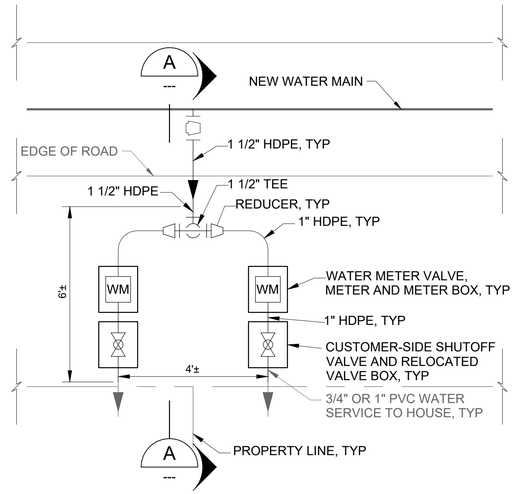


A SECTION

--- 2" = 1'-0"

2" 0 4" 8"

SCALE 2"=1'-0"



DOUBLE METER INSTALLATION (TYPE 2)

2 DOUBLE SERVICE

XXX NTS

NOTES:

1. DEMOLISH EXISITNG SERVICE PIPING TO EXTENTS REQUIRED FOR INSTALLATION OF NEW PIPING, WATER METER, METER BOX AND CUSTOMER-SIDE SHUTOFF VALVE AND BOX.
2. TRENCH EXCAVATION, PIPE BEDDING, BACKFILL AND COMPACTION SHALL BE PER SECTION 31 05 03.
3. SEE SECTION 00300, BID FORM FOR QUANTITY OF SERVICES OF EACH TYPE.
4. EXTEND PVC SERVICES APPROX. 10' AS NECESSARY TO INSTALL NEW METER AND BOXES OUTSIDE OF DRIVING AREA. PROVIDE NEW PLASTIC BOX FOR CUSTOMER-SIDE SHUTOFF VALVE.
5. COORDINATE WITH OWNER TO SEQUENCE WATER METER INSTALLATIONS AND TO SCHEDULE SHUTDOWNS. OWNER WILL OPERATE VALVES TO ISOLATE SECTIONS OF THE DISTRIBUTION SYSTEM TO ALLOW MULTIPLE TIE-INS AT THE SAME TIME. SEE SECTION 01 14 03, SPECIAL PROJECT CONSTRAINTS.

VERIFY SCALE

BAR IS ONE INCH ON ORIGINAL DRAWING

0 1"

IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY

NO	DATE	REVISION	BY	APVD

PRELIMINARY NOT FOR CONSTRUCTION

DESIGN J. RIESS
DRAWN J. RIESS
CHECKED XXX
APPROVED XXX

WATERWORKS ENGINEERS
REDDING, CALIFORNIA

ORLEANS MUTUAL WATER COMPANY

WATER DISTRIBUTION SYSTEM UPGRADE PROJECT

ORLEANS, CALIFORNIA

CIVIL

WATER SERVICE DETAIL

DATE JANUARY 2024
PROJECT NO. 23-034
DRAWING NO. FIGURE 15
SHEET NO. xx

FILENAME:L:\CAD\Projects\23-034 OMWC Distribution System Design\07 Drawings\22-034D Water Service Detail.dwg

PLOT DATE:1/19/2024 4:59:51 PM

11 Permitting Requirements

Permitting for this project will be required to comply with the California Environmental Quality Act (CEQA), Caltrans and Humboldt County. Expected permitting requirements are summarized in Table 5 and discussed further is the subsequent sections.

Table 5: Expected Permitting for Proposed Project

Agency/ Technical Study	Authorization Required/ Permit Type
Caltrans - District 1 Office of Permits	Encroachment Permit
CEQA (Humboldt Count Lead Agency)	Initial Study and Mitigated Negative Declaration
Public Works Department (Humboldt County)	Encroachment Permit
NEPA	None anticipated—no federal nexus for permit

11.1 CEQA/NEPA Compliance

Section 60101 of the Title 22 of the California Code of Regulations (CCR) lists specific activities within Categorical Exemption classes. This list includes installation of water meters. However, it would typically not include the replacement of the entire distribution system where there would be requirements for mitigation measures. Therefore, it is anticipated that an Initial Study and Negative Declaration or Mitigated Negative Declaration (ISMND) will be prepared for this project. It is anticipated that Humboldt County will be the CEQA lead agency for the project as they are a recognized public entity per the State Clearinghouse and have indicated willingness to take the lead. Caltrans will be included as a responsible trustee agency in the CEQA documentation. Because the project is a water infrastructure project that is not supported with federal funds other than ARPA at this time, the National Environmental Policy Act (NEPA) does not apply. Therefore, a federal NEPA lead agency is not required. However, if additional federal funding is acquired for the construction of this project or easements are required on tribal trust lands, the project would then be subject to NEPA review.

Biological and cultural studies will be completed within the Area of Potential Effect (APE) of the project area as shown on Figure 13. A minimum 25-ft wide buffer is included for the resource area to ensure that the APE meets potential future federal requirements or adjustments from the preliminary segments made necessary during final design. Record searches for the area will be performed and Native American consultation will be undertaken by Humboldt County, as the CEQA designated Lead Agency, in coordination with the Karuk Tribe's Department of Natural Resources. Field crews will be mobilized for the respective disciplines and the results will be compiled as stand-alone technical reports. The results of the studies will be used to inform the engineering design. The Initial Study and (assumed) Mitigated Negative Declaration will be prepared based upon the results of the technical studies, tribal consultation, and other quantitative and qualitative information gathered. The ISMND will be circulated by Humboldt County via the State Clearinghouse for a minimum 30-day public review period. Following closure of the public review period, Humboldt County will address issues raised and considered adoption of the CEQA document and proposed project by a decision-making body (Planning Commission and/or Board of Supervisors). Assuming the proposed is adopted, a Notice of Determination will be filed with the County Clerk and State Clearinghouse to complete the CEQA compliance process.

11.2 Caltrans Encroachment Permit

The proposed project will require a Caltrans encroachment permit for crossing Hwy 96 through the existing culvert and for crossing Camp Creek along the existing Caltrans bridge. During the encroachment permit process, the designs will be reviewed by a Caltrans structural bridge reviewer. While Caltrans does not provide preliminary reviews with the structural bridge reviewer, the reviewer may be able to take a conceptual look at the design and check for major issues. Final structural review will be through the encroachment permit process.

11.3 Humboldt County Public Works

Because the new water main and construction of the new water main will be within and along Humboldt County roadways (Placer Drive and Lower Camp Creek Road), an encroachment permit will be required prior to the start of construction. Because the project does not include any new buildings and significant structures, a building permit with Humboldt County will not be required.

The project is located within a Federal Emergency Management Agency (FEMA) Flood Zone D, which is an area with possible, but undetermined, flood hazards. No official analysis of flood hazard has been conducted for the area. Because the area is not specifically identified as a hazard area, there are no floodplain requirements for buildings or structures. However, because part of the project is within Camp Creek, Humboldt County planning department confirmed that it would be within a streamside management area (SMA). Per Humboldt County Code section 314-61.1.9.1.9, essential public projects are exempt from special SMA permitting requirements. Therefore, since the project is for public utilities, which provides an essential public service, it would likely be exempt from SMA permitting requirements. Additionally, the project is outside the jurisdictional area of the Central Valley Flood Protection Board and does not require any floodplain permitting.

12 Proposed Project Preliminary Cost Estimate

A preliminary level cost estimate was developed for the recommended project alternative. A summary of the cost is shown in Table 6. The detailed cost estimate is included in Appendix B.

Table 6: Proposed Project Preliminary Cost Estimate

Items	Value[1]
Site Work	$70,000
Major Equipment	$28,400
Major Piping & Valves	$631,900
Major Structural	$4,000
Subtotal	**$734,300**
Design Contingency (50%)	$367,150
Subtotal	**$1,101,450**
Contractor Overhead (8%)	$88,116
Contractor Profit (7%)	$77,102
Taxes, Bonds and Insurance (8%)	$88,116
Subtotal	**$1,354,784**
Escalation (6%)	$81,287
Estimated Construction Bid Amount	**$1,436,071**
Construction Contingency (10%)	$143,607
Total Estimated Construction Cost (Rounded)	**$1,579,700**
Estimated Permitting Cost	$50,000
Engineering Services During Construction	$94,782
Construction Management	$236,955
Total Estimated Project Cost (Rounded)	**$1,961,000**

1. Based on 2023 dollars.

Appendix A – Caltrans Memo to Designer 16-1 Bridge Water and Sewer Lines

BRIDGE WATER AND SEWER LINES

Introduction

This memo discusses the responsibilities of the water and sewer line review engineer and the design engineer performing the design for water and sewer lines installed within new or existing bridge structures.

Water and Sewer Review Engineer Responsibilities

- Provide assistance to the Bridge Engineer and Encroachment Permit Engineer reviewing the plans and specifications for water and sewer lines on the bridge.
- Provide comments to District staff or Local Agency owner of the utility.
- Determine the type of materials to be used for utility lines and casing pipes.

Design Engineer Responsibilities

- Provide plans, calculations and specifications for the water/sewer lines and their connection to the bridge structure.

Applicability

All water and sewer line installations on bridges shall comply with these requirements. The engineer shall review the installation plans for bridge design and other Department programs.

Design Principles

Water and sewer line installation plans must meet the following basic requirements which have been developed to minimize risk to the public and structure and to minimize maintenance problems in the vicinity of the structure. It should be noted that every bridge is a unique design; therefore, every water and sewer line installation is a custom design specific to the particular bridge. These requirements include:

1. The design will contain any potential leaks, within the limits of the bridge, and any liquids are to be carried away from the structure and released in a controlled manner away from the traveling public. This is a major consideration with sewer lines.
2. The interference of the utility installation during construction of the bridge should be minimized. The pipeline can be installed in the casing pipe after the bridge is constructed. In this situation the bridge contractor will often only install the casing pipe and supports.
3. Water and sewer lines shall be designed to accommodate thermal expansion and transverse seismic bridge deflection. This is accomplished by placing an expansion fitting or expansion deflection fitting inside the structure near the bridge abutment.
4. The pipeline should be designed to accommodate large lateral displacements (specific to the bridge and could be up to 12 inches) between the abutment back wall and end diaphragm by placing deflection fittings within the bridge. This information is available from the bridge designer. The deflection fittings shall not be cased.

5. All the alternatives should be explored and installing the water/sewer line on the bridge structure should be the last option.

6. Verify that the bridge structure is adequate to support the additional loads of the pipe/casing/pipe contents and weight of construction assembly.

Design Requirements

The following requirements for water and sewer lines are necessary to protect public safety and the structure:

1. All water and sewer pipelines in or on bridge structures must be encased. The casing should extend the greater of: 5 feet beyond the approach slab, 20 feet beyond the abutment back wa11, or 5 feet beyond the wing walls. Casing must be grouted in the abutment back wall. Fully cased pipe should be wrapped with building paper before casting into bridge abutments or dry packing.

2. In single span and double span bridges, a box girder cell may be considered encasement for only waterlines if the following conditions are met:

   a. Access is made available to mechanical devices placed within the structure;

   b. Provisions are made to adequately drain the cell in the event of a pipe rupture and drainage openings shall not be located over traffic; and

   c. A thimble casing is provided from the abutment back wall into the approach fill. The limits of the thimble casing shall comply with thimble casing detail provided in Section 16 of the Bridge Design Details Manual.

3. Sewer lines must be cased for the entire length inside of box girder structures and on open girder bridges. Sewer line casings may be broken near abutments to allow for placement of expansion or expansion/def1ection fittings. Soffit drainage openings must be located downhill and in the immediate vicinity of the break in casing pipe. Casing pipe limits are as noted in item number 1 above. Soffit opening shall be a minimum of 2 feet x 3 feet. Soffit opening shall be located under flexible expansion joints to allow maintenance for expansion joints and controlled discharge of water to the roadway shoulder. Soffit openings are not allowed adjacent to bent caps in order to keep leakage away from the median and traveled away.

4. Pipe supports should be designed to support the self-weight plus the weight of the pipe/casing/pipe contents and weight of construction assembly. Cast in place supports such as inserts and anchor bolts shall be shown on the contract plans. The pipe support should be provided with a strap or type of restraint to prevent the pipe assembly from falling off the support under seismic loading. The strap should provide for thermal expansion independently of the superstructure in

the longitudinal direction.

5. Hanging supports must be fabricated from steel. The steel should be hot dip galvanized after fabrication. Supplemental lateral supports should be provided for the water and sewer line as needed.

6. Supports located on soffit slabs shall be made of concrete. Concrete cradle supports should be designed to withstand the loads and cast in place with the soffit slab or after the slab has been poured, epoxy and dowels must be used for the supports. Precast concrete supports may also be used if provisions are made on the utility installation plans for the soffit slab to be ground flat prior to installation of the support. Straps on concrete supports shall not be clamped down tightly except at the support near the center of the bridge, to allow the pipe to move independently of the superstructure longitudinally as previously noted.

7. Pipe shall conform to American Water Works Association (AWWA) specifications.

8. Water and sewer lines shall be welded steel or ductile iron. Plastic pipe such as PVC, HDPE, and FRP are not allowed in State bridges due to their higher thermal expansion.

Maybe they are allowed on the bridge?

9. Steel lines carrying sewage or other corrosive materials shall have corrosive protection measures included. Protection includes but is not limited to additional steel thickness, cement mortar, epoxy, polyurethane, or nylon-based polyamide lining.

10. Water and sewer lines shall be designed to accommodate relative seismic/thermal displacements. This is normally accomplished by:

    a. Placing expansion deflection fittings on the water and sewer line inside the bridge or in a vault adjacent to the abutment on seat type abutments. The Office of Electrical, Mechanical, Water and Wastewater Engineering has standard details for water and sewer line installation inside the bridge. Force balanced flanged double ball expansion joint is required for seismic expansion in the pipe. Mechanical expansion joints are not accepted as seismic expansion fitting. A seismic expansion joint at each abutment in the pipe line is required.

I have not yet found these

    b. Using sliding supports adjacent to the abutment that will allow the water or sewer line pipe to accommodate the displacements.

Probably try to go with this option

    c. Longitudinal expansion fittings are required on end diaphragm and shear key type abutments to accommodate thermal expansion because the abutment type prevents shear movement.

11. Water and sewer lines shall not be cast into concrete or placed into deck slabs, sidewalks, or barrier rails.

12. An air release valve is required at the high point of pressurized water and sewer lines. Air release valves must be installed within the bridge cell to allow for proper operation of the fitting and access for

maintenance. Access to this mechanical device may be required by manhole from the deck. The manhole location should be coordinated with the utility owner through the District Project Engineer.

13. Install shut off valve at the ends of the water and sewer pipes. The shut off valves should be located outside of the bridge structure.

14. Water and sewer lines with less than 40 inches of cover over the line in the traveled way require structural protection from wheel loads or an analysis showing that they can sustain wheel loads. A standard structure approach slab is not considered adequate structural protection. Providing casing pipes can offer some structural protection.

15. In box girder bridges, the structure depth must be adequate to accommodate the pipe support height, pipe diameter, pipe casing (if any) diameter and seismic expansion assembly movements.

16. A dirt stop shall be provided to avoid dirt buildup between the pipe and the casing.

17. Pipe protection shields should be stainless steel half circle and are required to allow the pipe to slide on the support cradle and shall be shown on the plans.

18. Thermal and seismic expansion calculations are required.

19. The following notes shall be shown on the bridge utility details plans:

    a. Supply line shall be installed parallel to bridge deck.

    b. Pipe shall tightly clamp at the two pipe supports nearest the center of any two expansion assemblies. At all other pipe supports, the pipe clamp shall be shimmed with steel washer plates to provide ¼" clearance and allow for expansion in both directions.

20. For sloped bridges, additional restraints are necessary to hold the pipe from sliding downhill.

21. Utility openings in end diaphragm bridges must be sized for maximum deflection.

22. Provide structural calculations and drawings for the structural integrity and adequacy of the existing bridge structure due to the new cuts in the bridge structure for the soffit openings and manhole in the deck.

23. The pipe system assembly installation should be accessible for the Department's inspection, during and prior to completion of the job.

24. All work shall be uncovered and convenient for the Department's inspection.

25. Provide information on adequacy of soffit opening to show how water will be carried away from the public travel way.

26. Verify that the soffit access openings are adequate for installation and

maintenance of the pipe system.

27. Abutment utility opening must be pipe diameter plus 8 inches minimum.
28. Distance between abutment and expansion assembly must not be more than 12 inches in box girder bridge.
29. Distance between expansion assembly and adjacent concrete support must not be more than 18 inches in box girder bridge.
30. Casing must be grouted in abutment wall.
31. If seismic assembly is provided outside of the bridge, provide adequate utility opening in abutment to prevent restriction of the pipe movement during seismic event.
32. If seismic assembly is provided in the vault, provide drain pipe in the vault.
33. Bent cap opening must be pipe diameter plus 2 inches minimum.
34. Casing insulators must be installed within 18" of all bell ends of supply line and within 12 inches of both ends and every 6 feet 6 inches on centers. Fill void between dirt stop and first casing insulator with foam.
35. 4 inches minimum clearance between bottom of the seismic assembly and soffit must be provided.
36. Maximum distance between two concrete pipe supports must not be more than 10 feet.
37. Provide structural calculations and drawings for the lateral restraint assembly of the pipe system. Maximum lateral restraint assembly spacing shall be 20 feet.
38. Concrete clevis plate must be installed with four mechanical expansion anchors with minimum 2 inches embedment in existing bridge in pipe hangers.
39. Standard plans B14-3, B14-4 and B14-5 are available for irrigation lines less than four inches. Standard plans B6-10, B7-10 and B711 are available for other utility details.

Prakash Sah
Office of Electrical, Mechanical,
Water & Wastewater Engineering

Appendix B – Proposed Project Preliminary Cost Estimate

WWE Project No.:	23-034
Title:	Water Distribution System Replacement Design: Proposed Project Preliminary Cost Estimate
Computed By:	J. Riess
Date:	11/13/2023

Item	Quantity	Unit	Unit Cost	Installation Cost	Total Cost
Site Work					
Mobilization	1	lump sum	$30,000	included	$30,000
Trench Sheeting, Shoring & Bracing	1	lump sum	$5,000	included	$5,000
Clearing and Grubbing	1	lump sum	$15,000	included	$15,000
Water Pollution Control	1	lump sum	$5,000	included	$5,000
Traffic Control	1	lump sum	$15,000	included	$15,000
					$70,000
Major Equipment					
6-in Forced Balanced Double Ball Expansion Fittings	2	each	$6,200	included	$12,400
PW Wharf Hydrants	1	each	$1,000	included	$1,000
RW Fire Hydrants	6	each	$2,500	included	$15,000
					$28,400
Major Piping and Valves					
6" C900 Pipeline	4027	linear feet	$90	included	$362,400
4" C900 Pipeline	820	linear feet	$60	included	$49,200
2" HDPE Pipeline	260	linear feet	$40	included	$10,400
1" HDPE Pipeline	1866	linear feet	$20	included	$37,300
6" WS Carrier Pipeline	150	linear feet	$90	included	$13,500
10" WS Casing Pipeline	150	linear feet	$150	included	$22,500
WSP Joints and Fittings	1	lump sum	$800	included	$800
6" Gate Valves	16	each	$1,500	included	$24,000
Pipe Supports within Bridge	15	each	$250	included	$3,800
Water Services	38	each	$2,500	included	$95,000
Air Release Valves and Boxes	8	each	$1,000	included	$8,000
Blowoff Valves	10	each	$500	included	$5,000
					$631,900
Major Structural					
Precast Expansion Fitting Vaults	2	each	$2,000	included	$4,000
					$4,000

Project Cost Summary			
Subtotal, Site Work			**$70,000**
Subtotal, Major Equipment			**$28,400**
Subtotal, Major Piping & Valves			**$631,900**
Subtotal, Major Structural			**$4,000**
		Subtotal	**$734,300**
Design Contingency (Miscellaneous Items)	50%		$367,150
		Subtotal	**$1,101,450**
Contractor Overhead	8%		$88,116
Contractor Profit	7%		$77,102
Taxes, Bonds and Insurance	8%		$88,116
		Subtotal	**$1,354,784**
Escalation	6%		$81,287
		Estimated Construction Bid Amount	**$1,436,071**
Construction Contingency	10%		$143,607
Total Estimated Construction Cost (Rounded)			**$1,579,700**
Estimated Permitting Cost			$50,000
Engineering Services During Construction	6%		$94,782
Construction Management	15%		$236,955
		Total Estimated Project Cost (Rounded)	**$1,961,000**

Appendix E

Karuk Tribe THPO Letter and Inadvertent Discovery Plan

Karuk Community Health Clinic
64236 Second Avenue
Post Office Box 316
Happy Camp, CA 96039
Phone: (530) 493-5257
Fax: (530) 493-5270

Karuk Tribe

Administrative Office
Phone: (530) 493-1600 • Fax: (530) 493-5322
64236 Second Avenue • Post Office Box 1016 • Happy Camp, CA 96039

Karuk Dental Clinic
64236 Second Avenue
Post Office Box 1016
Happy Camp, CA 96039
Phone: (530) 493-2201
Fax: (530) 493-5364

October 28,2024

Hank Seemann, Deputy Director
Environmental Services
Humboldt County Department of Public Works
1106 Second Street
Eureka, CA 95501

Dear Hank Seemann,

This letter serves as notice that the Karuk Tribe THPO office concurs with the Orleans Mutual Water Company (OMWC) Distribution Project plan. The OMWC water facility is on what is now Karuk Tribe land. The upgrades planned to make the system compliant with State standards, have been done in close cooperation with the Karuk Tribe Housing Authority (KTHA) and with the Karuk Resources Advisory Board (KRAB).

The area received two recent archaeological surveys: one by Helix Environmental for whole project area in 2022, and one for the Karuk owned parcel by Karuk THPO office staff in 2023, for forest management purposes. The 2022 survey received some assistance from the THPO office, and additional information was provided for the resultant report. The methods, results, and mitigation measures all appear to be satisfactory. An AB-52 consultation meeting was conducted on August 7th, and mitigation measures were distributed on September 18, following that meeting.

The development was most recently discussed by KRAB at a meeting on July 31, 2024. At this discussion KRAB concurred with the splitting of the project into two, and with the water treatment portion; it conveyed agreement in principle with the distribution project at that meeting, with mitigations to be finalized between the KRAB chair and THPO. That final discussion took place on October 25th, 2024. The key recommendation was to ensure monitoring takes place for the project; the other mitigation measures are sufficient to keep the likelihood of significant impacts to a low level. It is evident that there was much disturbance in the area in March 1965 when the initial phase of housing construction on Camp Creek Road took place following the flood; however, some sensitive elements have turned up in recent years, not necessarily in situ. The distribution project as designed does avoid known sensitive areas and stays mostly within already-disturbed areas. The tribe has an Inadvertent Discovery Plan, which can be distributed for this project.

Sincerely,

A. Watts-Tobin

Alex R. Watts-Tobin, Ph.D.
THPO / Archaeologist
Karuk Tribe

Discovery Protocol

Points of Contact (POC) for Notification of Discoveries

The following Points of Contact (POC) shall be notified immediately upon the inadvertent discovery of a potentially significant archaeological find:

1. Lead or On-site Contractor(s) whose activities either led to inadvertent discovery, or whose on-going work may impact significant finds. Tribal Monitor has authority to immediately halt ground disturbing activities if potentially significant finds are discovered.

2. Alex R. Watts-Tobin, Ph.D., Tribal Historic Preservation Officer, Karuk Tribe at (530) 627-3446

A. Inadvertent Archaeological Discovery (General)

1. Ground-disturbing activities shall be immediately stopped if potentially significant prehistoric (Native American) archaeological artifacts or constituents are discovered. Examples include, but are not limited to, prehistoric artifacts (chipped stone or obsidian, arrow points, ground stone mortars and pestles), culturally altered ash-stained midden soils, concentrations of fire-cracked rock and/or burned or charred organic materials. Ground-disturbing project activities may continue in other areas that are outside of the discovery locale.
2. An "exclusion zone" where unauthorized equipment and personnel are not permitted shall be established (e.g., taped off) around the discovery area plus a reasonable buffer zone by the monitor.
3. The discovery locale shall be secured (e.g., 24-hour surveillance) in consultation with the THPO if considered prudent to avoid further disturbances or maintain order if sensitive remains are exposed.
4. The monitor shall be responsible for immediately contacting by telephone the designated POCs to report the find and initiate the consultation process for its treatment and disposition:

Alex R. Watts-Tobin, Ph.D., Tribal Historic Preservation Officer, Karuk Tribe at (530) 627-3446

And in cases where a known or suspected Native American burial or skeletal remains are uncovered, the following contacts shall also be notified:

Siskiyou County Coroner – Phone (530) 842-8300
Humboldt County Coroner – Phone (707) 445-7242
Native American Heritage Commission (NAHC) in Sacramento (916) 653-4082.

5. Ground-disturbing project work at the find locality shall be suspended temporarily while the landowner's Consulting Professional Archaeologist[1] conducts a field assessment and consults with the THPO, Lead Agency, or his/her designated representative and if applicable, State Office of Historic Preservation (OHP) staff, to determine appropriate treatment and disposition of the find. Ideally, a *Treatment Plan* may be decided within three working days of discovery notification. Where a project can be modified to avoid disturbing the find (e.g. through project redesign), this shall be the preferred option. Should human remains be encountered, the provisions of State laws shall apply (see below). The *Treatment Plan* shall reference appropriate laws and include provisions of analyses, reporting, and final disposition of data recovery documentation and any collected artifacts or other archaeological constituents. Ideally, the field phase of the Treatment Plan may be accomplished within five (5) days after its approval; however, circumstances may require longer periods for data recovery.

[1] Qualified Professional Archaeologist: means an individual that meets the Secretary of the Interior's Professional Standards for an Archaeologist Principal Investigator and/or are listed as Registered Professional Archaeologists (see website at www.rpanet.org).

6. The landowner, its employees and agents including Contractors, shall be obligated to protect significant cultural resource discoveries and may be subject to prosecution if applicable State or Federal laws are violated. In no event shall unauthorized persons collect artifacts.
7. Any and all inadvertent discoveries shall be considered strictly confidential, with information about their location and nature being disclosed only to those with a need to know.

B. Inadvertent Discovery of Native American Remains and Grave Goods

The following policies and procedures for treatment and disposition of inadvertently discovered Native American remains shall apply.

1. If human remains are encountered, they shall be treated with dignity and respect as due to them. Discovery of Native American remains is a very sensitive issue and serious concern of affiliated Native Americans. Information about such a discovery shall be held in confidence by all project personnel on a need-to-know basis. The rights of Native Americans to practice ceremonial observances on sites, in labs an around artifacts shall be upheld.
2. Violators of Section 7050.5 of the California Health and Safety Code may be subject to prosecution to the full extent of applicable law (felony offense).
   In the event that known or suspected Native American remains are encountered, the above procedures of SOP Part A for Inadvertent Archaeological Discovery (General) shall be followed (including notifications to those identified in A-4(a-e)), in addition to the provisions of California law (Section 7050.5 of the California Health and Safety Code and Section 5097.98 of the California Public Resources Code), as follows.
3. The Coroner has two (2) working days to examine the remains after being notified of the discovery. If the remains are Native American, the Coroner has 24 hours (2 days) to notify the NAHC.
4. The NAHC is responsible for identifying and immediately notifying the Most Likely Descendant (MLD) of the deceased Native American. (Note: NAHC policy holds that the Native American Monitor will not be designated the MLD.)
5. Within 24 hours (2 days) of their notification by the NAHC, the MLD will be permitted by the property owner of the discovery locale to inspect the discovery site if they so choose.
6. Within 24 hours (2 days) of their notification by the NAHC, the MLD may recommend to the property owner or his/her designated agent, as applicable, the means for treating or disposing, with appropriate dignity, the human remains and any associated grave goods. The recommendation may include the scientific removal and non-destructive or destructive analysis of human remains and items associated with Native American burials. Only those treatments recommended by the MLD may be considered and carried out (i.e., no photographs, analyses, etc. without MLD agreement).
7. If the landowner does not accept the descendant's recommendations, the owner or descendent may request mediation by the NAHC.
8. Discuss and confer mans the meaningful and timely discussion with careful consideration of the views of each party's cultural values and, where feasible, seeking agreement.
9. Whenever the NAHC is unable to identify a MLD, or the MLD identified fails to make a recommendation, or the property owner rejects the recommendation of the MLD and mediation between the parties by NACH fails to provide measures acceptable to the property owner, then the property owner shall cause the re-burial of the human remains and associated grave offerings with appropriate dignity on the property in a location not subject to further subsurface disturbance.

Appendix F

Mitigation Monitoring and Reporting Program

MITIGATION MONITORING AND REPORTING PROGRAM
Water Distribution System Replacement Project

Purpose of Mitigation Monitoring and Reporting Program: The California Environmental Quality Act (CEQA), Public Resources Code Section 21081.6, requires that a Mitigation Monitoring and Reporting Program (MMRP) be established upon completing findings. CEQA stipulates that "the public agency shall adopt a reporting or monitoring program for the changes to the project which it has adopted or made a condition of project approval in order to mitigate or avoid significant effects on the environment. The reporting or monitoring program shall be designed to ensure compliance during project implementation."

This MMRP has been prepared in compliance with Section 21081.6 of CEQA to ensure that all required mitigation measures are implemented and completed according to schedule and maintained in a satisfactory manner during the construction and operation of the project, as required. A table (attached) has been prepared to assist the responsible parties in implementing the MMRP. The table identifies individual mitigation measures, monitoring/mitigation timing, the responsible person/agency for implementing the measure, and space to confirm implementation of the mitigation measures. The numbering of mitigation measures follows the numbering sequence found in the Initial Study and Mitigated Negative Declaration.

Humboldt County (County) is the lead agency for the project under CEQA and shall administer and implement the MMRP. The County is responsible for reviewing all monitoring reports, enforcement actions, and document disposition. The County shall rely on information provided by the project site observers/monitors (e.g., construction manager, project manager, biologist, archaeologist, etc.) as accurate and up-to-date and shall provide personnel to field check mitigation measure status, as required.

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MITIGATION MONITORING AND REPORTING PROGRAM
Water Distribution System Replacement Project

Mitigation Measure	Monitoring / Mitigation Timing	Reporting / Responsible Party	Verification of Compliance	
			Initials	Date
BIOLOGICAL RESOURCES				
Mitigation Measure BIO-1: Worker Environmental Awareness Training Special-status plant and wildlife species have the potential to occur within the Study Area and be impacted by construction activities. As such, a qualified biologist shall conduct environmental awareness training for all project-related personnel before the initiation of work, including vegetation removal, grubbing, or other construction activities. The training shall include information on the identification of special-status species that may be encountered, nesting birds and bird nests, and any other sensitive species or communities with the potential to occur onsite and required practices to implement before the start of construction. General measures that are being implemented to protect species that may occur onsite shall be referenced, including penalties for non-compliance, and boundaries of the permitted disturbance zones. Upon completion of the training, all construction personnel shall sign a form stating that they have attended the training and understand all the measures. Proof of this instruction shall be kept on file with the project proponent.	Before initiation of project work	Qualified Biologist; Project Construction Personnel; Project Proponent		
Mitigation Measure BIO-2: Special-Status Plants The Study Area contains suitable habitat for Bald Mountain milk-vetch, coast fawn lily, small groundcone, white-flowered rein orchid, crinkled rag lichen, Hooker's catchfly, Marble Mountain campion, and robust false lupine. To avoid potential impacts to these species, the following measures shall be implemented:	Before the initiation of any ground-disturbing activities	Qualified Botanist; Project Proponent; CDFW		

Mitigation Measure	Monitoring / Mitigation Timing	Reporting / Responsible Party	Verification of Compliance	
			Initials	Date
• A qualified botanist shall conduct a special-status plant survey within the appropriate identification (blooming) period before the initiation of any ground-disturbing activities. Based on the methodology described in the California Department of Fish and Wildlife (CDFW) Protocols for Surveying and Evaluating Impacts to Special Status Native Plant Populations and Sensitive Natural Communities (CDFW 2018), it is recommended that two botanical surveys of the Study Area spread throughout the growing season, one in May and one in July, to satisfy the blooming periods for Bald Mountain milk-vetch, coast fawn lily, small groundcone, white-flowered rein orchid, crinkled rag lichen, Hooker's catchfly, Marble Mountain campion, and robust false lupine. These surveys shall be spaced out between May and July to capture the floristic diversity at a level necessary to determine if special-status plants are present. If no special-status plants are observed, then a letter report documenting the survey results shall be prepared and submitted to the project proponent, and no further measures are recommended. • If special-status plants are observed within the Study Area, the location of the special-status plants shall be marked with pin flags or other highly visible markers and may also be marked by global positioning system (GPS). The project proponent shall determine if the special-status plant(s) onsite can be avoided by project design or utilize construction techniques to avoid impacts to the special-status plant species. All special-status plants to be avoided shall have exclusion fencing or other highly visible material marking the avoidance area, and the avoidance area shall remain in place throughout the entire construction period.				

Mitigation Measure	Monitoring / Mitigation Timing	Reporting / Responsible Party	Verification of Compliance	
			Initials	Date
• If special-status plants are found within the Study Area and cannot be avoided, the project proponent shall consult with the California Department of Fish and Wildlife (CDFW) to determine appropriate measures to mitigate the loss of special-status plant populations. These measures may include gathering seed from impacted populations for planting within nearby appropriate habitat, preserving or enhancing existing offsite populations of the plant species affected by the project, or restoring suitable habitat for special-status plant species habitat as directed by the regulatory agencies.				
Mitigation Measure BIO-3: Special-Status Fish The perennial drainage (Camp Creek) provides potential spawning and/or rearing habitat for Klamath River lamprey, coastal cutthroat trout, coho salmon, and Chinook salmon within the Study Area. Although the current project activities do not propose work within Camp Creek, potential construction activities shall potentially affect these species by increasing turbidity levels in the perennial drainage during project construction or through direct mortality associated in-stream work, if proposed in future iterations of the project design. Erosion control best management practices (BMP), such as the ones listed within the amphibian minimization and avoidance measures above, shall be implemented during and following construction to avoid sediment being placed into streams and their subsequent receiving waters. If BMP are properly implemented, the project shall be expected to have minimal temporary direct and/or indirect impacts to fish species and their habitat. If a project requires a 404 permit, the U.S. Army Corps of Engineers (USACE) would likely consult with National Marine Fisheries Service (NMFS) regarding potential impacts to these species. If a project only requires a Streambed Alteration Agreement from the California	During and following construction	Project Proponent; CDFW		

Mitigation Measure	Monitoring / Mitigation Timing	Reporting / Responsible Party	Verification of Compliance	
			Initials	Date
Department of Fish and Wildlife (CDFW), CDFW will require avoidance and minimization measures in the Streambed Agreement to avoid and minimize impacts to these species during construction. Potential avoidance and minimization measures may include but are not limited to seasonal work restrictions to avoid the spawning season of special-status fish, work setbacks from the perennial drainages, use of appropriate BMP to avoid impacts to water quality during construction and minimizing the work area adjacent to the stream to avoid water quality impacts from operation and fueling of equipment.				
Mitigation Measure BIO-4: Special-Status Amphibians The Study Area provides potentially suitable habitat for Pacific tailed frog, Del Norte salamander, foothill yellow-legged frog (FYLF), and southern torrent salamander. In the absence of the proposed mitigation measures, potential adverse effects to these protected amphibian and reptile species shall include take of individuals using upland areas for dispersal and/or refugia during construction. No direct impacts to potential habitat in Camp Creek would be anticipated as a result of the proposed project, as the project will not occur in Camp Creek or montane riparian habitat. Impacts that could harm Pacific tailed frog, Del Norte salamander, FYLF, and southern torrent salamander would be considered potentially significant. Potential indirect impacts could occur as a result of reduced water quality if contaminated runoff were to enter Camp Creek during and following construction. The following mitigation shall be implemented to avoid potential direct and indirect impacts to special-status amphibians: • Before the commencement of construction, preconstruction surveys for Pacific tailed frog, Del Norte salamander, FYLF, and southern torrent salamander shall be conducted in the Study Area within two	Before commencement of construction	Qualified Biologist; CDFW; qualified Project Personnel and/or the site foreman		

Mitigation Measure	Monitoring / Mitigation Timing	Reporting / Responsible Party	Verification of Compliance	
			Initials	Date
weeks and immediately before the initiation of construction activities to ensure that Pacific tailed frog, Del Norte salamander, FYLF, and southern torrent salamander are not actively using the Study Area or adjacent areas as a dispersal corridor. Preconstruction surveys shall be conducted by a qualified biologist familiar with all life stages and would cover all terrestrial and aquatic habitats on and immediately adjacent to the Study Area that are suitable for Pacific tailed frog, Del Norte salamander, FYLF, and southern torrent salamander dispersal. • If any life stage of Pacific tailed frog, Del Norte salamander, FYLF, and/or southern torrent salamander (e.g., egg, juvenile, or adult) is detected within the Study Area during any surveys or monitoring for the project during construction, the California Department of Fish and Wildlife (CDFW) shall be notified within 48 hours. The biologist shall monitor the animal to make sure it is not harmed and that it leaves the site on its own. Construction activities will not be allowed within 100 feet of the animal. • Clearing within the Study Area shall be confined to the minimum area necessary to facilitate construction. To ensure that construction equipment and personnel do not affect sensitive habitat outside of designated work areas, orange barrier fencing shall be erected to clearly define the habitat to be avoided. This will delineate the Environmentally Sensitive Area (ESA) on the project. The integrity and effectiveness of ESA fencing and erosion control measures shall be inspected daily. Corrective actions and repairs shall be carried out immediately for fence breaches and ineffective erosion control best management practices (BMP). • Standard construction BMP shall be implemented throughout construction to avoid and minimize adverse effects to the water				

Mitigation Measure	Monitoring / Mitigation Timing	Reporting / Responsible Party	Verification of Compliance	
			Initials	Date
quality within the Study Area. Appropriate erosion control measures shall be used (e.g., hay bales, filter fences, vegetative buffer strips, or other accepted equivalents) to reduce siltation and contaminated runoff from leaving the Study Area and entering the riparian corridor or Camp Creek. The integrity and effectiveness of the BMP shall be inspected daily by qualified project personnel and/or the site foreman. Corrective actions and repairs shall be carried out immediately. • Construction by-products and pollutants such as petroleum products, chemicals, or other deleterious materials shall not be allowed to enter Camp Creek. A plan for the emergency clean-up of any spills of fuel or other materials shall be available when construction equipment is in use. • Equipment shall be re-fueled and serviced at designated construction staging areas. All construction material and fill shall be stored and contained in a designated area that is located away from channel areas to prevent transport of materials into adjacent streams. The preferred distance is 100 feet from the wetted width of Camp Creek. In addition, a silt fence shall be installed to collect any discharge, and adequate materials shall be available for spill clean-up and during storm events. • Construction vehicles and equipment shall be monitored and maintained to prevent contamination of soil or water from external grease and oil or from leaking hydraulic fluid, fuel, oil, and grease. Leaking vehicles and equipment shall be removed from the site.				

Mitigation Measure	Monitoring / Mitigation Timing	Reporting / Responsible Party	Verification of Compliance	
			Initials	Date
• Building materials storage areas containing hazardous or potentially toxic materials such as herbicides and petroleum products shall be located outside of the 100-year flood zone, have an impermeable membrane between the ground and the hazardous material, and shall be bermed to prevent the discharge of pollutants to ground water and runoff water. The bermed area shall at a minimum have the capacity to store the volume of material placed in it. • All disturbed soils shall undergo erosion control treatment before October 15 and/or immediately after construction is terminated. Appropriate erosion control measures shall be used (e.g., hay bales, filter fences, vegetative buffer strips, or other accepted equivalents) to reduce siltation and contaminated runoff from leaving the Study Area. Erosion control blankets shall be installed on any disturbed soils steeper than a 2:1 slope or steeper. • During Project activities, all trash that may attract predators shall be properly contained, removed from the work site, and disposed of regularly. Following construction, all trash and construction debris shall be removed from work areas. • No monofilament plastic shall be used for erosion control.				
Mitigation Measure BIO-5: Northern Goshawk, Ruffed Grouse, Bald Eagle, Osprey, Other Raptors, and Migratory Birds The Study Area and adjacent areas provide suitable nesting habitat for a variety of native birds, including native songbirds and raptors. Removal of vegetation containing active nests would potentially result in destruction of eggs and/or chicks; and noise, dust, and other anthropogenic stressors in the	No more than 14 days before initiation of project construction	Qualified Biologist		

Mitigation Measure	Monitoring / Mitigation Timing	Reporting / Responsible Party	Verification of Compliance	
			Initials	Date
vicinity of an active nest could lead to forced nest abandonment and mortality of eggs and/or chicks. Needless destruction of eggs or chicks would be a violation of the California Fish and Game Code. Pre-construction surveys shall be conducted before project implementation to determine if nesting birds are present on or adjacent to the site, so that measures could be implemented if needed to avoid harming nesting birds. The following mitigation shall be implemented to reduce potential project impacts to nesting birds: • If project construction, including ground-disturbing or vegetation clearing and grubbing activities, commence during the avian breeding season (February 1 through August 31), a qualified biologist shall conduct a pre-construction nesting bird survey no more than 14 days before initiation of project construction activities. The survey area shall include suitable raptor nesting habitat within 500 feet of the project footprint (inaccessible areas outside of the Study Area can be surveyed from the site or from public roads using binoculars or spotting scopes). Pre-construction surveys are not required in areas where project construction activities have been continuous since before February 1, as determined by a qualified biologist. Areas that have been inactive for more than 14 days during the avian breeding season shall be re-surveyed before the resumption of project construction activities. If no active nests are identified, no further mitigation is required. If active nests are identified, the following measure shall be implemented: o A suitable buffer (up to 500 feet for raptors; 100 feet for passerines) shall be established by a qualified biologist				

Mitigation Measure	Monitoring / Mitigation Timing	Reporting / Responsible Party	Verification of Compliance	
			Initials	Date
around active nests and no construction activities within the buffer shall be allowed until a qualified biologist has determined that the nest is no longer active (i.e., the nestlings have fledged and are no longer reliant on the nest or the nest has failed). Encroachment into the buffer may occur at the discretion of a qualified biologist. Any encroachment into the buffer shall be monitored by a qualified biologist to determine whether nesting birds are being impacted.				
Mitigation Measure BIO-6: Northern Spotted Owl There are several documented Activity Centers and numerous observations for northern spotted owl (NSO) within two miles of the Study Area and there is potential for the species to occur in the surrounding Douglas fir forest. Before any ground-disturbing activities within 0.25 mile of suitable nesting, roosting, or foraging habitat for NSO, the following shall be followed to reduce impacts to NSO to less than significant: • A qualified biologist, familiar with the life history of the NSO, shall conduct pre-construction surveys for nests as described in the *Protocol for Surveying Proposed Management Activities That May Impact Northern Spotted Owls* (USFWS 2012). Surveys shall take place between March 15 and August 31. As per the U.S Fish and Wildlife Service (USFWS) 2012 survey protocol, a one-year, six-visit survey can apply to noise-disturbance only actions. The USFWS's 2012 survey protocol states that six visits that cover all NSO habitat within a 0.25-mile buffer of the project area will be effective until the beginning of the following breeding	Before any ground-disturbing activities	Qualified Biologist		

Mitigation Measure	Monitoring / Mitigation Timing	Reporting / Responsible Party	Verification of Compliance	
			Initials	Date
season, which is generally between February 1 to September 30. If operations are not completed by year two, three spot-check survey visits each year shall occur in years two and three or the project proponent can choose to utilize the two-year, six-visit survey protocol. o If NSO are determined to be present within 0.25 mile of the Study Area, then further mitigation measures will need to be developed as deemed satisfactory by the USFWS and CDFW. o If NSO surveys determine that no active NSO nests are present adjacent to the Study Area, then the project may proceed through the breeding season.				
Mitigation Measure BIO-7: Streamside Management Areas To comply with measure BR-P6 of the Humboldt County General Plan, development within Streamside Management Areas shall only be permitted where mitigation measures (Standards BR-S8 – Required Mitigation Measures, BR-S9 – Erosion Control, and BR-S10 – Development Standards for Wetlands) have been provided to minimize any adverse environmental effects and shall be limited to uses as described in Standard BR-S7 – Development within Streamside Management Areas (Humboldt County 2017). Further information regarding these mitigation measures is available in Chapter 10 of the Humboldt County General Plan.	During construction.	Construction Personnel; Project Proponent		

Mitigation Measure	Monitoring / Mitigation Timing	Reporting / Responsible Party	Verification of Compliance	
			Initials	Date
CULTURAL RESOURCES				
Mitigation Measure CUL-1: of Archaeological Construction Monitoring Due to the presence of numerous prehistoric and historic-era cultural resources both within the APE and in the project vicinity, a qualified archaeologist shall be retained to conduct Cultural Resource Monitoring during ground-disturbing activities associated with the project (including but not limited to grubbing, grading, shearing, and excavation). The on-site archaeologist shall then be able to examine newly exposed soils for cultural remains and/or changes in colors in exposed soils that might indicate the presence of archaeological materials. This Cultural Resource Monitor shall have "stop work" authority in the event that they believe they have encountered cultural materials and shall take daily notes and photographs documenting the construction activities observed and any cultural resources that are encountered. At the conclusion of the project, the Cultural Resource Monitor shall also provide a final monitoring report that summarizes the construction activities observed and any cultural concerns that were noted during the construction effort.	During construction; Immediately upon discovery	Qualified Archaeologist (Cultural Resource Monitor)		
Mitigation Measure CUL-2: Tribal Construction Monitoring Due to the presence of the NRHP-listed Karuk *Panamenik* Ceremonial District contributing elements within the APE, as well as the proximity of the APE's ten additional prehistoric sites within 0.5 mile of the APE, a Native American Monitor from the Karuk Tribe shall be retained to conduct tribal monitoring during initial ground-disturbing activities associated with the project (including but not limited to grubbing, grading, shearing, and excavation). This Native American Monitor shall then be able to examine newly exposed soils for cultural remains and or changes in colors in exposed soils that might indicate the presence of archaeological materials or other culturally sensitive materials. This Monitor shall have "stop work" authority in the event that they believe they have encountered cultural or otherwise sensitive materials and shall take daily notes and photographs documenting	During initial ground-disturbing activities; Immediately upon discovery	Native American Monitor from the Karuk Tribe		

Mitigation Measure	Monitoring / Mitigation Timing	Reporting / Responsible Party	Verification of Compliance	
			Initials	Date
the construction activities observed and any cultural resources that are encountered. At the conclusion of the project, this Monitor shall also provide a final monitoring report that summarizes the construction activities observed and any cultural concerns that were noted during the construction effort.				
Mitigation Measure CUL-3: Inadvertent Archaeological Discovery The following Point of Contact (POC) shall be notified immediately upon the inadvertent discovery of a potentially significant archaeological find: • Lead or On-Site Contractor(s) whose activities led to inadvertent discovery, or whose on-going work may impact significant finds. Tribal Monitor has authority to immediately halt ground disturbing activities if potentially significant finds are discovered. • Alex R. Watts-Tobin, Ph.D., Tribal Historic Preservation Officer, Karuk Tribe at (530) 627-3446. 1. Ground disturbing activities shall be immediately stopped if potentially significant prehistoric (Native American) archaeological artifacts or constitutes are discovered. Examples include, but are not limited to, prehistoric artifacts (chipped stone or obsidian, arrow points, ground stone mortars and pestles), culturally altered ash-stained midden soils, concentrations of fire-cracked rock and/or burned or charred organic materials. Ground-disturbing project activities may continue in other areas that are outside of the discovery locals. 2. An "exclusion zone" where unauthorized equipment and personnel are not permitted shall be established (e.g., taped off) around the discovery area plus a reasonable buffer zone by the monitor. 3. The discovery locale shall be secured (e.g., 24-hour surveillance) in consultation with the THPO if considered prudent to avoid further disturbances or maintain order if sensitive remains are exposed.	Immediately upon discovery	Point of Contact; Lead or On-Site Contractor; Tribal Monitor; Consulting Professional Archaeologist; THPO; County		

Mitigation Measure	Monitoring / Mitigation Timing	Reporting / Responsible Party	Verification of Compliance	
			Initials	Date
4. The monitor shall be responsible for immediately contacting by telephone the designated POCs to report the find and initiate the consultation process for its treatment and disposition: • Alex R. Watts-Tobin, Ph.D., Tribal Historic Preservation Officer, Karuk Tribe at (530) 627-3446. And in cases where a known or suspected Native American burial or skeletal remains are uncovered, the following contacts shall also be notified: • Siskiyou County Corner – Phone (530) 842-8300 • Humbolt County Corner – Phone (707) 445-7242 • Native American Heritage Commission (NAHC) in Sacramento (916) 653-4082 Ground disturbing project work at the find locality shall be suspended temporarily while the landowner's Consulting Professional Archaeologist[1] conducts a field assessment and consults with the THPO, Lead Agency, or his/her designated representative and if applicable, State Office of Historic Preservation (OHP) staff, to determine appropriate treatment and disposition of the find. Ideally, a Treatment Plan may be decided within three working days of discovery notification. Where a project can be modified to avoid disturbing the find (e.g., through project redesign), this shall be the preferred option. Should human remains be encountered, the provisions of State laws shall apply (see below). The Treatment Plan shall reference appropriate laws and include provisions of analyses, reporting, and final disposition of data recovery documentation and any collected artifacts or other archaeological constituents. Ideally, the field phase of the Treatment				

[1] Qualified Professional Archaeologist: means an individual that meets the Secretary of the Interior's Professional Standards for an Archaeologist Principal Investigator and/or are listed as Registered Professional Archaeologists (see website at www.rpanet.org).

Mitigation Measure	Monitoring / Mitigation Timing	Reporting / Responsible Party	Verification of Compliance	
			Initials	Date
Plan may be accomplished within five (5) business days after its approval; however, circumstances may require longer periods for data recovery. 5. The landowner, its employees and agents including Contractors, shall be obligated to protect significant cultural resource discoveries and may be subject to prosecution if applicable State or Federal laws are violated. In no event shall unauthorized persons collect artifacts. 6. Any and all inadvertent discoveries shall be considered strictly confidential, with information about their location and nature being disclosed only to those with a need to know.				
Mitigation Measure CUL-4: Inadvertent Discovery of Native American Remains and Grave Goods The following policies and procedures for treatment and disposition of inadvertently discovered Native American remains shall apply. 1. If human remains are encountered, they shall be treated with dignity and respect as due to them. Discovery of Native American remains is a very sensitive issue and serious concern of affiliated Native Americans. Information about such a discovery shall be held in confidence by all project personnel on a need-to-know basis. The rights of Native Americans to practice ceremonial observances on sites, in labs an around artifacts shall be upheld. 2. Violators of Section 7050.5 of the California Health and Safety Code may be subject to prosecution to the full extent of applicable law (felony offense). In the event that known or suspected Native American remains are encountered, the above procedures of SOP Part A for Inadvertent Archaeological Discovery (General) shall be followed (including notifications to those identified in A-4(a-e)), in addition to the provisions of California law (Section 7050.5 of the California Health and Safety	Immediately upon discovery	County Coroner; NAHC; MLD; Property Owner		

Mitigation Measure	Monitoring / Mitigation Timing	Reporting / Responsible Party	Verification of Compliance	
			Initials	Date
Code and Section 5097.98 of the California Public Resources Code), as follows. 3. The Coroner has two (2) working days to examine the remains after being notified of the discovery. If the remains are Native American, the Coroner has 24 hours (2 days) to notify the NAHC. 4. The NAHC is responsible for identifying and immediately notifying the Most Likely Descendant (MLD) of the deceased Native American. (Note: NAHC policy holds that the Native American Monitor will not be designated the MLD.) 5. Within 24 hours (2 days) of their notification by the NAHC, the MLD will be permitted by the property owner of the discovery locale to inspect the discovery site if they so choose. 6. Within 24 hours (2 days) of their notification by the NAHC, the MLD may recommend to the property owner or his/her designated agent, as applicable, the means for treating or disposing, with appropriate dignify, the human remains and any associated grave goods. The recommendation may include the scientific removal and non-destructive or destructive analysis of human remains and items associated with Native American burials. Only those treatments recommended by the MLD may be considered and carried out (i.e., no photographs, analyses, etc. without MLD agreement). 7. If the landowner does not accept the descendant's recommendations, the owner or descendent may request mediation by the NAHC. 8. Discuss and confer mans the meaningful and timely discussion with careful consideration of the views of each party's cultural values and, where feasible, seeking agreement. **9.** Whenever the NAHC is unable to identify an MLD, or the MLD identified fails to make a recommendation, or the property owner rejects the recommendation of the MLD and mediation between the parties by NAHC fails to provide measures acceptable to the property owner, then the property owner shall cause the re-burial of the human remains and				

Mitigation Measure	Monitoring / Mitigation Timing	Reporting / Responsible Party	Verification of Compliance	
			Initials	Date
associated grave offerings with appropriate dignify on the property in a location not subject to further subsurface disturbance.				
GEOLOGY AND SOILS				
Mitigation Measure GEO-1: Identification of Paleontological Resource During Project Construction In the event a paleontological or other geologically sensitive resources (such as fossils or fossil formations) are identified during any phase of project construction, all excavations within 100-feet of the find shall be temporarily halted until the find is examined by a qualified paleontologist, in accordance with Society of Vertebrate Paleontology standards. The paleontologist shall notify the appropriate representative at Humboldt County who shall coordinate with the paleontologist as to any necessary investigation of the find. If the find is determined to be significant under CEQA, the County shall implement those measures which may include avoidance, preservation in place, or other appropriate measures, as outlined in Public Resources Code Section 21083.2	Immediately upon discovery	Qualified Paleontologist; County		
NOISE				
Mitigation Measure NOI-1: Construction Related Noise The following shall be implemented during construction activities: • The operation of tools or equipment used in construction, drilling, repair, alternation, or demolition shall occur between the hours of 8 a.m. and 5 p.m. Monday through Friday, and between 9 a.m. and 5 p.m. on Saturdays. • No heavy equipment related to construction activities shall be allowed on Sundays or holidays.	During construction activities	Construction personnel		

Mitigation Measure	Monitoring / Mitigation Timing	Reporting / Responsible Party	Verification of Compliance	
			Initials	Date
• All stationery and construction equipment shall be maintained in good working order and fitted with factor approved muffler systems.				
TRIBAL CULTURAL RESOURCES				
Mitigation Measure TCR-1: Inadvertent Archaeological Discovery The following Point of Contact (POC) shall be notified immediately upon the inadvertent discovery of a potentially significant archaeological find: • Lead or On-Site Contractor(s) whose activities led to inadvertent discovery, or whose on-going work may impact significant finds. Tribal Monitor has authority to immediately halt ground disturbing activities if potentially significant finds are discovered. • Alex R. Watts-Tobin, Ph.D., Tribal Historic Preservation Officer, Karuk Tribe at (530) 627-3446. 1. Ground disturbing activities shall be immediately stopped if potentially significant prehistoric (Native American) archaeological artifacts or constitutes are discovered. Examples include, but are not limited to, prehistoric artifacts (chipped stone or obsidian, arrow points, ground stone mortars and pestles), culturally altered ash-stained midden soils, concentrations of fire-cracked rock and/or burned or charred organic materials. Ground-disturbing project activities may continue in other areas that are outside of the discovery locals. 2. An "exclusion zone" where unauthorized equipment and personnel are not permitted shall be established (e.g., taped off) around the discovery area plus a reasonable buffer zone by the monitor. 3. The discovery locale shall be secured (e.g., 24-hour surveillance) in consultation with the THPO if considered prudent to avoid further disturbances or maintain order if sensitive remains are exposed.	Immediately upon discovery	Point of Contact; Lead or On-Site Contractor; Tribal Monitor; Consulting Professional Archaeologist; THPO; County		

Mitigation Measure	Monitoring / Mitigation Timing	Reporting / Responsible Party	Verification of Compliance	
			Initials	Date
4. The monitor shall be responsible for immediately contacting by telephone the designated POCs to report the find and initiate the consultation process for its treatment and disposition: • Alex R. Watts-Tobin, Ph.D., Tribal Historic Preservation Officer, Karuk Tribe at (530) 627-3446. And in cases where a known or suspected Native American burial or skeletal remains are uncovered, the following contacts shall also be notified: • Siskiyou County Corner – Phone (530) 842-8300 • Humbolt County Corner – Phone (707) 445-7242 • Native American Heritage Commission (NAHC) in Sacramento (916) 653-4082 Ground disturbing project work at the find locality shall be suspended temporarily while the landowner's Consulting Professional Archaeologist[2] conducts a field assessment and consults with the THPO, Lead Agency, or his/her designated representative and if applicable, State Office of Historic Preservation (OHP) staff, to determine appropriate treatment and disposition of the find. Ideally, a Treatment Plan may be decided within three working days of discovery notification. Where a project can be modified to avoid disturbing the find (e.g., through project redesign), this shall be the preferred option. Should human remains be encountered, the provisions of State laws shall apply (see below). The Treatment Plan shall reference appropriate laws and include provisions of analyses, reporting, and final disposition of data recovery documentation and any collected artifacts or other archaeological constituents. Ideally, the field phase of the Treatment				

[2] Qualified Professional Archaeologist: means an individual that meets the Secretary of the Interior's Professional Standards for an Archaeologist Principal Investigator and/or are listed as Registered Professional Archaeologists (see website at www.rpanet.org).

Mitigation Measure	Monitoring / Mitigation Timing	Reporting / Responsible Party	Verification of Compliance	
			Initials	Date
Plan may be accomplished within five (5) business days after its approval; however, circumstances may require longer periods for data recovery. 5. The landowner, its employees and agents including Contractors, shall be obligated to protect significant cultural resource discoveries and may be subject to prosecution if applicable State or Federal laws are violated. In no event shall unauthorized persons collect artifacts. 6. Any and all inadvertent discoveries shall be considered strictly confidential, with information about their location and nature being disclosed only to those with a need to know.				
Mitigation Measure TCR-2: Inadvertent Discovery of Native American Remains and Grave Goods The following policies and procedures for treatment and disposition of inadvertently discovered Native American remains shall apply. 1. If human remains are encountered, they shall be treated with dignity and respect as due to them. Discovery of Native American remains is a very sensitive issue and serious concern of affiliated Native Americans. Information about such a discovery shall be held in confidence by all project personnel on a need-to-know basis. The rights of Native Americans to practice ceremonial observances on sites, in labs an around artifacts shall be upheld. 2. Violators of Section 7050.5 of the California Health and Safety Code may be subject to prosecution to the full extent of applicable law (felony offense). In the event that known or suspected Native American remains are encountered, the above procedures of SOP Part A for Inadvertent Archaeological Discovery (General) shall be followed (including notifications to those identified in A-4(a-e)), in addition to the provisions of California law (Section 7050.5 of the California Health and Safety Code and Section 5097.98 of the California Public Resources Code), as follows.	Immediately upon discovery	County Coroner; NAHC; MLD; Property Owner		

Mitigation Measure	Monitoring / Mitigation Timing	Reporting / Responsible Party	Verification of Compliance	
			Initials	Date
3. The Coroner has two (2) working days to examine the remains after being notified of the discovery. If the remains are Native American, the Coroner has 24 hours (2 days) to notify the NAHC. 4. The NAHC is responsible for identifying and immediately notifying the Most Likely Descendant (MLD) of the deceased Native American. (Note: NAHC policy holds that the Native American Monitor will not be designated the MLD.) 5. Within 24 hours (2 days) of their notification by the NAHC, the MLD will be permitted by the property owner of the discovery locale to inspect the discovery site if they so choose. 6. Within 24 hours (2 days) of their notification by the NAHC, the MLD may recommend to the property owner or his/her designated agent, as applicable, the means for treating or disposing, with appropriate dignify, the human remains and any associated grave goods. The recommendation may include the scientific removal and non-destructive or destructive analysis of human remains and items associated with Native American burials. Only those treatments recommended by the MLD may be considered and carried out (i.e., no photographs, analyses, etc. without MLD agreement). 7. If the landowner does not accept the descendant's recommendations, the owner or descendent may request mediation by the NAHC. 8. Discuss and confer mans the meaningful and timely discussion with careful consideration of the views of each party's cultural values and, where feasible, seeking agreement. 9. Whenever the NAHC is unable to identify an MLD, or the MLD identified fails to make a recommendation, or the property owner rejects the recommendation of the MLD and mediation between the parties by NAHC fails to provide measures acceptable to the property owner, then the property owner shall cause the re-burial of the human remains and associated grave offerings with appropriate dignify on the property in a location not subject to further subsurface disturbance.				