

**SOUTH TAHOE PUBLIC UTILITY DISTRICT
DISTRICT-WIDE RIGHT-OF-WAY
WATER AND SEWER FACILITIES UPGRADE PROJECT**

INITIAL STUDY

September 2021

SIERRA ECOTONE SOLUTIONS LLC
ZEPHYR COVE, NV

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INITIAL STUDY

for the

South Tahoe Public Utility District

District-wide Right-of-Way

Water and Sewer Facilities Upgrade Project

PROJECT NAME

South Tahoe Public Utility District District-wide Right-of-Way Water and Sewer Facilities Upgrade Project

LEAD AGENCY

The South Tahoe Public Utility District (District), located in South Lake Tahoe, California, will serve as the Lead Agency for the District District-wide Right-of-Way Water and Sewer Facilities Upgrade Project for this Initial Study in accordance with the California Environmental Quality Act (CEQA).

This Initial Study was prepared under contract with the District by Sierra Ecotone Solutions LLC, PO Box 1297, Zephyr Cove, NV 89448.

PROJECT SUMMARY

Over the next 10 years the South Tahoe Public Utility District is planning to replace over 39,000 linear feet of existing water mains and to rehabilitate or replace over 42,000 linear feet of existing sewer mains located within the Service Area in paved roadways in the Right-of-Way. This District-wide Right-of-Way Water and Sewer Facilities Upgrade Project (Project) will improve water supply and provide an increased level of service and enhanced fire protection within the community the District serves. The vast majority of existing waterlines are small diameter (8-inch and under) and are near the end of their useful life. The waterline replacement program will increase water efficiency by replacing leaking pipes and improve fire protection capacity by upsizing small diameter pipes and adding fire hydrants where there currently are none. The sewer pipeline

rehabilitation program will repair existing pipes using lining techniques that cause minimal disturbance to the environment. This rehabilitation will extend the useful life of the facilities, minimize stormwater entering the sewer system, and minimize the potential for blockage, spills and leakage. Where rehabilitation is not an effective measure, sewer lines will be replaced. Manholes will also be repaired or replaced as part of the Project.

PROJECT CONTACT INFORMATION

If you have further questions or require additional information regarding this matter, please contact Julie Ryan, Engineering Department Manager at (530) 544-6474.

South Tahoe Public Utility District
1275 Meadow Crest Drive
South Lake Tahoe, CA 96150

Email: jryan@stpud.dst.ca.us

ENVIRONMENTAL FACTORS POTENTIALLY AFFECTED

If environmental factors are checked below, there would be at least one impact that is a "Potentially Significant Impact" as indicated by the checklist in Chapter 2 of this Initial Study.

<input type="checkbox"/> Aesthetics	<input type="checkbox"/> Agricultural Resources	<input type="checkbox"/> Air Quality
<input type="checkbox"/> Biological Resources	<input type="checkbox"/> Cultural Resources	<input type="checkbox"/> Geology Resources
<input type="checkbox"/> Greenhouse Gas Emissions	<input type="checkbox"/> Hazards and Hazardous Materials	<input type="checkbox"/> Hydrology/Water Quality
<input type="checkbox"/> Land Use Planning	<input type="checkbox"/> Mineral Resources	<input type="checkbox"/> Noise
<input type="checkbox"/> Population/Housing	<input type="checkbox"/> Public Services	<input type="checkbox"/> Recreation
<input type="checkbox"/> Transportation/Traffic	<input type="checkbox"/> Utilities/Service Systems	<input type="checkbox"/> Mandatory Findings of Significance

Chapter 1. PROJECT DESCRIPTION

1.1 INTRODUCTION AND PROJECT BACKGROUND

1.1. A Purpose and Need

The South Tahoe Public Utility District (District) owns and operates the water distribution system and the waste water collection and treatment system within its Service Area (**Figure 1**). The water distribution system serves over 16,000 residential connections and 660 commercial and government connections. The waste water collection and treatment system includes over 330 miles of sewer lines and 17,000 connections. The District has conducted condition assessments of these existing water and sewer lines primarily based on age and other specifications such as diameter or piping material. The District has identified a large number of existing water mains and lateral pipelines that are small diameter (8-inch and under) and nearing the end of their useful life. These pipes reduce water efficiency through minor leaks and limit the capacity to meet existing demand within the Service Area. The District has also identified a large number of sewer mains and lateral pipelines that are aging and at risk of blockage, spills and leakage. The useful life of these facilities is of limited duration unless they are repaired and upgraded.

The District maintains a robust infrastructure replacement program and over the next 10 years is planning to replace over 39,000 linear feet of existing waterlines and to rehabilitate or replace over 42,000 linear feet of existing sewer lines located within paved roadways in the Right-of-Way (ROW). The Project Area includes the District's assets (water and sewer mains) located within the ROW that need to be replaced or rehabilitated over the next 10 years (**Figure 2**).

The purpose of the District-wide Right-of-Way Water and Sewer Facilities Upgrade Project (Project) is to provide an increased level of service and enhanced fire protection capability within the community the District serves. The waterline replacement program will increase water efficiency and improve fire protection by upsizing small diameter pipes and adding fire hydrants where there currently are none. The installation of new fire hydrants within the Service Area is necessary to meet fire standards that require developed properties to be no more than 250 feet from a fire hydrant and undeveloped properties to be no more than 500 feet from a fire hydrant. The sewer pipeline rehabilitation program will repair existing pipes using lining techniques that cause minimal disturbance to the environment. This rehabilitation will extend the useful life of the facilities, minimize stormwater entering the sewer system, and minimize the potential for blockage, spills and leakage. Where rehabilitation is not an effective measure, sewer mains and laterals will be replaced. Manholes in need of repair will be rehabilitated or replaced.

1.1. B Project Background

The Districts' Field Operations consists of four separate departments: Equipment Repair, Underground Repair Sewer, Underground Repair Water, and Water and Sewer Operations "Pumps". In addition to the day-to-day maintenance activities described below, these departments work with contractors hired by the District on projects to upgrade the water and sewer systems,

and will work with selected contractors on the District-wide Right-of-Way Water and Sewer Facilities Upgrade Project (Project).

The Equipment Repair Department maintains all of the District's engine driven equipment including vehicles, heavy equipment, generators, and mobile equipment. The Underground Repair Sewer Department is responsible for the maintenance of the District's 314 miles of gravity collection lines, 22 miles of force mains, 6,556 manholes and 42 sewer pump stations. Besides the normal day to day duties of hydro cleaning, rodding and TV inspection, they also make line repairs and install new sewer laterals. The Underground Repair Water Department is responsible for the maintenance of the District's 253 miles of potable water lines. Work includes maintenance, leak repair, and service installation including fire hydrants and system valves. . The Water and Sewer Field Operations Department operates and maintains drinking water wells, booster stations, pressure reducing stations, water storage tanks, and sewage pump stations. The entire water system is divided into 28 pressure zones. All District crew members hold California Department of Health Services Distribution certifications

Annually, the District develops a ten-year Capital Improvement Program (CIP) that identifies and prioritizes capital projects. Every year, the 10-year CIP is re-evaluated based on current needs and the adopted budget. The District has a number of funding sources that allows it to manage the water and sewer facilities and serve the customers in its jurisdiction includes customer fees, property tax receipts, external sources (El Dorado County Water Agency, grant monies, FEMA reimbursements), and investment income. The annual scope of work and schedule that would be implemented for the proposed Project would depend on the budgeting and planning process in the CIP.

1.1.C Project Location

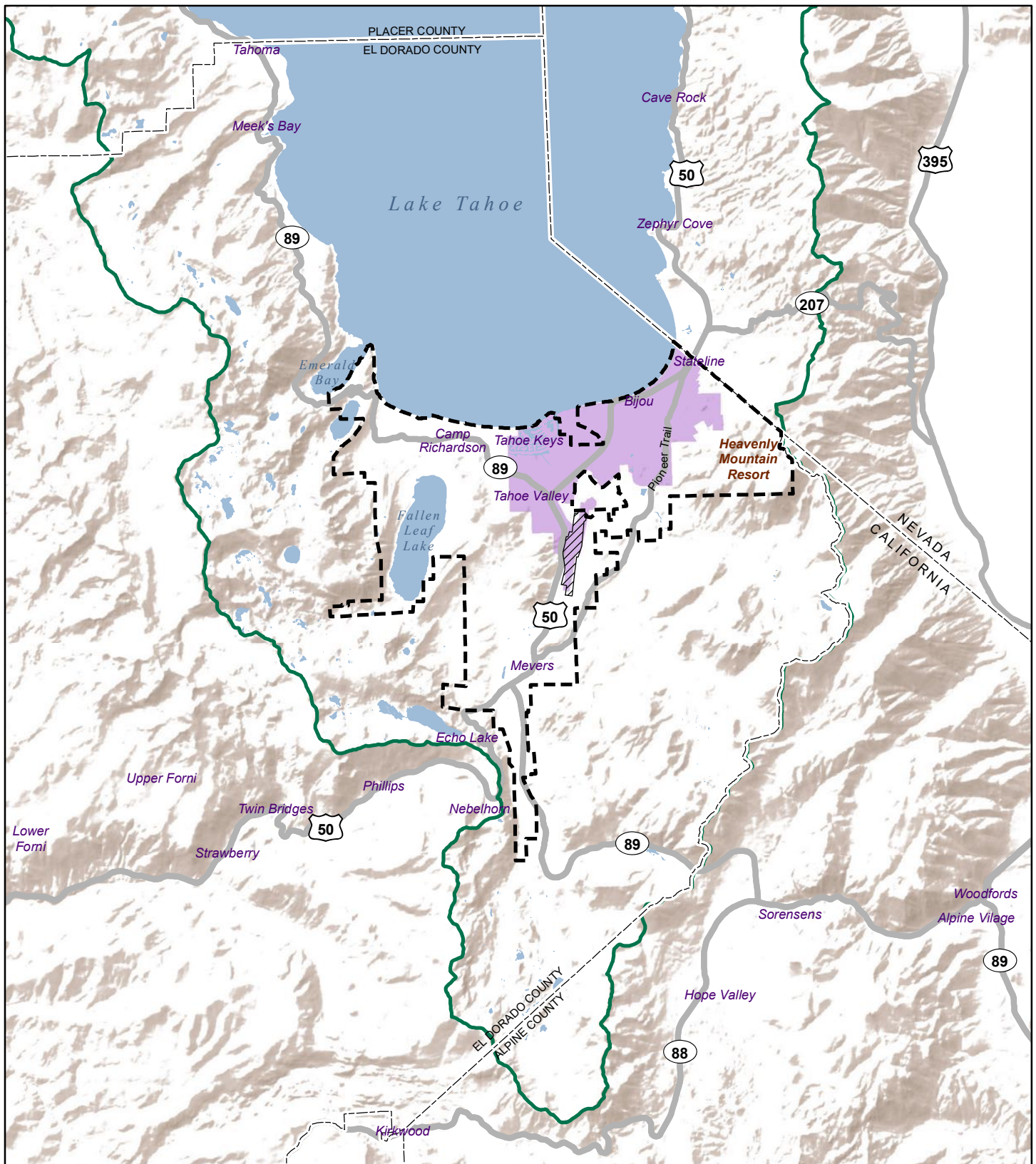
The Project is located in California on the south shore of Lake Tahoe in and around the City of South Lake Tahoe within the District's Service Area (**Figure 1**). The Service Area includes portions of El Dorado County within Tahoe Basin, Hwy 89 North to Cascade Lake, Hwy 89 South to Luther Pass, Hwy 50 East to Nevada state line, and Hwy 50 West to Echo Lake. The Service Area excludes land zoned for conservation of the Upper Truckee Marsh occurring north of the airport and at the outflow to Lake Tahoe. The Project Area (**Figure 2**) shows the location of the District's assets (existing water and sewer mains) located within the ROW that will need to be replaced or rehabilitated over the next 10 years as part of the Project. The Project excludes ROW within the Service Area that lacks existing assets and also excludes all water and sewer lines within the ROW that are within a 250-foot buffer from a major stream, creek, or stream environment zone (SEZ). The exclusion was applied to reduce the potential of the Project to have significant impacts to the natural environment.

The Project Area is contained within the following United State Geological Society (USGS) 7.5 Minute Quadrangle Topographic Maps: South Lake Tahoe, Emerald Bay, and Echo Lake. The Project Area occurs within Townships 11N to 13N and Ranges 17E to 19E on the Mt Diablo Meridian.

1.1.D General Plan Designation, Zoning and Surrounding Land Use

Regional land uses within the District's Service Area include commercial, residential, mixed use, recreation, resort recreation, open space, conservation, and the tourist core area in California. A large number of Area Plans, Community Plans, and Plan Area Statements are in effect within the

FIGURE 1. PROJECT VICINITY



LEGEND

- STPUD Service Area
- City of South Lake Tahoe
- State/County Boundary
- TRPA Boundary
- Lake Tahoe Airport

Sources: STPUD; ArcGIS Online Shaded Relief Map Service. Map date: November 12, 2020.



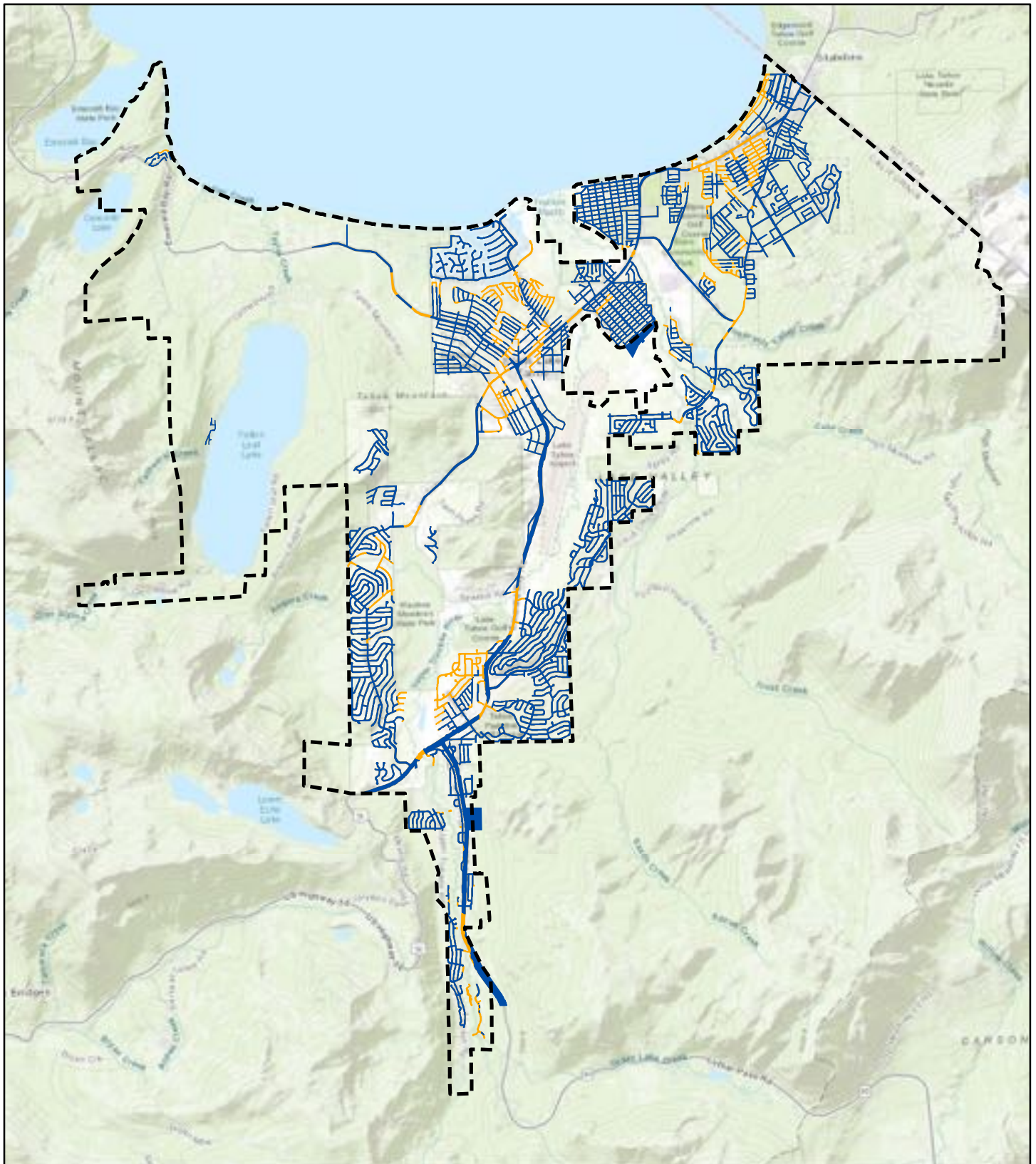
STPUD SEWER AND WATER PIPE NETWORK

Figure 1. Project Vicinity






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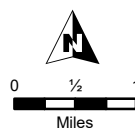
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LEGEND

-  STPUD Service Area
-  Asset Right-of-Way (Project)
-  Other Right-of-Way (excluded from Project)

Sources: STPUD; ArcGIS Online Topographic Map Service. Map date: November 12, 2020. Revised: September 29, 2021.



STPUD SEWER AND WATER PIPE NETWORK

Figure 2. Project Area



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Service Area. Zoning designations within the Service Area are also comprehensive. However, the Project Area only includes the easement area of the ROW within the streets of the City of South Lake Tahoe and the roads in the unincorporated parts of El Dorado County within the Service Area. The majority of the ROW within the Project Area is located in residential neighborhoods and mixed use commercial areas.

1.2 DESCRIPTION OF PROJECT

The purpose of the District-wide Right-of-Way Water and Sewer Facilities Upgrade Project (Project) is to provide an increased level of service and enhanced fire protection capability within the community the District serves. Over the next 10 years, the District is planning to replace over 39,000 linear feet of existing waterlines and to rehabilitate or replace over 42,000 linear feet of existing sewer lines located within its Service Area. The water and sewer lines that would be replaced or rehabilitated are located exclusively within paved roadways in the Right-of-Way (ROW). The Project Area includes the portion of the District's service area located within a ROW with water or sewer lines and excludes lines within the ROW that are within a 250-foot buffer from a major stream, creek, or stream environment zone (SEZ) (**Figure 2**). The exclusion was applied to reduce the potential of the Project to have significant impacts to the natural environment. The Project components include waterline replacement, sewer pipeline rehabilitation/replacement, manhole rehabilitation/replacement, and the installation of new fire hydrants in areas where there currently are none. Each of these components are described in further detail below.

1.2.A Project Components

Waterline Replacement

The District has conducted hydraulic capacity and condition assessments of existing waterlines, primarily based on diameter and pressure, but also age, or piping material. A large number of existing water mains and lateral pipelines were identified that are either small diameter (8-inch and under) or nearing the end of their useful life. The waterline replacement program would improve water supply by upsizing small diameter pipes and increase water efficiency by replacing aging pipelines that leak.

Waterlines that would be replaced include mains and service laterals. The replacement would begin with pipeline trenching and excavation within the road. A section of new mainline would be installed along with "in line" appurtenances and might include pressure relief valves (PRV), pressure relief stations, or meters. Generally, these projects entail installation of a vault or manhole in the street or compacted road shoulder with the mechanical equipment installed inside. A PRV might also include a roadside control panel in a box. Each completed section would be tested for leakage and disinfected. After testing, the new mainline would be tied into the existing system and the new services would be tied to the existing services at the property. The portion of the system being replaced would generally remain in service until the new system has been tied in. Then the old system would be abandoned in place. Upon completion of the install, the trenches would be backfilled and the roadway replaced.

Sewer pipeline Rehabilitation/Replacement

Sewer services, which are owned by the customers and not by the District, would be rehabilitated or replaced, depending on the condition of the existing laterals or other project-specific considerations. Where feasible, the sewer pipeline rehabilitation program would repair existing pipes using lining techniques that cause minimal disturbance to the environment. This rehabilitation would extend the useful life of the facilities, minimize stormwater entering the sewer system, and minimize the potential for blockage, spills and leakage.

Sewer lines that would be repaired include force mains, gravity mains, and laterals. The repair method would utilize Cured-in-Place-Pipe (CIPP). CIPP is a method of trenchless rehabilitation and restoration that involves inserting and running a felt lining into a preexisting pipe. The lining uses a textile liner tube and a liquid resin. The textile liner is impregnated with an epoxy based resin mixture. Resin within the liner is then exposed to a curing element to make it attach to the inner walls of the pipe. The curing element (water, steam or UV) activates the resin causing it to harden, creating a fitted, smooth, and corrosion-resistant new pipe wall. Once fully cured, the lining acts as a new pipeline. The process can be used on both mains and laterals.

Where rehabilitation is not an effective measure, sewer mains and laterals will be replaced. Pipeline replacement would entail trenching and excavation within the road. A section of new sewer line would be installed along with “in line” appurtenances. Each completed sewer line would be tested for leakage and checked for alignment. After testing, the new mainline would be tied into the existing system and any new services would be tied to the existing services at the property. The portion of the system being replaced would generally remain in service until the new system has been tied in. Then the old system would be abandoned in place. Upon completion of the install, the trenches would be backfilled and the roadway replaced.

Manhole Rehabilitation/Replacement

For a manhole that can be repaired, there are typically three rehabilitation options: cured-in-place pipe (CIPP), spray- or hand-applied polymer linings, or cementitious mortar linings. The repair method selected depends on the condition of the manhole and other factors.

To use a CIPP liner, there needs to be a hole that is large enough for the system to fit into; sometimes the chimney of the manhole must be removed to gain exposure to the largest diameter of the pipe. Additionally, a seal at the bottom of the manhole is required to prevent material getting between the CIPP liner and existing manhole during the joining process. This method is best suited for manholes with pipes larger than 36-inch diameter. A downside is that the repair process requires a larger footprint to complete the job than alternative methods. However, with repairs occurring exclusively in the ROW this would not be a concern.

Spray- or hand-applied polymer linings include epoxies or polyurethanes. An advantage of polymer linings—as well as CIPP liners—is that they are very chemically resistant if the liner stays fully intact. For the liner to stay fully intact, the system must dry perfectly and there can be no water present on the interior structure of the manhole itself.

If the manhole needing repair has significant corrosion, complete manhole replacement can be done by digging out the existing manhole and replacing it with a precast concrete structure or an

HDPE insert. Reconstructing the original shape of the manhole requires use of a cementitious mortar. This additional work requires several extra days for the cement to cure to ensure sufficient strength to support the repair.

New Fire Hydrant Installation

The installation of new fire hydrants within the Service Area is necessary to meet fire standards that require developed properties to be no more than 250 feet from a fire hydrant and undeveloped properties to be no more than 500 feet from a fire hydrant. A minimum of 16 new hydrants would be installed. As funding levels increase, approximately 100 additional hydrants would be installed in fire deficient areas over the next 10 years.

1.2.B Construction Phasing, Schedule and Equipment

Construction could begin in 2021 and continue to 2031. Project phasing would be dependent on the District's 10-year Capital Improvement Plan that identifies and prioritizes capital projects. The 10-year capital improvement plan is re-evaluated every year based on current needs and the adopted budget.

Construction would typically be implemented during the TRPA construction season for earth moving activities between May 1st and October 15th. Work outside of these dates would require a TRPA Grading Season Exception. On-site work would be performed from 8 am to 6 pm Monday through Friday. Work outside these hours would be approved by the District a minimum of 48-hours before the abnormal working hours are scheduled to begin.

General construction equipment that would be utilized for waterline and sewer line projects include excavator, mini-excavator, loader, water truck, service vehicles, small remote sheep's-foot compactor, vacuum truck, sweeper, milling machine, smooth drum compactor, and a paving machine. Specialized equipment would also be required for CIPP and spray-on liner systems, when included in the project scope. All but the paving equipment (the last 3 on the list) are used every day. A one-mile project typically takes 120 days to complete and 200 days for a two-mile project.

1.2.C Earthwork and Excavations

Earthwork and excavations that result in temporary disturbance will be necessary for Project implementation. Pipeline trenches are expected to be 3-5 feet wide and will only be excavated within the ROW. Waterline trenches generally require excavations of 5 feet deep, while sewer trench depths are more dependent on terrain and can be anywhere from 4 to 15 feet deep or more. Within the City ROW, City of South Lake Tahoe staff may conduct additional soil testing of backfill. Quality assurance measures will be detailed in the construction contract.

1.2.C.2 Pipeline and Utility Trenching and Excavations

The contractor shall be responsible for contacting all utility companies, local agencies and/or utility districts as to the location of all underground facilities. Location and depth of existing utilities where shown on plans are based on best available information. No guarantee is made as to the accuracy of this information or that all utilities are shown. It shall be the contractor's responsibility to locate,

protect, and maintain all existing utilities. The contractor or any subcontractor for this contractor shall notify members of underground service alert 48 hours in advance of performing excavation work by calling underground service alert 811. Excavation is defined as being 18 or more inches of depth below the existing surface.

The contractor shall pothole all utility and storm drain crossings along the pipeline alignment in advance of installation. The contractor shall report the results of the pothole in writing to the engineer 48 hours (not to include weekends or holidays) prior to undertaking any corrective action. Should any corrective work be done prior to notification, the District assumes no liability for the costs incurred for this work.

All interties between new water mains and the existing water system, including new water service connections, and fire hydrant installations and transfers, shall only be made after all pressure testing and disinfection requirements are satisfactorily met. The contractor shall be responsible to provide all blow offs necessary for flushing and sampling of all new water mains as required by the California State Water Resources Control Board and project specifications.

Where new water mains are being installed in paved sections the maximum width for asphalt replacement the contractor shall be compensated for is the maximum clear trench width for the pipeline size being installed plus twelve inches (12") in County of El Dorado right of way, twenty-four inches (24") in City of South Lake Tahoe right of way, as provided in the contract specifications. The contractor shall replace all traffic striping that is disturbed during construction.

When hot tapping a water main: contractor shall excavate, shore and shield existing water main. Contractor shall pressure test, saddle and gate valve prior to hot tap. Contractor shall provide access and traffic control for district crews to hot tap water main. All hot taps shall be done Tuesdays thru Thursdays. Contractor shall request in writing forty-eight (48) hours in advanced for district crews to perform hot tap.

1.2.C.3 Fill Materials and Placement

All excavations shall be backfilled or trench plated at the end of each day's work per the plan specifications. Excavations within existing paved areas shall be topped with minimum 6" compacted aggregate base to match the existing pavement elevation at the end of each day's work. All trench plates shall be non-skid type and have cold patch applied to the edge for traffic approach and departure.

The contractor shall provide, on all non-conductive piping, continuous insulated tracer wire rated for direct bury (#10 solid copper or # 12 copper clad steel wire along the pipeline and provide access to tracer wire at all valve boxes installations with a minimum of 1-foot excess tracer wire for future service connections. This shall also apply to all conductive piping unless permanently bonded at each joint. All tracer wire connections shall be made using 3M DBR-6 splice kit or approved equal.

All sewer pipes damaged during the execution of the project shall be repaired per plan details.

After the new main is placed into service, the existing water mains, where shown on the project drawings, are to be abandoned in place by cutting out a section of pipe and welding a cap on the end of the pipeline, or other approved method of capping. Within City limits, the City requires that pipes 6" and larger are filled with slurry and then capped before in-place abandonment. Blind-flange capping shall be utilized where possible. All exposed corporation stops on the existing water mains are to be left in place in the closed position. For corporation stops that have not been exposed, the capping of the end of the service line using an approved compression fitting shall be acceptable. Existing fire hydrants to be abandoned at the isolation valve, will be removed from the project area and returned to the District, by the contractor. The isolation valve is to be blind flanged or capped by other approved method.

All existing water services for this project shall be abandoned. Only new water and sewer service connections where shown on the project plans shall be installed per the Districts standard details and project drawings. The locations of all existing water and sewer services shall be verified and marked in the field.

1.2.C.4 Disposal of Excess Excavated Material

All excess material from the project is to be removed from the site and disposed of at a site approved by the TRPA. No excess material shall be stored on site after hours. Excavated material shall be stored upgrate from the excavated area whenever possible. No material shall be stored in any stream environment zone or wet area. Contractor shall remove all material generated by any asphalt saw cutting operation during or immediately after saw cutting by using adequately sized vacuuming equipment to accommodate the removal process.

1.2.D Site Clean Up and Restoration

All disturbed areas shall be restored to match pre-existing conditions. Unimproved areas and areas not landscaped shall be revegetated with native species in accordance with the TRPA handbook of best management practices. Existing vegetation removed during construction shall be chipped and mulched on site and stored for use during revegetation. Application of a mulch may enhance vegetative establishment. Any disturbance of private property shall be restored by the contractor at their expense. All traffic striping that is disturbed during construction shall be replaced by the contractor.

1.2.E Site Access, Staging Areas, and Parking

Contractors equipment and employee vehicles shall park on existing paved surfaces or existing compacted road shoulders. No equipment or vehicles shall be placed outside the Right-of-Way. Contractor shall provide crushed rock in areas of temporary construction access to minimize migration of sediment.

1.3 PROJECT DESIGN FEATURES AND BEST MANAGEMENT PRACTICES

The design features and best management practices (BMPs) that are detailed in Section 1.3 below are proposed as part of the Project to avoid, reduce and minimize potential direct and indirect effects of water meter installations.

1.3.A Construction Dewatering Plan

If groundwater is intercepted during some excavations, dewatering may need to be implemented onsite. The contractor shall be responsible for the handling and proper disposal of distribution system water encountered during system tie-ins in accordance with the plan specifications. The volume of water that might be encountered at each tie-in would vary according to Project location.

1.3.B Construction Equipment Emissions Control Plan

To ensure that air quality effects will be minimized, the following best management practices will be implemented to reduce emissions from construction equipment exhaust:

- Only equipment of a size and type that will do the least amount of damage, under prevailing site conditions and considering the nature of the work will be used.
- Minimize idling time (e.g., 5-minute maximum).
- Maintain properly tuned equipment according to equipment manufacturer's guidelines.
- Limit the hours of operation of heavy equipment and noise generating activities to 8AM to 6PM.

1.3.C Fugitive Dust Control Plan

The District's contractor will take the necessary steps, procedures, or means as required to prevent its operations in connection with the execution of the Work from causing abnormal dust conditions. The District's contractor will prevent dust from construction activities from being produced in amounts that may be harmful or cause a nuisance to persons living nearby or occupying buildings in the vicinity of the Project.

To ensure compliance with El Dorado County Air Quality Management District's (EDCAQMD) Rule 223 to minimize the amount of particulate matter entrained in the ambient air as a result of man-made fugitive dust sources, the following feasible Particulate Matter (PM10) control measures for construction activities will be implemented:

- The contractor shall provide a water truck to water areas as necessary for dust control. The contractor shall apply either water or a dust palliative, or both, as required to alleviate or prevent dust nuisance.
- During construction, environmental protection devices, such as erosion control, dust control and vegetation protection devices shall be maintained at all times.

- The contractor shall provide a vacuum sweeper truck for cleaning of the site during and after construction each day as required to prevent sediment run off and to aid in dust control.

1.3.D Best Management Practices to Protect Surface and Ground Water/Sediment and Erosion Control Plan

The Contractor shall comply with the State Water Resource Control Board waste water discharge requirements for the project and the City of South Lake Tahoe's encroachment permit. Implementation of individual projects covered under this Project are likely to qualify as Exempt or Qualified Exempt under TRPA regulations and therefore, would not require a pre-grade inspection. If necessary, a pre-grade inspection shall be completed prior to any saw cutting or excavation activities. To ensure that potential impacts to surface water and ground water are avoided, reduced and minimized, the following measures and BMPs will be implemented as necessary based on site conditions at individual work sites:

- During construction, environmental protection devices, such as erosion control, dust control and vegetation protection devices shall be maintained at all times.
- Soil and construction material shall not be tracked off the construction site. Grading operations shall cease in the event that this condition is in danger of being violated.
- Loose soil mounds or surface shall be protection from wind or water erosion by being appropriately covered at the end of each work day or when required by TRPA.
- The contractor shall not stock pile any material upon any drainage facilities. Excavated material shall be stored upgrade from the excavated area whenever possible. No material shall be stored in any stream environment zone or wet area.
- All excess material from the project is to be removed from the site and disposed of at a site approved by the TRPA. No excess material shall be stored on site after hours. Contractor shall remove all material generated by any asphalt saw cutting operation during or immediately after saw cutting by using adequately sized vacuuming equipment to accommodate the removal process.
- No equipment or vehicles shall be placed outside the state, city, or county right of way. Contractor shall provide crushed rock in areas of temporary construction access to minimize migration of sediment.
- The contractor shall protect and be responsible for any disturbance or contamination to any dry wells, storm water collection or retainage systems including storm drain pipe, curb & gutter, valley gutters and horizontal drains throughout the project area. Any damage shall be repaired at no additional cost to the District.

1.3.E Prevent and Control Invasive Species

To prevent the spread of invasive plant species, the following measures and BMPs will be implemented:

- Construction vehicles, including off-road vehicles, will be cleaned when they come into the Basin or come from a known invasive plant infested area. Equipment will be considered clean when visual inspection does not reveal soil, seeds, plant material, or other such debris.
- Equipment will be staged in weed-free areas to prevent vehicles from introducing or spreading invasive species.
- Earth-moving equipment, gravel, fills, or other materials are required to be weed-free. Onsite sand, gravel, rock, or organic matter will be used when possible or weed-free materials from gravel pits and fill sources that have been surveyed and approved will be used.
- Minimize the amount of ground and vegetation disturbance in the construction areas. Upon completion of construction, vegetation will be reestablished in the footprint to minimize weed establishment after the removal.

1.3.F Construction Noise Reduction

To reduce construction related noise, the following measures will be implemented:

- Noise shall be reduced by mandatory use of mufflers on all construction vehicles and equipment. Where feasible solenoid pavement breakers will be used in lieu of air powered jack hammers.
- Construction activities will be limited to the hours of 8:00 AM and 6:00 PM, pursuant to TRPA Code of Ordinances Chapter 68, Noise Limitations.

1.3.G Cultural Resources Protection

Although the Project Area has been subject to systematic surface archaeological investigations, it is possible that buried or concealed cultural resources could be present and detected during Project ground disturbance activities. In accordance with the National Historic Preservation Act of 1966, (16 U.S.C. 470), the following procedures will be implemented to ensure historic preservation. In the event previously unknown potential historical, architectural, archeological, or cultural resources (herein after cultural resources) are discovered during subsurface excavations at the site of meter installation, the following procedures will be instituted:

- If archaeological features or materials are unearthed during any phase of project activities, all work in the immediate vicinity of the find shall halt until the District has contacted the State and the significance of the resource has been evaluated. Any mitigation measures that may be deemed necessary must have the approval of the State, and shall be implemented, pursuant to the Secretary of the Interior's Standards and Guidelines for Archaeology and Historic Preservation, 48 CFR 44716, by a qualified archaeologist representing the District prior to the resumption of construction activities. Consistent with

this, the Engineer will issue a “Stop Work Order” directing the District’s contractor to cease all construction operations at the location of such potential cultural resources find.

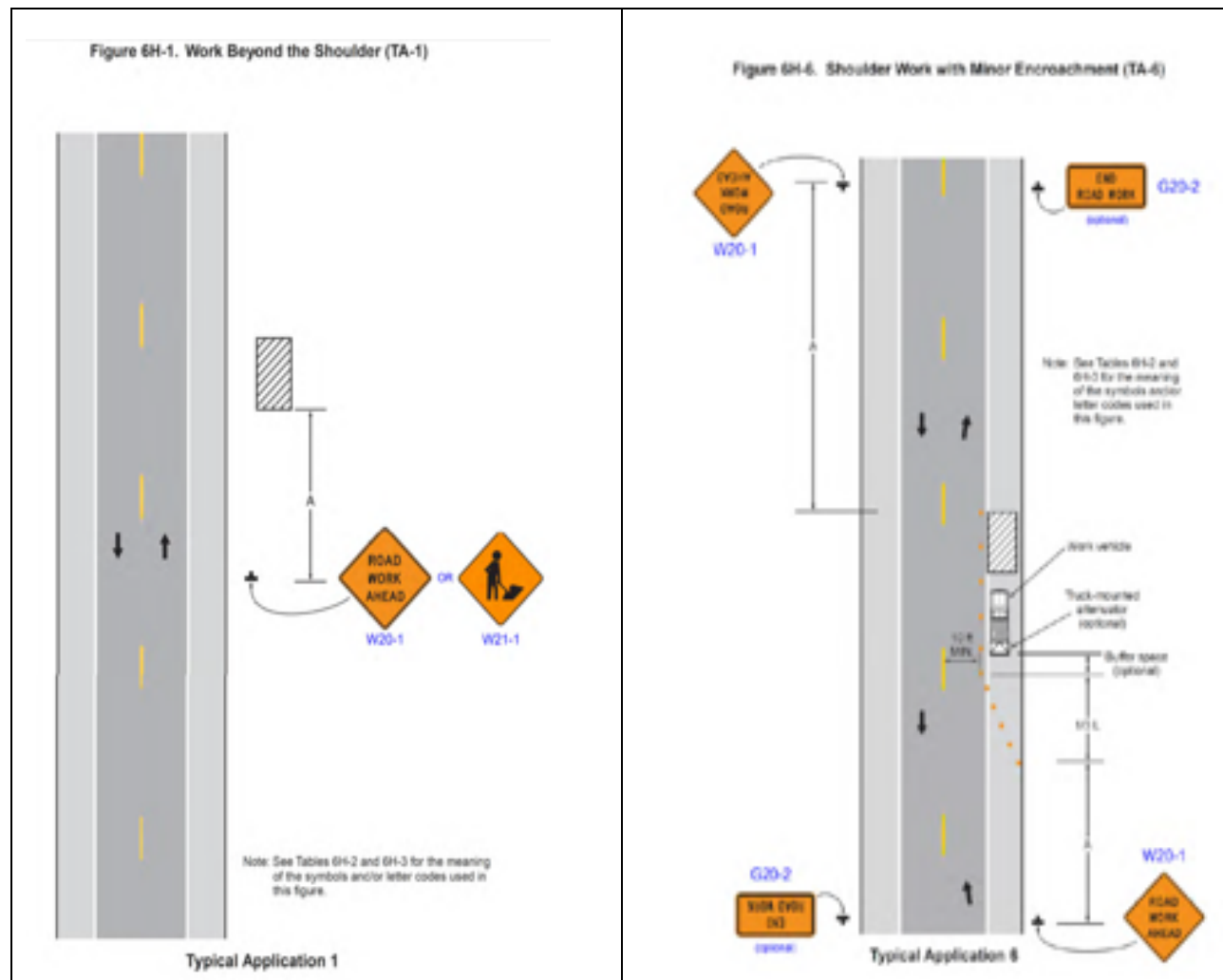
- Such “Stop Work Order” will be effective until such time as a qualified archeologist can be called to assess the value of these potential cultural resources and make recommendations to the State Office of Historic Preservation.
- If the archeologist determines that the potential find qualifies for inclusion in the National Register of Historic Places and the California Register of Historic Resources, at the direction of the State Office of Historic Preservation, the Engineer will extend the duration of the “Stop Work Order” in writing, and the District’s contractor will suspend work at the location of the find.
- In the unlikely event that human remains are encountered, all activities should be stopped immediately and the El Dorado County Coroner’s Office should be contacted. This is in compliance with California State Health and Safety Code, Section 7050.5, which states that no further disturbance shall occur until the County Coroner has made the necessary findings as to origin and disposition pursuant to California Public Resources Code, Section 5097.98.

1.3.H Traffic Control Plan

Prior to construction activity the contractor shall submit to the District for acceptance a project specific Traffic Control Plan. The Traffic Control Plan will include signage advising road users of construction activities and right of way work in accordance with the current edition of the California Manual on Uniform Traffic Control Devices (CMUTCD), which is the version of the Federal Highway Administration’s MUTCD that is amended for use in California. The contractor shall maintain the continuous flow of traffic at all times. Local traffic, in addition to emergency response vehicles, will be allowed to pass though at all times. After working hours, all traffic control devices will be removed and traffic returned to normal.

According to the CMUTCD, when construction activities Occur outside of the roadway, **Figure 3A**, Work Beyond the Shoulder (TA-1), and **Figure 3B**, Shoulder Work with Minor Encroachment (TA-6), are the most commonly used traffic control configurations that are used to allow for the free flow of traffic and ensure a safe work zone for both construction workers and the traveling public.

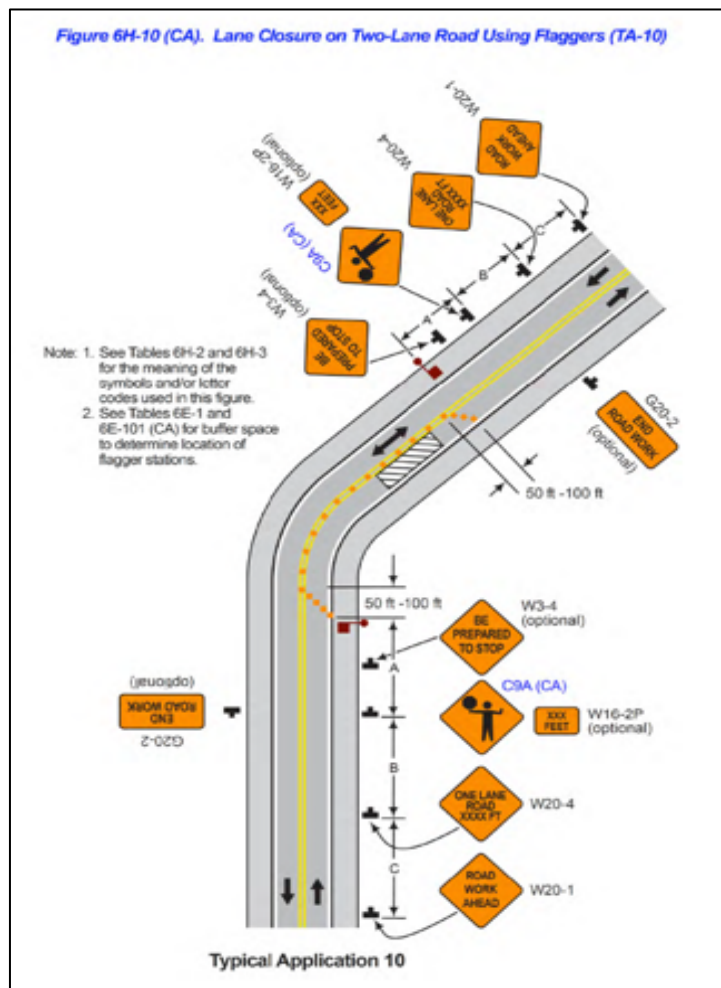
FIGURE 3A AND 3B. TRAFFIC CONTROL CONFIGURATIONS – CONSTRUCTION OUTSIDE OF ROADWAY



SOURCE: CA MUTCD

A majority of the construction for the Project will occur in or in close proximity to the roadway. The Lane Closure on Two-Lane Road Using Flaggers (TA-10) illustrated in **Figure 4** from the CA MUTCD is used for temporary lane closures. This traffic control layout allows the flaggers to maintain the continuous flow of traffic with minimal delays (less than five minutes) while maximizing both worker and public safety.

FIGURE 4. TRAFFIC CONTROL CONFIGURATION – CONSTRUCTION IN OR IN CLOSE PROXIMITY OF ROADWAY



SOURCE: CA MUTCD

1.3.I Hazard and Safety Control Plan

The District maintains a Local Hazard Mitigation Plan that satisfies federal legislation (Disaster Mitigation Act of 2000) and the California requirement for local governments to formulate and enact a pre-disaster mitigation program in order "to identify the natural hazards that impact them, to identify actions and activities to reduce any losses from those hazards, and to establish a coordinated process to take advantage of the plan, taking advantage of a wide range of resources." (44 CFR, sec. 201.1)

To ensure the protection of persons and property and to safeguard the environment the following actions, measures and BMPs will be implemented:

- Excavation on project sites from which the public is excluded will be marked or guarded in a manner appropriate to the degree of hazard.
- The District's contractor will provide suitable and adequate sanitary conveniences for the use of all persons at the site of the Work. Such conveniences will include chemical toilets or water closets and will be located at appropriate locations at the site of the Work. All sanitary conveniences will conform to the regulations of the governmental entities having jurisdiction over such matters. At the completion of the Work, all such sanitary conveniences will be removed and the site left in a sanitary condition.
- First-Aid facilities and information posters conforming, at a minimum, to the requirements of the Occupational Safety and Health Administration (OSHA) will be provided in a readily accessible location or locations.
- Construction hoists, elevators, scaffolds, stages, shoring and similar temporary facilities will be of ample size and capacity to adequately support and move the loads to which they will be subjected. Railings, enclosures, safety devices, and controls required by law or for adequate protection of life and property will be provided.
- Temporary supports will be designed with sufficient safety considerations to assure adequate load bearing capability. The District's contractor will submit design calculations by a professional registered engineer for sheeting, shoring and bracing prior to application of loads.
- The District's contractor will adequately identify and guard all hazardous areas and conditions by visual warning devices and, where necessary, physical barriers. Such devices will, at a minimum, conform to the requirements of Cal/OSHA.
- A sufficient number of fire extinguishers of the type and capacity required to protect the work and ancillary facilities will be provided in readily accessible locations.
- The District's contractor will provide labor and equipment to protect the surrounding property from fire damage resulting from construction operations.

1.3.J Migratory Bird Nest Site Protection Program

For construction activities proposed to occur during the nesting season (March 15 through August 15), and outside of paved areas, the contractor and District shall review the Project Area to identify any migratory bird nest sites that may be present. If a nest is present in the immediate vicinity, a qualified biological monitor shall be contacted to evaluate whether any migratory birds are impacted by the project. The biological monitor shall have the authority to stop construction near occupied sites if it appears to be having a negative impact on nesting migratory birds or their young. If construction must be stopped, the monitor must consult with USFWS and CDFW staff within 24 hours to determine appropriate actions to restart construction while reducing impacts to identified migratory bird nests.

1.4 PROJECT PERMITTING AND APPROVALS

For work performed within the Right-of-Way, the District is allowed access for maintenance and construction based on the Service Agreement Contracts they hold with each individual customer and the City of South Lake Tahoe. Each property owner/customer will be notified prior to work

that may interrupt water service for their respective property. Minor periods of water shut-off will occur during the installation process, which is anticipated to last less than four hours each day on a limited number of occasions during major project activities.

Tahoe Regional Planning Agency

The Tahoe Regional Planning Agency (TRPA) enters into agreements with local agencies to streamline the permitting process. These agreements allow local agencies to perform environmental review on projects for conformance with TRPA standards. The agreements are in the form of Memorandum of Understanding (MOU) that are signed by each partner. The District currently has a Memorandum of Understanding with the Tahoe Regional Planning Agency dated 23 March 2012. The District's MOU with TRPA is an MOU for Public Works Providers that allows for repair and maintenance of underground facilities without TRPA's review. This allows for increased efficiency and provides for increased protection of local and natural resources as agreed to in the MOU. The Memorandum of Understanding between Tahoe Regional Planning Agency and South Tahoe Public Utility District can be located here:

http://www.trpa.org/wp-content/uploads/FINAL_Public_Works_MOU.pdf

Attachment A, identifying STPUD on page 5 of 9 can be found here:

<http://www.trpa.org/wp-content/uploads/FINAL-Public-Works-MOU-Attachment-A.pdf>

The listing of Exempt and Qualified Exempt Activities can be found here:

http://www.trpa.org/wp-content/uploads/FINAL_Public_Works_MOU_Attachment_B.pdf

Encroachment Permits

The District must apply for a Right-of-Way Encroachment, Excavation and Grading Permit for waterline and sewer line repair and replacement within the Right-of-Way in the City of South Lake Tahoe, County of El Dorado or Caltrans, depending on the location of the ROW.. Encroachment permits generally require a BMP Plan to be implemented at all times during construction.

Water Quality Control Board

The Municipal Storm Water Program regulates storm water discharges from municipal separate storm sewer systems (MS4s) throughout California. The Phase II Permit Program serves municipalities with less than 100,000 customers. The State Water Resources Control Board (State Water Board) and Regional Water Quality Control Boards (Lahontan for this region) implement and enforce the Municipal Storm Water Program. The State Water Resources Control Board issued a General Permit for the Discharge of Storm Water from Small MS4s (Order 2003-0005-DWQ) to provide permit coverage for smaller municipalities. The Phase II Small MS4 General Permit covers Phase II permittees statewide. On February 5, 2013 the Phase II Small

MS4 General Permit was re-adopted (Order 2013-0001-DWQ) and the new requirements became effective on July 1, 2013.

Caltrans' facilities and related properties are subject to the permitting requirements of the Clean Water Act section 402(p). Caltrans' discharges consist of storm water and non-storm water discharges from State owned rights-of-way. The State Water Resources Control Board issued the statewide Permit for Caltrans, which regulates all discharges from Caltrans MS4s, maintenance facilities, and construction activities.

1.5 ENVIRONMENTAL REVIEW

1.5.A CEQA Process

This Initial Study was prepared to support a Categorical Exemption for the Project. The Project is consistent with the exemption for Class 2 Existing Facilities for the replacement or reconstruction of existing utility systems and/or facilities involving negligible or no expansion of capacity; per CCR Title 14, Section 15302 (c).

Staff will file a CEQA Notice of Exemption with the County of El Dorado and State Office of Planning and Research.

Chapter 2. Environmental Checklist

The evaluation of environmental impacts is based upon the completion of the checklist portion of the Environmental Checklist Form, and consists of the analysis of each impact issue area required under CEQA. The analysis of each checklist item identifies any significance criteria or thresholds used to evaluate each impact question, and any mitigation measure(s) identified to reduce the impact to a less-than-significant level.

This checklist identifies physical, biological, social and economic factors that might be affected by the Project. In some cases, background studies performed in connection with the Project indicate no impacts. A "No Impact" answer in the last column reflects this determination. Where there is a need for clarifying discussion, the discussion is included either following the applicable section of the checklist or is within the body of the environmental document itself. The words "significant" and "significance" used throughout the following checklist are related to CEQA, not NEPA, impacts. The questions in this form are intended to encourage the thoughtful assessment of impacts.

2.1 AESTHETICS & SCENIC RESOURCES/COMMUNITY DESIGN, LIGHT AND GLARE

2.1.A Environmental and Regulatory Settings

In 1982, TRPA surveyed the Lake Tahoe Basin's major roadways and assigned each roadway unit a travel route rating and a scenic quality rating in the TRPA Lake Tahoe Basin Scenic Resource Inventory. The travel route rating considers views of man-made features, roadway distractions, road structure, lake views, landscape views, and variety for each roadway unit. The scenic quality ratings include an inventory of visual subcomponents and specific scenic resources within each roadway unit. This rating system provides an assessment of the natural landscape based on four qualities: intactness, unity, vividness, and variety. The primary goal of both the travel route and scenic quality rating systems is to maintain or upgrade the scenic quality of the view from the road. TRPA Scenic Quality Threshold standards require roadway travel routes to attain a minimum travel route rating of 15.5 and to maintain the 1982 scenic quality rating.

The Project Area includes a mixture of public roadway ROWs that are primarily in developed residential neighborhoods and mixed use corridors. Adjacent land uses include single family and multi-family homes, undeveloped areas, and recreational facility areas. Scenic vistas are defined by CEQA as a viewpoint that provides expansive views of a highly valued landscape for the benefit of the general public defined by local plans or policies. Views from within the Project Area consist of residential neighborhoods, commercial areas, public lands, forest, and Lake Tahoe. Views of the Project Area are limited to views of public roadways.

2.1.B Checklist

CEQA Environmental Issues	Potentially Significant Impact	Less Than Significant With Mitigation	Less Than Significant Impact	No Impact
<i>Would the project:</i>				
A) Have a substantial adverse effect on a scenic vista?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
B) Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic building within a state scenic highway?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
C) Substantially degrade the existing visual character or quality of the site and its surroundings?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
D) Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

2.1.C Discussion

A) No Impact

Adverse effects to scenic vistas present within the Project Area would constitute a significant impact. The Project will replace waterlines and repair or replace sewer lines below ground surface and will result in no above ground structures, aside from new fire hydrants, that would change existing scenic conditions. Therefore, the Project would have no impact on scenic vistas.

B) No Impact

The Project will not substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway. Portions of US 50 and State Route 89 are designated as scenic highways by the State of California (<https://dot.ca.gov/programs/design/lap-landscape-architecture-and-community-livability/lap-liv-i-scenic-highways>). The Project will replace waterlines and repair or replace sewer lines below ground surface and will result in no above ground structures, aside from new fire hydrants, that would change existing scenic conditions. Therefore, the Project would have no impact on scenic resources associated with scenic highways.

C) No Impact

Substantial degradation of the existing visual character or quality of the Project Area would constitute a significant impact. Project construction will have temporary impacts within the ROW but replacement of water and sewer lines will occur underground and will not significantly degrade the existing visual character or quality of the site and its surroundings.

D) No Impact

Interference with nighttime skies from ground-level light and glare or interference with vision due to reflective glare would constitute a significant impact. The Project involves no nighttime work or lighting and would not result in a substantial source of nighttime light or glare.

2.2 AGRICULTURAL RESOURCES & FARM LANDS

2.2.A Environmental and Regulatory Settings

The State of California identifies Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), on the Important Farmlands Map prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency. Prime Farmland is defined as land with the best combination of physical and chemical features for the production of agricultural crops as based on:

- United States Department of Agriculture (USDA) Natural Resources Conservation Service Land Use Capability classifications (i.e., Class I and II);
- A rating of 80-100 on the Storie Index;
- Support of livestock used for the production of food and fiber and that has an annual carrying capacity of at least one animal unit per acre;
- Presence of fruit or nut bearing trees, vines, bushes, or crops that have a non-bearing period of less than five years and an annual commercial return not less than \$200 per acre; or
- A return from the production of unprocessed agricultural plant products at an annual gross value of not less than \$200 per acre for three of the previous 5 years.

Unique Farmland is land of lesser quality soils used for the production of the state's leading agricultural cash crops. Farmland of Statewide Importance is land with a good combination of physical and chemical features for the production of agricultural crops.

The California Land Conservation Act of 1965, commonly referred to as the Williamson Act, enables local governments to enter into contracts with private landowners for the purpose of restricting specific parcels of land to agricultural or related open space use. In return, landowners receive property tax assessments, which are much lower than normal because they are based upon farming and open space uses as opposed to full market value. The Open Space Subvention Act of 1971 provided local governments an annual subvention of forgone property tax revenues from the state through the year 2009; however, these payments have been suspended in more recent years due to revenue shortfalls.

Forest Land, as defined by Public Resources Code section 12220(g), is land that can support 10-percent native tree cover of any species, including hardwoods, under natural conditions, and that allows for management of one or more forest resources, including

timber, aesthetics, fish and wildlife, biodiversity, water quality, recreation, and other public benefits.

Timberland, as defined by Public Resources Code section 4526, means land, other than land owned by the federal government and land designated by the board as experimental forest land, which is available for, and capable of, growing a crop of trees of a commercial species used to produce lumber and other forest products, including Christmas trees.

Government Code section 51104(g)), which can be cited as the California Timberland Productivity Act of 1982, defines Timberland as privately owned land, or land acquired for state forest purposes, which is devoted to and used for growing and harvesting timber, or for growing and harvesting timber and compatible uses, and which is capable of growing an average annual volume of wood fiber of at least 15 cubic feet per acre.

Timberland zoned for Timberland Production, or Timberland production zone or "TPZ" means an area which has been zoned pursuant to Section 51112 or 51113 and is devoted to and used for growing and harvesting timber, or for growing and harvesting timber and compatible uses, as defined in subdivision (h). With respect to the general plans of cities and counties "timberland preserve zone" means "timberland production zone."

The TRPA Initial Environmental Checklist does not directly address agricultural resources and farmland, but does address potential effects to wildlife habitat, trees, and vegetation, which are addressed in Section 2.6, Biological Resources.

2.2.B Checklist

CEQA Environmental Issues	Potentially Significant Impact	Less Than Significant With Mitigation	Less Than Significant Impact	No Impact
<p><i>In determining whether impacts to agricultural resources are significant environmental effects, lead agencies may refer to the California Agricultural Land Evaluation and Site Assessment Model (1997) prepared by the California Department of Conservation as an optional model to use in assessing impacts on agriculture and farmland.</i></p> <p><i>Would the project:</i></p>				
A) Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
B) Conflict with existing zoning for agricultural use, or a Williamson Act contract?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

C) Conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code section 12220(g)), timberland (as defined by Public Resources Code section 4526), or timberland zoned Timberland Production (as defined by Government Code section 51104(g))?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
D) Result in the loss of forest land or conversion of forest land to non-forest use?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
E) Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland, to non-agricultural use or conversion of forest land to non-forest use?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

2.2.C Discussion

A) No Impact

A significant impact on agricultural resources may result from a project that involves the conversion of Prime Farmland, Unique Farmland or Farmland of Statewide importance, as defined by the State of California on the Important Farmlands Map, to a non-agricultural use.

The Project Area does not contain Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency. Because no lands designated Prime Farmland, Unique Farmland or Farmland of Statewide Importance exist within the Project Area, the Project would result in no impact to these resources.

B) No Impact

The Project Area is not zoned for agricultural use, and does not contain Williamson Act contracts. Because no such zoning exists within the Project Area, the Project would result in no impact to these resources.

C) No Impact

The Project will not result in the loss of forest land (as defined in Public Resources Code section 12220(g)), timberland (as defined by Public Resources Code section 4526), or timberland zoned Timberland Production (as defined by Government Code section 51104(g)). Because the Project Area does not contain lands with these designations, the Project would result in no impact to these resources.

D) No Impact

The Project will not result in the loss of forest land or conversion of forest land to non-forest use. Because forest land does not exist within the Project Area, the Project would create no impact to this resource.

E) No Impact

Because designated Farmland does not exist within the Project Area, the Project would create no impact to this resource.

2.3 AIR QUALITY

2.3.A Environmental and Regulatory Settings

Air quality within the Lake Tahoe Basin is regulated by several jurisdictions including the United States Environmental Protection Agency (USEPA), California Air Resources Board (CARB), the TRPA, and the El Dorado County Air Quality Management District (EDCAQMD). These jurisdictions develop rules, regulations, policies, and/or plans to achieve the goals and directives imposed through legislation.

The Project Area is located within the Lake Tahoe Air Basin (LTAB) and EDCAQMD's jurisdictional area. The LTAB includes portions of El Dorado County and Placer County in California and Washoe County, Douglas County, and Carson City Rural District in Nevada. The LTAB is affected by both the rate and location of pollutant emissions and by meteorological conditions that influence movement and dispersal of pollutants. Atmospheric conditions such as wind speed, wind direction, air temperature gradients, and existing air pollutant sources coupled with local topography affect the dispersion of air pollution and air quality.

Airborne pollutants in the Tahoe Basin generally originate from three areas:

- Populated areas of the Basin that generate airborne anthropogenic materials such as road dust, vehicle exhaust, and chimney smoke;
- Undeveloped areas in the Basin that produce airborne dust and smoke, some of which is natural and some which results from the direct and indirect effects of land management practices; and
- Airborne materials generated in upwind areas, including the San Francisco Bay area and the Central Valley, that are carried into the Basin by the region's prevailing winds.

As a result of the various potential emission sources, air quality regulations focus on the following air pollutants: ozone (O₃); carbon monoxide (CO); nitrogen dioxide (NO₂); sulfur dioxide (SO₂); fine particulate matter (PM 10 and PM_{2.5}); and lead. These pollutants are commonly referred to as "criteria air pollutants".

Construction phase emissions were calculated using the Road Construction Emissions Model Version 8.10 (Model) released in June 2016 by the Sacramento Air Quality Management District (SAQMD). Due to the small size of the project, the Road Construction Emissions Model was best suited for the proposed Project instead of either CalEEMod or the Offroad Simulation Model. The SAQMD Model uses Sacramento Valley Air Basin Fleet Average Emission Factors, representative of the equipment used on STPUD projects, as projects are frequently bid and constructed by Sacramento-area construction contractors.

The model calculates both the daily maximum and total for criteria pollutants as well as annual greenhouse gas (GHG) emissions. Specifically, the model conducts short-term construction emissions associated with the grubbing, grading, draining/utilities/sub-grade, and paving and operational emissions for built-out land use development from a suite of sources, including but not limited to off-road construction equipment, on-road mobile equipment, fugitive dust associated with paved and unpaved roads, staging and storage areas, and emergency generators.

The calculation of GHG emissions was for each year of water and sewer pipe replacement by the District was found to be equivalent to 168.27 metric tons of carbon (MT CO₂e) emissions annually. For comparison, July 2019, the City of South Lake Tahoe released an estimate for community-wide GHG emissions by sources and activities from 2015 that estimated total emissions as 248,225 MT CO₂e. Off-road transportation, which includes construction equipment emissions, accounted for 4% of community emissions, totaling the equivalent of 10,925 metric tons of carbon (MT CO₂e) emissions annually.

Table 2.3-1 below outlines the pollutants generated from the RCE Model for the proposed project (See Chapter 6, Appendix D for full report).

Table 2.3-1 Project Emissions		
Construction		
	Annual (tons/year) max	Daily (lbs./day) max
Carbon monoxide	0.62	11.48
Nitrogen oxides	0.65	12.31
Reactive Organic Gasses	0.07	1.35
Volatile Organic Compounds	See discussion in Section 2.8.C	See discussion in Section 2.8.C
Lead	N/A*	N/A*

Table 2.3-1 Project Emissions		
PM less than 2.5 microns	0.03	0.59
PM less than 10 microns	0.04	0.80
Sulfur Dioxide	0.00	0.04
Ozone	See discussion in Section 2.3.C	See discussion in Section 2.3.C

SOURCE: CHAPTER 6, APPENDIX D, RCE MODEL 8.10 MODEL REPORTS

2.3.B Checklist

CEQA Environmental Issues	Potentially Significant Impact	Less Than Significant With Mitigation	Less Than Significant Impact	No Impact
<p><i>Where available, the significance criteria established by the applicable air quality management or air pollution control district may be relied upon to make the following determinations.</i></p> <p><i>Would the project:</i></p>				
A) Conflict with or obstruct implementation of the applicable air quality plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
B) Violate any air quality standard or contribute substantially to an existing or projected air quality violation?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
C) Result in a cumulatively considerable net increase of any criteria pollutant for which the Project region is non-attainment under an applicable federal or state ambient air quality standard (including releasing emissions, which exceed quantitative thresholds for ozone precursors)?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
D) Expose sensitive receptors to substantial pollutant concentrations?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
E) Create objectionable odors affecting a substantial number of people?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

2.3.C Discussion

A) No Impact

The Project will implement improvements across the STPUD water supply distribution system and sewer system to reduce the risk of pipe and valve rupture for improved water conservation and a corresponding reduction in emissions that may result from water supply production and distribution. The Project would support existing and proposed air quality and greenhouse gas (GHG) reduction efforts and would not conflict with or obstruct implementation of the Lake Tahoe Air Quality Management Plan.

B) Less than Significant Impact

Within Section 5.1, “Significance Criteria for Project Operation Emissions” of the *El Dorado County Air Protection Control District (APCD) – CEQA Guide*, the EDCAQMD has established quantitative operation emission thresholds of 82 pounds per day for both Reactive Organic Gases (ROG) and Oxides of Nitrogen (NOx) for determining if a project has a significant impact. For the Lake Tahoe Air Basin portion of the EDCAQMD, the TRPA has designated an air quality “significance threshold” of 0.08 ppm over one hour for ozone, which is slightly more stringent than the state AAQS for ozone of 0.09 ppm for one hour.

Construction phase emissions were calculated using the Road Construction Emissions (RCE) Model Version 8.10 (Model) released in June 2016 by the Sacramento Air Quality Management District (SAQMD). Chapter 6, Appendix D contains the model assumptions, output, and reporting produced for the Project and for comparison, the construction and operation of a single family home. The model calculates both the daily maximum and project totals for criteria pollutants.

The following inputs were used when setting up the Model to calculate annual emissions:

- Emissions from the construction work occurring five (5) months per year (May through October), working 22 days per month.
- Sand Gravel was identified as the primary soil type being encountered.
- Water and sewer projects will occur at the same time at a rate of 200 linear feet per day, totaling 400 linear feet per day. Based on an assumed trench width of three feet, the daily disturbed area is 1,200 square feet (0.009 acres) for estimating PM10 emissions.
- For the project length, over the course of the assumed season (five months, 22 days per month) of 110 days, a total of 23,100 linear feet or 4.375 miles per year of pipe is anticipated to be replaced. This is based on the District’s current ten-year sewer and waterline replacement plans that identify 140,000 linear feet of waterline and 91,000 linear feet of sewer line to be replaced, totaling 231,000 linear feet over ten years.
- Based on an assumed trench width of three feet, the overall project disturbance area is 69,300 square feet (1.59 acres) per season. Due to stabilization requirements in the Tahoe basin, it is anticipated that only one week’s worth of work would be disturbed at a time, totaling 3,000 square feet or 0.07 acres.
- Water trucks will be used, per the Fugitive Dust Control Plan, consistent with the Particulate Matter (PM10) control measures required for compliance with El Dorado

County Air Quality Management District's (EDCAQMD) Rule 223. A heavy duty diesel truck, T7 Single Unit Construction Truck was assumed for the water truck emissions.

- For calculating soil hauling, the default haul truck capacity of 20 cubic yards was assumed, with an estimated average trench depth of five feet for waterline projects and six feet for sewer projects. In calculating the import and export required per project, it was also assumed that half of the native material would be re-used onsite, resulting in annual import-export totals of 6,922 cubic yards or 63 cubic yards per working day.
- To maintain conservative assumptions, no On-Road Fleet or Off-Road Equipment emission mitigation measures were assumed; the emissions levels are based on the fleet averages as calculated by SMAQMD.
- The five (five) month annual project duration was assumed to start in May. The model was not used for Grading/Excavation as these are either minimal or non-existent phases for the replacement of water and sewer lines in developed areas. Three days of Grubbing/Land Clearing was accounted for, but is rare for District pipe projects that typically occur within public streets.
- The asphalt paving section was calculated assuming a total of 12 paving days per project. The trucking volume was calculated based on pave-back requirements that the District is subject due to local city and county encroachment requirements that require a full (12 foot wide) lane of paving following trenching in the right-of-way. The equipment listed is based on observed paving operations during 2020 on the District's sewer and water projects. Paving back a lane width of 12 feet that is four (4) inches thick results in an overall volume of 3,422 cubic yards of asphalt, split over 12 days results in a daily import-export volume of 285 cubic yards.
- Soil hauling emissions were calculated using a Round Trip distance of 10 (ten) miles, reflecting the distance from STPUD's designated contractor staging area to the local soil disposal and aggregate supply site most frequently used by contractors. This trip was estimated to occur once per day, consistent with a balanced off-haul and backfill volume requirements. The same distance was assumed for
- Worker commute emissions were estimated using a one way trip length of five (5) miles occurring twice (2) per day for 10 employees on each project, totaling a daily vehicle miles traveled (VMT) of 200. A light duty truck was assumed for worker commute emissions.
- One (1) water truck was assumed for each project, and that it would remain onsite, adjacent to the work, traveling two (2) miles per day.

TABLE 2.3-2 Construction Equipment, Horsepower, Hours per Day of Operation			
Equipment Type	Count	Average HP	Hours/day/Per Piece
Air Compressors	2	25	1
Concrete/Industrial Saws	2	3	1
Excavators	4	204	6
Off-Highway Tractors	2	89	4
Pavers	1	188	6
Plate Compactors	2	7	4
Rollers	3	130	8
Rubber Tired Loaders	2	235	3
Skid Steer Loaders	2	80	4
Sweepers/Scrubbers	2	24	1
Tractors/Loaders/Backhoes	2	98	5

The active construction phase of the Project would result in maximum daily ROG emissions of 1.35 pounds per day (summer) and NOx emissions of 12.31 pounds per day (summer), which are well below the threshold established for determining a significant impact. Annual final construction emissions are calculated at 0.07 tons per year ROG and 0.65 tons per year NOx.

The Project would not result in any long-term emissions from stationary sources, as no new sources will be built as part of the proposed Project. The Project would have a less than significant contribution towards construction emissions and would not contribute substantially to an existing or projected air quality violation.

C) Less than Significant Impact

The primary ozone precursors identified within the modeled construction emissions (ROG and NOx) are below the significance threshold and do not result in a cumulatively considerable net increase of any nonattainment pollutant. De minimus levels of Sulphur Oxides (0.04 pounds per day), and inhalable particulates (PM₁₀ – 0.80 pounds per day in comparison to 122 tons per day produced throughout El Dorado County) will occur only during construction. Of the noted pollutants, PM₁₀ is the only pollutant designated in nonattainment in the Lake Tahoe Air Basin. The Project construction phase would not represent a cumulatively considerable net increase for the region and ongoing project operations would not result in a cumulatively considerable net increase of any criteria

pollutant for which the Lake Tahoe Air Basin is in non-attainment under applicable federal or state ambient air quality standards.

D) Less than Significant Impact

A sensitive receptor is generally defined as a person in the population who is particularly susceptible to health effects due to exposure to an air contaminant than is the population at large. Sensitive receptors (and the facilities that house them) in proximity to localized CO sources, toxic air contaminants or odors are of particular concern.

Project construction would not emit pollutant concentrations at substantial levels, would be temporary in nature, and would not be concentrated in close proximity to sensitive receptors, such as medical facilities or schools. Project operations would be performed underground primarily and within a closed water supply system and would not create a waste stream, which minimizes the creation of air borne pollutants and protects sensitive receptors to result in less than significant impacts.

E) Less than Significant Impact

A project that generates odorous emissions of a type or quantity that could meet the statutory definition for nuisance (i.e., odors “which cause detriment, nuisance, or annoyance to any considerable number of persons or to the public, or which may endanger the comfort, repose, health, or safety of any such person or the public, or which may cause, or have a natural tendency to cause, injury or damage to business or property”) would result in a significant impact, as based on the distance and frequency at of odor complaints from the public, specifically sensitive receptors.

Construction equipment and machinery will generate diesel odors during construction. The generation of odors during the construction period would be temporary, would occur within specific periods of time, and would tend to be dispersed within a short distance from the active work area. Therefore, the Project would result in less than significant impacts to residents and construction workers.

No objectionable odors would be generated from the Project following construction. Project operations would not create objectionable odors affecting a substantial number of people because project operations will occur in a closed, underground water supply system that contains and/or neutralizes objectionable odors.

2.4 BIOLOGICAL RESOURCES (STREAM ENVIRONMENT ZONES, WETLANDS, WILDLIFE AND VEGETATION)

2.4.A Environmental and Regulatory Settings

The Tahoe Basin contains a broad diversity of montane vegetation associations. The current distribution of conifer forest associations and other vegetation associations within

the Basin is determined largely by the local physical environment. Vegetation associations range from grassland and montane riparian associations to Jeffrey pine and alpine dwarf shrub. The Basin also contains a number of special-status and rare plant species, including threatened and endangered species. These species are protected through TRPA, Endangered Species Act of 1973 (FESA), California Endangered Species Act (CESA), California Department of Fish and Wildlife (CDFW), and/or the California Native Plant Society (CNPS). Land use or activity restrictions occur in areas inhabited by these species.

The Tahoe Basin provides habitat for over 250 species of resident and migratory vertebrate wildlife species including mammals (64), birds (168), and reptiles and amphibians (23).. The quality and size of these species' habitats generally determine the abundance of any one species or animal population. The Basin also contains a number of special-status wildlife, including threatened and endangered species. These species are protected through TRPA, FESA, CESA, and/or CDFW.

The proposed waterline and sewer line upgrades are located exclusively within the road (City of South Lake Tahoe, and El Dorado County) Right-of-Way. The proposed Project locations contain existing disturbance in the form of road shoulder, road base, and pavement. The Project Area includes residential neighborhoods, commercial, and mixed-use areas.

Database Searches - The following databases were searched and reviewed in order to identify sensitive species and habitats that may be within the Project Area as shown in **Figure 2**: the California Natural Diversity Data Base (CNDDB) and the California Native Plant Society (CNPS) Inventory of Rare and Endangered Plants. In addition, a species list was generated for the Project Area by the US Fish and Wildlife Service (USFWS).

Species Occurrences - A one-mile buffer surrounding the Project Area was searched for recorded occurrences in the BIOS database (CNDDB 2020). A CNDDB occurrence report was generated for the following 7.5 Minute Quadrangles: Caples Lake, Carson Pass, Echo Lake, Emerald Bay, Freel Peak, Homewood, Meeks Bay, Pyramid Peak, Rockbound Valley, and South Lake Tahoe Quad. The species lists generated in these database searches are included in Chapter 6 (Appendices) of this document. The USFWS letter and associated list is also included in Chapter 6.

The USFWS identified three species as having the potential to exist within the Project Area: Sierra Nevada yellow-legged frog (*Rana sierrae*), Lahontan cutthroat trout (*Oncorhynchus clarkii henshawi*), and whitebark pine (*Pinus albicaulis*). The CNDDB list identified 5 additional special status wildlife species (western bumble bee, *Bombus occidentalis*; bald eagle *Haliaeetus leucocephalus*; bank swallow *Riparia riparia*; North American wolverine (*Gulo gulo luscus*); and willow flycatcher *Empidonax traillii*) and one California endangered plant (Tahoe yellowcress, *Rorippa subumbellata*) (CDFW 2020). **Figure 5** shows the known occurrences of the sensitive species identified within the 1-mile buffer of the Project Area grouped by taxonomic categories.

Table 2.4-1 identifies the 7 wildlife species with the potential to occur in the Project Area based on the database searches described above. **Table 2.4-2** identifies the 21 plant

species with the potential to occur in the Project Area (HP = Habitat Present, SP = Species Present).

<p>TABLE 2.4-1 WILDLIFE SPECIES OF CONCERN</p>					
Species	Status	Habitat	HP	SP	Comments
Fish:					
<i>Oncorhynchus clarkii henshawi</i> Lahontan Cutthroat Trout	Federally Threatened TRPA Special Interest Species	Historically occurred in all accessible cold waters of the Lahontan Basin in a wide variety of water temps and conditions. Cannot tolerate presence of other salmonids. Gravel riffles in streams required for breeding.	No	No	Project activities are limited to the Right-of-Way in paved roads in the urban core. There is no suitable fish habitat .
Wildlife:					
<i>Haliaeetus leucocephalus</i> Bald Eagle	Federally Delisted California Endangered	Bald eagle are known to forage and nest adjacent to large bodies of water in mid to late successional types of forest with standing dead trees or snags	No	No	Project activities are limited to the Right-of-Way in paved roads in the urban core. There is no suitable roosting habitat.
<i>Empidonax traillii</i> Willow Flycatcher	California Endangered	In the central and southern Sierra Nevada, this species typically breeds in willow-dominated riparian vegetation among perennial streams in moist meadows or spring-fed or boggy areas.	No	No	Project activities are limited to the Right-of-Way in paved roads in the urban core. There is no suitable riparian habitat.
<i>Riparia riparia</i> Bank Swallow	California Threatened	Species requires vertical banks/cliffs with fine-textured/sandy soils near streams, rivers, lakes, to dig nesting hole.	No	No	The Project area does not contain suitable habitat for the species due to the lack of vertical banks and/or cliffs to dig nesting hole.

<p>TABLE 2.4-1 WILDLIFE SPECIES OF CONCERN</p>					
Species	Status	Habitat	HP	SP	Comments
<i>Gulo gulo luscus</i> North American wolverine	Federally Proposed Threatened	Habitats used in the southern Sierra Nevada include red fir, mixed conifer, lodgepole, subalpine conifer, alpine dwarf-shrub, barren, and probably wet meadows, montane chaparral, and Jeffrey pine. (CDFG 1980)	No	No	There are no records of detections in the Lake Tahoe Basin and this species is thought to be extirpated from the vicinity. High levels of existing human presence and activity are not suitable for wolverine.
<i>Bombus occidentalis</i> western bumble bee	California Candidate Endangered	Flowering plants. Once common & widespread, species has declined precipitously from central CA to southern B.C., perhaps from disease.	No	No	No flowering plants in the project area but may be adjacent.
<i>Rana sierrae</i> Sierra Nevada Yellow-Legged Frog (SNYLF)	Federally Endangered California Threatened	The SNYLF is strongly associated with montane riparian habitats in lodgepole pine, yellow pine sugar pine, white fir whitebark pine and wet meadow vegetation types (Zeiner et al. 1988). Typically, SNYLFs prefer well illuminated, sloping banks of meadow streams, riverbanks, isolated pools, and lake borders with vegetation that is continuous to the water's edge.	Yes	No	Project activities are limited to the Right-of-Way in paved roads in the urban core. A fraction of the pipeline routes overlap with suitable habitat, especially in the Tahoe Keys, however paved roadway is not suitable habitat.

SOURCE: SIERRA ECOTONE SOLUTIONS 2020

STPUD DISTRICT-WIDE WATER AND SEWER FACILITIES UPGRADE PROJECT
SEPTEMBER 29, 2021

Table 4 Plant Species of Concern

Scientific Name	Common Name	CA Rare Plant Rank	CESA	FESA	Blooming Period	Habitat	Micro Habitat	Suitable Habitat in Project Area?
<i>Boechera tularensis</i>	Tulare rockcress	1B.3	None	None	(May)Jun-Jul(Aug)	Subalpine coniferous forest, Upper montane coniferous forest	Rocky slopes	No rocky slopes in project area.
<i>Botrychium ascendens</i>	upswept moonwort	2B.3	None	None	(Jun)Jul-Aug	Lower montane coniferous forest, Meadows and seeps	mesic	No meadows and seeps in project area.
<i>Botrychium crenulatum</i>	scalloped moonwort	2B.2	None	None	Jun-Sep	Bogs and fens, Lower montane coniferous forest, Meadows and seeps, Marshes and swamps (freshwater), Upper montane coniferous forest		No meadows, seeps, bogs or fens in project area.
<i>Botrychium minganense</i>	Mingan moonwort	2B.2	None	None	Jul-Sep	Bogs and fens, Lower montane coniferous forest, Meadows and seeps (edges), Upper montane coniferous forest	Mesic	No meadows, seeps, bogs or fens in project area.
<i>Brasenia schreberi</i>	watershield	2B.3	None	None	Jun-Sep	Marshes and swamps (freshwater)		No marshes and swamps in project area.

STPUD DISTRICT-WIDE WATER AND SEWER FACILITIES UPGRADE PROJECT
SEPTEMBER 29, 2021

Table 4 Plant Species of Concern

Scientific Name	Common Name	CA Rare Plant Rank	CESA	FESA	Blooming Period	Habitat	Micro Habitat	Suitable Habitat in Project Area?
<i>Carex davyi</i>	Davy's sedge	1B.3	None	None	May-Aug	Subalpine coniferous forest, Upper montane coniferous forest		No forest in project area. Project area only contains disturbed paved areas.
<i>Carex limosa</i>	mud sedge	2B.2	None	None	Jun-Aug	Bogs and fens, Lower montane coniferous forest, Meadows and seeps, Marshes and swamps, Upper montane coniferous forest		No meadows, seeps, bogs or fens in project area.
<i>Epilobium oreganum</i>	Oregon fireweed	1B.2	None	None	Jun-Sep	Bogs and fens, Lower montane coniferous forest, Meadows and seeps, Upper montane coniferous forest	mesic	No meadows, seeps, bogs or fens in project area.
<i>Eriogonum luteolum</i> var. <i>saltuarium</i>	Jack's wild buckwheat	1B.2	None	None	Jul-Sep	Great Basin scrub, Upper montane coniferous forest	sandy, granitic	No forest in project area. Project area only contains disturbed paved areas.

STPUD DISTRICT-WIDE WATER AND SEWER FACILITIES UPGRADE PROJECT
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Table 4 Plant Species of Concern

Scientific Name	Common Name	CA Rare Plant Rank	CESA	FESA	Blooming Period	Habitat	Micro Habitat	Suitable Habitat in Project Area?
<i>Glyceria grandis</i>	American manna grass	2B.3	None	None	Jun-Aug	Bogs and fens, Meadows and seeps, Marshes and swamps (streambanks and lake margins)		No meadows, seeps, bogs or fens in project area.
<i>Helodium blandowii</i>	Blandow's bog moss	2B.3	None	None		Meadows and seeps, Subalpine coniferous forest	Damp soil	No meadows and seeps within the project area.
<i>Meesia uliginosa</i>	broad-nerved hump moss	2B.2	None	None	Jul, Oct	Bogs and fens, Meadows and seeps, Subalpine coniferous forest, Upper montane coniferous forest	damp soil	No meadows, seeps, bogs or fens in project area.
<i>Phacelia stebbinsii</i>	Stebbins' phacelia	1B.2	None	None	May-Jul	Cismontane woodland, Lower montane coniferous forest, Meadows and seeps		No meadows, seeps, bogs or fens in project area.
<i>Pinus albicaulis</i>	Whitebark pine	None	None	PT	May-Jun	Subalpine to timberline zones.		No subalpine or timberline habitat is within project area.
<i>Potamogeton robbinsii</i>	Robbins' pondweed	2B.3	None	None	Jul-Aug	Marshes and swamps (deep water, lakes)		No marshes and swamps

STPUD DISTRICT-WIDE WATER AND SEWER FACILITIES UPGRADE PROJECT
SEPTEMBER 29, 2021

Table 4 Plant Species of Concern

Scientific Name	Common Name	CA Rare Plant Rank	CESA	FESA	Blooming Period	Habitat	Micro Habitat	Suitable Habitat in Project Area?
								within the project area.
<i>Rhamnus alnifolia</i>	alder buckthorn	2B.2	None	None	May-Jul	Lower montane coniferous forest, Meadows and seeps, Riparian scrub, Upper montane coniferous forest		No meadows, seeps, marshes or swamps in project area.
<i>Rorippa subumbellata</i>	Tahoe yellow cress	1B.1	CE	None	May-Sep	Lower montane coniferous forest, Meadows and seeps, beaches and lake margin of Lake Tahoe (Stanton 2015)	decomposed granitic beaches	Project area does not include beaches of Lake Tahoe.
<i>Schoenoplectus subterminalis</i>	water bulrush	2B.3	None	None	Jun-Aug(Sep)	Bogs and fens, Marshes and swamps (montane lake margins)		No bogs, fens, marshes, or swamps in the project area.
<i>Scutellaria galericulata</i>	marsh skullcap	2B.2	None	None	Jun-Sep	Lower montane coniferous forest, Meadows and seeps (mesic), Marshes and swamps		No meadows, seeps, marshes or swamps in project area.

STPUD DISTRICT-WIDE WATER AND SEWER FACILITIES UPGRADE PROJECT
SEPTEMBER 29, 2021

Table 4 Plant Species of Concern								
Scientific Name	Common Name	CA Rare Plant Rank	CESA	FESA	Blooming Period	Habitat	Micro Habitat	Suitable Habitat in Project Area?
<i>Stuckenia filiformis</i> ssp. <i>alpina</i>	slender-leaved pondweed	2B.2	None	None	May-Jul	Marshes and swamps (assorted shallow freshwater)		No marshes or swamps in project area.
<i>Viola purpurea</i> ssp. <i>aurea</i>	golden violet	2B.2	None	None	Apr-Jun	Great Basin scrub, Pinyon and juniper woodland	sandy	No great basin scrub, pinyon and juniper woodland in project area.

CE: CA Endangered
PT: Proposed Threatened

Source: CNPS 2021

Figure 7 identifies stream environment zones (SEZ) located within and around the Project Area. The map is a TRPA GIS layer based on mapping by Bailey (1974).

2.4.B Checklist

CEQA Environmental Issues	Potentially Significant Impact	Less Than Significant With Mitigation	Less Than Significant Impact	No Impact
<i>Would the project:</i>				
A) Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
B) Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, and regulations or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
C) Have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
D) Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of wildlife nursery sites?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
E) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
F) Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

2.4.C Discussion

A) No Impact

Table 2.4-1 identifies the 7 wildlife species that have the potential to occur in within the Project Area based on the database searches. Suitable habitat is not present for 6 of the wildlife species. Suitable habitat is mapped within the Project Area for Sierra Nevada yellow-legged frog (SNYLF). **Figure 6** identifies suitable SNYLF habitat within and around the Project Area. The SNYLF habitat GIS layer was developed by the US Forest Service based on the following habitat requirements:

Suitable breeding habitat typically occurs above 4,500 feet in elevation (but in some areas, including on the west side of the Plumas National Forest, is known to occur as low as 3,500 feet in elevation) and includes permanent water bodies or those hydrologically connected with permanent water such as lakes, streams, rivers, tarns, perennial creeks (or permanent plunge pools within intermittent creeks), and pools (such as a body of impounded water contained above a natural dam). Most types of water are suitable habitat for adults and subadults including lakes, ponds, tarns, streams, rivers, creeks, plunge pools within intermittent creeks, seeps, springs, and wet meadows plus surrounding areas up to a distance of 25 m (82 ft).

A GIS calculation identified a total of 27.65 acres of Project ROW assets that overlap with mapped SNYLF habitat, primarily in the Tahoe Keys. The Tahoe Keys is a highly developed area with degraded water quality and does not support suitable habitat. Project activities adjacent to other mapped potential SNYLF habitat will occur on existing service lines within the ROW. The inclusion of Best Management Practices to control erosion will limit the potential for sediments to drain into suitable habitat. No impacts to stream banks, riparian vegetation or bodies of water will occur as a result of implementation of the proposed Project, and therefore no impacts to SNYLF will occur.

The proposed project is not located in any essential fish habitat as defined by the Magnuson-Stevens Act. The closest essential fish habitat is located in the Pacific Ocean along the coast of California.

The USFWS species list (see Chapter 6) includes bird species that are protected under the Migratory Bird Treaty Act of 1918 and have potentially suitable habitat in the area surrounding the Project Area. The Project will not result in the removal of any foraging or nesting habitat for the migratory bird species listed; however, indirect impacts to migratory bird species could result because of construction noise and activities associated with the proposed Project. To ensure no impacts to migratory bird species occurs, the Migratory Bird Nest Site Protection Program (design feature 1.3.J) is included in the project description. Through implementation of the above measure, no impacts to nesting migratory bird species will result.

Table 2.4-2 identifies the 21 plant species that have the potential to occur in within the Project Area based on the database searches. However, suitable habitat is not present for any of the plant species within the Project Area because all work will occur in paved areas or areas previously disturbed immediately adjacent to paved surfaces within the right-of-way. Therefore, the Project will not have a substantial adverse effect, either directly or through habitat modifications, on any identified plant or wildlife species.

B) No Impact

Project activities for the sewer and water line excavation and repair or replacement will create temporary disturbance in the ROW of the City of South Lake Tahoe and El Dorado County within the District's Service Area. **Figure 7** identifies the Stream Environment Zones (SEZs) located within and around the Project Area based on TRPA maps by Bailey (1974). The SEZ includes Lake Tahoe, the Upper Truckee Marsh, multiple creeks, and the Upper Truckee River. GIS calculations estimate the amount of SEZ within the Project Area at 7,267 acres.

The Project has been specifically designed to exclude District assets located within the ROW within a 250-foot buffer on each side of the following major streams/rivers: Angora Creek, Cascade Creek, Cold Creek, Grass Lake Creek, Heavenly Valley Creek, Tallac Creek, Taylor Creek, Trout Creek, and the Upper Truckee River. The creek buffer was merged with the TRPA SEZ layer and any pipelines within the ROW that occurred within the buffer was excluded. An estimated 225 acres of remaining assets within the ROW intersect with the mapped SEZ. This limited portion of the ROW are indirectly connected to the SEZ through existing storm water drainage systems, including curb and gutter systems and drop inlets along the road ROW. The inclusion of Best Management Practices to control erosion will limit the potential for sediments to drain into SEZ. Therefore, no impact to SEZs will occur as a result of the proposed Project.

C) No Impact

The National Wetlands Inventory (USFWS) was searched for the presence of federally protected wetlands within the Project Area. The resulting map is located in Chapter 6. Project activities will occur exclusively within the ROW and will not directly impact any wetlands present within the Project Area. Therefore, there is no impact as a result of the proposed Project.

D) No Impact

The Project will not interfere or impede the movement of any wildlife species or migratory fish species as all Project component repair or replacement will occur underground and are not within waterways or within known migratory wildlife corridors. No wildlife nursery sites will be impeded. Therefore, there is no impact as a result of the proposed Project.

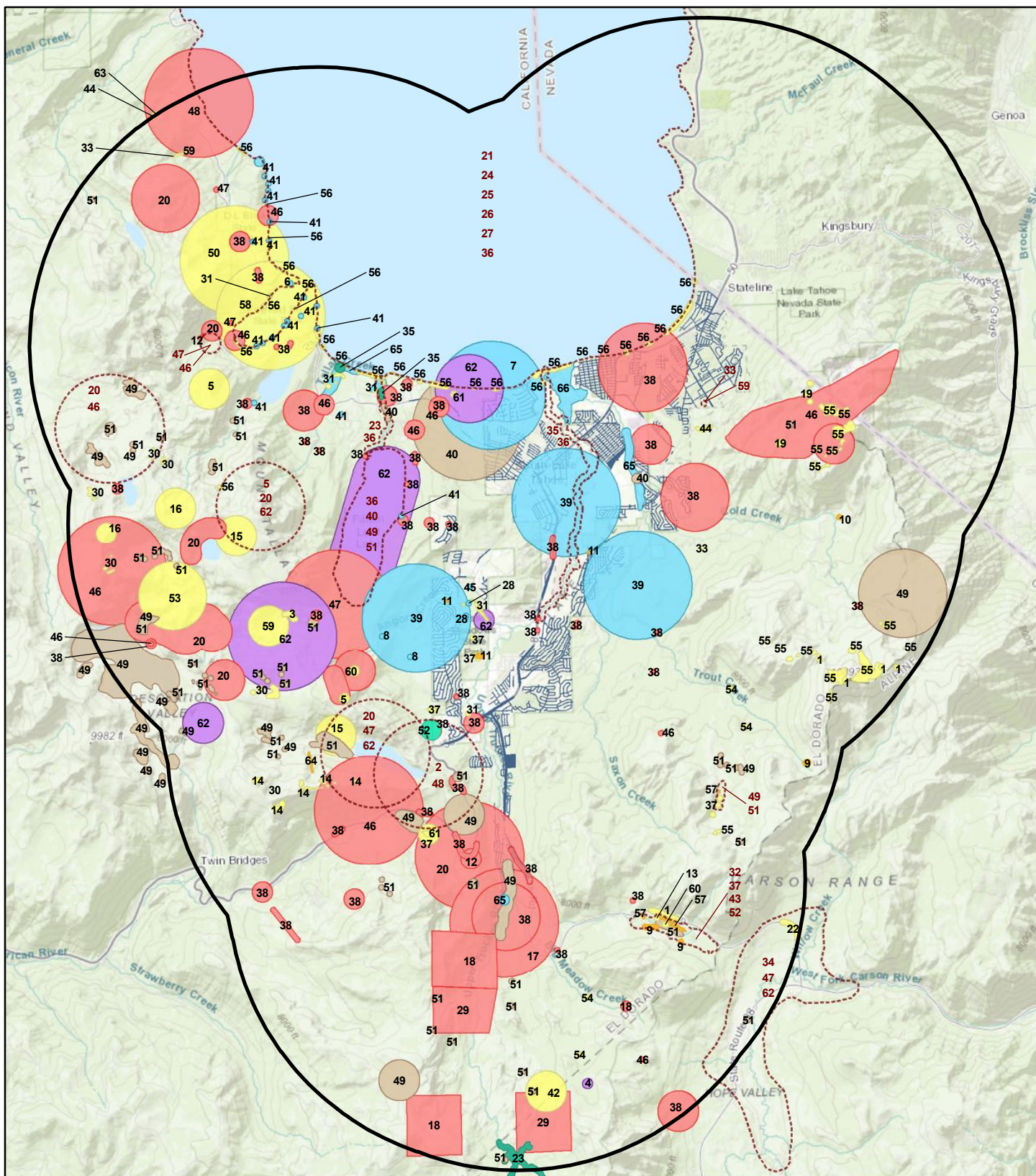
E) No Impact

The District has a Memorandum of Understanding with the TRPA for Public Works Providers that allows for repair and maintenance of underground facilities without TRPA's review (March 2012). Therefore, the Project will not conflict with TRPA policies and ordinances aimed at protecting biological resources because all Project activities will occur within the ROW, the components are located underground, and TRPA review is not necessary.

F) No Impact

The Project does not conflict with the provisions of an adopted Habitat Conservation Plan or Natural Community Conservation Plan, because no such plans exist for the Project Area. A Conservation Strategy for Tahoe yellow cress (California Endangered, CRPR 1.B.1, and TRPA Sensitive) has been adopted and applies to habitat within the shoreline of Lake Tahoe (Stanton et al. 2015). No Project activities will occur within the shoreline of Lake Tahoe and therefore no conflict with the Conservation Strategy will occur.

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LEGEND

- Asset Right-of-Way (Project)
- 5-mile Radius of Project
- Multiple Species Occurrence
- Animal - Amphibian
- Animal - Bird
- Animal - Fish
- Animal - Mammal
- Community - Marsh
- Invertebrate - Insect
- Non-Vascular Plant
- Vascular Plant

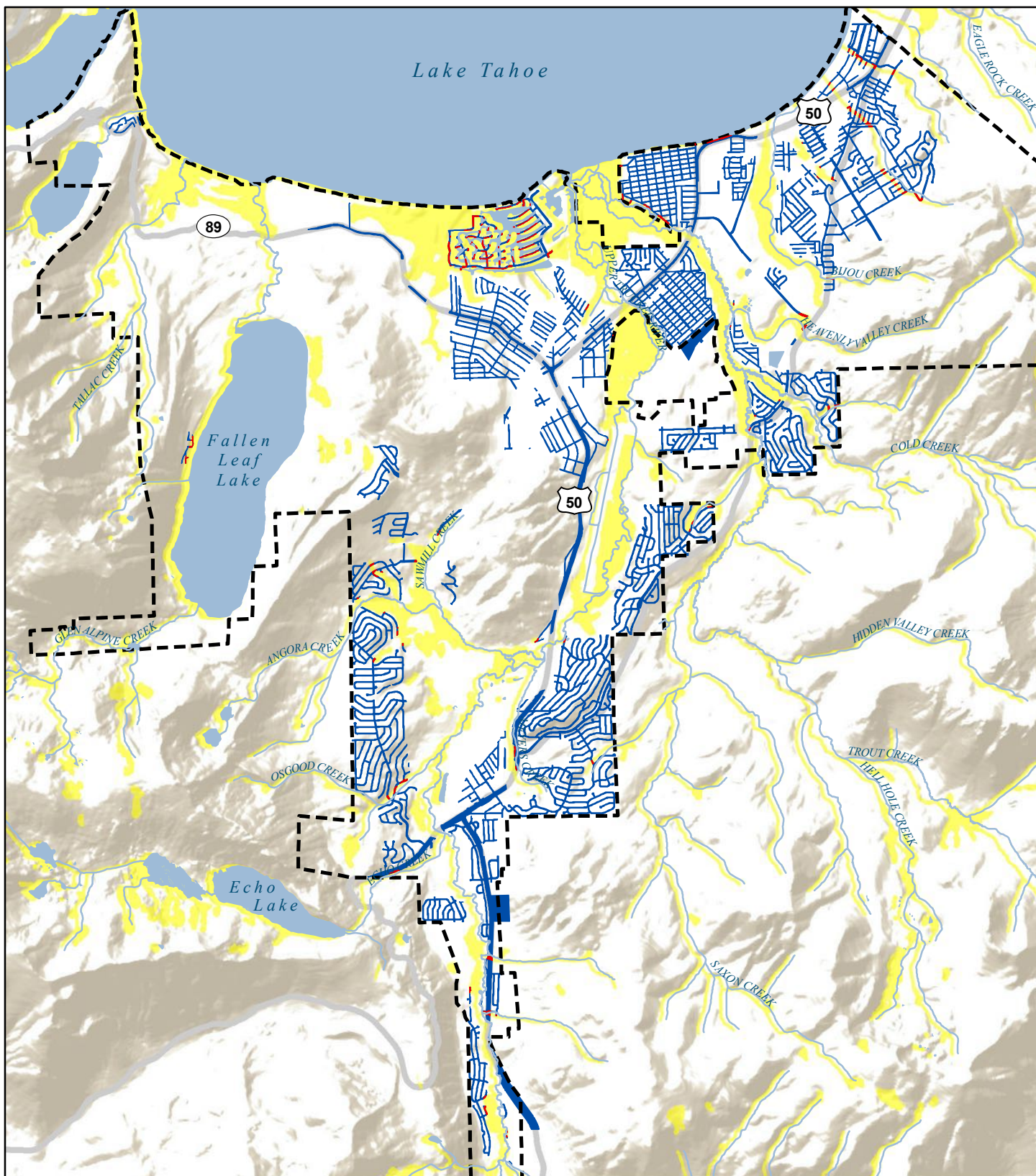
Sources: STPUD; CNDDB; ArcGIS Online Topographic Map Service. Map date: November 12, 2020.

STPUD SEWER AND WATER PIPE NETWORK

Figure 5.
California Natural Diversity
Database



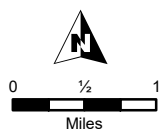
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LEGEND

- STPUD Service Area
- Sierra Nevada Yellow-Legged Frog Suitable Habitat
- Asset Right-of-Way (Project)
- Asset Right-of-Way in Frog Habitat

Sources: STPUD; USFS; ArcGIS Online Shaded Relief Map Service. Map date: November 12, 2020.



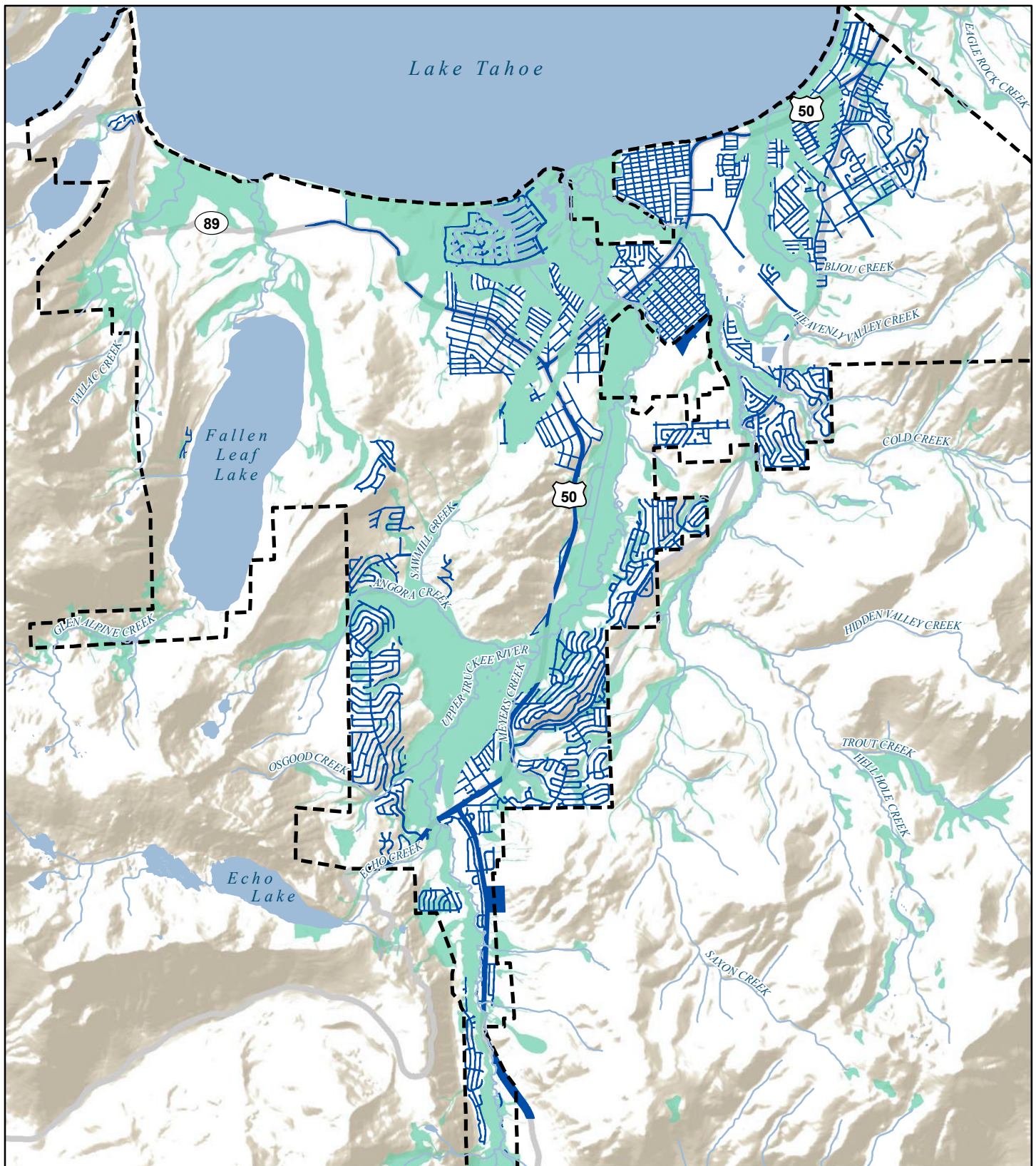
STPUD SEWER AND WATER PIPE NETWORK

Figure 6.
Sierra Nevada Yellow-Legged
Frog Habitat



SIERRA ECOTONE SOLUTIONS

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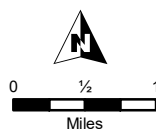
LEGEND

STPUD Service Area

Asset Right-of-Way (Project)

Stream Environment Zone (Bailey 1974 SEZ-1B)

Sources: STPUD; TRPA. ArcGIS Online Shaded Relief
Map Service. Map date: November 12, 2020.



STPUD SEWER AND WATER PIPE NETWORK

Figure 8.
Stream Environment Zones



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2.5 CULTURAL RESOURCES

2.5.A Environmental and Regulatory Settings

The National Historic Preservation Act (NHPA) of 1966, as amended (16 USC§ 470 et seq.), is the primary federal legislation that outlines the federal government's responsibility to cultural resources. A cultural resource is a broad term that includes prehistoric, historic, architectural, and traditional cultural properties. Section 106 of the NHPA requires the federal government to take into consideration the effects of an undertaking on cultural resources listed on or eligible for inclusion in the National Register of Historic Places. Those resources that are on or eligible for inclusion on the National Register are referred to as historic properties. The Section 106 process is outlined in the federal regulations at 36 Code of Federal Regulations (CFR) Part 800.

The applicable CEQA process is outlined in CEQA Guidelines Section 15060-15065. For the purposes of CEQA, significant "historical resources" and "unique archaeological resources" are defined as (Section 15064.5[a]):

- (1) A resource listed in, or determined to be eligible by the State Historical Resources Commission, for listing in the California Register of Historical Resources (Pub. Res. Code SS5024.1, Title 14 CCR, Section 4850 et seq.).
- (2) A resource included in a local register of historical resources, as defined in section 5020.1(k) of the Public Resources Code or identified as significant in an historical resource survey meeting the requirements section 5024.1(g) of the Public Resources Code, shall be presumed to be historically or culturally significant. Public agencies must treat any such resource as significant unless the preponderance of evidence demonstrates that it is not historically or culturally significant.
- (3) Any object, building, structure, site, area, place, record, or manuscript which a lead agency determines to be historically significant or significant in the architectural, engineering, scientific, economic, agricultural, educational, social, political, military, or cultural annals of California may be considered to be an historical resource, provided the lead agency's determination is supported by substantial evidence in light of the whole record.

Baseline environmental studies typically include a cultural resource report, one that needs to comply with El Dorado County guidelines under the California Environmental Quality Act (CEQA Section 5024, Public Resource Code) and Tahoe Regional Planning Agency procedures (Chapter 67 of the TRPA Code of Ordinances). Although funding is indeterminate at this early stage of planning, the STPUD would likely be pursuing various forms of federal or state funding, thereby also necessitating compliance with Section 106 of the National Historic Preservation Act.

Cultural studies are customarily performed in a series of phases, each one building upon information gained from the prior study. The inventory phase (Phase 1) involves a pre-field records search and Native American contact (Phase 1A), field reconnaissance/resource discovery (Phase 1B), and documentation of any cultural

resources located within the project area (Phase 1C). If cultural properties are present and/or it they may be subject to project impacts, their significance is evaluated according to eligibility criteria established in the National Register of Historic Places and/or California Register of Historical Resources (Phase 2). If project redesign to avoid impacts to significant resources is unfeasible, then mitigation measures are implemented (Phase 3). Mitigation (or data recovery) typically involves supplemental archival research, field excavation, photo documentation, mapping, archaeological monitoring, interpretation, etc. The scope of work for this cultural study is designed to satisfy regulations pertaining to aspects of Phase 1A work.

To complete the cultural study for the Project, the District contracted with Susan Lindström, Ph.D., a Consulting Archaeologist who meets the Secretary of Interior's Professional Qualifications Standards (48 FR 44738-44739). She has over four decades of professional experience in regional prehistory and history, holds a doctoral degree in anthropology/archaeology and has maintained certification by the Register of Professional Archaeologists (RPA, former Society of Professional Archaeologists) since 1982. The tasks completed include:

- Historical and archaeological background research of the project APE;
- Review of a prior records search by the California Historical Resources Information System, North Central Information Center (NCIC) at California State University, Sacramento, and a record search of the US Forest Service cultural resource files; and
- The presentation of findings in a technical report.

The cultural contextual background for the current study (Phase 1A) draws heavily from comprehensive cultural studies conducted in 2015 and 2016 when the STPUD embarked on a District- wide program to install water meters and fire hydrants throughout their service area. This work has now been updated in 2020 with a new records search by the North Central Information Center. This report also outlines a set of cultural resource management protocols to be implemented as part of the necessary agency permitting process.

Native American outreach is not part of this preliminary planning effort. A search of the Sacred Lands Files by the Native American Heritage Commission and follow-up communications with tribes/individuals on the Commission's contact list (Phase 1A) would be accomplished with future implementation of specific water and sewer line rehabilitation/replacement projects.

Archaeological field surveys (Phase 1B) are deferred until waterline and sewer line rehabilitation/replacement areas are delineated.

The Phase 1A report (Appendix E) is intended to have wider applications, serving as a baseline study and complementary companion piece to aid in the preparation of subsequent cultural resource studies as the STPUD moves forward to year-to-year project implementation of future pipeline rehabilitation/replacement projects. Therefore, cultural resource reporting is projected to be a phased process.

Findings disclosed that 221 prior archaeological studies have been conducted within the STPUD service area with an additional 16 studies occurring outside the project area but within the 1/16-mile search radius. To date 192 archaeological sites have been recorded in the project area and 66 more in the search radius. Out of a total of 1,149 entries for historic buildings/structures documented in El Dorado County, 332 structures are contained within South Lake Tahoe. In addition, Caltrans has inventoried and evaluated 13 historic bridges. The California Inventory of Historic Resources listed “Yanks Station-Overland Pony Express Route” in Meyers as State Historic Landmark #708. The Office of Historic Preservation has made determinations of eligibility for listing in the National and California Registers on 18 of these cultural properties (Lindström 2020).

Locales containing known archaeological resources or issues of Native American concern, along with any sensitive environmental areas (e.g., stream crossings, wetlands), would be excluded from upcoming projects and thereby eliminated from any construction ground disturbance activities (Lindström 2020). No historic buildings/structures/objects would be directly impacted, nor would the setting surrounding any archaeological or historical property be indirectly affected or altered from its present state (Lindström 2020). However, it is possible that buried or concealed cultural resources could be present and detected during project ground disturbance activities. A registered professional archaeologist should be on-call during future project construction; if cultural resources are discovered, work should stop near the find and the project sponsor should consult on recommended mitigation procedures. In the unlikely event that human remains are encountered, all activities should stop, and the County Coroner’s Office should be contacted (Lindström 2020).

Environmental review policies, which comply with federal antiquities mandates (under Section 106 of the National Historic Preservation Act) and guidelines established by CEQA (Section 5024, Public Resources Code) and TRPA (Code of Ordinances Chapter 67), require that a study be performed to inventory and evaluate cultural resources within a proposed project. With the completion and submittal of this report, the federal and state requirements for a cultural resource study have been accomplished (Lindström 2020).

2.5.B Checklist

CEQA Environmental Issues	Potentially Significant Impact	Less Than Significant With Mitigation	Less Than Significant Impact	No Impact
<i>Would the project:</i>				
A) Cause a substantial adverse change in the significance of a historical resource as defined in §15064.5?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
B) Cause a substantial adverse change in the significance of an archaeological resource pursuant to §15064.5?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

C) Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
D) Disturb any human remains, including those interred outside of formal cemeteries?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

2.5.C Discussion

A) Less than Significant Impact

Locales containing known archaeological resources or issues of Native American concern, along with any sensitive environmental areas (e.g., stream crossings, wetlands), would be excluded from upcoming projects and thereby eliminated from any construction ground disturbance activities. (Lindström 2020).

As reported in the South Tahoe Public Utility District Water and Sewer Replacement Project Cultural Resource Study (Lindström 2020), the Project will not result in a negative impact on historical resources in the Project Area. The Project Area has been disturbed by past road installation, and associated service connections. If historic resources are discovered during installation of the project, construction activity will be immediately stopped and a qualified archeologist will be contacted.

Because no historical resources as defined in PRC section 15064.5 will be disturbed, the Project would not cause substantial adverse change in the significance of a historical resource. The potential impact is less than significant.

B) Less than Significant Impact

Locales containing known archaeological resources or issues of Native American concern, along with any sensitive environmental areas (e.g., stream crossings, wetlands), would be excluded from upcoming projects and thereby eliminated from any construction ground disturbance activities. (Lindström 2020). However, since the time when previous excavation and disturbance of the area last occurred is unknown, there is a remote potential to unearth undiscovered archeological resources. Requirements for protection of unknown resources, as described in Section 1.3.G, will be included in construction contracts to ensure that there will be no impacts to previously undiscovered resources. Should previously undiscovered resources be unearthed, ground disturbance activities will cease until consultation with a qualified archaeologist occurs and recommended procedures are implemented. The Project will not cause a substantial adverse change in the significance of a previously unknown archaeological resource because avoidance of such resources will occur during Project construction and long-term operations. The level of impact would be less than significant.

C) Less than Significant Impact

There are no mapped paleontological resources or known unique geologic features within the Project Area, and unique paleontological or unique geologic features are not expected to occur on Project Area parcels. The existing environments do not usually contain intact fossils. The Project requires excavation and disturbance in areas that have been

previously disturbed for water tank and residential development and that are not mapped as a high or moderate resource potential geologic deposit, formation or rock unit. Additionally, in the unlikely event that paleontological resources are discovered during construction, section 1.3.G, Cultural Protection Measures, requires that ground disturbance activities cease and until consultation with a qualified archaeologist occurs. As a result, the Project will avoid and protect encountered resources and would result in less than significant impacts to paleontological resources.

D) Less than Significant Impact

Happy Homestead Cemetery is located within the project area, however the cemetery will not be disturbed in association with the project or project activities. No other known burial sites exist within the Project Area, and during prior projects performed by STPUD, no human remains were encountered. If human remains are unearthed, the El Eldorado County Coroner will be contacted in compliance with CEQA Guidelines Section 15064.5(e) and 43 CFR 10, Native American Graves Protection and Repatriation Regulations.

2.6 GEOLOGY, SOILS, SEISMIC & LAND COVERAGE

2.6.A Environmental and Regulatory Settings

The Project Area is located in the Sierra Nevada geomorphic province, a block mountain range that tilts west and is approximately 400 miles long and between 50 to 80 miles wide. The province is composed of Mesozoic granitic and ultramafic rocks, Paleozoic and Mesozoic strongly metamorphosed sedimentary and volcanic rocks, and Cenozoic volcanic rocks (California Geological Survey 2002).

The topography of the Lake Tahoe Basin is varied with at times complex terrain and elevations ranging from 6,220 feet at lake level to 10,000 feet at Monument and Freel Peaks outside of South Lake Tahoe, California. The City of South Lake Tahoe is relatively flat at its center and the Project Area consists of flat slopes within the ROW.

The Alquist-Priolo Earthquake Fault Zoning Act (PRC Section 2621-2630) was passed in 1972 for purposes of reducing the risk to life and property from surface fault rupture during earthquakes by regulating construction in active fault corridors and prohibiting the location of most types of structures intended for human occupancy across the traces of active faults. The act defines criteria for identifying active faults, giving legal support to terms such as active and inactive and establishes a process for reviewing building proposals in Earthquake Fault Zones. An active fault is one that has had surface displacement within Holocene time or the last 11,000 years, as defined by the Alquist-Priolo Earthquake Fault Zoning Act.

The Lake Tahoe basin is bounded by the Sierra Nevada Mountain Range to the west and the Carson Mountain Range to the east and is part of the Walker Lane fault complex that includes many normal and strike-slip faults, (Seitz 2015). The Lake Tahoe basin was formed by the same normal faulting that created the Basin and Range physiographic province to the east of the Tahoe Basin in Nevada. The Project Area and South Lake

Tahoe in general is located in Uniformed Building Code (UBC) Seismic Hazard Zone 3, a region of California characterized by historical seismic activity. This designation indicates that earthquakes in the region have the potential to make standing difficult and to cause some walls to fall. Structures in this zone must be designed to meet the regulations and standards associated with Zone 3 hazards set forth in the UBC and California Building Code. The UBC recognizes no active seismic source in the Project Area or vicinity. The region is seismically complex containing three major faults within the area: the West Tahoe Fault; the East Tahoe Fault; and the North Tahoe Fault. There are no active faults within the City of South Lake Tahoe. However, there are several known faults within 10 miles of the Project Area including the active Genoa Fault.

According to the California Division of Mines and Geology and California Geological Survey mapping, the District's service area overlies Quaternary period non-marine alluvium, lake, playa and terrace deposits, both unconsolidated and semi-consolidated.

Results from the NRCS Web Soils Survey of the Project Area may be found in Appendix 6. (NRCS 2007; <http://websoilsurvey.sc.egov.usda.gov/App/HomePage.htm>, Accessed December 15, 2020). A total of 36 soil map units from the Tahoe Soil Survey are contained within the Project Area. Of these soil units, 17 of them occur in less than 1% of the Area of Interest (AOI). Only two soil units occur in 10% or more of the AOI: the Christopher-Gefo complex (0-5% slopes) is found within 27% of the AOI and Jabu coarse sandy loam (0-9%) is found within 10.8% of the AOI.

2.6.B Checklist

CEQA Environmental Issues	Potentially Significant Impact	Less Than Significant With Mitigation	Less Than Significant Impact	No Impact
<i>Would the project:</i>				
A) Expose people or structures to potential substantial adverse effects, including the risk of loss, injury or death involving:				
i) Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? Refer to Division of Mines and Geology Special Publication 42.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
ii) Strong seismic ground shaking?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

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iii) Seismic-related ground failure, including liquefaction?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
iv) Landslides?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
B) Result in substantial soil erosion or the loss of topsoil?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
C) Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the Project and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction or collapse?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
D) Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial risks to life or property?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
E) Have soils incapable of adequately supporting the use?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

2.6.C Discussion

A-i) No Impact

The Project Area contains portions of the West Tahoe Fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist, and on the map prepared by Hart and Bryant (2007), and as stated in the Safety Element of the City of South Lake Tahoe's General Plan (2011). The West Tahoe Fault is located along the north western portion of the service area between Cascade Creek and Mt. Tallac Road running in a north south direction. The Project will be only upgrading and/or replacing existing pipelines and will not increase exposure to, exacerbation of, or impact on rupturing of the existing fault.

A-ii) No Impact

The West Shore Fault will not be impacted as a result of the Project. Therefore, the Project will have no impact on seismic ground shaking.

A-iii) No Impact

The Project will not result in exposure of people or structures to potential substantial adverse effects, including the risk of loss, injury or death involving seismic-related ground failure, including liquefaction, because the Project components will result in temporary impacts within the existing disturbed ROW.

A-iv) No Impact

The Project would have no impact on potential exposure of people or structures to landslides because the Project components are located within the existing disturbed ROW.

B) No Impact

The Project will not result in substantial soil erosion or the loss of topsoil because all Project components will result in temporary impacts within the existing disturbed ROW. After completion of the Project, the ROW will be re-paved. Therefore, the Project has no impact on soil erosion or topsoil.

C) Less than Significant Impact

The Project would have no impact on the potential for on or off-site landslide, lateral spreading, subsidence, liquefaction or collapse because the Project Area within the ROW is primarily flat and no unstable soil conditions exist that would lead to these events.

D) No Impact

The Project will not be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), and therefore, would not pose substantial risks to life or property from unstable soil conditions.

E) No Impact

The Project will not require the use of new septic tanks or alternative on-site wastewater disposal systems. Therefore, no impacts from the installation and use of septic tanks or alternative wastewater disposal systems would occur as a result of the Project.

2.7 GREENHOUSE GASES & CLIMATE CHANGE

2.7.A Environmental and Regulatory Settings

The State of California has implemented emissions reduction targets through Assembly Bill (AB) 32 and Senate Bill (SB) 32 and has set a goal of carbon neutrality by 2045. The City of South Lake Tahoe (City) has built on these goals and has developed its first Climate Action Plan (CAP), which was adopted by City Council on October 20th, 2020. The CAP outlines strategies for reducing greenhouse gas (GHG) emissions in various sectors, including transportation, building energy, land use, carbon sequestration and watershed health, and water and solid waste. It also includes adaptation strategies.

Becoming the 26th city in the nation to do so, the City adopted Resolution 2017-26, Establishing Renewable Energy and Carbon Emissions Reduction Goals. These goals

include 50% municipal renewable energy by 2025, 100% municipal renewable energy by 2032, and 100% community renewable electricity by 2032. The resolution additionally outlines the emissions reduction targets of a 50% reduction in community-wide emissions by 2030 and an 80% reduction in community-wide emissions by 2040. The CAP provides the guidance to reach these goals.

The District adopted a Climate Action Plan for the Capital Improvement Program in December 2019. This CAP utilizes the following framework to address the causes and effects of climate change that affect the District:

- Explore historical and future climate hazards that may affect the District
- Evaluate climate vulnerabilities for the District facilities and assets
- Begin a Greenhouse Gas (GHG) Inventory of major district facilities and assets based
 - on available data
- Conduct a qualitative risk analysis for major District facilities and assets
- Identify and weigh potential actions to mitigate climate hazard vulnerability, assigning
 - qualitative cost of implementation.

Using this framework, the District will identify a series of specific actions in its authority that it intends to take to address the causes and effects of climate change.

In El Dorado County, the primary source of GHG is fossil fuel combustion mainly in the transportation sector (estimated at 70% of countywide GHG emissions). A distant second are residential sources (approximately 20%), and commercial/industrial sources are third (approximately 7%). The remaining sources are waste/landfill (approximately 3%) and agricultural (<1%). In 2008, the El Dorado County adopted the “Environmental Vision for El Dorado County” [Resolution No. 29-2008](#), which sets forth goals and calls for implementation of positive environmental changes to reduce global impact, improve air quality and reduce dependence on landfills, promote alternative energies, increase recycling, and encourage local governments to adopt green and sustainable practices.

The El Dorado County Air Quality Management District (EDCAQMD), in association with a committee of air districts in the Sacramento region, has developed GHG thresholds that are intended to evaluate a project for consistency with GHG targets established in AB 32, particularly for emissions occurring by 2020. For the evaluation of construction-related emissions, the EDCAQMD recommends using the mass emission threshold of 1,100 metric tons (MT) of carbon dioxide equivalents (CO₂e) per year. For the evaluation of operational emission, the EDCAQMD recommends a two-tier approach:

- Tier I. Operational emissions of a project would not have a significant impact on the environment if they are less than 1,100 metric tons of CO₂e per year.
- Tier II (Performance-based threshold). Projects with operational emissions that exceed 1,100 metric tons of CO₂e per year, but are able to demonstrate a 21.7 percent reduction from a “No Action Taken” scenario compared to the proposed

project operating in 2020 would not conflict with California Air Quality Board CARB's Scoping Plan.

2.7.B Checklist

CEQA Environmental Issues	Potentially Significant Impact	Less Than Significant With Mitigation	Less Than Significant Impact	No Impact
<i>Would the project:</i>				
A) Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
B) Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

2.7.C Discussion

A) Less than Significant Impact

The assessment of GHG emissions is based on guidance from the El Dorado County Air Quality Management District (EDCAQMD). The EDCAQMD has established an emission threshold of 1,100 MT of CO₂e per year for construction and operational emissions in the County. During the construction phase of the Project, construction activities will generate GHG emissions. These emissions are associated with workers commuting to the construction site and the operation of construction equipment and tools. Implementation of the Construction Emissions Control Plan detailed in Section 1.3B will reduce emissions associated the construction. The Project will not result in any operational emissions because the project components are located underground.

The Road Construction Emissions Model V 8.1.0 (RCE Model) estimates total construction phase GHG emissions of 3,475 tons/day CO₂e. The model over-estimates emissions because it is not possible to eliminate operational emissions in the calculations. Estimated Project emissions of 185 tons CO₂e are far below the EDCAMD threshold and would not have a significant impact on the environment.

B) No Impact

The Project will not conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of GHG because such plans do not place specific thresholds on construction emissions.

2.8 HAZARDS & HAZARDOUS MATERIALS

2.8.A Environmental and Regulatory Settings

Projects that require the use of construction equipment always have an associated risk of accidental spill of hazardous materials. Hazardous materials can be a liquid, a solid, or a gas. Examples of hazardous materials are explosives, flammables, corrosives, radioactive materials, and poisons. Transportation of such materials is highly regulated to ensure the safety of the motoring public.

The Resource Conservation and Recovery Act (RCRA) gives the United States Environmental Protection Agency (USEPA) the authority to control the generation, transportation, treatment, storage, and disposal of hazardous waste. A search of the USEPA Envirofacts Database revealed a total of 81 RCRA sites located within the Project Area (accessed December 8, 2020):

<https://geopub.epa.gov/myem/efmap/index.html?ve=8,38.921664,-119.983000&pText=96150,%20South%20Lake%20Tahoe,%20California>

Most of California's hazardous material safety regulations are found in Title 13 of the California Code of Regulations, Division 2, Chapter 6. The Hazardous Waste Tracking System (HWTS) is the California Department of Toxic Substances Control's (DTSC) data repository for hazardous waste manifest and ID Number information. The system generates reports from 1993 to the present on hazardous waste shipments for generators, transporters, and treatment, storage and disposal facilities (TSDFs). A search of HWTS Geotracker Database (accessed December 8, 2020) revealed no hazardous material sites located within the Project Area:

<https://geotracker.waterboards.ca.gov/map/?CMD=runreport&myaddress=south+lake+tahoe>

The El Dorado County Department of Environmental Management, Hazardous Materials Division is the Cal-EPA certified Unified Program Agency for El Dorado County and is responsible for implementing the hazardous materials and household hazardous waste programs to ensure that hazardous materials and hazardous waste are properly managed. The Unified Program streamlines the administrative requirements, permits, inspections, and enforcement activities for a variety of environmental and emergency management programs related to hazardous waste. El Dorado County also maintains a Hazardous Materials Emergency Area Plan.

Under the California Fire Code Hazardous Materials Management Plan, local fire departments screen Hazardous Materials Inventory Statements and inspect sites. The El Dorado County Air Quality Management District evaluates projects for possible toxic emissions and also issues permits, as necessary.

2.8.B Checklist

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CEQA Environmental Issues	Potentially Significant Impact	Less Than Significant With Mitigation	Less Than Significant Impact	No Impact
<i>Would the project:</i>				
A) Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
B) Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the likely release of hazardous materials into the environment?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
C) Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
D) Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
E) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard for people residing or working in the Project Area?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
F) For a Project within the vicinity of a private airstrip, would the Project result in a safety hazard for people residing or working in the project site?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
G) Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
H) Expose people or structures to a significant risk of loss, injury or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

2.8.C Discussion

A) Less than Significant Impact

The Project would require the transportation, use, storage, and handling of minor amounts of hazardous materials needed for the replacement and rehabilitation of water and sewer lines, manhole rehabilitation, and asphalt paving. The sewer line repair method would utilize Cured-in-Place-Pipe (CIPP) which utilizes a textile liner impregnated with an epoxy based resin mixture. Manhole rehabilitation may utilize (CIPP), spray- or hand-applied polymer linings, or cementitious mortar linings. Spray- or hand-applied polymer linings include epoxies or polyurethanes. Construction equipment that utilizes gasoline, diesel, and other hazardous substances in small quantities will be associated with the Project

The proposed project will utilize products that contain volatile organic compounds (VOC): Carboguard 890 (1.81 lbs/gal), Carbothane 134 (1.58 lbs/gal), Bar-Rust 223H (1.41 lbs/gal) and Enviroline 230 (0.13 lbs/gal). The above products will be handled in accordance with existing rules and regulations. All materials used will meet El Dorado County Air Quality Management District Rule 215 -VOC Content Limits for Industrial Maintenance Coatings.

The Project will not involve the transportation of explosives, inhalation hazards or radioactive materials. The amount of hazardous materials necessary for the Project would not be substantial enough to create a significant hazard to the public or environment from the routine transport, use or disposal of hazardous materials during project implementation. The District will ensure that the risk is maintained at less than significant levels by requiring the selected contractor to comply with all federal, State, and local regulations and implement the Hazard and Safety Control Plan detailed in Section 1.3.I.

B) Less than Significant Impact

The quantities of hazardous substances utilized for Project construction are relatively small and would not be substantial enough to create a significant hazard to the public or environment from accidental release during project implementation. The risk of accidental exposure will be reduced to less than significant levels through the implementation of the Hazard and Safety Control Plan detailed in Section 1.3.I and BMPs for safe handling and use. The Project contractor will be required to comply with all federal, State, and local regulations regarding the use, transportation, and disposal of hazardous materials. Therefore, the risk from accidental release of hazardous materials during construction would be less than significant.

C) Less than Significant Impact

Public schools of the Lake Tahoe Unified School District and private and public pre-schools are located within one quarter of a mile of the Project Area. The Project does not involve the use of acutely hazardous materials. Implementation of the Hazard and Safety Control Plan detailed in Section 1.3.I will minimize the risk of hazardous emissions during construction. The Project contractor will be required to comply with all federal, State, and local regulations regarding the use and handling of hazardous materials on the

construction site. Therefore, the risk from accidental emissions or release of hazardous materials during construction would be less than significant.

D) No Impact

The California Department of Toxic Substances has compiled a special list of hazardous materials sites pursuant to Government Code Section 65962.5 called the “Cortese” list. A search of this list on the EnviroStor database did not find any sites located in El Dorado County. https://www.envirostor.dtsc.ca.gov/public/search.asp?cmd=search&reporttype=CORTESE&site_type Accessed December 9, 2020. Therefore, the Project has no impact.

E) Less than Significant Impact

A portion of the Project will be implemented in the Highway 50 corridor adjacent to the Lake Tahoe Airport (KTVL) and in residential neighborhoods within two miles of the airport. The risk of accidental exposure of hazardous substances to persons residing or working in the area will be reduced to less than significant levels through the implementation of the Hazard and Safety Control Plan detailed in Section 1.3.I and BMPs for safe handling and use. The Project contractor will be required to comply with all federal, State, and local regulations regarding the use, transportation, and disposal of hazardous materials. Therefore, the risk from accidental release of hazardous materials during construction would be less than significant.

F) No Impact

The Project is not located in the vicinity of a private airstrip, and therefore, creates no impact to human safety hazards in designated airstrip influence areas.

G) No Impact

Project-related activities will not interfere with an emergency response plan or emergency evacuation plan, including but not limited to the El Dorado County Emergency Operations Plan, the City of South Lake Tahoe Emergency Operations Plan, and the South Lake Tahoe Fire Department Fire Planning Process. Where temporary lanes closures are needed during Project construction, local traffic and emergency response vehicles will be allowed to pass though at all times. Therefore, the Project will result in no impacts to emergency response or evacuation plans.

H) No Impact

Catastrophic wildfire poses an imminent threat to South Lake Tahoe and surrounding areas. The Project includes waterline replacement and fire hydrant installation to upsize waterlines and increase pressure for fire-fighting. Therefore, the Project will have a beneficial impact on fire suppression capacity. The Project will not increase risk involving

wildfires because the Project would not increase residential land use densities in the wildland urban interface. Therefore, the Project has no impact.

2.9 HYDROLOGY AND WATER QUALITY

2.9.A Environmental and Regulatory Settings

The Lake Tahoe watershed (USGS HUC 18100200) is 505 sq. miles (1,310 km²) and includes the land area of the Lake Tahoe Basin in California and Nevada that drains to the lake. A total of 63 tributaries drain an area about the same size as the lake and produce half its water, with the balance entering as rain or snow falling directly on it. The Truckee River is the lake's only outlet, flowing northeast through Reno, Nevada, into Pyramid Lake. The river carries one third of the water that leaves the lake, with the balance evaporating from the lake's surface. The flow of the Truckee River and the height of the lake are controlled by the Lake Tahoe Dam at the outlet in Tahoe City. The natural rim of the lake is at 6,223 ft. above sea level. A spillway at the dam controls overflow and allows the lake to fill with an additional 6 feet of water storage to a maximum legal limit of 6,229.1 ft.

Lake Tahoe is oligotrophic, meaning it is nutrient limited, largely because of the high proportion of nutrient poor granitic rock in the basin. This nutrient limitation is what gives the lake its famed clarity. However, the lake is becoming increasingly eutrophic (having an excessive richness of nutrients), with primary productivity increasing every year and clarity decreasing. Suspended particulate matter from urban stormwater runoff is the dominant cause of the loss of clarity. Historic clarity was around 100 feet in depth. Clarity depth in 2019 averaged only 62.7 feet. The lowest average value recorded was 60 feet in 2017.

While the Project Area does not include Lake Tahoe, it is indirectly connected to multiple Stream Environment Zones (SEZs) including Lake Tahoe, the Upper Truckee Marsh, and the Upper Truckee River (see Figure 7- Chapter 2. 4) through existing storm water drainage systems, including curb and gutter systems and drop inlets along the road ROW.

The State of California Lahontan Regional Water Quality Control Board (Lahontan) is directed by the federal Clean Water Act, the Porter-Cologne Water Quality Control Act, and other federal and state laws to set water quality standards and to regulate activities in the Lahontan Region of California, which includes the California portion of the Lake Tahoe Basin. Water quality management plans are required for certain areas under Section 208 of the Clean Water Act. The Lake Tahoe (208) Water Quality Management Plan outlines water quality standards and non-point source management and control in the Lake Tahoe Basin in both the California and Nevada.

In California, Regional Water Quality Control Boards maintain Water Quality Control Plans (Basin Plans) for each major hydrologic basin within the state. Lake Tahoe is within the North Lahontan Basin which includes parts of Modoc County in the north and south to Bridgeport in Mono County. The Lahontan Basin Plan outlines water quality conditions, designates beneficial uses for water bodies, identifies water quality problems associated with human activities, and establishes water quality objectives and measures to protect

beneficial uses. The Basin Plan sets forth water quality standards, waste discharge prohibitions and control measures for surface and ground waters of the entire Lahontan Region. Chapter 5 of the plan is specific to the Lake Tahoe Basin and specifies water quality standards and control measures.

The TRPA Regional Plan establishes a number of goals and policies that address water quality in the Lake Tahoe Region, as implemented through the Code of Ordinances Chapter 33, Grading and Construction, Chapter 35, Natural Hazard Standards, Chapter 36, Design Standards, and Chapter 60, Water Quality, which detail the requirements for soil and water protection, water quality controls, and BMPs. The District's MOU with TRPA for Public Works Providers allows for repair and maintenance of underground facilities without TRPA's review.

2.9.B Checklist

CEQA Environmental Issues	Potentially Significant Impact	Less Than Significant With Mitigation	Less Than Significant Impact	No Impact
<i>Would the project:</i>				
A) Violate any water quality standards or waste discharge requirements?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
B) Substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g., the production rate of pre-existing nearby wells would drop to a level which would not support existing land uses or planned uses for which permits have been granted)?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
C) Substantially alter the existing drainage pattern of the area, including through the alteration of the course of a stream or river, in a manner which would result in substantial erosion or siltation on- or off-site?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
D) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner, which would result in flooding on- or off-site?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

STPUD DISTRICT-WIDE WATER AND SEWER FACILITIES UPGRADE PROJECT
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E) Create or contribute runoff water which would exceed the capability of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
F) Otherwise substantially degrade water quality?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
G) Place housing within a 100-year flood hazard area as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
H) Place within a 100-year flood hazard area structures, which would impede or redirect flood flows?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
I) Expose people or structures to a significant risk of loss, injury or death involving flooding, including flooding as a result of the failure of a levee or dam?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
J) Cause inundation by seiche, tsunami, or mudflow?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

2.9.C Discussion

A) Less than Significant Impact

A violation of any federal, regional or State of California water quality standards or waste discharge requirements would constitute a significant impact. Project activities are limited to the ROW within the City of South Lake Tahoe and El Dorado County. The replacement or repair of aging and/or damaged sections of water and sewer pipeline will reduce the potential for further pipeline rupture that could adversely impact water quality. Project operation would not result in direct or indirect impacts to surface water quality that would violate standards because the components are located underground.

During construction, storm water runoff could occur through existing storm water drainage systems, including curb and gutter systems and drop inlets along the road ROW. Best Management Practices (BMPs) to limit storm water runoff (1.3.D BMPs to Protect Surface and Ground Water/Sediment and Erosion Control Plan) will be installed and maintained throughout the construction period. The Project design also includes measures to limit emissions (1.3.B Construction Emission Control Plan) and control dust (1.3.C Fugitive Dust Control Plan) from construction. In addition, the Project contractor will be required to identify methods and techniques to minimize the potential for spill and implement approved containment and spill-control practices (1.3. I Hazard and Safety Control Plan spill control) during construction. Following excavation and trenching, paved areas will be returned to existing grade and repaved. Unpaved areas will be revegetated to minimize the potential for erosion from wind and surface water.

The District will require the selected contractor to comply with all federal, State, and local water quality regulations and implement specified Project design measures. Therefore, Project construction would not result in a violation of water quality standards or waste discharge requirements and the risk to water quality is less than significant.

B) No Impact

Project activities that substantially deplete groundwater supplies or interfere with aquifer recharge or existing hydrologic conditions would constitute a significant impact. The proposed Project would replacing water and sewer mains that have reached the end of their useful life in order to reduce water system losses. This would have the beneficial effect of reducing groundwater extraction associated with the water and sewer systems. The Project does not involve new extraction of groundwater and would not create new or additional impervious surfaces that could significantly alter groundwater recharge. Therefore, the Project has no impact on groundwater supplies.

C) No Impact

If a project substantially alters the existing drainage pattern of an area in a manner that results in substantial erosion or siltation on or off-site, the impacts would be considered significant.

Project activities are limited to the ROW and construction will not result in new or additional disturbance outside of the ROW. Project operation would not alter existing drainage patterns or alter the course of a stream or river because the components are below ground. Therefore, the Project will not that would result in substantial erosion or siltation on-or off-site and the Project has no impact.

D) No Impact

If a project substantially alters the existing drainage pattern of an area or alters the course of a stream or river that would result in substantial flooding on-or off-site, the impacts would be considered significant.

Project activities are limited to the ROW and construction will not result in new or additional disturbance outside of the ROW. Project operation would not alter existing drainage patterns or alter the course of a stream or river because the components are below ground. Therefore, the Project would not result in substantial flooding on-or off-site and the Project has no impact.

E) Less than Significant Impact

If a project creates or contributes runoff water that would exceed the capability of existing or planned stormwater drainage systems or substantially increases polluted runoff, the impacts would be considered significant.

Storm water runoff could occur through existing storm water drainage systems, including curb and gutter systems and drop inlets along the road ROW. The Project design includes Best Management Practices (BMPs) to limit storm water runoff (1.3.D BMPs to Protect Surface and Ground Water/Sediment and Erosion Control Plan) that will be installed and maintained throughout the construction period. The District will require the selected contractor to implement specified Project design measures to limit storm water runoff during construction. Following excavation and trenching, paved areas will be returned to existing grade and repaved. Unpaved areas will be revegetated to minimize the potential for erosion from wind and surface water. Project operation would not result in storm runoff because the components are below ground. Therefore, the Project would have a less than significant impact on source of polluted runoff.

F) No Impact

Project activities are limited to the ROW within the City of South Lake Tahoe and El Dorado County. The replacement or repair of aging and damaged sections of water and sewer pipeline will reduce the potential for future pipeline rupture that could adversely affect water quality. Other than potential storm runoff, construction activities in paved areas would not be expected to result in substantial direct or indirect other impacts that degrade water quality because Project components are below ground. Therefore, the Project would have no impact on water quality.

G) No Impact

Significant impacts may result if the Project would place housing within a 100-year flood hazard area as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map. **Figure 8** depicts the Project Area FEMA floodplains. The Project does not involve the installation of housing and therefore, no impacts to property flood risk would result.

H) No Impact

Significant impacts may result if the Project would place structures within a 100-year flood hazard area that would impede or redirect flood flows. The Project does not involve any structure that could impede flows because the pipelines are below ground surface. Therefore, no impacts to flood risk would result.

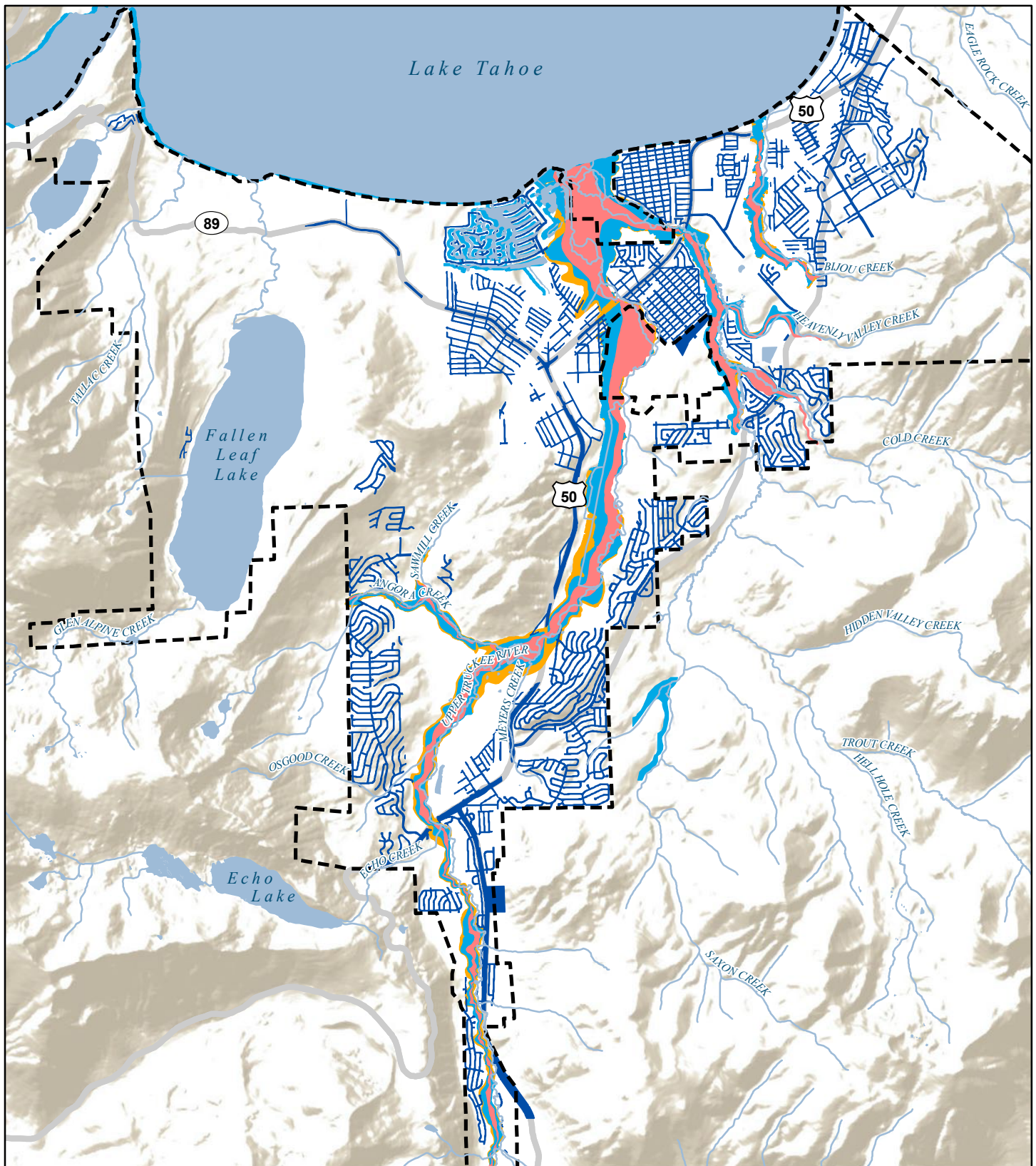
I) No Impact

A project that would expose people or structures to a new significant risk of loss, injury, or death involving flooding, including flooding as a result of the failure of a levee or dam, would result in significant impacts.

The improvement of water and sewer pipelines would have no impact on flood risk because the Project components are located below ground. No Project activities would occur in the vicinity of a levee or dam. Therefore, the Project has no impact on flood risk.

J) No Impact

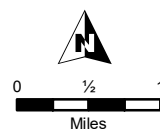
A Project that would cause inundation by seiche, tsunami, or mudflow would constitute a significant impact. The improvement of water and sewer pipelines would not increase the risk of large waves occurring on Lake Tahoe or increase the potential for mudflows because the Project components are located below ground. Therefore, the Project would have no impact on the inundation risk from these natural disasters.



LEGEND

- STPUD Service Area
- Asset Right-of-Way (Project)
- 100-year Floodplain
- 500-year Floodplain
- Regulatory Floodway

Sources: STPUD; FEMA; ArcGIS Online Shaded Relief Map Service. Map date: November 12, 2020.



STPUD SEWER AND WATER PIPE NETWORK

Figure 7. FEMA Floodplains



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2.10 LAND USE AND PLANNING

2.10.A Environmental and Regulatory Settings

The Tahoe Basin contains a wide range of land use including commercial uses, residences, tourist accommodations, recreational uses, and wilderness areas. The District-Wide Water and Sewer Main Upgrade Project will occur entirely underground within the ROW in the Service Area. Under the TRPA Regional Plan, a wide spectrum of Plan Area Statements (PAS), Area Plans (AP), and Community Plans (CP), apply to the land uses adjacent to the ROW. These Plans specify public utilities as a Permissible Use and include the need for additional fire hydrants and improved water system within the planning considerations listed in the Plans. The District currently has a Memorandum of Understanding (MOU) with TRPA (2012) that gives public works providers authority to review their own projects for conformance with TRPA standards. The MOU can be located here:

http://www.trpa.org/wp-content/uploads/FINAL_Public_Works_MOU.pdf

The repair and maintenance of underground facilities is considered an Exempt activity and may occur without TRPA review. The listing of Exempt and Qualified Exempt Activities can be found here:

http://www.trpa.org/wp-content/uploads/FINAL_Public_Works_MOU_Attachment_B.pdf

2.10.B Checklist

CEQA Environmental Issues	Potentially Significant Impact	Less Than Significant With Mitigation	Less Than Significant Impact	No Impact
<i>Would the project:</i>				
A) Physically divide an established community?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
B) Conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the Project (including, but not limited to the general plan, specific plan, local coastal program, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
C) Conflict with any applicable habitat conservation plan or natural communities conservation plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

2.10.C Discussion

A) No Impact

Installation of the Project will not physically divide an established community because it will occur entirely within the developed ROW and result in very short term temporary impacts.

B) No Impact

The District-Wide Water and Sewer Main Upgrade Project will occur entirely underground within the ROW in the Service Area. Water and sewer systems are essential infrastructure the repair and maintenance of underground facilities is considered an Exempt activity under the TRPA Regional Plan and may occur without TRPA review. Therefore, the Project complies with local and regional applicable land use plans, policies, and regulations.

C) No Impact

No habitat conservation plan or natural community conservation plan are applicable to the Project Area, and therefore, the Project would have no impact on such plans.

2.11 MINERAL RESOURCES

2.11.A Environmental and Regulatory Settings

For the purpose of CEQA analysis, “mineral resources” refers to aggregate resources. Aggregate consists of sand, gravel, and crushed rock. Aggregate provides bulk and strength in some construction materials such as asphalt, concrete and Portland cement concrete. The State Mining and Geology Board establishes guidelines for mineral deposits and classifies Mineral Resource Zones or MRZs.

There are no mapped mineral resources within the Project Area. Additionally, a review of the TRPA Regional Plan, various Plan Area Statements, City of South Lake Tahoe General Plan, and El Dorado County General Plan identifies no mineral recovery sites within the Project Area.

2.11.B Checklist

CEQA Environmental Issues	Potentially Significant Impact	Less Than Significant With Mitigation	Less Than Significant Impact	No Impact
<i>Would the project:</i>				
A) Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
B) Result in the loss of availability of a locally-important mineral resource recovery site delineated on a local general plan, specific plan or other land use plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

2.11.C Discussion

A-B) No Impact

A project would cause a potentially significant impact to mineral resource if project actions resulted in the loss of availability of a known mineral resource that would be of value to the region and the residents of California. The Project Area is not located in Mineral Resource Zones 1 through 4 classification areas and there are no economically feasible extraction operations within the Project Area. Applicable Plans do not identify any mineral recovery sites within the Project Area. Therefore, no impacts to mineral resources would occur from the Project.

2.12 NOISE

2.12.A Environmental and Regulatory Settings

The TRPA Code of Ordinances Chapter 68 establishes noise standards for single noise events (i.e. for watercraft or off-road vehicles) and cumulative noise levels. Cumulative noise is addressed in the standards of individual area plans, plan area statements (PAS), and community plans and is expressed as a Community Noise Equivalency Level (CNEL). The CNEL is expressed as an A-weighted decibel (dBA) and is the average sound level over a 24-hour period on a scale adjusted to human hearing. For each type of area Plan, the noise produced by any activity or combination of activities may not exceed the established CNEL standard. However, these established noise limitations do not apply to noise from TRPA-approved construction or maintenance projects, or the demolition of structures, provided that such activities are limited to the hours between 8:00 a.m. and 6:30 p.m. Monday through Friday.

The Project will occur in the ROW adjacent to multiple land uses within the District's Service Area. Automobile traffic is the primary source of existing noise, however noise in the area ranges widely depending on location. Within the Region, wilderness and roadless areas and areas with critical wildlife habitats have the most restrictive noise standard (CNEL of 45 dBA). Low-density residential areas and rural outdoor recreation areas have a slightly less restrictive CNEL standard of 50 dBA, while higher density and mixed use areas have CNEL standards ranging from 50-65 dBA. Because the ROW is not adjacent to any wilderness or roadless areas, the most restrictive PAS CNEL would be in residential Plan Areas where the maximum CNEL ranges from 50-65 dBA.

The Project construction activities would be limited to the hours between 8:00 a.m. and 6:30 p.m., Monday- Friday. General construction equipment that would be utilized for waterline and sewer line projects include excavator, mini-excavator, loader, water truck, service vehicles, small remote sheeps-foot compactor, vacuum truck, sweeper, milling machine, smooth drum compactor, and a paving machine. All but the paving equipment (the last 3 on the list) are used every day within the Service Area. This construction equipment may generate intermittent noise levels up to 75 dBA.

The City of South Lake Tahoe Code has a noise ordinance for vacation home rental noise after 10pm, but does not establish any noise standards for construction related activities. The Public Health, Safety, and Noise Element of the El Dorado County General Plan addresses community noise problems, in accordance with Government Code Section 65302(f). The acceptable noise level standards do not apply to those activities associated with actual construction of a project as long as such construction occurs between the hours of 7 a.m. and 7 p.m., Monday through Friday, and 8 a.m. and 5 p.m. on weekends, and on federally, recognized holidays.

2.12.B Checklist

CEQA Environmental Issues	Potentially Significant Impact	Less Than Significant With Mitigation	Less Than Significant Impact	No Impact
<i>Would the Project result in:</i>				
A) Exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
B) Exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
C) A substantial permanent increase in ambient noise levels in the Project vicinity above levels existing without the project?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

D) A substantial temporary or periodic increase in ambient noise levels in the Project vicinity above levels existing without the project?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
E) For a Project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the Project expose people residing or working in the project site to excessive noise levels?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
F) For a Project within the vicinity of a private airstrip, would the Project expose people residing or working in the project site to excessive noise levels?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

2.12.C Discussion

A) No Impact

Noise generation from the Project during construction activities for the water and sewer upgrades in the ROW will be temporary and short-term in nature. Construction noise generation that is proposed is similar to trash removal, lawn mowing, and other maintenance noise. The Project construction activities are limited to the hours between 8:00 a.m. and 6:30 p.m., Monday- Friday. TRPA established noise limitations do not apply to noise from TRPA-approved construction or maintenance projects, provided construction is limited to those hours. The City of South Lake Tahoe Code does not establish any noise standards for construction related activities. The acceptable noise level standards in the Public Health, Safety, and Noise Element of the El Dorado County General Plan do not apply to construction activities as long as the construction occurs between the hours of 7 a.m. and 7 p.m., Monday through Friday, and 8 a.m. and 5 p.m. on weekends. Therefore, the Project complies with applicable plans, noise ordinances and standards and will have no impact.

B) No Impact

Ground-borne vibration is generally defined as an oscillatory motion through a solid medium. A primary source of ground borne vibrations is vehicle traffic. Construction equipment used in trenching and excavation of the water and sewer lines would not result in ground-borne vibrations because the District does not use vibratory rollers in re-paving. Therefore, the Project would not expose persons to ground-borne vibration or ground-borne noise levels and would result in no impact.

C) No Impact

The Project involves temporary construction in the ROW and would not generate any source of noise following completion of construction. Therefore, the Project will not create

any permanent increase in ambient noise levels in the Project vicinity above existing levels.

D) Less Than Significant Impact

The Project construction activities will not include the use of explosives or other materials that would cause a significant single event noise. Construction activities are limited to the hours between 8:00 a.m. and 6:30 p.m., Monday- Friday and would result in a temporary and intermittent increase in ambient noise levels during these hours. However, TRPA Code Section 68 exempts approved construction projects from established noise limitations when construction is limited to those hours. Therefore, the temporary increase in ambient noise levels in the Project vicinity are not considered substantial and would result in a less than significant impact.

E) No Impact

The Airport Plan Area Statement (PAS) includes the Lake Tahoe Airport (KTVL) and surrounding area along Highway 50. A portion of the Project will occur within the Highway 50 corridor on the west side of the airport and in residential neighborhoods within 2 miles east of the airport. Project construction activities include temporary increases in noise between 8:00 a.m. and 6:30 p.m., Monday- Friday but will not include the use of explosives or other materials that would cause a significant single event noise. Therefore, the Project will not expose people residing or working in the area to excessive noise and the Project has no impact.

F) No Impact

The Project would not be located within the vicinity of a private airstrip, and therefore, would not expose people working in the Project site to excessive noise levels from air traffic.

2.13 POPULATION & HOUSING

2.13.A Environmental and Regulatory Settings

Population growth in the Lake Tahoe Region has been slow because of basin-wide growth-control measures, ongoing conversion of resident homes to second homes, urbanization outside the area, and increased employee commuting to communities outside of the Basin in Placerville, California and western Nevada.

The population in the South Lake Tahoe area was 21,403 persons in the 2010 Census (US Census Bureau). The estimated population in July, 2019 was 22,197 which represents a growth rate of 3.7% and an annual growth rate of 0.4%. Population growth in South Lake Tahoe and the surrounding region occurs at a low rate due to stringent

constraints on new housing development in the TRPA Regional Plan and Code of Ordinances.

Housing in the South Tahoe Region ranges from low-income rental units, single family dwellings, timeshares, to million-dollar resort homes. According to the 2010 U.S. Census, there were approximately 15,087 housing units in the South Lake Tahoe area, many of which are second homes. From 2014-2018 the owner-occupied housing rate was an estimated 44% (<https://www.census.gov/quickfacts/southlaketahoecitycalifornia>).

2.13.B Checklist

CEQA Environmental Issues	Potentially Significant Impact	Less Than Significant With Mitigation	Less Than Significant Impact	No Impact
<i>Would the project:</i>				
A) Induce substantial population growth in an area, either directly (e.g., by proposing new homes and businesses) or indirectly (e.g., through extension of roads or other infrastructure)?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
B) Displace substantial numbers of existing housing, necessitating the construction of replacement housing elsewhere?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
C) Displace substantial numbers of people necessitating the construction of replacement housing elsewhere?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

2.13.C Discussion

A) No Impact

The upgrades proposed in the Project apply to the existing water and sewer system. The waterline replacement program proposes to replace aging pipes, upsize small diameter pipes, and add fire hydrants where there currently are none. The Project would result in improved water efficiency and enhanced fire protection capability within the community the District serves. The addition of fire hydrants does not represent a significant expansion of infrastructure that would indirectly increase population. The sewer rehabilitation or replacement portion of the Project applies exclusively to existing facilities. Therefore, the Project would not induce substantial population growth in the area and would have no impact.

B) No Impact

The Project displaces no existing housing and thus would not necessitate the construction of replacement housing.

C) No Impact

The Project displaces no people and thus would not necessitate the construction of replacement housing.

2.14 PUBLIC SERVICES

2.14.A Environmental and Regulatory Settings

The District's Service Area and the Project Area encompasses the City of South Lake Tahoe, unincorporated parts of El Dorado County, Washoe Meadows State Park, and the Lake Valley State Recreation Area.

Fire Protection is provided by South Lake Tahoe Fire Rescue and the Lake Valley Fire Department with support from the US Forest Service and CalFire, as necessary. Police protection is provided by the City of South Lake Tahoe Police Department and the El Dorado County Sheriff's Department. Public schools (K-12) are part of the Lake Tahoe Unified School District and the Lake Tahoe Community College provides free continuing education in support of 2 or 4 year degrees. In addition to South Tahoe Public Utility District, serve the Project Area. Washoe Meadows State Park has no developed facilities or public services. The developed part of the Lake Valley State Recreation is the Lake Tahoe Golf Course, which is served by the District, but the sewer and water in the surrounding area is excluded from the Project Area. Other park services are provided by the City of South Lake Tahoe Parks and Recreation Department. The District is the main provider of water and sewer in the Project Area.

2.14.B Checklist

CEQA Environmental Issues	Potentially Significant Impact	Less Than Significant With Mitigation	Less Than Significant Impact	No Impact
<i>Would the Project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for any of the public services:</i>				
A) Fire Protection?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
B) Police Protection?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
C) Schools?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

D) Parks?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
E) Other public facilities?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

2.14.C Discussion

A-E) No Impact

The Project will not require additional public services and thus creates no impact to acceptable service ratios, response times or other performance objectives. Existing fire, police, and other governmental services are sufficient to accommodate the service needs of the Project. The Project will not necessitate the expansion of the equipment, facilities, or manpower of responsible fire, police, health, or school services in order to maintain current service ratios and response times. The Project also will not result in substantial adverse physical impacts associated with the provision of new or altered fire, police, health, or school facilities. There will be no need for new or physically altered governmental facilities. The Project would not result in negative impacts to public services.

2.15 RECREATION

2.15.A Environmental and Regulatory Settings

The Project Area includes multiple recreation opportunities including National Forest System land. Washoe Meadows State Park has no developed facilities or public services. The only developed part of the Lake Valley State Recreation is the Lake Tahoe Golf Course, which is served by the District, but these sewer and water assets are excluded from the Project Area (see Figure 2). Other park services, including neighborhood parks, are provided by the City of South Lake Tahoe Parks and Recreation Department.

Several components of the TRPA Regional Plan address policies and regulations pertaining to recreation. These components include: Environmental Carrying Capacities (i.e., Resolution 82-11); Goals and Policies; and Code of Ordinances Chapters 11 and 12. The TRPA Threshold Evaluation Report (TRPA 2015) reports that recreation thresholds are in attainment.

The Project Area contains on-street bicycle lanes and routes and sidewalks within the ROW that may be temporarily disturbed during the water and sewer line replacement and/or rehabilitation. The Lake Tahoe Bicycle and Pedestrian Plan (TMPO 2010) guides the planning, construction and maintenance of the regional bicycle and pedestrian network and support facilities and programs. The existing and planned network can be viewed at <http://gis.trpa.org/bikemap/>.

2.15.B Checklist

CEQA Environmental Issues	Potentially Significant Impact	Less Than Significant With Mitigation	Less Than Significant Impact	No Impact
<i>Would/Does the project:</i>				
A) Increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
B) Include recreational facilities or require the construction or expansion of recreational facilities, which might have an adverse physical effect on the environment?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

2.15.C Discussion

A) No Impact

The Project Area includes neighborhood and regional parks and other recreational facilities. However, the Project is limited to the ROW and will not involve actions that would increase the use of existing recreational facilities or cause deterioration. Therefore, the Project would result in no impact to these facilities.

B) No Impact

The Project Area includes recreational facilities, however, the Project is limited to the ROW and would not require the construction or expansion of recreational facilities. Therefore, the Project would have no adverse physical effect on the environment.

2.16 TRANSPORTATION & TRAFFIC

2.16.A Environmental and Regulatory Settings

The District's Service Area and the Project Area encompasses the City of South Lake Tahoe and unincorporated parts of El Dorado County. Regional access to the Project Area is provided by US Highway 50 (US 50) from the east and west. California State Route 89 (SR 89) provides access from the north and south. Caltrans administers California's State highway system. The City of South Lake Tahoe Public Works Department is responsible for the maintenance and repair of city streets. The Maintenance and Operations Division of the El Dorado County Transportation Department manages repair, maintenance and replacement of existing County roadway and drainage infrastructure.

TRPA is designated as the Tahoe Metropolitan Planning Organization (TMPO) for state and federal transportation planning. In addition to fulfilling the Bi-State Compact's

directives, as the TMPO, TRPA must develop a long-range Regional Transportation Plan (RTP) consistent with federal transportation laws. The RTP must also meet statutory requirements in California through the adoption of a “Sustainable Communities Strategy” (SCS). The SCS lays out a plan for reducing passenger vehicle related greenhouse gas (GHG) emissions in California. The goals and policies of the RTP are identical to those in the Regional Plan Transportation Element. In addition to goals and policies, the RTP also includes a detailed transportation improvement strategy, predicated on received or forecasted funding. The bi-state Tahoe Transportation District, implements projects and operates transit services throughout the Tahoe Region. Learn more about this partnership at www.linkingtahoe.com/about-us/.

Table 2.16-1 provides an overview of the local and regional transportation and circulation standards in the Project Area.

<p>TABLE 2.16-1 LOCAL AND REGIONAL TRANSPORTATION AND CIRCULATION STANDARDS</p>	
Plan/Policy	Standard/Criteria
2020 Linking Tahoe: Regional Transportation Plan	The Regional Transportation Plan (RTP) focuses on 4 areas: transit, technology, trails, and communities and corridors. The vision of the Plan is that Tahoe’s transportation system is interconnected, inter-regional, and sustainable, connecting people and places in ways that reduce reliance on cars. The goals and policies of the 2020 RTP are identical to those in the Regional Plan Transportation Element.
TRPA Regional Plan Transportation Element	<p>Goal 4 Operations and Congestion Management: Provide an efficient transportation network through coordinated operations, system management, technology, monitoring, and targeted investments.</p> <p>Policy 4.6 establishes level of service (LOS) criteria for various roadway categories and signalized intersections during peak periods as follows:</p> <ul style="list-style-type: none"> - LOS C on rural recreational/scenic roads; - LOS D on rural developed area roads; - LOS D on urban developed area roads; - LOS D for signalized intersections; - LOS E may be acceptable during peak periods in urban areas, not to exceed four hours/day. <p>There is no LOS for intersections with no signals.</p>
El Dorado County General Plan	The General Plan states that LOS for County-maintained roads and state highways within the unincorporated areas of the county shall not be worse than LOS E in the Community Regions or LOS D in the Rural Centers and Rural Regions.
South Lake Tahoe General Plan	The General Plan states that the City shall establish a minimum LOS standard “D” for all City streets and intersections. Up to four hours per day of LOS “E” shall be considered acceptable. LOS shall be considered based on average delay for the intersection as a whole for signalized intersections, and for the worst approach for intersections controlled by stop signs or roundabouts. LOS shall be evaluated for a busy, but not peak traffic, day in the peak seasons.

TABLE 2.16-1
LOCAL AND REGIONAL TRANSPORTATION AND CIRCULATION STANDARDS

Plan/Policy	Standard/Criteria
Caltrans District 3 Thresholds	Requires that measures be identified to mitigate significant impacts caused by project traffic on state highways. The following are considered to be significant impacts: <ul style="list-style-type: none"> - Vehicle queues at intersections exceeding the existing storage lane length; - Project impacts that cause the highway or intersection LOS to deteriorate beyond LOS D. If LOS is already "E" or "F", then quantitative measure of increased queue lengths and delay should be used to determine appropriate mitigation measures.

SOURCE: SIERRA ECOTONE SOLUTIONS 2020

2.16.B Checklist

CEQA Environmental Issues	Potentially Significant Impact	Less Than Significant With Mitigation	Less Than Significant Impact	No Impact
<i>Would the project:</i>				
A) Conflict with an applicable plan, ordinance or policy establishing measures of effectiveness for the performance of the circulation system, taking into account all modes of transportation including mass transit and non-motorized travel and relevant components of the circulation system, including but not limited to intersections, streets, highways and freeways, pedestrian and bicycle paths, and mass transit?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
B) Conflict with an applicable congestion management program, including, but not limited to level of service standards and travel demand measures, or other standards established by the county congestion management agency for designated roads or highways?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
C) Result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
D) Substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
E) Result in inadequate emergency access?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

F) Conflict with adopted policies, plans, or programs regarding public transit, bicycle, or pedestrian facilities, or otherwise decrease the performance or safety of such facilities?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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2.16.C Discussion

A) No Impact

Project Activities are limited to the ROW and underground facilities. Since Project activities will occur within the road Right-of-Way and be contained underground, the Project would not have an impact on the effectiveness or performance of the circulation system in the Project Area. Therefore, the Project would not conflict with applicable plans, ordinances, or policies related to the operation of the transportation system or mass transit including the TRPA 2020 Regional Transportation Plan or the Transportation Element of the Regional Plan.

B) No Impact

The proposed Project will not conflict with a congestion management program. The Traffic Control Plan outlined in Section 1.3.H will include signage advising road users of construction activities and Right-of-Way work. Flaggers will be stationed when lane closures are necessary. Minor delays (5 minutes wait time maximum) on residential streets may occur when the Traffic Control Plan determines lane closures are necessary. Traffic control devices will be removed when active work is not occurring. Temporary delays on roadways within the Project Area will not result in permanent or long-term impacts to level of service standards or have an impact on congestion on local or regional roads or highways. The Project will not result in any increase in travel demand. Therefore, the Project will have no impact.

C) No Impact

The Project will not have an effect on air traffic patterns or result in the increase in air traffic levels. A portion of the Project will occur within the Highway 50 corridor on the west side of the Lake Tahoe Airport (KTVL). Temporary construction in this portion of the Project would not last more than a few days and would have no impact on traffic levels. The Project would result in no change in location that would increase safety risks in the area. Therefore, the project will have no impact.

D) No Impact

The design of the Project will not increase hazards to the Project Area because project infrastructure would operate below ground surface. There will be no changes in the configuration, ingress, egress or other permanent physical alterations, or changes in use of the Project Area roadways that would create additional hazards.

E) No Impact

During Project construction local traffic, in addition to emergency response vehicles, will be allowed to pass through at all times. Therefore, adequate emergency access will be maintained during construction. Long-term operations of the Project would result in no impact to emergency access and response.

F) No Impact

The Project Activities are limited to the ROW and underground facilities. The Project will not conflict with any of the pedestrian, bicycle or public transit policies outlined in the 2020 Regional Traffic Plan or have any negative impact on the performance of any of the existing or proposed programs of the Plan.

2.17 UTILITIES & SERVICE SYSTEMS

2.17.A Environmental and Regulatory Settings

Public utilities and service systems include the water distribution system, sewer services, waste water collection and treatment system water, and solid waste disposal. Within the Project Area, the South Tahoe Public Utility District (District) owns and operates the water distribution system and the waste water collection and treatment system within its Service Area. Solid waste collection, recycling and disposal is carried out by South Tahoe Refuse and Recycling. Solid waste is transported to the X landfill. Electrical power is supplied by Liberty Utilities and natural gas by Southwest Gas.

Relevant regulation of public utilities includes the following:

- As described in Section 1.4, the District has an MOU with TRPA for Public Works Providers that allows for repair and maintenance of underground facilities without TRPA's review (TRPA 2012).
- The City of South Lake Tahoe Public Works Department administers street maintenance and the District must apply for a Right-of-Way Encroachment, Excavation and Grading Permit for construction activities within the ROW in City limits.
- The District must comply with General Waste Discharge Requirements specified by the Regional Water Quality Control Board and the Water Quality Control Plan for the Lahontan Region (Basin Plan).
- The Lahontan Regional Water Quality Control Tahoe General Construction Permit (Board Order R6T-2016-0010) regulates discharges of pollutants in storm water associated with construction activity (storm water discharges). However, construction for routine maintenance of existing municipal water and sewer facilities under an approved NPDES Storm Water Management Program are exempt from this permit.
- The South Lake Tahoe Basin Waste Management Authority is a Joint Powers Authority (JPA) consisting of three (3) jurisdictions; City of South Lake Tahoe, El

Dorado County and Douglas County. The South Lake Tahoe Basin Waste Management JPA was created to encourage construction of a materials recovery facility and other solid waste handling facilities in the Tahoe Basin.

The City of South Lake Tahoe General Plan contains the following policies that are applicable to water supply and services:

- Policy PQP-2.2 Coordination with Urban Water Management Plan. The City should coordinate with and support the planning efforts of the South Tahoe Public Utility District (District), including all measures contained in the Urban Water Management Plan.
- Policy PQP-2.4 Sustainable Water Use. The City shall encourage efficient practices that ensure water is used in a sustainable manner.
- Policy PQP-2.5 Sustainable Water Distribution. The City shall support local water supply agencies in upgrading public water systems, as needed, to ensure efficient and sustainable water distribution.
- Policy PQP-2.7 Water and Wastewater Management Strategy. The City shall support water and wastewater agencies in developing an innovative water and wastewater management strategy that considers water supply and treatment systems.

2.17.B Checklist

CEQA Environmental Issues	Potentially Significant Impact	Less Than Significant With Mitigation	Less Than Significant Impact	No Impact
<i>Would the project:</i>				
A) Exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
B) Require or result in the construction of new water or wastewater treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
C) Require or result in the construction of new storm water drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

STPUD DISTRICT-WIDE WATER AND SEWER FACILITIES UPGRADE PROJECT
SEPTEMBER 29, 2021

D) Have sufficient water supplies available to serve the Project from existing entitlements and resources, or are new or expanded entitlements needed?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
E) Result in a determination by the wastewater treatment provider, which serves or may serve the Project that it has adequate capability to serve the project's projected demand in addition to the provider's existing commitments?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
F) Be served by a landfill with sufficient permitted capability to accommodate the project's solid waste disposal needs?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
G) Comply with federal, state, and local statutes and regulations related to solid waste?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

2.17.C Discussion

A) No Impact

The District must comply with General Waste Discharge Requirements specified by the Regional Water Quality Control Board and the Water Quality Control Plan for the Lahontan Region (Basin Plan). A project that would cause Lahontan regional wastewater treatment requirements to be exceeded would constitute a significant impact.

The Project includes the replacement and/or rehabilitation of existing lines and does not include new sewer lines or new connections to the existing municipal wastewater treatment plant. Therefore, the Project will not result in the generation of wastewater or the exceedance of waste water treatment requirements. Therefore, the Project will have no impact.

B) No Impact

A project that would result in adverse environmental effects from the construction of new water or wastewater treatment facilities or expansion of existing facilities that would be necessary to serve and increase capacity would constitute a significant impact.

The Project includes the replacement and/or rehabilitation of existing water and sewer lines located exclusively within the ROW. No new waste water facilities are proposed. The installation of new fire hydrants would expand existing water facilities and increase capacity for fire protection. Therefore, the Project will have a beneficial impact on existing water supply and wastewater treatment facilities and would result in no adverse environmental effect.

C) No Impact

A project that would necessitate construction of new storm water drainage facilities or the expansion of existing facilities would constitute a significant impact on public services and utilities.

The Project includes the replacement and/or rehabilitation of existing facilities. Construction is temporary and limited in area within the ROW and would not generate excessive storm water. Therefore, the Project would not necessitate the expansion or construction of new storm water drainage facilities and would have no impact to this public utility.

D) No Impact

A project would have a significant effect on public services and utilities if it would result in the need to expand existing entitlements or establish new water rights to meet increased water supply demands.

The primary focus of the Project is the replacement and/or rehabilitation of existing facilities. The installation of new fire hydrants would expand existing water facilities and increase capacity for fire protection. This small expansion is critical for fire protection and is well within the capacity of the existing water supply. Therefore, the Project would not result in the need for new or expanded water entitlements and would have no impact.

E) No Impact

A project would result in a significant impact if the District's wastewater treatment capacity would be exceeded.

The District is the wastewater treatment provider for the Project Area. The Project will replace or rehabilitation existing facilities and does not propose new sewer lines or new connections to the existing municipal wastewater treatment plant. Therefore, the Project will not generate additional wastewater or exceed the District's wastewater treatment capacity and will result in no impact.

F) Less than Significant Impact

A project that creates solid waste at volumes that would cause exceedance of the permitted capacity of a regional landfill would constitute a significant impact.

Project construction is not expected to generate minimal solid waste. Old water and sewer lines will be abandoned in place. All excess material from the project will be removed from the site and disposed of at a site approved by the TRPA. The small volume of waste that would be generated is not expected to cause exceedance of the permitted capacity of a regional landfill. Therefore, the Project would have a less than significant impact.

G) Less than Significant Impact

A project that would result in non-compliance with state, federal, regional and local policies related to solid waste would constitute a significant impact.

The District's contractor would be required to comply with State, federal, regional and local policies related to solid waste. Therefore, the Project potential impacts would be less than significant.

2.18 MANDATORY FINDINGS OF SIGNIFICANCE

2.18.A Checklist

CEQA Environmental Issues	Potentially Significant Impact	Less Than Significant With Mitigation	Less Than Significant Impact	No Impact
<i>Does the project:</i>				
a) Have the potential to degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, reduce the number or restrict the range of a rare or endangered plant or animal, or eliminate important examples of the major periods of California history or prehistory?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b) Have impacts that are individually limited, but cumulatively considerable? ("Cumulatively considerable" means that the incremental effects of a Project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects.)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c) Have environmental effects, which will cause substantial adverse effects on human beings, either directly or indirectly?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

2.18.B Discussion

A) Less than Significant Impact

The Project will not substantially degrade the quality of the environment. The Project proposal does not have the potential to degrade the quality of the environment substantially; reduce the habitat of fish or wildlife species; cause a fish or wildlife population to drop below self-sustaining levels; threaten to eliminate a plant or animal community; reduce the number or restrict the range of a rare or endangered plant or animal; or eliminate important examples of the major periods of California history or prehistory.

B) Less than Significant Impact

The Project will not result in impacts that are individually limited but would be cumulatively considerable when viewed in connection with the effects of past projects, the effects of other current projects and the effects of probable future projects in the vicinity of the project

site. Other projects may occur in City of South Lake Tahoe and El Dorado County; however, impacts would not be cumulatively considerable when evaluated in the context of the proposed Project's limited environmental effects and the short duration of construction activities.

C) Less than Significant Impact

The Project will not result in environmental effects, that will cause substantial adverse direct or indirect effects on human beings. The Project will result in benefits to humans through the conservation of water resources, reduced energy consumption, hazard mitigation, and improved water supply for firefighting and suppression.

Chapter 3. Determination

CEQA Determination

On the basis of the evaluation presented in this document, the South Tahoe Public Utility District concludes that:

X The proposed project is exempt from CEQA pursuant to the general exemption, a statutory exemption, and/or a categorical exemption. If the project is categorically exempt, none of the exceptions to the exemption apply. A NOTICE OF EXEMPTION will be prepared.

_____ On the basis of the Initial Study, there is no substantial evidence that the project will have a significant effect on the environment. A NEGATIVE DECLARATION will be prepared.

_____ On the basis of the Initial Study and implementation of all proposed mitigation measures, there is no substantial evidence that the project as mitigated may have a significant effect on the environment. A MITIGATED NEGATIVE DECLARATION will be prepared.

_____ There is substantial evidence that the project may result in a significant environmental impact. An ENVIRONMENTAL IMPACT REPORT will be prepared.

Chapter 4 List of Preparers

Garth Alling – Principal, Sierra Ecotone Solutions LLC

Alison E Stanton – Sierra Ecotone Solutions LLC

Jen DeMartino – DeMartino Mapping Services

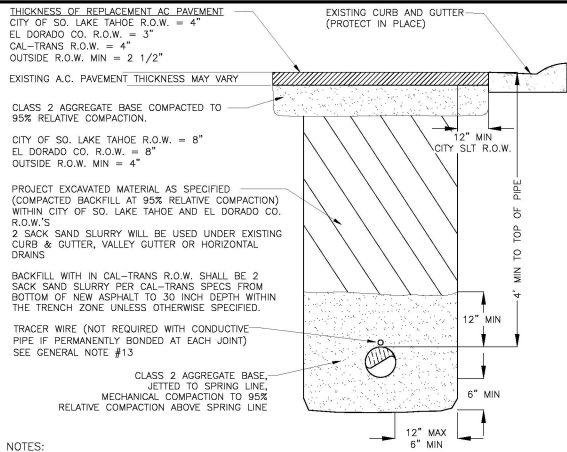
Trevor Coolidge – South Tahoe Public Utility District

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Chapter 6. Appendices

Appendix A: Relevant Plan and Specification Sheets



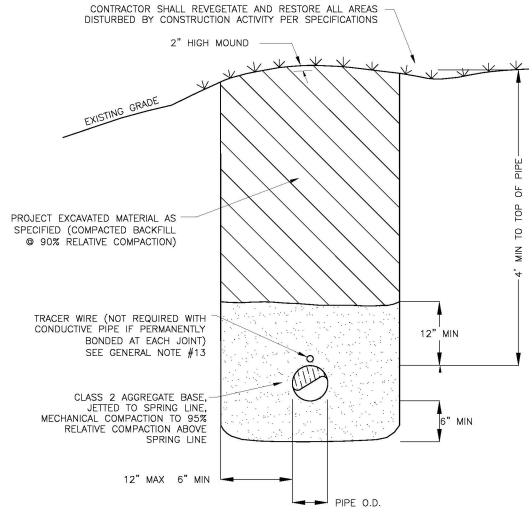
NOTES:

- 1) CONTRACTOR PAY ITEM FOR TRENCH WIDTH PLUS TWENTY FOUR INCHES (24") IN CITY OF SOUTH LAKE TAHOE AND EL DORADO COUNTY RIGHT OF WAY. TRENCH WIDTH AND TRENCH PAVEMENT REPLACEMENT EXCEEDING MAXIMUM AS DESCRIBED HERE IN AND IN THE SPECIFICATIONS SHALL BE COMPLETED AT NO ADDITIONAL EXPENSE TO THE DISTRICT.
- 2) CONTRACTOR SHALL REPLACE ALL TRAFFIC STRIPING DISTURBED BY CONSTRUCTION.
- 3) NO RECYCLED MATERIAL TO BE USED IN PIPE ZONE.

TRENCH DETAIL—
WITHIN PAVED AREAS

1
D1

NO SCALE



NOTE:

- 1) NO RECYCLED MATERIAL TO BE USED IN PIPE ZONE.

TRENCH DETAIL—
OUTSIDE PAVED AREAS

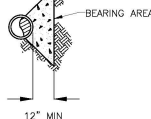
2
D1

NO SCALE

THRUST BLOCK AREA REQUIRED — SQUARE FEET

TYPE OF FITTING	90° ELBOW	45° ELBOW	22.5° ELBOW	11.25° ELBOW	TEE BRANCH*	TEE W/ PLUG	CROSS W/ PLUG	CROSS
TYPICAL INSTALLATION								
SIZE OF PIPE	6"	8"	10"	12"	14"	16"	18"	24"
4	4	4	4	4	4	4	4	4
6	10	6	3	3	10	10	10	10
8	12	8	4	4	15	15	15	15
10	16	10	6	6	20	20	20	20
12	21	12	8	8	22	21	22	21
14	27	15	8	8	22	27	27	27
16	45	25	13	13	32	45	45	45
18	65	35	18	18	45	65	65	65

SECTION



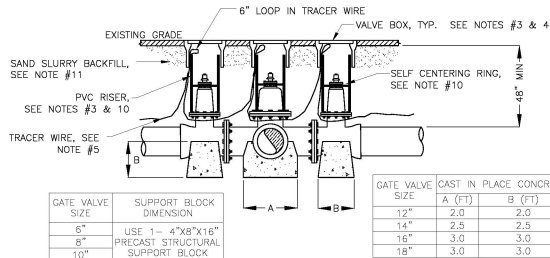
NOTES:

- 1) JOINTS, FLANGE BOLTS AND FACE OF PLUGS TO BE KEPT CLEAR OF CONCRETE.
- 2) BLOCKS MUST BE POURED AGAINST UNDISTURBED SOIL.
- 3) THRUST BLOCKS TO BE CONSTRUCTED OF CLASS 423-C-2500 OR BETTER P.C.C.
- 4) THRUST BLOCKS AREA IS BASED ON TEST PRESSURE OF 150 PSI AND A HORIZONTAL SOIL BEARING STRENGTH OF 1500 PSI.
- 5) NUTS AND BOLTS ON ALL MJ FITTINGS SHALL BE PAINTED WITH TWO COATS OF KOPPERS 505, TNEDEC 46-450*, AMERON OR EQUAL, 15 MILS EACH COAT.

4
D1

TYPICAL THRUST BLOCK

NO SCALE



NOTES:

- 1) GATE VALVES FOURTEEN INCH (14") DIAMETER AND SMALLER SHALL BE WUELLER OR APPROVED EQUAL, AS PER AWWA C-508, RESILIENT RUBBER SEAT RING, WEDGE DISC, NON-RISING STEM, BRONZE STEM NUT AND O-RING SEALS ABOVE AND BELOW THE THRUST COLLAR, WITH TWO INCH (2") SQUARE OPERATING NUT. VALVES SIXTEEN INCH (16") AND LARGER SHALL BE BUTTERFLY VALVES AS SPECIFIED AND SUBMITTED FOR APPROVAL.
- 2) THE MAIN LINE VALVE CLUSTER SHALL CONSIST OF A FLANGED TEE AND FLANGED X MECHANICAL JOINT VALVES OR FLANGED COUPLING ADAPTERS.
- 3) VALVE BOX RISER PIPE TO BE EIGHT INCH (8") PVC, SDR-35 AND INSTALLED PERPENDICULARLY CENTERED AROUND AND COVERING THE UPPER VALVE BONNET AND OPERATOR.
- 4) VALVE BOX SHALL BE CHRISTY GS BOX WITH METAL LID MARKED "WATER"
- 5) THE TRACER WIRE SHALL BE ROUTED FROM THE NEW MAIN, LOOPED THROUGH THE VALVE BOXES AND CLAMPED TO THE EXISTING WATER MAIN USING STAINLESS STEEL CLAMPS. CONTINUITY BETWEEN ALL NEW AND EXISTING PIPELINES SHALL BE MAINTAINED. SEE GENERAL NOTE #13.
- 6) EXPOSED NUTS AND BOLTS ON MJ FITTINGS TO BE PAINTED WITH TWO COATS OF KOPPERS 505, TNEDEC 46-450*, AMERON OR EQUAL 15 MILS EACH COAT.
- 7) ALL FLANGES TO BE BURIED, COAT ENTIRE ASSEMBLY WITH PETROLATUM SATURATED FABRIC TAPE WRAP SYSTEM IN ACCORDANCE WITH DISTRICT REQUIREMENTS.
- 8) CONCRETE FOR SUPPORT BLOCKS SHALL BE FORMED TO MAINTAIN MINIMUM TWO INCH (2") CLEARANCE FROM FLANGE BOLTS.
- 9) PRE CAST STRUCTURAL SUPPORT BLOCKS SHALL BE SOLID AND CONFORM TO ASTM C90.
- 10) PROVIDE AND INSTALL SELF CENTERING ALIGNMENT RING WITH SLIDING ADJUSTER AS MANUFACTURED BY THE AMERICAN FLOW CONTROL CORP. OR EQUAL AND SUPPLIED FOR A TRENCH ADAPTER VALVE BOX ASSEMBLY.
- 11) THE REQUIREMENTS FOR TRENCH BACK FILL AT ALL INTER TEE VALVE CLUSTERS SHALL INCLUDE THE PLACEMENT OF TWO SACK SAND SLURRY WITHIN 3' OF ALL VALVE BOXES BETWEEN THE AB PIPE ZONE MATERIAL AND BOTTOM OF AC PAVEMENT. THIS REQUIREMENT SHALL NOT APPLY TO SINGLE VALVE INSTALLATIONS.
- 12) FOR ALL VALVE OPERATING NUTS EXCEEDING FORTY EIGHT INCHES (48") BURY THE CONTRACTOR SHALL PROVIDE VALVE OPERATOR EXTENSIONS WITH TRASH RINGS TO A MINIMUM DEPTH OF THIRTY SIX INCHES (36").

5
D1

WATER VALVE ASSEMBLY

NO SCALE

FITTING AND PIPE RESTRAINT LENGTH REQUIREMENTS

TYPE OF FITTING	90° ELBOW	45° ELBOW	22.5° ELBOW	11.25° ELBOW	TEE BRANCH*	TEE W/ PLUG	REDUCER**	VALVE IN LINE	VALVE AT END	DEAD END
TYPICAL INSTALLATION										
SIZE OF PIPE	6"	8"	10"	12"	14"	16"	18"	24"		
6"	PVC DIP 14'	16'	7'	3'	2'	10"	14'	41'	42'	42'
8"	PVC DIP 16'	18'	8'	4'	2'	10"	16'	41'	50'	50'
10"	PVC DIP 21'	25'	9'	5'	3'	10"	21'	62'	82'	82'
12"	PVC DIP 22'	28'	11'	6'	3'	10"	22'	63'	86'	86'
14"	PVC DIP 25'	33'	12'	7'	4'	35'	25'	63'	99'	99'
16"	PVC DIP 29'	37'	14'	8'	4'	35'	29'	64'	117'	117'
18"	PVC DIP 33'	41'	16'	9'	4'	35'	33'	64'	133'	133'
24"	PVC DIP 45'	55'	21'	12'	6'	76'	45'	82'	144'	144'

* MINIMUM 10' RESTRAINED LENGTH ON EACH RUN ON BOTH SIDES OF BRANCH

** LENGTHS GIVEN ARE VALID FOR UP TO 4" INCREASE IN NOMINAL DIAMETER FROM SIZE SHOWN

NOTES:

- 1) ALL MINIMUM RESTRAINT LENGTH CALCULATIONS BASED ON MINIMUM 10' PIPE LENGTH'S. MINIMUM PIPE LENGTH'S FOR DUCTILE IRON PIPE FITTINGS BASED ON POLYETHYLENE ENCASEMENT.
- 2) NUTS AND BOLTS ON ALL MJ FITTINGS SHALL BE PAINTED WITH TWO COATS OF KOPPERS 505, TNEDEC 46-450*, AMERON OR EQUAL, 15 MILS EACH COAT.
- 3) ALL FLANGES TO BE BURIED, COAT ENTIRE ASSEMBLY WITH PETROLATUM SATURATED FABRIC TAPE. WRAP SYSTEM IN ACCORDANCE WITH SPECIFICATIONS.
- 4) CONCRETE THRUST BLOCKING MAY BE REQUIRED IN CONJUNCTION WITH MECHANICAL THRUST RESTRAINT SYSTEMS IF DETERMINED NECESSARY BY THE ENGINEER.
- 5) VALVES PLACED IN A RUN OF PIPE OR AT A DEAD END TO BE RESTRAINED PER DEAD END RESTRAINT LENGTHS.
- 6) ALL VALVE CLUSTERS (CROSS OR TEE) USE THE RESTRAINT LENGTHS FOR THE 90° ELBOW.

3
D1

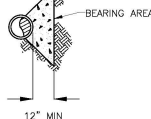
RESTRAINT LENGTH SCHEDULE

NO SCALE

THRUST BLOCK AREA REQUIRED — SQUARE FEET

TYPE OF FITTING	90° ELBOW	45° ELBOW	22.5° ELBOW	11.25° ELBOW	TEE BRANCH*	TEE W/ PLUG	CROSS W/ PLUG	CROSS
TYPICAL INSTALLATION								
SIZE OF PIPE	6"	8"	10"	12"	14"	16"	18"	24"
4	4	4	4	4	4	4	4	4
6	10	6	3	3	10	10	10	10
8	12	8	4	4	15	15	15	15
10	16	10	6	6	20	20	20	20
12	21	12	8	8	22	21	22	21
14	27	15	8	8	22	27	27	27
16	45	25	13	13	32	45	45	45
18	65	35	18	18	45	65	65	65

SECTION



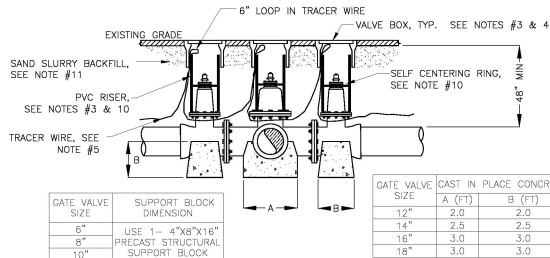
NOTES:

- 1) JOINTS, FLANGE BOLTS AND FACE OF PLUGS TO BE KEPT CLEAR OF CONCRETE.
- 2) BLOCKS MUST BE POURED AGAINST UNDISTURBED SOIL.
- 3) THRUST BLOCKS TO BE CONSTRUCTED OF CLASS 423-C-2500 OR BETTER P.C.C.
- 4) THRUST BLOCKS AREA IS BASED ON TEST PRESSURE OF 150 PSI AND A HORIZONTAL SOIL BEARING STRENGTH OF 1500 PSI.
- 5) NUTS AND BOLTS ON ALL MJ FITTINGS SHALL BE PAINTED WITH TWO COATS OF KOPPERS 505, TNEDEC 46-450*, AMERON OR EQUAL, 15 MILS EACH COAT.

4
D1

TYPICAL THRUST BLOCK

NO SCALE



NOTES:

- 1) GATE VALVES FOURTEEN INCH (14") DIAMETER AND SMALLER SHALL BE WUELLER OR APPROVED EQUAL, AS PER AWWA C-508, RESILIENT RUBBER SEAT RING, WEDGE DISC, NON-RISING STEM, BRONZE STEM NUT AND O-RING SEALS ABOVE AND BELOW THE THRUST COLLAR, WITH TWO INCH (2") SQUARE OPERATING NUT. VALVES SIXTEEN INCH (16") AND LARGER SHALL BE BUTTERFLY VALVES AS SPECIFIED AND SUBMITTED FOR APPROVAL.
- 2) THE MAIN LINE VALVE CLUSTER SHALL CONSIST OF A FLANGED TEE AND FLANGED X MECHANICAL JOINT VALVES OR FLANGED COUPLING ADAPTERS.
- 3) VALVE BOX RISER PIPE TO BE EIGHT INCH (8") PVC, SDR-35 AND INSTALLED PERPENDICULARLY CENTERED AROUND AND COVERING THE UPPER VALVE BONNET AND OPERATOR.
- 4) VALVE BOX SHALL BE CHRISTY GS BOX WITH METAL LID MARKED "WATER"
- 5) THE TRACER WIRE SHALL BE ROUTED FROM THE NEW MAIN, LOOPED THROUGH THE VALVE BOXES AND CLAMPED TO THE EXISTING WATER MAIN USING STAINLESS STEEL CLAMPS. CONTINUITY BETWEEN ALL NEW AND EXISTING PIPELINES SHALL BE MAINTAINED. SEE GENERAL NOTE #13.
- 6) EXPOSED NUTS AND BOLTS ON MJ FITTINGS TO BE PAINTED WITH TWO COATS OF KOPPERS 505, TNEDEC 46-450*, AMERON OR EQUAL 15 MILS EACH COAT.
- 7) ALL FLANGES TO BE BURIED, COAT ENTIRE ASSEMBLY WITH PETROLATUM SATURATED FABRIC TAPE WRAP SYSTEM IN ACCORDANCE WITH DISTRICT REQUIREMENTS.
- 8) CONCRETE FOR SUPPORT BLOCKS SHALL BE FORMED TO MAINTAIN MINIMUM TWO INCH (2") CLEARANCE FROM FLANGE BOLTS.
- 9) PRE CAST STRUCTURAL SUPPORT BLOCKS SHALL BE SOLID AND CONFORM TO ASTM C90.
- 10) PROVIDE AND INSTALL SELF CENTERING ALIGNMENT RING WITH SLIDING ADJUSTER AS MANUFACTURED BY THE AMERICAN FLOW CONTROL CORP. OR EQUAL AND SUPPLIED FOR A TRENCH ADAPTER VALVE BOX ASSEMBLY.
- 11) THE REQUIREMENTS FOR TRENCH BACK FILL AT ALL INTER TEE VALVE CLUSTERS SHALL INCLUDE THE PLACEMENT OF TWO SACK SAND SLURRY WITHIN 3' OF ALL VALVE BOXES BETWEEN THE AB PIPE ZONE MATERIAL AND BOTTOM OF AC PAVEMENT. THIS REQUIREMENT SHALL NOT APPLY TO SINGLE VALVE INSTALLATIONS.
- 12) FOR ALL VALVE OPERATING NUTS EXCEEDING FORTY EIGHT INCHES (48") BURY THE CONTRACTOR SHALL PROVIDE VALVE OPERATOR EXTENSIONS WITH TRASH RINGS TO A MINIMUM DEPTH OF THIRTY SIX INCHES (36").

5
D1

WATER VALVE ASSEMBLY

NO SCALE

FITTING AND PIPE RESTRAINT LENGTH REQUIREMENTS

TYPE OF FITTING	90° ELBOW	45° ELBOW	22.5° ELBOW	11.25° ELBOW	TEE BRANCH*	TEE W/ PLUG	REDUCER**	VALVE IN LINE	VALVE AT END	DEAD END
TYPICAL INSTALLATION										
SIZE OF PIPE	6"	8"	10"	12"	14"	16"	18"	24"		
6"	PVC DIP 14'	16'	7'	3'	2'	10"	14'	41'	42'	42'
8"	PVC DIP 16'	18'	8'	4'	2'	10"	16'	41'	50'	50'
10"	PVC DIP 21'	25'	9'	5'	3'	10"	21'	62'	82'	82'
12"	PVC DIP 22'	28'	11'	6'	3'	10"	22'	63'	86'	86'
14"	PVC DIP 25'	33'	12'	7'	4'	35'	25'	63'	99'	99'
16"	PVC DIP 29'	37'	14'	8'	4'	35'	29'	64'	117'	117'
18"	PVC DIP 33'	41'	16'	9'	4'	35'	33'	64'	133'	133'
24"	PVC DIP 45'	55'	21'	12'	6'	76'	45'	82'	144'	144'

* MINIMUM 10' RESTRAINED LENGTH ON EACH RUN ON BOTH SIDES OF BRANCH

** LENGTHS GIVEN ARE VALID FOR UP TO 4" INCREASE IN NOMINAL DIAMETER FROM SIZE SHOWN

NOTES:

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- 2) NUTS AND BOLTS ON ALL MJ FITTINGS SHALL BE PAINTED WITH TWO COATS OF KOPPERS 505, TNEDEC 46-450*, AMERON OR EQUAL, 15 MILS EACH COAT.
- 3) ALL FLANGES TO BE BURIED, COAT ENTIRE ASSEMBLY WITH PETROLATUM SATURATED FABRIC TAPE. WRAP SYSTEM IN ACCORDANCE WITH SPECIFICATIONS.
- 4) CONCRETE THRUST BLOCKING MAY BE REQUIRED IN CONJUNCTION WITH MECHANICAL THRUST RESTRAINT SYSTEMS IF DETERMINED NECESSARY BY THE ENGINEER.
- 5) VALVES PLACED IN A RUN OF PIPE OR AT A DEAD END TO BE RESTRAINED PER DEAD END RESTRAINT LENGTHS.
- 6) ALL VALVE CLUSTERS (CROSS OR TEE) USE THE RESTRAINT LENGTHS FOR THE 90° ELBOW.

3
D1

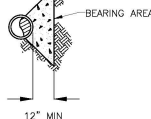
RESTRAINT LENGTH SCHEDULE

NO SCALE

THRUST BLOCK AREA REQUIRED — SQUARE FEET

TYPE OF FITTING	90° ELBOW	45° ELBOW	22.5° ELBOW	11.25° ELBOW	TEE BRANCH*	TEE W/ PLUG	CROSS W/ PLUG	CROSS
TYPICAL INSTALLATION								
SIZE OF PIPE	6"	8"	10"	12"	14"	16"	18"	24"
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6	10	6	3	3	10	10	10	10
8	12	8	4	4	15	15	15	15
10	16	10	6	6	20	20	20	20
12	21	12	8	8	22	21	22	21
14	27	15	8	8	22	27	27	27
16	45	25	13	13	32	45	45	45
18	65	35	18	18	45	65	65	65

SECTION



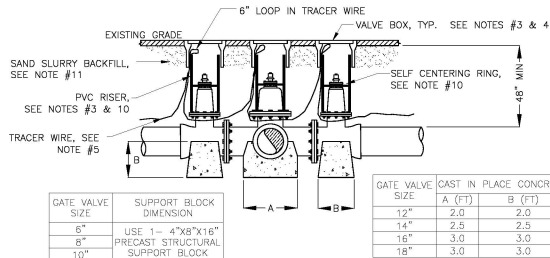
NOTES:

- 1) JOINTS, FLANGE BOLTS AND FACE OF PLUGS TO BE KEPT CLEAR OF CONCRETE.
- 2) BLOCKS MUST BE POURED AGAINST UNDISTURBED SOIL.
- 3) THRUST BLOCKS TO BE CONSTRUCTED OF CLASS 423-C-2500 OR BETTER P.C.C.
- 4) THRUST BLOCKS AREA IS BASED ON TEST PRESSURE OF 150 PSI AND A HORIZONTAL SOIL BEARING STRENGTH OF 1500 PSI.
- 5) NUTS AND BOLTS ON ALL MJ FITTINGS SHALL BE PAINTED WITH TWO COATS OF KOPPERS 505, TNEDEC 46-450*, AMERON OR EQUAL, 15 MILS EACH COAT.

4
D1

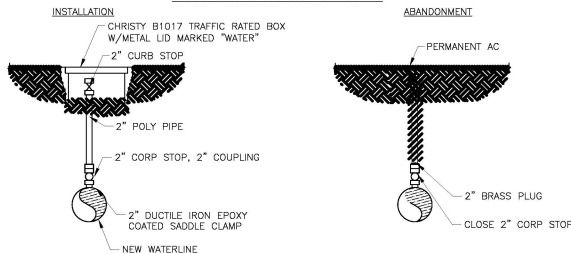
TYPICAL THRUST BLOCK

NO SCALE

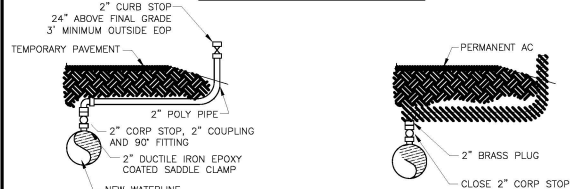




TEST STATION IN ASPHALT

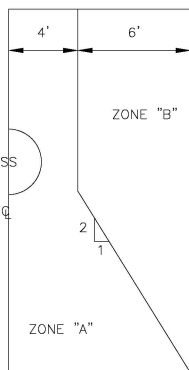


TEST STATION IN SHOULDER



- NOTE:
- CORPORATION STOP SHALL BE MUELLER #300/2969 OR APPROVED EQUAL.
 - CONTRACTOR TO DEMOLISH PIPING AFTER ALL DISINFECTION TESTING IS COMPLETE.

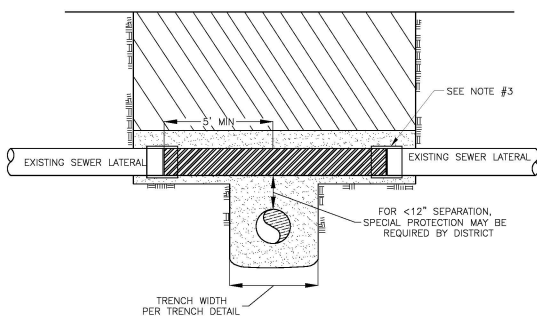
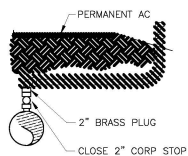
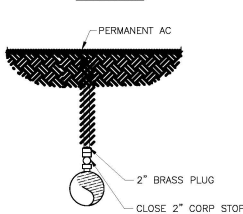
1
D3
TEST STATION
NO SCALE



- NOTES:
- PARALLEL CONSTRUCTION WILL BE ALLOWED ONLY WHEN TEN FEET (10') SEPARATION BETWEEN SEWER AND WATER MAINS CANNOT BE MAINTAINED.
 - WATER MAIN INSTALLATION IN ZONE "A" IS PROHIBITED.
 - PARALLEL WATER MAIN INSTALLATION IN ZONE "B" MUST BE DIP CLASS 350 OR CLASS 235 DR18C900PVC.

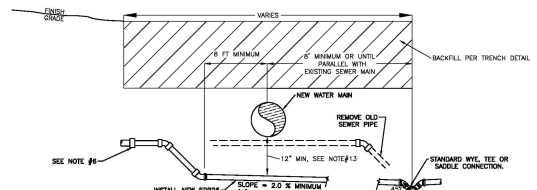
4
D3
TRENCH SECTION FOR PARALLEL
CONSTRUCTION
NO SCALE

ABANDONMENT



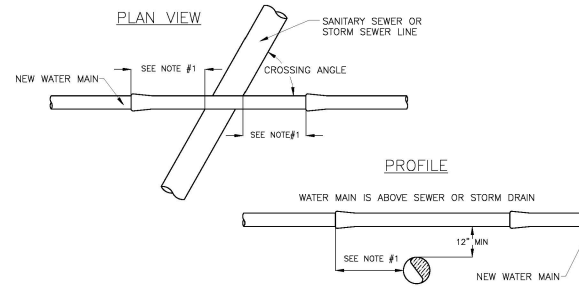
- NOTES:
- WHERE SEWER LATERAL IS DAMAGED DURING CONSTRUCTION, THE LATERAL SHALL BE CUT AND REPLACED FOR A DISTANCE OF AT LEAST FIVE FEET (5') ON EACH SIDE OF THE POINT OF CROSSING.
 - ALL SEWER LATERAL REPLACEMENT PIPING SHALL BE PVC SDR 26 UNLESS NOTED OR APPROVED BY THE DISTRICT.
 - ALL COUPLING, ADAPTERS AND MATERIALS USED TO CONNECT PVC SDR 26 PIPING TO OTHER PIPE MATERIALS SHALL BE APPROVED BY THE DISTRICT.
 - ALL SEWER LATERAL REPAIRS SHALL BE BACKFILLED WITH COMPACTED OR JETTED CLASS 2 AGGREGATE BASE MATERIAL AS REQUIRED BY THE DISTRICT PER TRENCH DETAIL.

2
D3
SEWER LATERAL REPLACEMENT AT
CROSSING OF PIPE TRENCH
NO SCALE

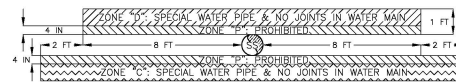


- NOTES:
- ALL JOINTS AND CONNECTIONS SHALL BE WATER TIGHT. ALL COUPLING, ADAPTERS AND MATERIALS USED TO CONNECT SEWER MAIN AND LATERAL SHALL BE APPROVED BY THE DISTRICT.
 - NEW SEWER LATERAL PIPE SHALL BE CONNECTED TO THE EXISTING SEWER SERVICE PIPE WITH A FERNCO COUPLER OR APPROVED EQUAL WITH STAINLESS STEEL HOSE CLAMPS.
 - SEWER LATERAL REPLACEMENT PIPING AND FITTINGS SHALL BE PVC SDR 26 UNLESS APPROVED BY THE DISTRICT.
 - SEWER LATERAL SLOPE SHALL BE 45' OFF CENTERLINE OF MAIN.
 - ALL SEWERS LATERALS SHALL HAVE A MINIMUM GROUND COVER OF THREE FEET (3') OVER THE TOP OF PIPE. IF LESS THAN 30" COVER USE CAST IRON PIPE.
 - WHERE SEWER LATERAL CROSSES THROUGH WATER MAIN OR OTHER PROPOSED OBSTRUCTION, THE LATERAL SHALL BE CUT AND REPLACED FOR A MINIMUM DISTANCE OF AT LEAST EIGHT FEET (8') ON EACH SIDE OF THE OBSTRUCTION AND REPLACED UNTIL A CONTINUOUS SLOPE CAN BE ACHIEVED WITHOUT OBSTRUCTION.
 - SEWER LATERAL OFFSETS SHALL BE BEDDED IN NINE INCHES (9") OF CLEAN SAND THE REMAINING BACKFILL AS REQUIRED BY THE DISTRICTS TRENCH DETAIL.
 - THE DISTRICT SHALL RECEIVE IN WRITING 72 HOUR NOTICE PRIOR TO ANY WORK THAT RESULTS IN THE SHUT-DOWN OF A SEWER SERVICE. PROPERTY OWNER/RESIDENT SHALL RECEIVE A MINIMUM OF 48 HOUR WRITTEN NOTICE.
 - FOR PVC INSTALLATIONS, CONNECT TO EXISTING "BELL END" AND CONNECT OPPOSITE END WITH PVC TO PVC COUPLING.
 - CLEANOUTS LOCATED IN PAVEMENT OR DIRT PARKING AREAS SHALL HAVE A CHRISTY'S GS BOX OR EQUAL W/METAL LID MARKED "SEWER"
 - CONTRACTOR SHALL PROVIDE TO THE DISTRICT OR ENGINEER AN AS BUILT ON A CLEAN SET OF PLANS WITH THE FINAL STATIONING OR DISTANCE AND DIRECTION FROM NEAREST MANHOLE TO THE OFFSET SEWER LATERAL.
 - ALL RELOCATED SEWER LATERALS SHALL BE FLOW TESTED PRIOR TO BACKFILL. ALL JOINTS SHALL BE EXPOSED TO CHECK FOR LEAKS.
 - IF TWELVE INCH (12") SEPARATION CANNOT BE MAINTAINED, THEN SPECIAL PIPE IS REQUIRED CONFIRM WITH DISTRICT.

5
D3
SEWER LATERAL OFFSET AROUND NEW
WATER MAIN
NO SCALE

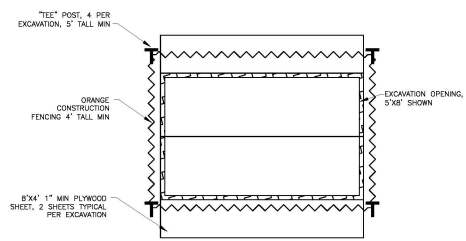


- NOTES:
- WHERE THE WATER MAIN IS CROSSING A SEWER LINE OR STORM DRAIN, THE CROSSING SHALL BE CONSTRUCTED IN SUCH A MANNER THAT:
 - THE WATER MAIN CROSSES AT LEAST 12" ABOVE THE SEWER MAIN OR STORM DRAIN, AND
 - THE CROSSING ANGLE IS NO LESS THAN 45 DEGREES.
 - IF SITE CONDITIONS DICTATE THAT THE WATER MAIN CROSSING CANNOT MEET ONE OR MORE OF THE CONDITIONS (OF NOTE #1), IT SHALL BE CONSTRUCTED IN THE FOLLOWING MANNER.



- 3) IF ANY OF THE CONDITIONS OF NOTE #2 CANNOT BE MET, THEN SPECIAL INSTRUCTIONS APPLY, AS SHOWN ON THE PLANS.
4) SPECIAL PIPE SHALL BE CONSTRUCTED OF PRESSURE CLASS 350 DIP OR PRESSURE CLASS 235 DR18 C900 PVC.

3
D3
WATER MAIN PROTECTION AT
SEWER CROSSING
NO SCALE



6
D3
TYPICAL PROTECTED EXCAVATION
NO SCALE

- NOTES:
- ALL EXCAVATIONS SHALL BE COVERED AND PROTECTED AT THE END OF EACH WORK DAY.
 - EXCAVATIONS IN PAVEMENT OR PARTIALLY IN PAVEMENT SHALL BE COVERED WITH A STEEL TRENCH PLATE WITH A MINIMUM OF TWO TRAFFIC CONES 42" TALL. EXCAVATION IN THE ROADWAY SHALL BE COVERED WITH A TRENCH PLATE AND THE EDGES SHALL BE COLD MIXED. SEE GENERAL NOTE #12.

6
D3
SECURE OPEN EXCAVATIONS
NO SCALE

SEE NOTE #4 ON 3/04

INSTALL VALVE BOX AND NEW RISER AT EXISTING SERVICE VALVE. SEE NOTES #6 AND #11

INSTALL NEW TRACER WIRE ATTACH TO DISTRICT WATER SERVICE LINE. SEE NOTE #15

CONNECT TRACER WIRE TO CUSTOMER WATER SERVICE LINE

CONNECT TO EXISTING CURB STOP. SEE NOTE #8 & #18

DISTRICT SERVICE LATERAL

DISTRICT WATER SERVICE MAIN

6" EXTENSION

INSULATION PAD, SEE NOTE #7

WATER METER, SEE NOTE #4, #5

DEPTH TO BOTTOM OF METER, SEE NOTE #19

RESTRAINED COMPRESSION COUPLING AND BRASS FITTINGS AS REQUIRED, SEE NOTE #10

EXISTING CUSTOMER WATER SERVICE

ATTACH TRACER WIRE TO WATER SERVICE, SEE NOTE #15

36" - 42" TYP (UP TO 84" DEEP FOR 1" BASIC METER DEPTH)

24" MAX

42" TYP SEE 3/01

8" x 8" x 16" "SOLID" CONCRETE BLOCK (15" METER HT. SHOW) SEE NOTE #14

WATER SERVICE TO PROPERTY

METER PIT FOOTING PLAN VIEW

— NEW SERVICE —

— NEW WATER METER INSTALLATION —

— EXISTING —

INSTALL NEW: 4 BRASS 90° FITTINGS MINIMUM, & ADDITIONAL FITTINGS AS REQUIRED FOR ALL HORIZONTAL & VERTICAL ADJUSTMENTS BETWEEN ALL NEW & EXISTING FACILITIES AND AS REQUIRED TO AVOID OTHER UNDERGROUND UTILITIES OR OTHER SITE OBSTRUCTIONS

METER PITS SHALL BE INSTALLED AS DIRECTED BY THE DISTRICT BASED ON FIELD CONDITIONS, ON THE CUSTOMER SIDE OF THE PROPERTY LINE NEAR THE SERVICE VALVE, UNLESS APPROVED OTHERWISE. MAINTAIN A MINIMUM EIGHTEEN INCHES (18") BETWEEN THE SHUT OFF VALVE BOX AND METER PIT TO ALLOW FOR PROPER MAINTENANCE. SEE SPECIFICATIONS FOR METER PIT DETAILS. CONTRACTOR SHALL BE RESPONSIBLE TO ACCOMMODATE ANY SITE-SPECIFIC CONDITIONS. SEE PLANS FOR PROPERTIES TO RECEIVE NEW METER INSTALLATIONS. METER PIT SHALL NOT BE INSTALLED IN ANY DRAINAGE, FLOW LINE, OR BMP UNLESS APPROVED OTHERWISE.

2) METER PITS SHALL BE 18" DIA. METER PITS SHALL BE FIFTEEN (15") DEEP. FOR CURB SIDE (18") DIAMETER, RESPECTIVELY, E2-SETTER METER PIT BY MUELLER, FORD, OR APPROVED EQUIVA. METER PITS SHALL BE 36" TALL PLUS A SINGLE 6" EXTENSION FOR A 42" TOTAL DEPTH. MUELLER MODEL #250RS1536FANR, MCNOMALD MODEL #780-240X6P 35X15X42 OR FORD MODEL #FFB-288-95870Y-01-NU, 15.5" METER DEPTH FOR 36" SERVICES AND 24" METER DEPTH FOR 42" SERVICES. METER PITS SHALL BE 18" DIA. 18" DIA. METER PITS SHALL BE 18" DIA. METER PITS FOR SERVICES, OR APPROVED EQUIVA. METER PIT INLET SIZE SHALL BE AS REQUIRED TO MATCH WATER SERVICE AND METER SIZE.

3) FOR WASTE WATER SERVICES, CONTRACTOR SHALL INSTALL ONE METER PIT OF THE APPROPRIATE SIZE PER WATER SERVICE. SEE NOTE 18. PAYMENT SHALL BE MADE BY THE APPROPRIATE BID ITEM.

4) METERS SHALL BE SENSUS IPMENT, REGISTERING IN 1 CUBIC FEET (1CF), AS PROVIDED BY THE DISTRICT.

5) FOR 3" METERS, CONTRACTOR SHALL USE A 3" SHORT METER WITH A SEVEN AND ONE-HALF INCH (7 1/2") LAY LENGTH. FOR 4" METERS, CONTRACTOR SHALL USE A STANDARD TEN AND THREE QUARTER INCHES (10 3/4") LAY LENGTH METER.

6) EXISTING VALVE BOXES MAY BE REUSED AT THE DIRECTION OF THE INSPECTOR OR WILL BE PROVIDED BY THE DISTRICT TO THE CONTRACTOR. WATER VALVE BOX INSTALLED IN TRAFFIC AREAS SHALL BE 1/4" TO 1/2" BELOW GRADE. EXISTING VALVE BOXES TO BE GRABED TO THE CURB SIDE SHALL BE 1/4" TO 1/2" BELOW GRADE. OPENINGS SHALL BE PROTECTED WITH DUCT TAPE COVERING PRIOR TO BACKFILL ACTIVITIES. TOP OF RISER SHALL BE TWO TO SIX INCHES (2"-6") BELOW THE BOTTOM OF THE VALVE BOX LID.

7) CURB SIDE METER PITS SHALL BE 18" DIA. METER PITS SHALL BE 18" DIA. METER PITS, OR APPROVED EQUIVA. SHALL BE INSTALLED IN THE APPROPRIATE 15" OR 18" DIAMETER PIT TO FIT THE METER PIT.

8) FOR CONNECTION AT CURB STOP - LOCATE THE EXISTING CURB STOP, CONNECT TO THE CURB STOP WITH A MATCHING CONNECTION COMPRESSION COUPLING, AND INSTALL NEW POLY LINE FROM THE COMPRESSION COUPLING TO THE METER PIT. METER PIT SHALL BE 18" DIA. METER PITS SHALL BE 18" DIA. METER PITS. METER PIT FITTING TO THE EXISTING CUSTOMER SERVICE LINE. CONTRACTOR TO USE BRASS FITTINGS TO MAKE UP ALL HORIZONTAL AND VERTICAL ELEVATION AND ANGLE CHANGES. SERVICE LATERALS MUST BE CONNECTED TO THE METER PIT. CONTRACTOR SHALL BE RESPONSIBLE FOR THE PROPER ELEVATION OF THE METER PIT. THE METER PIT IS NOT ACCEPTABLE UNLESS OTHERWISE APPROVED BY THE INSPECTOR FOR SPECIFIC LOCATIONS.

9) SERVICE LATERAL SHALL BE 200 PSI CLASS POLYETHYLENE TUBING, IRON PIPE SIZE FOR 3" AND 1" INSTALLATIONS. THE SUTTERER MANUFACTURER REQUIRED ACCESSORIES SHALL BE USED PER MANUFACTURER'S INSTRUCTIONS AT ALL CONNECTIONS.

10) ALL PLUMBING AND FITTINGS MUST COMPLY WITH THE CALIFORNIA HEALTH AND SAFETY CODE 116875 (AB1953) REGARDING THE PROHIBITION OF LEAD FITTINGS.

11) THE DISTRICT MAY REQUIRE A MOVEMENT OF THE WATER SERVICE VALVE. THIS WORK IS NOT PART OF THE BASE METER INSTALLATION. SEE DETAIL 4/D1 AND RELATED BID ITEM.

12) NOTIFY CUSTOMER PRIOR TO ANY EXCAVATION AND/OR WATER SHUT OFF. EXPOSE VALVE PRIOR TO EXCAVATION. CONTRACTOR SHALL BE RESPONSIBLY RESPONSIBLE FOR ANY DAMAGE TO CUSTOMER PLUMBING ISSUES RELATED TO THE METER INSTALLATION INCLUDING DIRT OR OTHER DEBRIS IN THE CUSTOMER'S PLUMBING.

13) CONTRACTOR SHALL INSTALL A TR/PL RADER MOUNT AND A SENSUS MXU RADIO READ UNIT, 520M SIGNAL PORT, WITHIN THE METER PIT LID, AS PROVIDED BY THE DISTRICT, INSTALL ACCORDING TO MANUFACTURER'S INSTRUCTIONS.

14) CONTRACTOR SHALL BE RESPONSIBLE FOR THE PROPER ELEVATION OF THE METER PIT. THE METER PIT SHALL BE CONFORMING TO ASTM C800 PLACED UNDER THE METER PIT.

15) INSTALL TWO INSULATED PIPE TRACER WIRES, ONE (1) WIRE FROM WATER SERVICE VALVE BOX TO THE DISTRICT WATER SERVICE LINE AND ONE (1) WIRE FROM WATER SERVICE VALVE BOX PAST THE BOTTOM OF METER PIT TO THE DISTRICT WATER SERVICE LINE. CONTRACTOR SHALL BE RESPONSIBLE FOR THE PROPER ELEVATION OF THE METER PIT. THE METER PIT SHALL BE CONTINUOUSLY, LEAVING TWO (2) 6" WIRE TAILS AT THE TOP OF RISER PIPE IN WATER SERVICE VALVE BOX. CONTINUITY BETWEEN ALL NEW AND EXISTING PIPELINES AND/OR TRACER WIRES SHALL BE MAINTAINED REGARDLESS OF THE TYPE OF PIPE OR TRACER WIRE. CONTRACTOR SHALL BE RESPONSIBLE FOR THE PROPER ELEVATION OF THE METER PIT. SPECIFICALLY MANUFACTURED FOR UNDERGROUND USE. SEE GENERAL NOTE #13.

16) WHEN METER PITS ARE INSTALLED WITHIN 24" OF EACH OTHER, THE LIDS SHALL BE AT THE SAME ELEVATION.

17) ALL METERS AND POLYETHYLENE SERVICE LINES SHALL BE DISINFECTED, FLUSHED, AND VISUALLY TESTED FOR LEAKS PRIOR TO BACKFILL.

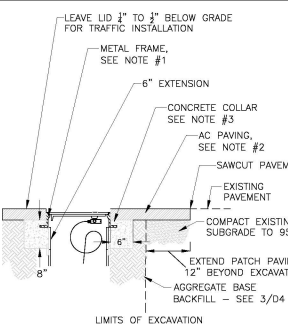
18) THE CURB STOP VALVE MAY BE ENCOUNTERED ON A SINGLE SERVICE LINE, TEE, OR "J" BRANCH FOR DOUBLE SERVICES. CONTRACTOR SHALL CONFIRM WITH DISTRICT INSPECTOR FOR SINGLE OR DOUBLE INSTALL. ALSO, BE AWARE THAT THE CURB STOP VALVE MAY BE ENCOUNTERED ON A SINGLE SERVICE LINE, TEE, OR "J" BRANCH FOR DOUBLE SERVICES. CONTRACTOR SHALL CONFIRM WITH DISTRICT INSPECTOR FOR SINGLE OR DOUBLE INSTALL. ALSO, BE AWARE THAT THE CURB STOP VALVE MAY BE ENCOUNTERED ON A SINGLE SERVICE LINE, TEE, OR "J" BRANCH FOR DOUBLE SERVICES. CONTRACTOR SHALL CONFIRM WITH DISTRICT INSPECTOR FOR SINGLE OR DOUBLE INSTALL. ALSO, BE AWARE THAT THE CURB STOP VALVE MAY BE ENCOUNTERED ON A SINGLE SERVICE LINE, TEE, OR "J" BRANCH FOR DOUBLE SERVICES.

19) FOR 18" DIA. METER PITS, THE DEPTH OF THE METER PIT SHALL BE A MINIMUM OF 18" AND A MAXIMUM OF 24".

1
D4

BASE METER INS

NO SCALE



2" MXU MOUNT (TYP)

METER PIT LID

4" WIDE X 8" THICK FORMED CONCRETE COLLAR

18" TYP

TYPICAL SINGLE WATER SERVICE VALVE BOX

TRAFFIC RATED FRAME (TYP)

18" TYP

6" WIDE X 8" THICK FORMED CONCRETE COLLAR

METER PIT LID

18" TYP

RECTANGULAR VALVE BOX

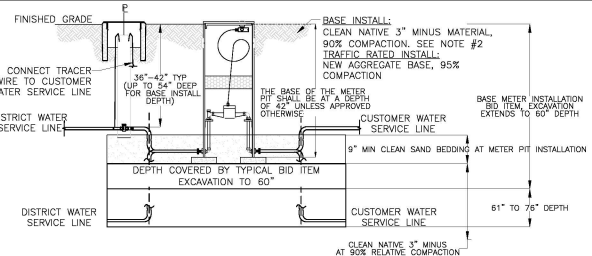
OR

1) FINAL A/C REPLACEMENT AND SEAL COAT (IF REQUIRED) LIMITS TO BE CONFIRMED WITH ENGINEER IN FIELD PRIOR TO INSTALLATION.

2 TRAFFIC RATED METE
D4 NO SCALE

2 TRAFFIC RATED METE
D4 NO SCALE

- 1) TRAFFIC-RATED METER PIT INSTALLATION LOCATIONS SHALL BE AS DETERMINED BY THE DISTRICT BASED ON EXISTING CONDITIONS AND TRAFFIC VOLUMES. DRIVEWAYS, SIDEWALKS, AND PARKING AREAS. MATERIALS ENCOUNTERED WILL INCLUDE ASPHALT, CONCRETE, CURBS, AND PAVING STONES. SAWCUT AREAS FOR CONCRETE PAVEMENT PRIOR TO EXCAVATION, REMOVE PAVING STONES BY HAND AND PROTECT SO THEY CAN BE MODIFIED, AS NECESSARY, WHEN NEEDED. MATERIALS SHALL BE REUSED.
- 2) TRAFFIC-RATED AREAS SHALL HAVE A METAL COVER CONSISTING OF A TRAFFIC-RATED FRAME AND LID, AS SPECIFIED BY THE DISTRICT.
- 3) REPLACE ALL SURFACE MATERIAL TO MATCH AND CONFORM WITH SURROUNDING MATERIAL. PAVEMENT SHALL BE REPLACED TO MATCH EXISTING PAVEMENT. CONCRETE AND PAVING STONE MATERIAL SHALL BE REPLACED TO MATCH EXISTING MATERIALS. CONCRETE SHALL BE MATCHED TO MATCH EXISTING. BLACK CONCRETE COLLAR AROUND METAL LID FRAME. COLLAR INSTALL SHALL BE NEAT AND FORMED IN PLACE IN ASPHALT, PAVING STONE, OR CONCRETE. COLLAR SHALL MATCH TO EXISTING MATERIAL. IN ALL OTHER AREAS INSTALL TO MATCH EXISTING SURFACE ELEVATION AND PROVIDE MEDIUM BRUSH FINISH. COLLAR SHALL BE 1/4" THICK AND 1/4" HIGH, 1000 PSI MINIMUM. ALL LIDS SHALL BE WIRE BRUSHED AFTER CONCRETE INSTALLATION TO REMOVE ALL CONTRAST. CONTRAST SHALL BE PROHIBITED DURING CURING AND BEFORE ASPHALT OR PAVING STONE MATERIAL CAN BE INSTALLED. PROVIDE PROPERLY ASPHALT OR PAVING STONE WITHIN RIGHT-OF-WAY UNTIL FINAL PAVING IS INSTALLED.
- 4) SERVICE BOXES AND METER PITS LOCATED IN TRAFFIC-RATED AREAS SHALL BE INSTALLED ONE QUARTER INCH TO AN INCH (1/4" TO 1") BELOW FINISH GRADE. INCORPORATE ALL ELEMENTS OF THE BASE-METER INSTALLATION (DETAILS 1/04 AND 3/04) EXCEPT WHERE MODIFIED BY THIS DETAIL 2/04.
- 5) PAVING STONE PAVING STONE MATERIAL BETWEEN METER PIT FRAME AND VALVE BOX SHALL BE LESS THAN 2" AND ANY NEEDED MODIFICATIONS TO PAVING STONE SHALL BE MADE PRIOR TO THE PAVING STONE DESIGNED FOR USE ON PAVING STONE MATERIAL. CUS ADJUNCT TO FRAMES AND BOXES SHALL BE DESIGNED TO SHAPE TO PROVIDE PROPER FIT FOR METER PITS AND REBARS TO BE INSTALLED TO ACCOMMODATE FRAMES AND TRAFFIC RINGS.
- 6) DEPTH FROM BOTTOM OF METER TO TOP OF METER LID SHALL BE MINIMUM OF 18" AND MAXIMUM OF 24"



3
D4



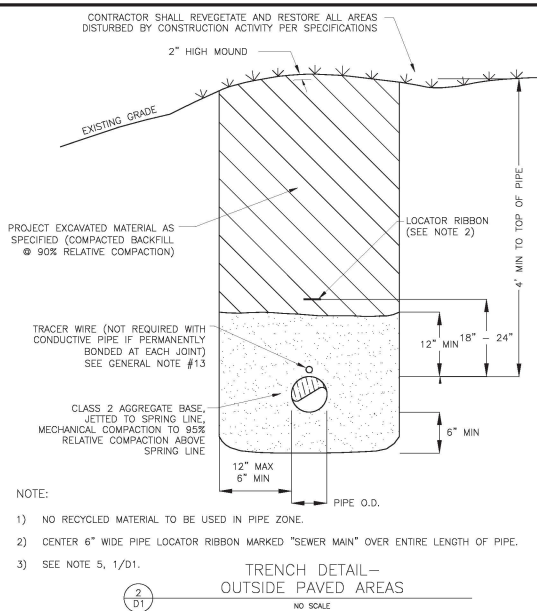
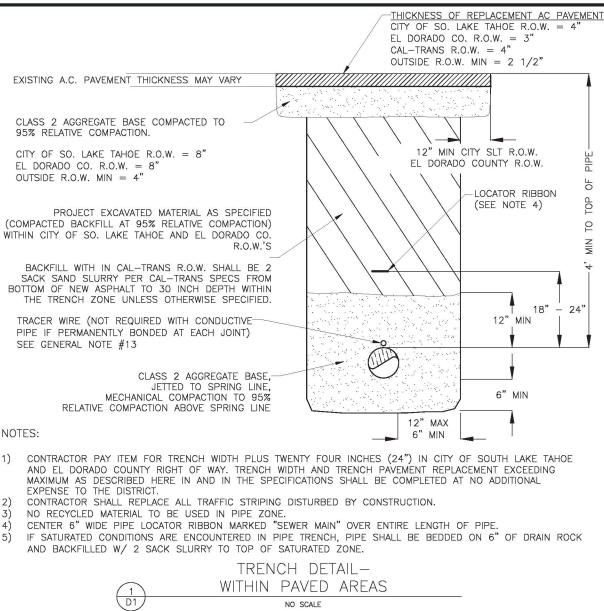
2019 ROCKY POINT II BRIEFLINE REPLACEMENT REBID DETAILS



DATE: MAY 2019
SCALE: NO SCALE
DRAWN: MAM, TAR
F: ROCKY2

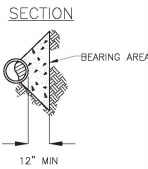
D4

OF 23
SHEETS



THRUST BLOCK AREA REQUIRED — SQUARE FEET

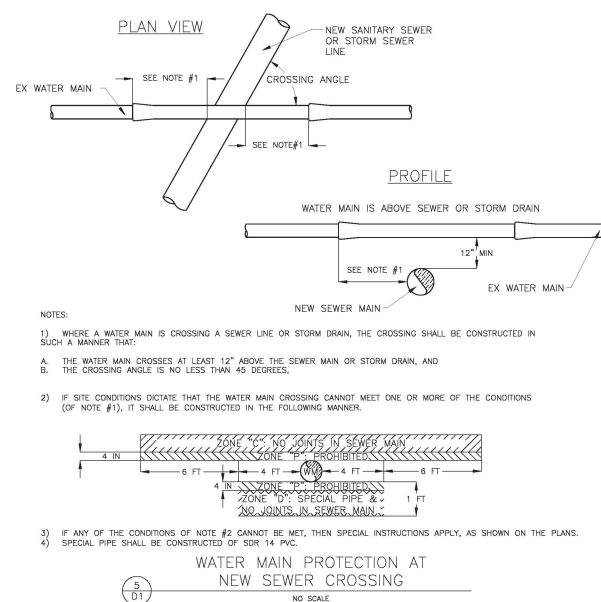
TYPE OF FITTING	90° ELBOW	45° ELBOW	22.5° ELBOW	11.25° ELBOW	TEE BRANCH	TEE W/ PLUG	CROSS W/ PLUG	CROSS
SIZE OF PIPE								
6"	4	4	2	2	4	4	4	4
8"	10	6	3	3	10	10	10	10
10"	12	8	4	4	15	15	15	15
12"	16	10	6	6	20	20	20	20
14"	21	12	6	6	22	21	22	21
16"	27	15	8	8	22	27	27	27
18"	45	25	13	13	32	45	45	45
24"	65	35	18	18	45	65	65	65



NOTES:

- JOINTS, FLANGE BOLTS AND FACE OF PLUGS TO BE KEPT CLEAR OF CONCRETE.
- BLOCKS MUST BE POURED AGAINST UNDISTURBED SOIL.
- THRUST BLOCKS TO BE CONSTRUCTED OF CLASS 423-C-2500 OR BETTER P.C.G.
- THRUST BLOCKS AREA IS BASED ON TEST PRESSURE OF 150 PSI AND A HORIZONTAL SOIL BEARING STRENGTH OF 1500 PSI.
- NUTS AND BOLTS ON ALL MJ FITTINGS SHALL BE PAINTED WITH TWO COATS OF KOPPERS 505, TNEMEC 46-450, AMERON OR EQUAL, 15 MILS EACH COAT.

4
D1
TYPICAL THRUST BLOCK
NO SCALE



FITTING AND PIPE RESTRAINT LENGTH REQUIREMENTS

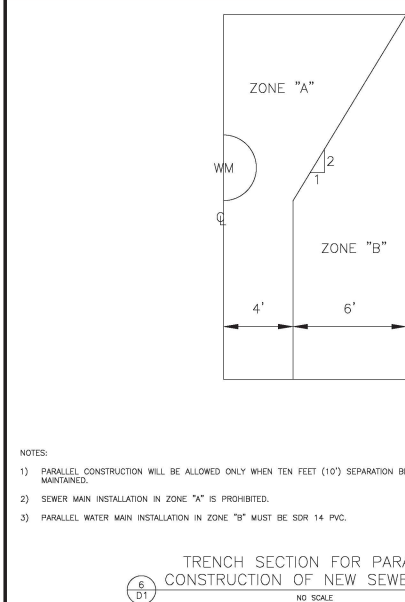
TYPE OF FITTING	90° ELBOW	45° ELBOW	22.5° ELBOW	11.25° ELBOW	TEE BRANCH	TEE W/ PLUG	REDUCER	VALVE IN LINE	VALVE AT END	DEAD END
SIZE OF PIPE										
6"	14'	8'	3'	2'	10'	14'	41'	42'	42'	42'
8"	18'	8'	4'	2'	10'	18'	61'	63'	63'	63'
10"	22'	8'	5'	3'	10'	21'	82'	82'	82'	82'
12"	26'	11'	6'	3'	15'	26'	103'	103'	103'	103'
14"	29'	12'	6'	3'	25'	29'	124'	124'	124'	124'
16"	33'	14'	7'	4'	39'	33'	145'	145'	145'	145'
18"	36'	15'	8'	4'	46'	36'	166'	166'	166'	166'
24"	45'	19'	9'	4'	76'	45'	207'	207'	207'	207'

* MINIMUM 10' RESTRAINED LENGTH ON EACH RUN ON BOTH SIDES OF BRANCH
 ** LENGTHS GIVEN ARE VALID FOR UP TO 4" INCREASE IN NOMINAL DIAMETER FROM SIZE SHOWN

NOTES:

- ALL MINIMUM RESTRAINT LENGTH CALCULATIONS BASED ON MINIMUM 10' PIPE LENGTH'S. MINIMUM PIPE LENGTH'S FOR DUCTILE IRON PIPE FITTINGS BASED ON POLYETHYLENE ENCASEMENT.
- NUTS AND BOLTS ON ALL MJ FITTINGS SHALL BE PAINTED WITH TWO COATS OF KOPPERS 505, TNEMEC 46-450, AMERON OR EQUAL, 15 MILS EACH COAT.
- ALL FLANGES TO BE BURIED, COAT ENTIRE ASSEMBLY WITH PETROLATUM SATURATED FABRIC TAPE. WRAP SYSTEM IN ACCORDANCE WITH SPECIFICATIONS.
- CONCRETE THRUST BLOCKING MAY BE REQUIRED IN CONJUNCTION WITH MECHANICAL THRUST RESTRAINT SYSTEMS IF DETERMINED NECESSARY BY THE ENGINEER.
- VALVES PLACED IN A RUN OF PIPE OR AT A DEAD END TO BE RESTRAINED PER DEAD END RESTRAINT LENGTHS.
- ALL VALVE CLUSTERS (CROSS OR TEE) USE THE RESTRAINT LENGTHS FOR THE 90° ELBOW.

3
D1
RESTRAINT LENGTH SCHEDULE
NO SCALE

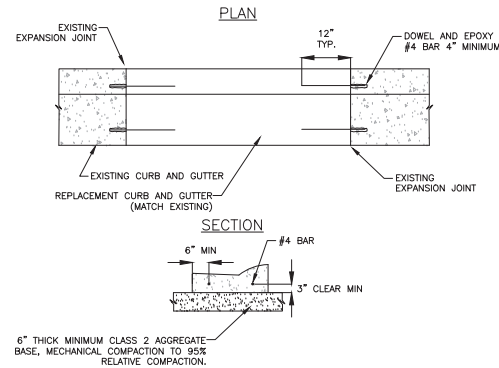


NOTES:

- PARALLEL CONSTRUCTION WILL BE ALLOWED ONLY WHEN TEN FEET (10') SEPARATION BETWEEN SEWER AND WATER MAINS CANNOT BE MAINTAINED.
- SEWER MAIN INSTALLATION IN ZONE "A" IS PROHIBITED.
- PARALLEL WATER MAIN INSTALLATION IN ZONE "B" MUST BE SDR 14 PVC.



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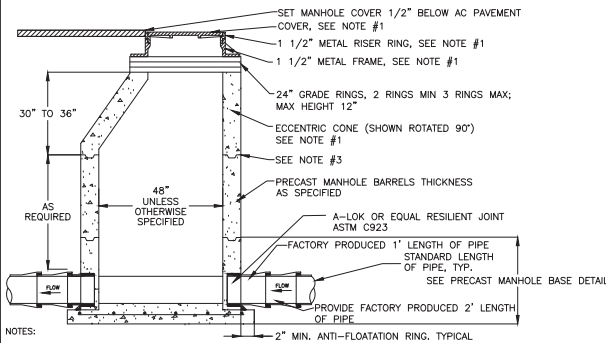


- NOTES:
- 1) WHERE REQUIRED FOR SEWERLINE AND LATERAL INSTALLATIONS, CURB AND GUTTER REPLACEMENT SHALL BE COMPLETELY REPLACED BETWEEN EXISTING EXPANSION JOINTS. CURB AND GUTTER REPLACEMENT EXCEEDING MAXIMUM AS DESCRIBED HERE IN AND IN THE SPECIFICATIONS SHALL BE COMPLETED AT NO ADDITIONAL EXPENSE TO THE DISTRICT.
 - 2) CONCRETE FOR CURB AND GUTTER SHALL BE CLASS A (4,000 PSI) PER THE SPECIFICATIONS.

CURB & GUTTER SECTION
REPLACEMENT

1
D2

NO SCALE

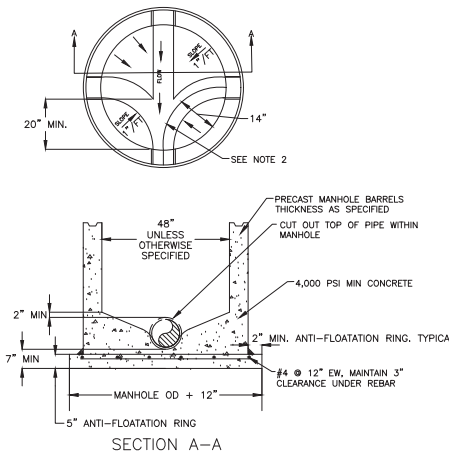


- NOTES:
- 1) INSTALL MANHOLE COVER ON DOWNSTREAM SIDE OF MANHOLE. TWENTY FOUR INCH (24") MANHOLE FRAME AND COVER TO BE SUPPLIED BY DISTRICT. MANHOLE TO BE LOCATED SUCH THAT THE CENTERLINE CROWN OF ROAD IS NOT WITHIN COVER RADIUS.
 - 2) CONTRACTOR MAY INSTALL A 3" MAX, NON SHRINK GROUT LEVELING COURSE; UNDER FRAME TO MATCH PAVEMENT GRADE.
 - 3) ALL JOINTS SHALL BE GROUTED INSIDE AND OUT; CONTRACTOR SHALL INSTALL JOINT SEALING COMPOUND AT ALL JOINTS AND UNDER FRAME COMPOUND SHALL BE: "RAM-NEK" BY K.T. SNYDER COMPANY; OR APPROVED EQUAL. ALL LIFTING HOLES MUST BE SEALED WITH NON-SHRINK GROUT.
 - 4) FOR SHALLOW MANHOLES, THE CONTRACTOR SHALL SUBSTITUTE A PRE CAST CONCRETE MANHOLE CAP, DESIGNED FOR H-20 TRAFFIC LOADING, IN LIEU OF THE ECCENTRIC CONE. THE TWENTY FOUR INCH (24") OPENING SHALL BE LOCATED IN THE CENTER OF THE MANHOLE CAP. PROVIDE A DESIGN SUBMITTAL, PREPARED AND SEALED BY A QUALIFIED REGISTERED ENGINEER, DEMONSTRATING COMPLIANCE WITH REQUIRED LOADING CRITERIA.
 - 5) ALL MANHOLE BASES MUST BE PRECAST BASES AND BE PLACED ON 10" MIN. OF 3/4" CRUSHED ROCK PLACED OVER UNDISTURBED MATERIAL. CONNECTION OF THE PIPE TO THE MANHOLE MUST USE A CAST-IN-PLACE PIPE. ALL MANHOLE BASES TO INCLUDE AN ANTI-FLOATATION RING PER STANDARD DRAWING 5/02.
 - 6) ANY LOWER LATERAL ENTERING A MANHOLE MUST BE INSTALLED WITH THE INVERT ELEVATION OF THE LOWER LATERAL. MATCHING THE CROWN ELEVATION OF THE EXIT SEWER, EXCEPT WHEN AN INTERNAL DROP CONNECTION IS USED. FOR MANHOLES AT THE END OF A CUL-DE-SAC OR END OF LINE WITH NO EXTENSION THE INVERT OF ANY LOWER LATERAL MUST BE A MINIMUM OF ONE INCH ABOVE THE INVERT OF THE EXIT PIPE WITH AN INDIVIDUAL SMOOTH TRANSITION CHANNEL.
 - 7) FLEX COUPLINGS NOT ALLOWED IN CONSTRUCTION OF MAINLINE, UNLESS SPECIFICALLY AUTHORIZED BY ENGINEER.

PRECAST 48" MANHOLE

4
D2

NO SCALE



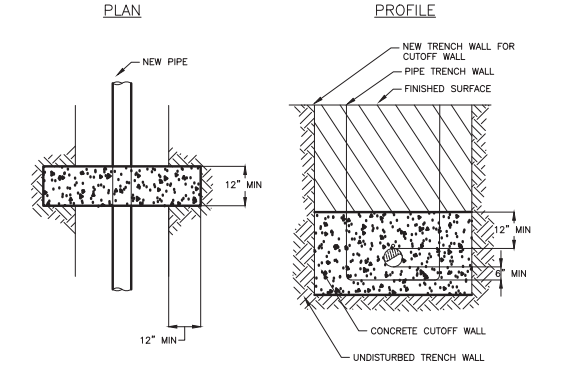
NOTES:

- 1) MINIMUM REINFORCEMENT SHOWN. REINFORCEMENT MUST BE DESIGNED BY A CALIFORNIA LICENSED CIVIL OR STRUCTURAL ENGINEER. PRECAST BASE SHALL BE DESIGNED TO SUPPORT H-20 LOADING.
- 2) RADIUS OF THE ARC MUST BE 24".
- 3) IF NO SIDE SEWER, CONSTRUCT CONTINUOUS CHANNEL STRAIGHT THROUGH.

PRECAST MANHOLE BASE

5
D2

NO SCALE

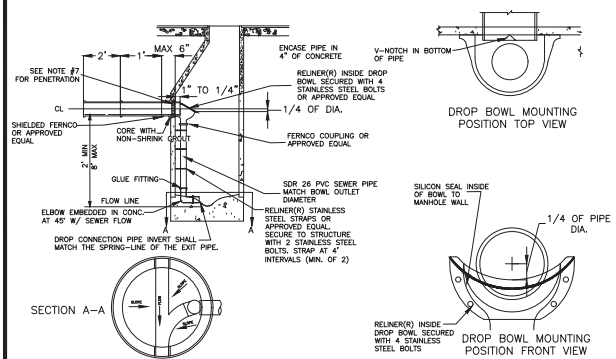


- NOTES:
- 1) CLASS C CONCRETE TRENCH CUTOFF WALLS SHALL BE LOCATED AS DIRECTED BY THE ENGINEER.
 - 2) PRIOR TO PLACING CONCRETE, UNDISTURBED TRENCH WALLS SHALL BE NOTCHED A MINIMUM OF 12 INCHES BEYOND THE WALL OF THE TRENCH. BOTTOM OF TRENCH SHALL BE NOTCHED 6 INCHES MINIMUM BELOW THE UNDISTURBED TRENCH FLOOR.
 - 3) CONCRETE SHALL BE PLACED MINIMUM OF TWELVE INCHES (12") OVER THE NEW PIPE.
 - 4) CONTINUE REMAINING PORTION OF THE TRENCH BACKFILL PER THE APPLICABLE TRENCH DETAIL.
 - 5) CUTOFF WALLS SHALL BE PLACED EVERY 100 LF WHERE SATURATED CONDITIONS ARE ENCOUNTERED IN PIPE TRENCH. ASSUME SATURATED CONDITIONS EXIST IN SEZ AREA SHOWN ON SHEET G4.

TRENCH CUTOFF WALL

3
D2

NO SCALE



NOTES:

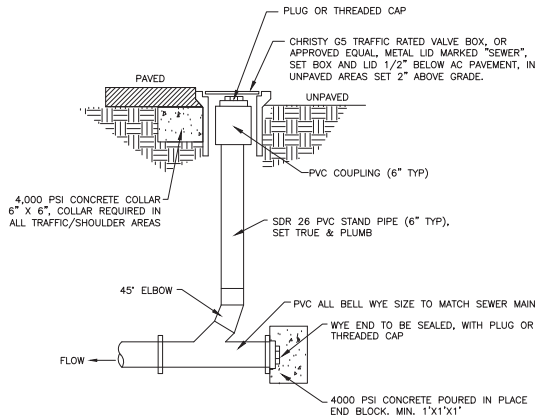
- 1) DROP MANHOLES ARE TO BE USED ON ALL SANITARY SEWERS WITH MORE THAN TWO FEET (2') VERTICAL DROP AT MANHOLE. DROP SHALL NOT EXCEED EIGHT FEET (8') AT ANY MANHOLE.
- 2) MAINS SHALL BE SLOPED TO FALL AT LEAST ONE TENTH OF A FOOT (0.1') ACROSS MANHOLE SECTIONS.
- 3) ALL OTHER DIMENSIONS, NOTES AND REQUIREMENTS AS SHOWN ON STANDARD MANHOLE DETAIL SHALL APPLY TO DROP MANHOLES.
- 4) DIMENSIONS NOT SHOWN ARE GIVEN ON STANDARD MANHOLE DETAIL.
- 5) ALL JOINTS AND CONNECTIONS TO NEW OR EXISTING MANHOLES SHALL BE WATERTIGHT.
- 6) ALL JOINTS SHALL BE SEALED WITH "RAM-NEK" BY K.T. SNYDER COMPANY OR APPROVED EQUAL.
- 7) PENETRATIONS AT WALL SHALL HAVE UNISEAL OR APPROVED EQUAL; PENETRATION SHALL BE TROWEL SMOOTH INSIDE OUT WITH NON-SHRINK GROUT OVER UNISEAL.
- 8) DROP BOWL MODEL "A-4" MUST BE USED FOR ALL LINES UP THROUGH FULL 6" INLETS. DROP BOWL MODEL "A-6" MUST BE USED FOR ALL 8" INLETS. DROP BOWLS MODEL "B-8" MUST BE USED FOR ALL 10" INLETS. MODEL "B-10" MUST BE USED FOR ALL 12" INLETS, OR EQUAL.
- 9) ATTACH THE DROP BOWL & EACH CLAMPING BRACKET TO THE MANHOLE WALL WITH STAINLESS STEEL 3/8" X 3/4" RAMSET/RED HEAD BOLTS OR APPROVED EQUAL. PIPE-ROD DRILL AND SET BOLTS IN PLACE WITH EPOXY PASTE. EPOXY MUST BE SIKADUR 31 H-MOD GEL BY SIKKA CORPORATION OR APPROVED EQUAL.

INTERNAL DROP MANHOLE

6
D2

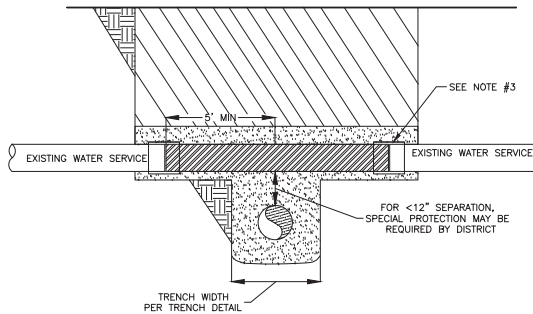
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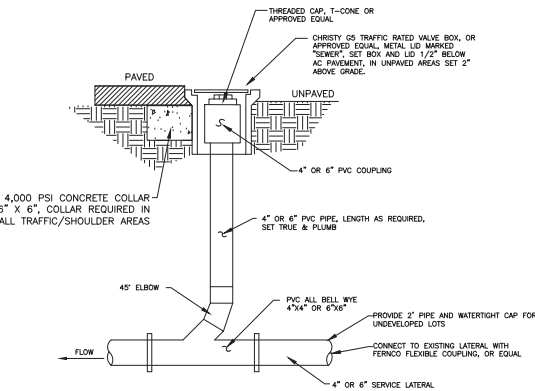
- NOTES:
- 1) FLUSH INSTALLED ON SEWER MAINS LARGER THAN SIX INCH (6") SHALL BE APPROVED BY THE DISTRICT.
 - 2) ALL PLUGS SHALL BE T-CONE OR APPROVED EQUAL.

1
D3
SEWER MAIN FLUSH INLET
NO SCALE

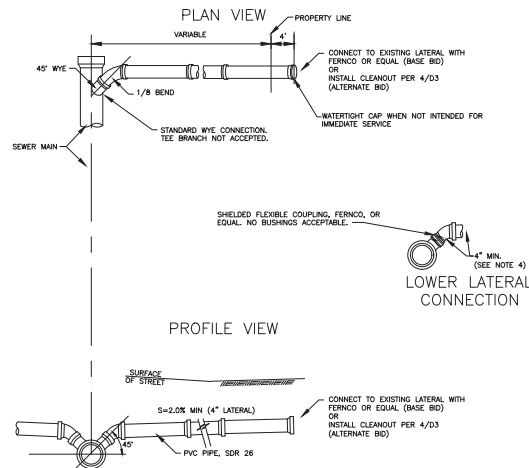


- NOTES:
- 1) WHERE WATER SERVICE IS DAMAGED DURING CONSTRUCTION, THE WATER SERVICE SHALL BE CUT AND REPLACED FOR A DISTANCE OF AT LEAST FIVE FEET (5') ON EACH SIDE OF THE POINT OF CROSSING.
 - 2) ALL WATER SERVICE REPLACEMENT PIPING SHALL BE POLYETHYLENE, OF SAME NOMINAL DIAMETER AS EXISTING UNLESS NOTED OR APPROVED BY THE DISTRICT.
 - 3) ALL COUPLING, ADAPTERS AND MATERIALS USED TO CONNECT POLYETHYLENE PIPING TO OTHER PIPE MATERIALS SHALL BE APPROVED BY THE DISTRICT.
 - 4) ALL WATER SERVICE REPAIRS SHALL BE BACKFILLED WITH COMPACTED OR JETTED CLASS 2 AGGREGATE BASE MATERIAL AS REQUIRED BY THE DISTRICT PER TRENCH DETAIL.

2
D3
WATER SERVICE REPLACEMENT AT
CROSSING OF PIPE TRENCH
NO SCALE



4
D3
SEWER CLEAN OUT
NO SCALE



- NOTES:
- 1) ALL JOINTS AND CONNECTIONS SHALL BE WATERTIGHT. ALL JOINTS GASKETED UNLESS APPROVED BY ENGINEER.
 - 2) ALL LATERALS SHALL HAVE A MINIMUM GROUND COVER OF THREE FEET (3') OVER THE TOP OF PIPE IN ROW.
 - 3) ALL LATERALS SIX INCHES (6") AND LARGER SHALL BE CONNECTED TO SEWER MAIN USING A STANDARD MANHOLE.
 - 4) ALL RESIDENTIAL LOWER LATERALS MUST BE 4" INSIDE DIAMETER UNLESS OTHERWISE NOTED. ALL COMMERCIAL SERVICE LINES MUST BE 6" UNLESS OTHERWISE NOTED.

5
D3
SEWER LATERAL CONNECTION
NO SCALE

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SOUTH TAHOE PUBLIC UTILITY DISTRICT



Shawn J. Biscoe, P.E. **Water**
A PUBLIC UTILITY DISTRICT
1275 Meadows Road, South Lake Tahoe, CA 96150
Phone (530) 544-6474 Fax (530) 544-6339
WWW.STPD.ORG

2020 SEWER IMPROVEMENTS
PROJECT
DETAILS



DATE: MAR 2020
SCALE: NO SCALE
DRAWN: BDC, CAL
FILE: BUGSWR

D3
9 OF 24
SHEETS



1
D5

TYPICAL OPEN TRENCH SECTION

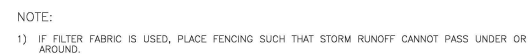
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2
D5

DRAINAGE INLET SEDIMENT PROTECTION

NO SCALE



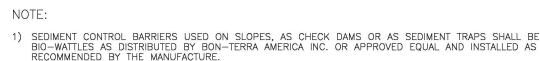
3
D5 SITE PROTECTION FENCING
NO SCALE



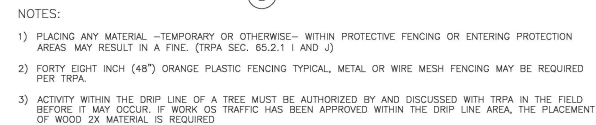
4
D5

FILTER FABRIC FENCE

NO SCALE



5
05 COIR LOG PLACEMENT
NO SCALE

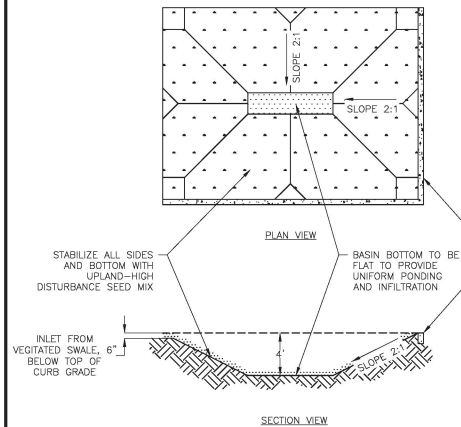


6
D5

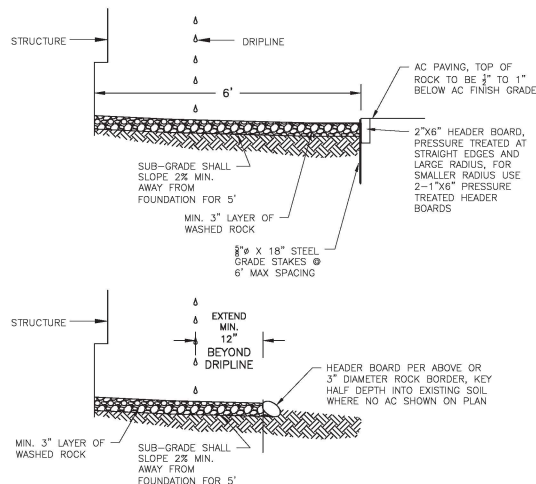
VEGETATION PROTECTION FENCING

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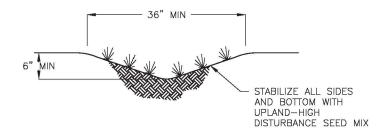
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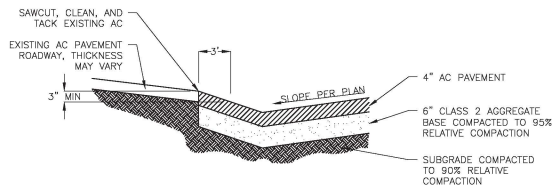
1 INFILTRATION BASIN
D5 NO SCALE



2 ARMORED DRIPLINE
D5 NO SCALE

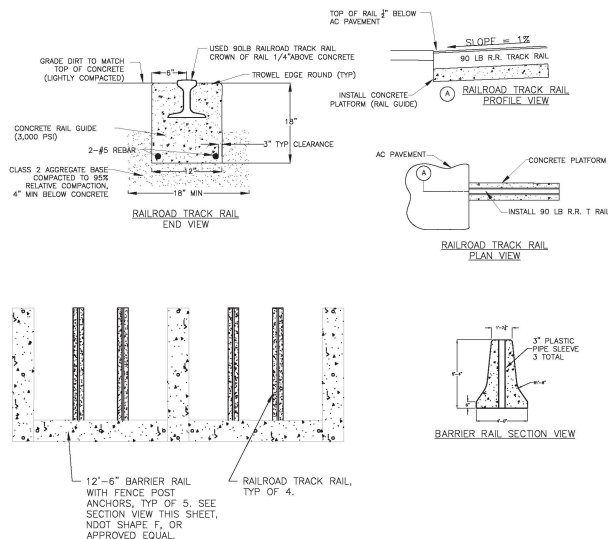


3 VEGETATED SWALE
D5 NO SCALE

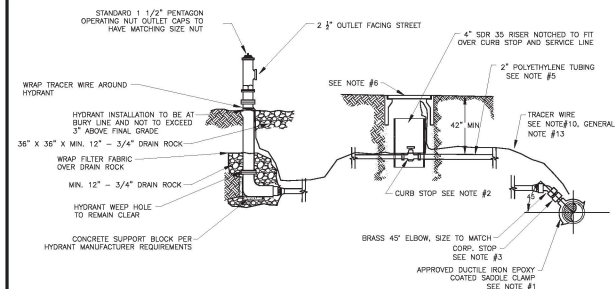


- NOTES:
1. INSTALL HEADER BOARD PER DETAIL 2/05 AROUND ENTIRE AC PAVING PERIMETER WHERE AC DOES NOT MEET ANOTHER SOLID SURFACE SUCH AS CONCRETE OR EXISTING AC.
 2. SEE DETAIL 1/01 FOR TRENCH BACKFILL AND ADDITIONAL REQUIREMENTS IN RIGHT OF WAY.

4 AC SWALE AND PAVING SECTION
D5 NO SCALE



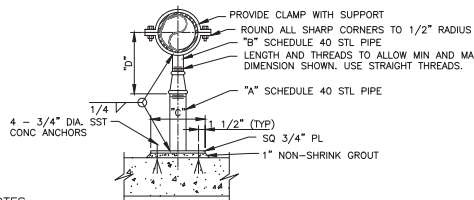
5 BULK MATERIAL STOCKPILE AREA
D5 NO SCALE



- NOTES:
1. ALL SERVICE CONNECTIONS SHALL CONFORM TO AWWA C-900-84 AND BE INSTALLED FROM THE EXISTING MAIN. SERVICE SADDLE SHALL BE DOUBLE STAINLESS STEEL STRAP, FUSION BONDED EPOXY COATED SMITH BLAIR #317 OR APPROVED EQUAL.
 2. NEW CURB-STOP SHALL BE 2" MUELLER #300/820283 OR APPROVED EQUAL. CURB-STOP SHALL BE INSTALLED NEAR THE PROPERTY LINE.
 3. CORPORATION STOP SHALL BE 2" MUELLER #300/2999 OR APPROVED EQUAL.
 4. ALL WATER SERVICES SHALL HAVE A HAND-TAMPED SAND BEDDING NINE INCHES (9") ABOVE AND BENEATH THE TUBING AND SHALL HAVE SIX INCHES (6") MINIMUM CLEARANCE ON EACH SIDE.
 5. ALL WATER SERVICE SHALL BE POLYETHYLENE 200 PSI CLASS COPPER TUBE SIZE. PIPE STIFFENER INSERTS TO BE USED AT ALL CONNECTIONS.
 6. WATER VALVE BOX SHALL BE CHERRY DS OR APPROVED EQUAL WITH A METAL LID MARKED "WATER". WATER VALVE BOX INSTALLED IN ASPHALT SHALL BE 1/4" TO 1/2" BELOW FINISH GRADE.
 7. ALL CORP-STOPS, CURB-STOPS AND POLYETHYLENE SERVICE LINES SHALL BE DISINFECTED AND HYDROSTATIC TESTED PRIOR TO BEING PLACED INTO SERVICE.
 8. ALL TUBING CONNECTIONS SHALL BE THE COMPRESSION TYPE; MUELLER OR APPROVED EQUAL.
 9. TRACER WIRE SHALL BE INSTALLED ALONG NEW SERVICE LINE WITH A SIX INCH (6") MINIMUM LOOP AT THE TOP OF THE RISER PIPE.
 10. WATER SERVICE CONNECTIONS INSTALLED ON THE OPPOSITE SIDE OF THE STREET FROM WATER MAIN SHALL UTILIZE TRENCHLESS TECHNOLOGY (I.E. PNEUMATIC RAM OR MOLI) OR OTHER METHOD APPROVED BY DISTRICT ENGINEER.
 11. HYDRANT ASSEMBLY SHALL PASS HYDROSTATIC PRESSURE AND DISINFECTION TESTING ALONG WITH NEW PIPELINE PRIOR TO BEING PLACED INTO SERVICE.

6 2" WATER SERVICE AND YARD HYDRANT
D5 NO SCALE

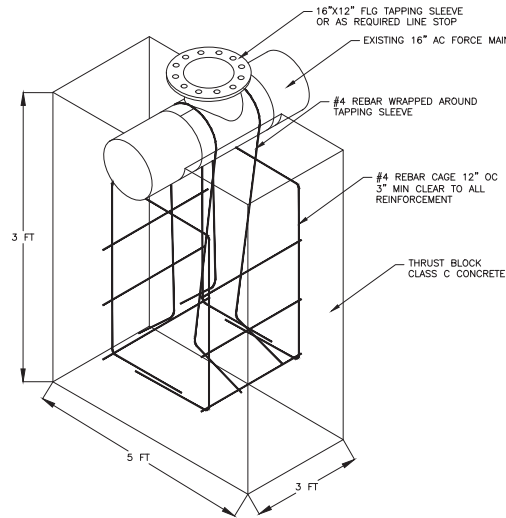
ADJUSTABLE PIPE SADDLE SUPPORT SCHEDULE (INCHES)					
SIZE OF SUPPORTED PIPE **	PIPE SIZE "A"	PIPE SIZE "B"	"C"	"D"	
				MINIMUM	MAXIMUM
2 1/2 *	2 1/2	1 1/2	12	8	13
3	2 1/2	1 1/2	12	8 1/2	13 1/2
3 1/2	2 1/2	1 1/2	12	8 1/2	13 1/2
4	3	2 1/2	12	9 1/2	14
6	3	2 1/2	12	10 1/2	15 1/2
8	3	2 1/2	12	11 1/2	16 1/2
10	3	2 1/2	12	13 1/2	18 1/2
12	3	2 1/2	12	15	19 1/2
14	4	3	12	16 1/2	20 1/2
16	4	3	12	17 1/2	22 1/2
18	6	3 1/2	14	19 1/2	24
20	6	3 1/2	14	21	25 1/2
24	6	4	14	23 1/2	28 1/2
30	6	4	14	27	31 1/2
32	6	4	14	28 1/2	32 1/2
36	6	4	14	30 1/2	34 1/2



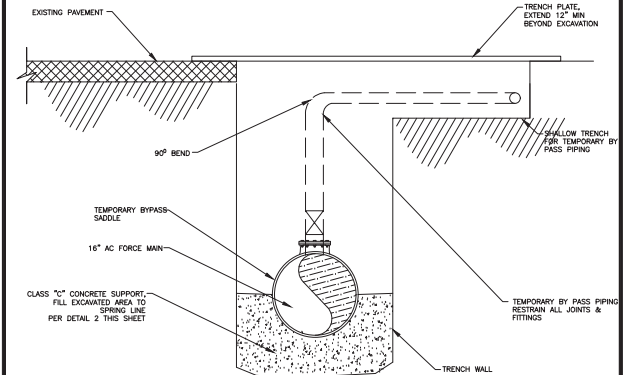
NOTES:

- 1) HOT-DIP GALVANIZED SUPPORT AFTER FABRICATION
- 2) * USE 2 1/2" INCH SUPPORTS FOR PIPES LESS THEN 2 1/2" DIA.
- 3) ** NOMINAL PIPE SIZE

1
D6
ADJUSTABLE PIPE SUPPORT
NO SCALE



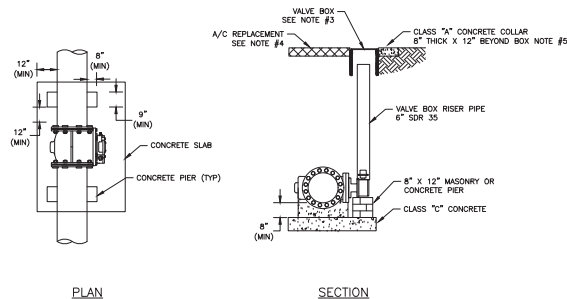
2
D6
LINE STOP AND TEMPORARY BYPASS
RESTRAINT
NO SCALE



NOTES:

- 1) AFTER WORK IS COMPLETE, ABANDON TEMPORARY BYPASS BY REMOVING TEMPORARY PIPING. INSTALL BLIND PLUG FLANGE TO BYPASS TAP SLEEVE. BACKFILL PER DETAIL 1 OR 2 SHEET D1.
- 2) INSTALL GREEN MARKER BALL AT EACH TAPPING SLEEVE LOCATION DURING TIME OF BACKFILL.

3
D6
LINE STOP
SECTION VIEW
NO SCALE



NOTES:

- 1) CONCRETE SUPPORT SLAB SHALL BE PLACED ON NATIVE SOIL COMPACTED TO 95% RELATIVE COMPACTION
- 2) ALL PLUG VALVES TO HAVE BURIED SERVICE ACTUATOR WITH A 2\"/>

4
D6
VALVE SUPPORT
NO SCALE

INTENTIONALLY
LEFT
BLANK

INTENTIONALLY
LEFT
BLANK

SOUTH TAZOE PUBLIC UTILITY DISTRICT



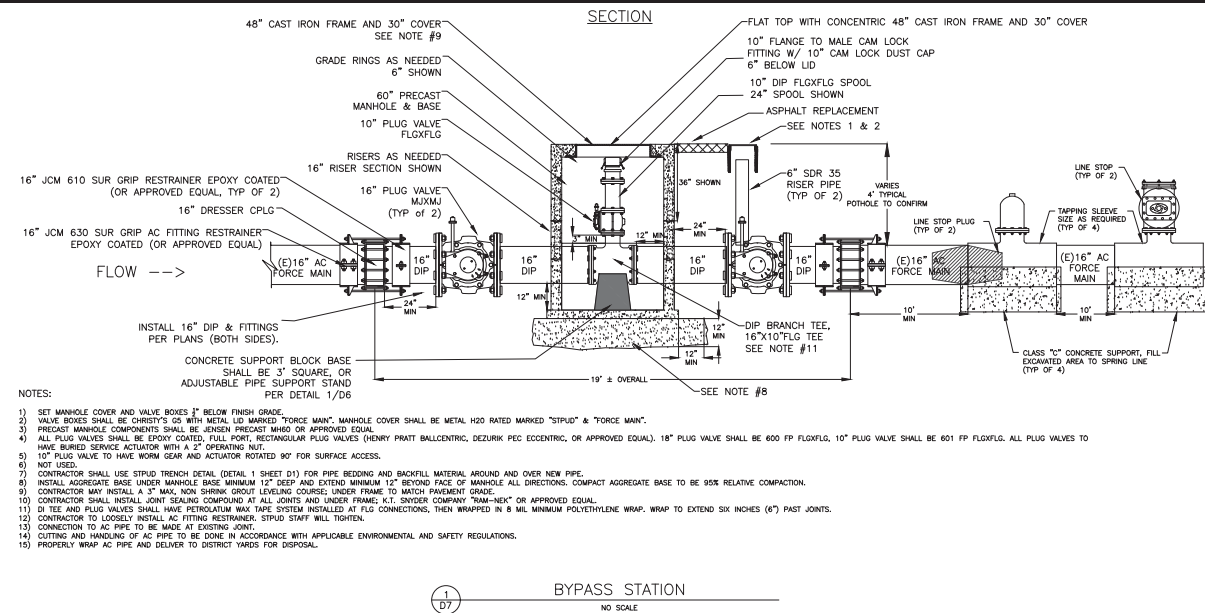
A PUBLIC UTILITY DISTRICT
South Tazoe, Texas 75472
Phone (800) 544-6774 Fax (800) 544-6785
WWW.STPD.UTD.US

2020 SEWER IMPROVEMENTS
PROJECT
DETAILS



DATE: MAR 2020
SCALE: NO SCALE
DRAWN: CAL
FILE: FMBPTK

D6
12 OF 24
SHEETS



- NOTES:**
- 1) AT LEAST TWO WEEKS PRIOR TO COMMENCING WORK ON BY PASS STATION, CONTRACTOR TO SUBMIT TEMPORARY 12" BY PASS PIPING PLAN AND SCHEDULE FOR APPROVAL BY ENGINEER.
 - 2) THE CONTRACTOR SHALL HAVE ALL NECESSARY EQUIPMENT, MATERIALS, AND PERSONNEL FOR REPAIR AND BYPASS OF A BREAK IN THE FM ON SITE DURING A CROSSING OF THE FM.
 - 3) THE CONTRACTOR SHALL ACT IMMEDIATELY TO CONTAIN, AND CLEANUP ANY SPILL. ADDITIONALLY THE CONTRACTOR SHALL INCUR ANY AND ALL COSTS AND FINES RESULTING FROM ANY SEWER FORCE MAIN DAMAGE RESULTING IN A SPILL.
 - 4) THE CONTRACTOR SHALL NOTIFY THE ENGINEER IN WRITING TWO (2) WORKING DAYS IN ADVANCE OF BEGINNING WORK TO CROSS THE FM.
 - 5) CROSSING OF THE FM WILL ONLY TAKE PLACE BETWEEN TUESDAY AND THURSDAY, UNLESS OTHERWISE APPROVED BY THE ENGINEER.
 - 6) THE CONTRACTOR SHALL POTHOLE THE FM IN ADVANCE OF INSTALLATION TO DETERMINE THE DEPTH AND LOCATION OF THE FM. POTHOLE SHALL BE ADVANCED USING A METHOD PROTECTIVE OF FM (VACUUM EXCAVATION OR EQUIVALENT). MECHANICAL EXCAVATION NOT ALLOWED.
 - 7) THIS WORK MUST BE CLOSELY COORDINATED WITH DISTRICT STAFF.
 - 8) TYPICAL OPERATING PRESSURE OF FM IS 35 PSI.
 - 9) MAXIMUM FLOW RATE OF PUMP STATION IS 2,200 GPM.
 - 10) THE MAXIMUM TIME THE PUMP STATION CAN BE SHUT DOWN IS 2.5 HOURS. AFTER SHUT DOWN THE PUMP STATION CAN BE BROUGHT BACK INTO OPERATION AND THE STORED SEWAGE PUMPED DOWN BEFORE A SECOND SHUT DOWN.
 - 11) DURING LINE STOP INSTALLATION THE PUMP STATION WILL BE SHUT DOWN BUT THE FORCE MAIN WILL BE FULL.
 - 12) TEMPORARY BY PASS PIPING, JOINTS AND FITTINGS MUST BE CAPABLE OF WITHSTANDING AT LEAST 150 PSI.
 - 13) AFTER A SHUTDOWN, THE STATION CAN BE PUMPED DOWN WITH 30-45 MINUTES. THIS IS FLOW DEPENDANT AND MAY TAKE LONGER.

- BYPASS STATION RECOMMENDED SEQUENCE OF CONSTRUCTION**
- 1) INSTALL BOTH LINE STOP SADDLES AND BOTH BYPASS SADDLES & POUR CONCRETE BENEATH SADDLE & PIPE IN EXCAVATED AREA. THE TANDY KEYS PUMP STATION WILL BE OPERATING DURING THIS WORK.
 - 2) AFTER SEVEN (7) DAYS OR WHEN CONCRETE REACHES AT LEAST 60% OF 28 DAY STRENGTH, COORDINATE PUMP STATION SHUT DOWN AT LEAST 48 HOURS IN ADVANCE, INSTALL LINE STOP:
 - 2a) DISTRICT WILL SHUT DOWN PUMP STATION WHILE FIRST HOT TAP IS DRILLED, AND WILL RESUME PUMPING WHILE SECOND HOT TAP IS SET UP. REPEAT THIS FOR 3RD AND 4TH HOT TAPS.
 - 2b) ONCE PUMP STATION PUMPS DOWN, THE SECOND HOT TAP CAN BE DRILLED WITH THE PUMP STATION SHUT DOWN.
 - 2c) PUMP STATION WILL PUMP DOWN.
 - 2d) BOTH LINE STOPS CAN BE INSTALLED AND BY PASS PIPING CONNECTED WHILE PUMP STATION IS SHUTDOWN.
 - 3) BEGIN PUMPING THROUGH TEMPORARY BY PASS.
 - 4) CONSTRUCT BY PASS STATION.
 - 5) ONCE BY PASS STATION IS COMPLETE, COORDINATE PUMP STATION SHUTDOWN AT LEAST 48 HOURS IN ADVANCE AND REMOVE LINE STOP. REMOVE LINE STOPS AND TEMPORARY PIPING. INSTALL BLIND FLANGE AT LINE STOP SADDLES AND BYPASS SADDLES AND BACKFILL.

2020 SEWER IMPROVEMENTS
PROJECT – TKFM BYPASS
DETAILS



DATE: MAR 2020
SCALE: NO SCALE
DRAWN: CAL
FILE: FMBPTK

D7
13 OF 24
SHEETS



South Tahoe Public Utility District
A PUBLIC AGENCY
1875 Highway 500 • Reno, NV 89502
Phone (775) 544-6774 Fax (775) 541-4335
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Shawn L. Boso, P.E. - Engineer
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Appendix B: STPUD – TRPA Memorandum of Understanding

MEMORANDUM OF UNDERSTANDING
for
PUBLIC WORKS PROVIDERS

This Memorandum of Understanding (MOU) is entered between the Tahoe Regional Planning Agency (TRPA) and the public works provider(s) listed in Attachment "A," herein referred to as "MOU Partner." TRPA's authority to enter into this MOU with local governmental authorities rests in Article VI (m) of the TRPA Compact (Public Law 96-551) and Section 2.6 of the TRPA Code of Ordinances ("Code"). The authority of the MOU Partner to enter into this MOU is described in Attachment "A." This MOU shall become part of the TRPA Code under Section 2.6 upon signing by TRPA and the MOU Partner.

PART 1 – GENERAL PROVISIONS

COMMON OBJECTIVES	TRPA and the MOU Partner (the "Parties") have a common objective to wisely use and conserve the waters and resources in the Lake Tahoe Region, and enhance the effectiveness of government through the efficient implementation of the TRPA Regional Plan.
TERM OF AGREEMENT	This MOU is effective upon the signing of Attachment "A" by the Parties and shall remain in effect until terminated by either party following a 60-day notice in writing.
DEFINITION OF TERMS	Terms in this MOU shall be defined in accordance with the TRPA Code.
INTERPRETATION AND SEVERABILITY	The provisions of this MOU are subject to the interpretation and severability provisions of Section 1.6 of the TRPA Code.
DISTRIBUTION OF FUNCTIONS	Activities authorized by TRPA under this MOU are described in Attachment B (Table of Exempt (E) and Qualified Exempt (QE) Activities). These activities are designated as either "Exempt" or "Qualified Exempt." Attachment B modifies the scope of Exempt and Qualified Exempt activities otherwise allowed in Section 2.3 of the TRPA Code. Activities that are not Exempt or Qualified Exempt are subject to the project review requirements of Section 2.2 of the Code and are subject to TRPA review and approval.
LOSS OF EXEMPTION	Any "exempt" or "qualified exempt" activity set forth herein shall be considered a "project" outside the scope and authorities granted under this MOU if the TRPA Executive Director, or his/her designee, determines that the activity may have a substantial effect on natural resources in the TRPA Region as defined in the TRPA Code.

COMMUNICATION	The Parties shall each designate a liaison for direct communication of matters related to this MOU. The MOU Partner liaison and the TRPA MOU Coordinator shall meet at least once per year to review this MOU and to establish policy directives, training needs, and renew communications.
TRAINING	TRPA shall provide initial training to the MOU Partner regarding the provisions of this MOU. Subsequent training shall be provided for matters affecting this MOU, including but not limited to: changes to the TRPA Code or other provisions of the Regional Plan; policy or procedural changes; and training needed for corrective actions or to clarify MOU provisions.
EXAMINATION OF RECORDS	Every record of activity under this MOU shall be open for examination in accordance with Article VI (c) of the TRPA Compact.
PROCEDURES FOR RESOLVING DISPUTES	In the event of a dispute, difference of interpretation, or appeal of a decision regarding the terms or conditions of this MOU, settlement shall first be pursued by the MOU liaisons, and if the liaisons are unable to resolve the dispute then by the executive officers of the Parties. If the executive officers are unable to resolve a dispute, the TRPA Executive Director may terminate the MOU or recommend that the matter be heard by the TRPA Governing Board.
EMERGENCIES	TRPA may issue an emergency permit for a situation or circumstance which poses immediate danger to life, property or the environment and demands immediate action in order to comply with the Compact, Regional Plan, Code and/or Rules of Procedure. Emergency permit requests may be made by letter, if time allows, or by telephone or in person, if time does not allow. Requests shall include a description of the nature and location of the emergency and the work to be performed. Upon TRPA determination that an emergency does exist, initial permit approval may be given orally. In the event an emergency exists and the TRPA offices are closed, or a means of communication is not readily available, the MOU Partner may proceed to take necessary action while diligently continuing to contact TRPA.
ENVIRONMENTAL DOCUMENTATION	The MOU Partner shall certify that a Qualified Exempt Activity allowed under this MOU shall not have a negative impact on the environment by completing a TRPA Initial Environmental Checklist (IEC) for the activity. Activities requiring a TRPA Environmental Assessment (EA) or Environmental Impact Statement (EIS) are not covered by this MOU.
RECORD KEEPING AND REPORTING	The MOU Partner shall keep records of Exempt activities commenced pursuant to this MOU for a period of thirteen months following the cessation of the activity. The MOU Partner shall also report Qualified Exempt (QE) activities to the TRPA MOU Coordinator on a TRPA reporting form at least three business days prior to commencement of the activity. Activities allowed under this MOU may be subject to an annual audit by TRPA.

AMENDMENT	This MOU may be amended from time to time by mutual agreement of the Parties in writing. Proposed amendments shall be presented to the liaisons (for approval by their respective agencies) as soon as possible to facilitate timely consideration of proposed amendments.
ASSIGNMENT	None of the authorities, duties or responsibilities set forth in this MOU shall be assigned, transferred or subcontracted to a party other than that named in Attachment A, without written consent by TRPA.

PART 2 – PERFORMANCE STANDARDS

The following standards shall apply to activities authorized under this MOU. The Parties shall consult with each other regarding any uncertainties about these standards. Alternative standards may be approved by the TRPA MOU Coordinator when the results are determined to be equal or superior to these standards.

GENERAL STANDARDS

1. Project Area

Project area shall be calculated for Qualified Exempt activities in accordance with Subparagraph 30.4.1.C.2 of the TRPA Code. Project areas shall not overlap except for activities that do not involve land coverage or land use.

2. Land Coverage

The following land coverage calculations shall be made for Qualified Exempt activities subject to the land coverage provisions of Chapter 30 of the TRPA Code:

- Project Area
- Allowable land coverage by project area and land capability district
- Existing land coverage by project area and land capability district
- Existing excess land coverage by project area and land capability district
- Relocated land coverage by project area and land capability district
- New land coverage by project area and land capability district
- Transferred land coverage by project area and land capability district

3. Findings

The MOU Partner shall keep, as part of their Exempt Activity records, all written findings required in the TRPA Code for the activities allowed under this MOU.

4. Work in State and Federal Highways

Activities requiring the closure of a traffic lane or intersection of a state or federal highway for more than one hour, or the closure of U.S. Highway 50 at any point between the South Wye and Kingsbury Grade for any period of time are not exempt under this MOU.

CONSTRUCTION AND GRADING STANDARDS

1. Sediment and Erosion Control

Appropriate measures shall be taken to control sediment and prevent erosion from graded or unstable ground. Erosion control structures shall be installed and maintained in an operable condition for ground disturbing activities. Sediment and erosion control measures shall, at minimum, conform to the following provisions of the TRPA Code of Ordinances:

- Chapter 33, Grading and Construction
- Section 60.1, Water Quality Control
- Section 60.3, Source Water Protection
- Section 60.4, Best Management Practice Requirements

Erosion control structures shall be installed before activities commence and shall remain in place until disturbed sites are stabilized or winterized (see Subparagraph 33.3.1D of the TRPA Code for winterization requirements). Erosion control measures shall include revegetation with TRPA approved plant species and soil mulching with composted organic materials when necessary to increase soil moisture holding capacity of soils. Revegetated areas shall be protected from future disturbance and irrigated as necessary to ensure plant growth during the first growing season.

2. Vegetation Protection

Vegetation within, or adjacent to, construction areas shall be protected in accordance with Chapter 61 and other applicable provisions of the TRPA Code. All trees and native vegetation to remain on or adjacent to a construction site shall be fenced for protection in accordance with all applicable provisions of the TRPA Regional Plan, including but not limited to Section 33.8 of the TRPA Code. No equipment shall enter into, and no materials shall be placed within, areas protected by fencing.

3. Dust Control

Appropriate measures shall be taken to prevent the transport of fugitive dust from ground disturbing activities in accordance with all applicable provisions of the TRPA Regional Plan, including but not limited to Subsection 33.3.3 of the TRPA Code. These measures shall be employed when activities commence and shall continue until disturbed sites are stabilized.

4. Noise and Hours of Operation

Construction, maintenance, and demolition activities creating noise in excess of the TRPA single event noise or community noise level standards in Section 68.9 of the TRPA Code shall be considered exempt provided that such work is conducted between the hours of 8:00 a.m. and 6:30 p.m. Emergency work to protect life or property is also exempt from the TRPA noise standards.

MEMORANDUM OF UNDERSTANDING
for
PUBLIC WORKS PROVIDERS

ATTACHMENT "A"

Between Tahoe Regional Planning Agency
and South Tahoe Public Utility District

TRPA's authority to enter into this Memorandum of Understanding (MOU) with local entities rests in Article VI (m) of the TRPA Compact (Public Law 96-551) and Section 2.6 of the TRPA Code of Ordinances. The authority of the MOU Partner to enter into this MOU rests in Section 9 of the Public Utility District Act of 1921.

This MOU shall become effective when signed by the parties listed below.

TAHOE REGIONAL PLANNING AGENCY

Date: 3/6/2012


By: Joanne Marchetta
Executive Director

SOUTH TAHOE PUBLIC UTILITY DISTRICT

Date: 3/23/2012


By: Richard Solbrig
District Manager

MEMORANDUM OF UNDERSTANDING
for
PUBLIC UTILITY DISTRICTS

ATTACHMENT "B"

Table of Exempt (E) and Qualified Exempt (QE) Activities

Note: The activities described in this table expand upon the Exempt (E) and Qualified Exempt (QE) activities otherwise allowed in Subsection 2.3 and Subparagraph 2.3.7 of the TRPA Code of Ordinances, provided the activities are consistent with Part 1 (General Provisions) and Part 2 (Performance Standards) of this Memorandum of Understanding.

Line No.	Activity Level	Activity
		Roadways, Trails, Sidewalks & Parking Facilities
1	E	Routine non-structural maintenance provided the activities do not modify the shape or location of the facility, create or relocate land coverage, add new structural appurtenances or modify existing drainage.
2	E	Structural maintenance, repair and replacement of existing facilities (such as pavement, curb and gutter, compacted shoulders, culverts, pipes, vaults, and similar structures), provided no new land coverage is created and any relocated land coverage and/or disturbance is limited to 120 square feet in low capability land (Classes 1a, 1b, 1c, 2, and 3) and 500 square feet in high capability land (Classes 4, 5, 6 and 7).
3	E	Installation of vehicle barriers (such as bollards, fencing and boulders) along travel ways provided the barriers conform to applicable highway standards and boulders are placed partially in the ground to prevent rolling and to give a natural appearance.
4	QE	Modifications to existing facilities to improve public safety and/or environmental protection provided any new or relocated land coverage or disturbance is limited to 240 square feet in low capability land (Classes 1a, 1b, 1c, 2, and 3) and 1,000 square feet in high capability land (Classes 4, 5, 6 and 7).

Erosion Control & Water Quality Protection Facilities		
5	E	Routine non-structural maintenance of existing storm water treatment facilities (such as dry wells, infiltration trenches, drop inlets, and vaults), including removal of sediment, vegetative overgrowth and organic material, without limit on material volume or land capability, provided removed materials are deposited outside of the Tahoe Basin or at a TRPA-approved disposal site.
6	E	Structural maintenance, repair, and in-kind replacement of existing facilities, provided no new land coverage is created and relocated land coverage or disturbance is limited to 120 square feet in low capability land (Classes 1a, 1b, 1c, 2, and 3) and 500 square feet in high capability land (Classes 4, 5, 6 and 7).
7	QE	Modifications to existing facilities to improve effectiveness, meet new regulatory standards, or correct system inefficiencies, provided new structures such as rock slope protection and retaining walls are not visible from any TRPA-designated scenic roadway or shoreline travel unit, Class I bicycle paths, or recreation areas designated in the TRPA Scenic Quality Improvement Program (SQIP).
Water Distribution and Wastewater Collection & Treatment Facilities		
8	E	Testing, locating, and maintenance of existing facilities (such as mechanical and electrical equipment, piping and plumbing, pumps and similar devices).
9	E	Structural maintenance, repair, in-kind replacement of facilities, provided excavation is limited to areas under existing pavement, road shoulder, or compacted soil; no new land coverage is created, and relocated land coverage or disturbance is limited to 120 square feet in low capability land (Classes 1a, 1b, 1c, 2, and 3) and 500 square feet in high capability land (Classes 4, 5, 6 and 7).
10	QE	Modifications to existing facilities provided the modifications do not result in any increases in water or sewer treatment capacity or growth inducing activity, and any new or relocated land coverage or disturbance is limited to 240 square feet in low capability land (Classes 1a, 1b, 1c, 2 or 3) and 1,000 square feet in high capability land (Classes 4, 5, 6 and 7).
Public Service and Recreation Buildings		
11	E	Interior remodeling of existing buildings in accordance with Subparagraph 2.3.2.A of the TRPA Code, except that the allowable structural cost of the remodel allowed is increased to \$80,000.
12	E	Demolition of structures, improvements or facilities less than 50 years of age in accordance with Subparagraph 2.3.2.G of the TRPA Code, except that the excavation and backfill limits are increased to the grading limits in this MOU.
13	QE	Demolition of structures, improvements or facilities greater than 50 years of age that are not designated, or pending designation, on the TRPA Historic Resource Map in accordance with Subparagraph 2.3.7.A.6 of the TRPA Code if the MOU Partner determines that the structure does not qualify for historic protection in accordance with Chapter 67 based on a report prepared by a qualified professional acceptable to the appropriate State Historic Preservation Officer (SHPO).
Public Service and Recreation Buildings (continued)		

Attachment B - Public Utility Districts MOU

14	QE	Structural repair to existing buildings in accordance with Subparagraph 2.3.7.A of the TRPA Code, except that the structural repair cost in 2.3.7.A.1 is increased to \$42,000 per year and excavation and backfilling limits in 2.3.7.A.1.a are increased to the grading limits in this MOU.
15	QE	Structural modifications to existing buildings in accordance with Subparagraph 2.3.7.A.2 of the TRPA Code, except that the grading limits in 2.3.7.A.2.c (i) are increased to the grading limits of this MOU.
16	QE	Structural remodeling or additions to existing buildings in accordance with Subparagraph 2.3.7.A.3 of the TRPA Code, except that the grading limits in 2.3.7.A.3.a (i) are increased to the limits of this MOU, and the BMP retrofit plan required in 2.3.7.A.a (b) is consistent with the requirements of this MOU.
Vegetation Management and Soil Preparation for Vegetation Planting		
17	E	Pruning of vegetation, including hazardous tree limb removal, beyond the limits allowed in Subparagraph 2.3.2.H of the TRPA Code to maintain adequate sight distance along roadways and other travel routes.
18	QE	Scarification of disturbed high capability soils (Classes 4, 5, 6 and 7) as preparation for revegetation with native plant species in accordance with Subparagraph 2.3.2.H of the TRPA Code provided the scarification is less than one acre in area and does not exceed six inches in depth.
19	QE	Hazardous tree removal around MOU Partner facilities in accordance with Subparagraph 61.1.7.A of the TRPA Code, except that TRPA approval is not required unless the tree was planted as a scenic mitigation measure pursuant to a TRPA permit (including permits issued by local government in accordance with Section 2.5).
Grading (Including Grading in Combination with Other Activities)		
20	E	Excavations under existing hard land coverage to an amount that can be backfilled, stabilized and swept clean within a 24-hour period.
21	E	Excavations otherwise allowed in Subparagraph 2.3.2.D of the TRPA Code, except that the volume limit of the excavation is increased to 15 cubic yards in all land capability districts.
22	QE	Excavations otherwise allowed in Subparagraph 2.3.7.A.5 of the TRPA Code, except that the volume limit of the excavation is increased to 50 cubic yards.

Appendix C: Biological Species Lists (CNDDB, CNPS, USFWS) and Biological Assessment and Evaluation

BIOLOGICAL EVALUATION/BIOLOGICAL ASSESSMENT

**for the
South Lake Tahoe Public Utility District
District-wide Right-of-Way Water and Sewer Upgrade Project**

South Lake Tahoe Public Utility District

Lahontan Regional Water Quality Control Board

US Forest Service Lake Tahoe Basin Management Unit

A handwritten signature in black ink, appearing to read 'Garth Alling', is placed over a light gray rectangular background.

PREPARED BY_

DATE: 3 March 2021

Garth Alling
WILDLIFE BIOLOGIST, Sierra Ecotone Solutions LLC

I. INTRODUCTION

This Biological Evaluation (BE) and Biological Assessment (BA) has been prepared to evaluate potential effects of the South Tahoe Public Utility District (District) District-wide Right-of-Way Water and Sewer Upgrade Project on animals and plants listed as threatened or endangered by the U.S. Fish and Wildlife Service (Endangered Species Act of 1973 (ESA; 16 U.S.C. § 1531 et seq.) or designated as sensitive, threatened or endangered by the State of California under the California Endangered Species Act (Fish and Game Code Sections 2050-2098) and designated as sensitive on the 2013 United States Forest Service Region 5 Sensitive Species List (USDA 2013). The Biological Evaluation (BE) portion specifically addresses whether the project may result in a loss of viability of Forest sensitive species, general wildlife species, or cause a sensitive species to trend toward federal listing. The Biological Assessment (BA) portion of this document has been prepared to document analysis of the potential direct and indirect effects of the proposed project on federally listed threatened, endangered, proposed, and candidate species known or expected to occur within the project area. This BE/BA was prepared in accordance with Appendix G of the California Environmental Quality Act (CEQA) and Forest Service Manual (FSM) direction 2672.42 and meets legal requirements set forth under section 7 of the Endangered Species Act of 1973, as amended and implementing regulations [19 U.S.C. 1536 (c, 50 CFR 402.12 (f) and 402.14 (c)].

II. PROJECT DESCRIPTION

Purpose

The South Tahoe Public Utility District (District) owns and operates the water distribution system and the waste water collection and treatment system within its Service Area. The water distribution system serves over 16,000 residential connections and 660 commercial and government connections. The waste water collection and treatment system includes over 330 miles of sewer lines and 17,000 connections. The District has conducted condition assessments of these existing water and sewer lines primarily based on age and other specifications such as diameter or piping material. The District has identified a large number of existing water mains and lateral pipelines that are small diameter (8-inch and under) and nearing the end of their useful life. These pipes reduce water efficiency through minor leaks and limit the capacity to meet existing demand within the Service Area. The District has also identified a large number of sewer mains and lateral pipelines that are aging and at risk of blockage, spills and leakage. The useful life of these facilities is of limited duration unless they are repaired and upgraded.

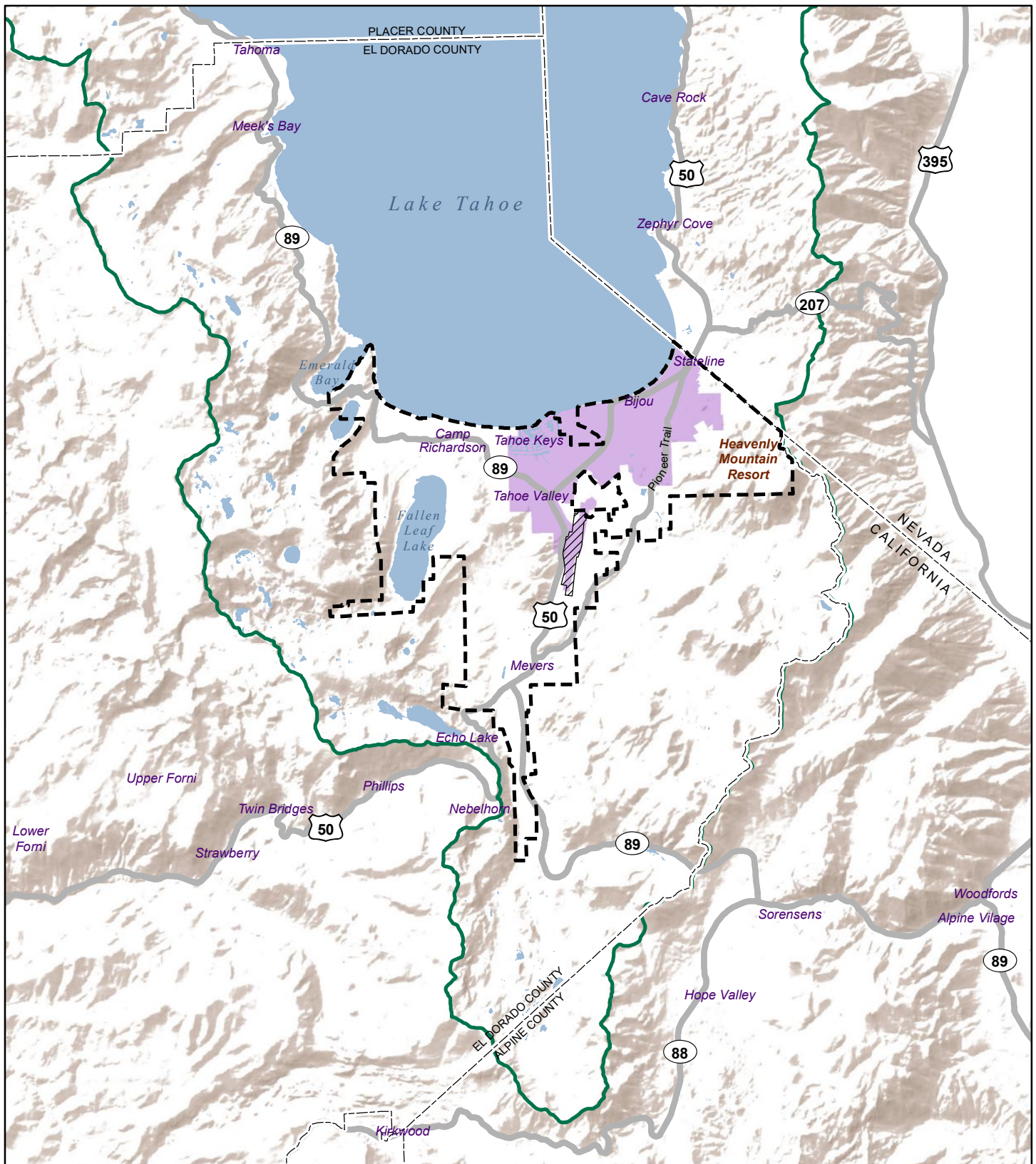
The District maintains a robust infrastructure replacement program and over the next 10 years is planning to replace over 39,000 linear feet of existing waterlines and to rehabilitate or replace over 42,000 linear feet of existing sewer lines located within paved roadways in the Right-of-Way (ROW). The Project Area includes the District's assets (water and sewer mains) located within the ROW that need to be replaced or rehabilitated over the next 10 years.

The purpose of the District-wide Right-of-Way Water and Sewer Facilities Upgrade Project (Project) is to provide an increased level of service and enhanced fire protection capability within the community the District serves. The waterline replacement program will increase water efficiency and improve fire protection by upsizing small diameter pipes and adding fire hydrants where there currently are none. The installation of new fire hydrants within the Service Area is necessary to meet fire standards that require developed properties to be no more than 250 feet from a fire hydrant and undeveloped properties to be no more than 500 feet from a fire hydrant. The sewer pipeline rehabilitation program will repair existing pipes using lining techniques that cause minimal disturbance to the environment. This rehabilitation will extend the useful life of the facilities, minimize stormwater entering the sewer system, and minimize the potential for blockage, spills and leakage. Where rehabilitation is not an effective measure, sewer mains and laterals will be replaced. Manholes in need of repair will be rehabilitated or replaced,

Location

The Project is located in California on the south shore of Lake Tahoe in and around the City of South Lake Tahoe within the District's Service Area (**Figure 1**). The Service Area includes portions of El Dorado County within Tahoe Basin, Hwy 89 North to Cascade Lake, Hwy 89 South to Luther Pass, Hwy 50 East to Nevada state line, and Hwy 50 West to Echo Lake. The Service Area excludes land zoned for conservation of the Upper Truckee Marsh occurring north of the airport and at the outflow to Lake Tahoe.

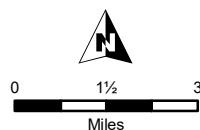
The Project Area (**Figure 2**) shows the location of the District's assets (water and sewer mains) located within the ROW that will need to be replaced or rehabilitated over the next 10 years as part of the Project. The Project Area is contained within the following United State Geological Society (USGS) 7.5 Minute Quadrangle Topographic Maps: South Lake Tahoe, Emerald Bay, and Echo Lake. The Project Area occurs within Townships 11N to 13N and Ranges 17E to 19E on the Mt Diablo Meridian.



LEGEND

- STPUD Service Area
- City of South Lake Tahoe
- State/County Boundary
- TRPA Boundary
- Lake Tahoe Airport

Sources: STPUD; ArcGIS Online Shaded Relief Map Service. Map date: November 12, 2020.

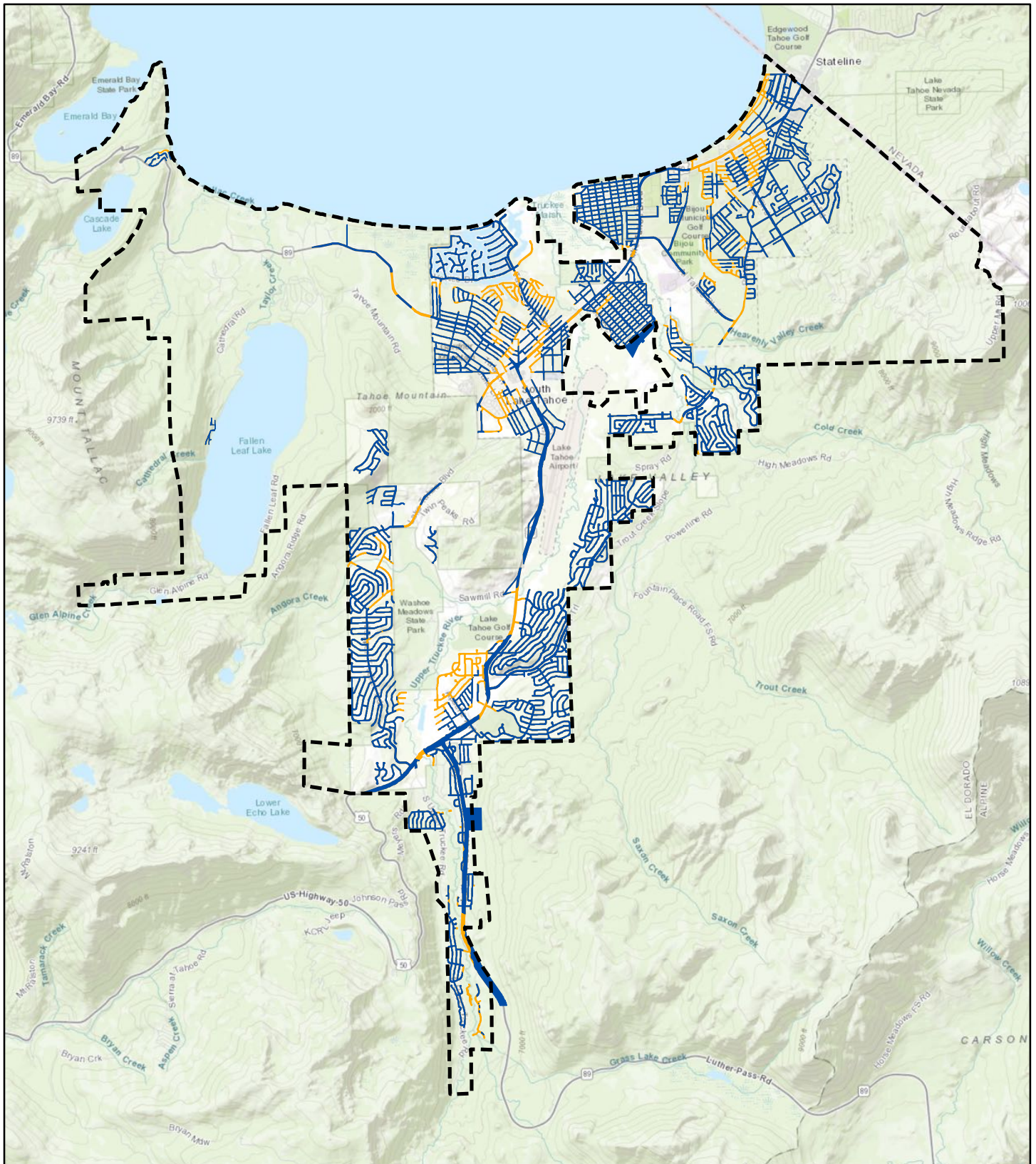


STPUD SEWER AND WATER PIPE NETWORK

Figure 1. Project Vicinity



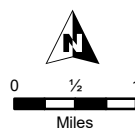
SIERRA ECOTONE SOLUTIONS



LEGEND

- STPUD Service Area
- Asset Right-of-Way (Project)
- Other Right-of-Way (excluded from Project)

Sources: STPUD; ArcGIS Online Topographic Map Service. Map date: November 12, 2020.



STPUD SEWER AND WATER PIPE NETWORK

Figure 2. Project Area



SIERRA ECOTONE SOLUTIONS

Project Overview

The purpose of the District-wide Right-of-Way Water and Sewer Upgrade Project (Project) is to provide an increased level of service and enhanced fire protection capability within the community the District serves. Over the next 10 years, the District is planning to replace over 39,000 linear feet of existing waterlines and to rehabilitate or replace over 42,000 linear feet of existing sewer lines located within its Service Area. The water and sewer lines that would be replaced or rehabilitated are located exclusively within paved roadways in the Right-of-Way (ROW). The majority of the ROW within the Project Area is located in residential neighborhoods and mixed use commercial areas.

The Project Area includes the portion of the District's service area located within a ROW with water or sewer lines and excludes lines within the ROW that are within a 250-foot buffer from a major stream, creek, or stream environment zones (SEZ) (**Figure 2**). The exclusion was applied to reduce the potential of the Project to have significant impacts to the environment.

Annually, the District develops a ten-year Capital Improvement Plan that identifies and prioritizes capital projects. Every year, the 10-year capital improvement plan is re-evaluated based on current needs and the adopted budget. The District has a number of funding sources that allows it to manage the water facilities and serve the customers in its jurisdiction includes customer fees, property tax receipts, external sources (El Dorado County Water Agency, grant monies, FEMA reimbursements), and investment income. The annual work schedule that would be implemented for the proposed Project over the next 10 years would depend on the budgeting and planning process in the Capital Improvement Plan.

Project Components

The Project components include waterline replacement, sewer pipeline rehabilitation or replacement, manhole rehabilitation/replacement, and the installation of new fire hydrants in areas where there currently are none. Each of these components are described in further detail below.

Waterline Replacement

The District has conducted condition assessments of existing waterlines, primarily based on age, diameter or piping material, and identified a large number of existing water mains and lateral pipelines that are either small diameter (8-inch and under) or nearing the end of their useful life. The waterline replacement program would improve water supply by upsizing small diameter pipes and increase water efficiency by replacing aging pipelines that leak.

Waterlines that would be replaced include mains, export mains, and laterals. The replacement would begin with pipeline trenching and excavation within the road. A section of new mainline would be installed along with "in line" appurtenances and might include pressure relief valves

(PRV), pressure relief stations, or meters. Generally, these projects entail installation of a vault or manhole in the street with the mechanical equipment installed inside. A PRV might also include a roadside control panel in a box. Each completed section would be tested for leakage and disinfected. After testing, the new mainline would be tied into the existing system and the new services would be tied to the existing services at the property. The portion of the system being replaced would generally remain in service until the new system has been tied in. Then the old system would be abandoned in place. Upon completion of the install, the trenches would be backfilled and the roadway replaced.

Sewer pipeline Rehabilitation/Replacement

The sewer pipeline rehabilitation program would repair existing pipes using lining techniques that cause minimal disturbance to the environment. This rehabilitation will extend the useful life of the facilities, minimize stormwater entering the sewer system, and minimize the potential for blockage, spills and leakage.

Sewer lines that would be repaired include force mains, gravity mains, and laterals. The repair method would utilize Cured-in-Place-Pipe (CIPP). CIPP is a method of trenchless rehabilitation and restoration that involves inserting and running a felt lining into a preexisting pipe. The lining uses a textile liner tube and a liquid resin. The textile liner is impregnated with an epoxy based resin mixture. Resin within the liner is then exposed to a curing element to make it attach to the inner walls of the pipe. The curing element (water, steam or UV) activates the resin causing it to harden, creating a fitted, smooth, and corrosion-resistant new pipe wall. Once fully cured, the lining acts as a new pipeline. The process can be used on both mains and laterals.

Where rehabilitation is not an effective measure, sewer mains and laterals will be replaced. Pipeline replacement would entail trenching and excavation within the road. A section of new sewer line would be installed along with “in line” appurtenances. Each completed sewer line would be tested for leakage and checked for alignment. After testing, the new mainline would be tied into the existing system and the new services would be tied to the existing services at the property. The portion of the system being replaced would generally remain in service until the new system has been tied in. Then the old system would be abandoned in place. Upon completion of the install, the trenches would be backfilled and the roadway replaced.

Manhole Rehabilitation/Replacement

For a manhole that can be repaired, there are typically three rehabilitation options: cured-in-place pipe (CIPP), spray- or hand-applied polymer linings, or cementitious mortar linings. The repair method selected depends on the condition of the manhole and other factors.

To use a CIPP liner, there needs to be a hole that is large enough for the system to fit into; sometimes the chimney of the manhole must be removed to gain exposure to the largest diameter

of the pipe. Additionally, a seal at the bottom of the manhole is required to prevent material getting between the CIPP liner and existing manhole during the joining process. This method is best suited for manholes with pipes larger than 36-inch diameter. A downside is that the repair process requires a larger footprint to complete the job than alternative methods. However, with repairs occurring exclusively in the ROW this would not be a concern.

Spray- or hand-applied polymer linings include epoxies or polyurethanes. An advantage of polymer linings—as well as CIPP liners—is that they are very chemically resistant if the liner stays fully intact. For the liner to stay fully intact, the system must dry perfectly and there can be no water present on the interior structure of the manhole itself.

If the manhole needing repair has significant corrosion, complete manhole replacement can be done by digging out the existing manhole and replacing it with a precast concrete structure or an HDPE insert. Reconstructing the original shape of the manhole requires use of a cementitious mortar. This additional work requires several extra days for the cement to cure to ensure sufficient strength to support the repair.

New Fire Hydrant Installation

The installation of new fire hydrants within the Service Area is necessary to meet fire standards that require developed properties to be no more than 250 feet from a fire hydrant and undeveloped properties to be no more than 500 feet from a fire hydrant. A minimum of 16 new hydrants would be installed. As funding levels increase, approximately 100 additional hydrants would be installed in fire deficient areas over the next 10 years.

Construction Phasing, Schedule and Equipment

Construction could begin in 2021 and continue to 2031. Project phasing would be dependent on the District's 10-year Capital Improvement Plan that identifies and prioritizes capital projects. The 10-year capital improvement plan is re-evaluated every year based on current needs and the adopted budget.

Construction would be implemented during the typical TRPA construction season for earth moving activities between May 1st and October 15th. On- site work would be performed from 8 am to 6 pm Monday through Friday. Work outside these hours would be approved by the District a minimum of 48-hours before the abnormal working hours are scheduled to begin.

General construction equipment that would be utilized for waterline and sewer line projects include excavator, mini-excavator, loader, water truck, service vehicles, small remote sheep's-foot compactor, vacuum truck, sweeper, milling machine, smooth drum compactor, and a paving machine. All but the paving equipment (the last 3 on the list) are used every day. A one-mile project typically takes 120 days to complete and 200 days for a two-mile project.

Earthwork and Excavations

Earthwork and excavations that result in temporary disturbance will be necessary for Project implementation. Pipeline trenches are expected to be 3-5 feet wide and will only be excavated within the ROW. Waterline trenches generally require excavations of 5 feet deep, while sewer trench depths are more dependent on terrain and can be anywhere from 4 to 15 feet deep or more. Within the City ROW, City of South Lake Tahoe staff may conduct additional soil testing of backfill. Quality assurance measures will be detailed in the construction contract.

Site Access, Staging Areas, and Parking

Contractors equipment and employee vehicles shall park on existing paved surfaces or existing compacted road shoulders. No equipment or vehicles shall be placed outside the Right-of-Way. Contractor shall provide crushed rock in areas of temporary construction access to minimize migration of sediment.

Project Design Features and Best Management Practices

A. Best Management Practices to Protect Surface and Ground Water/Sediment and Erosion Control Plan

A pre-grade inspection shall be completed prior to any saw cutting or excavation activities. The Contractor shall comply with the State Water Resource Control Board waste water discharge requirements for the project and the City of South Lake Tahoe's encroachment permit. To ensure that potential impacts to surface water and ground water are avoided, reduced and minimized, the following measures and BMPs will be implemented as necessary based on site conditions at individual work sites:

- During construction, environmental protection devices, such as erosion control, dust control and vegetation protection devices shall be maintained at all times.
- Soil and construction material shall not be tracked off the construction site. Grading operations shall cease in the event that this condition is in danger of being violated.
- Loose soil mounds or surface shall be protection from wind or water erosion by being appropriately covered at the end of each work day or when required by TRPA.
- The contractor shall not stock pile any material upon any drainage facilities. Excavated material shall be stored upgrade from the excavated area whenever possible. No material shall be stored in any stream environment zone or wet area.
- All excess material from the project is to be removed from the site and disposed of at a site approved by the TRPA. No excess material shall be stored on site after hours. Contractor shall remove all material generated by any asphalt saw cutting operation during or

immediately after saw cutting by using adequately sized vacuuming equipment to accommodate the removal process.

- No equipment or vehicles shall be placed outside the state, city, or county right of way. Contractor shall provide crushed rock in areas of temporary construction access to minimize migration of sediment.
- The contractor shall protect and be responsible for any disturbance or contamination to any dry wells, storm water collection or retainage systems including storm drain pipe, curb & gutter, valley gutters and horizontal drains throughout the project area. Any damage shall be repaired at no additional cost to the District.
- If groundwater is intercepted during some excavations, dewatering may need to be implemented onsite. The contractor shall be responsible for the handling and proper disposal of distribution system water encountered during system tie-ins in accordance with the plan specifications.

B. Construction Noise Reduction

To reduce construction related noise, the following measures will be implemented:

- Noise shall be reduced by mandatory use of mufflers on all construction vehicles and equipment. Where feasible solenoid pavement breakers will be used in lieu of air powered jack hammers.
- Construction activities will be limited to the hours of 8:00 AM and 6:00 PM, pursuant to TRPA Code of Ordinances Chapter 68, Noise Limitations.

C. Migratory Bird Nest Site Protection Program

For construction activities proposed to occur during the nesting season (March 15 through August 15), and outside of paved areas, the contractor and District shall review the Project Area to identify any migratory bird nest sites that may be present. If a nest is present in the immediate vicinity, a qualified biological monitor shall be contacted to evaluate whether any migratory birds are impacted by the project. The biological monitor shall have the authority to stop construction near occupied sites if it appears to be having a negative impact on nesting migratory birds or their young. If construction must be stopped, the monitor must consult with USFWS and CDFW staff within 24 hours to determine appropriate actions to restart construction while reducing impacts to identified migratory bird nests.

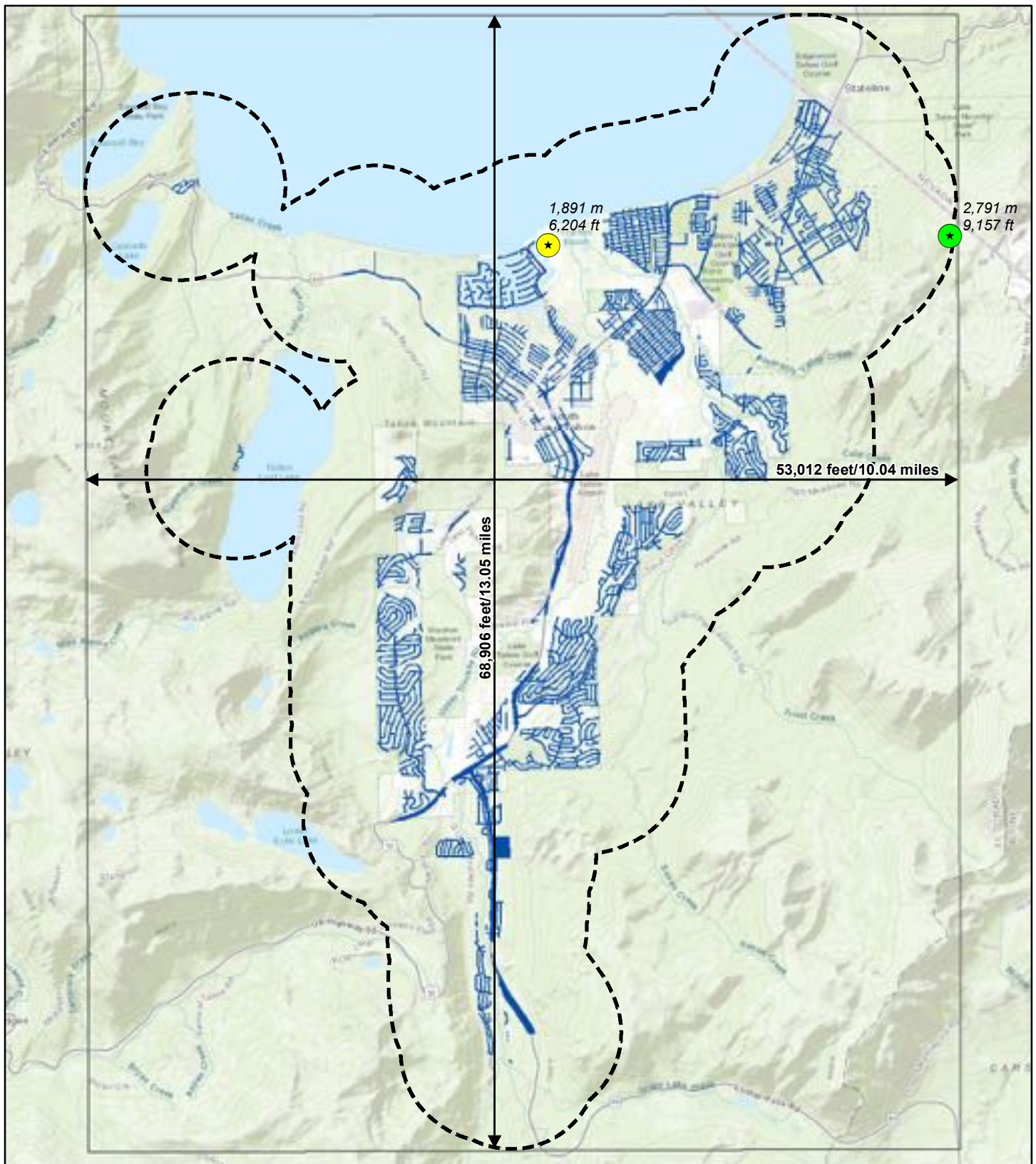
III. ACTION AREA

The Project is located in California on the south shore of Lake Tahoe in and around the City of South Lake Tahoe within the District's Service Area (**Figure 1**). The Project Area (**Figure 2**)

STPUD District-wide Right-of-way Water and Sewer Upgrade Project

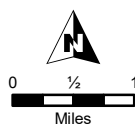
shows the location of the District's assets (water and sewer mains) located within the ROW that will need to be replaced or rehabilitated over the next 10 years as part of the Project. The Project Area is contained within the following United State Geological Society (USGS) 7.5 Minute Quadrangle Topographic Maps: South Lake Tahoe, Emerald Bay, and Echo Lake. The Project Area occurs within Townships 11N to 13N and Ranges 17E to 19E on the Mt Diablo Meridian.

For this Project, the Action Area or Area of Potential Effect was delineated by a one-mile radius from the Project Area, as shown in **Figure 3**. The Action area is defined as all areas that may be affected directly or indirectly by the Project and not merely the immediate area involved in the action. It encompasses the geographic extent of environmental changes (i.e., the physical, chemical and biotic effects) that may result directly and indirectly from the action. The Action area is larger than the area directly affected by the action. The nature of the project results in impacts occurring within the Project Area itself and not within the Action Area.



LEGEND

- Asset Right-of-Way (Project)
- Action Area (±43,009 acres)
- ★ Highest Elevation within the Action Area
- ★ Lowest Elevation within the Action Area



STPUD SEWER AND WATER PIPE NETWORK

Figure 3. Action Area



Sources: STPUD; ArcGIS Online Topographic Map Service. Map date: February 3, 2021.

Project Area Description

Regional land uses within the District's Service Area include commercial, residential, mixed use, recreation, resort recreation, open space, conservation, and the tourist core area in California. A large number of Area Plans, Community Plans, and Plan Area Statements are in effect within the Service Area. Zoning designations within the Service Area are also comprehensive. However, the Project Area only includes the easement area of the ROW within the streets of the City of South Lake Tahoe and the roads in the unincorporated parts of El Dorado County within the Service Area. The majority of the ROW within the Project Area is located in residential neighborhoods and mixed use commercial areas. The Project Area was visited in person the first week of October 2020.

Topography and Soils

As shown in **Figure 3**, the elevations within the Action Area range from a low point of 6,223-feet at the natural rim of Lake Tahoe to a high point of 9,157 feet. The dimension of the Action area is 68,906 feet long in a north-south direction and 53,012 feet wide from the west to the east for a total area of 43,009 acres.

The topography of the Lake Tahoe Basin is varied with at times complex terrain and elevations ranging from 6,220 feet at lake level to 10,000 feet at Monument and Freel Peak outside of South Lake Tahoe, California. The City of South Lake Tahoe is relatively flat at its center and the Project Area consists of flat slopes within the ROW.

Results from the NRCS Web Soils Survey of the Project Area may be found in Appendix 6. (NRCS 2007; <http://websoilsurvey.sc.egov.usda.gov/App/HomePage.htm>, Accessed December 15, 2020). A total of 36 soil map units from the Tahoe Soil Survey are contained within the Project Area. Of these soil units, 17 of them occur in less than 1% of the Area of Interest (AOI). Only two soil units occur in 10% or more of the AOI: the Christopher-Gefo complex (0-5% slopes) is found within 27% of the AOI and Jabu coarse sandy loam (0-9%) is found within 10.8% of the AOI.

Hydrology

The Project Area is not directly hydrologically-connected to perennial or intermittent surface water channels. Within the road rights-of-way where Project work will occur, existing stormwater drainage systems include curb and gutter systems and drop inlets that are maintained by the City of South Lake Tahoe. The stormwater conveyances are ultimately connected to Lake Tahoe.

The Project Area contains FEMA flood hazard zones that were mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map. A total of 7.13 acres of 500-year flood, 2.72 of 100-year flood and 0.29 acres in the regulatory floodway.

Because of project area topography and soil types, seasonal high groundwater is not expected to be encountered at proposed trench depths (less than 5 feet) that will occur in the ROW project area.

Vegetation

The proposed Project Areas are within the road right-of-way in the City of South Lake Tahoe and unincorporated areas of El Dorado County. The proposed Project Areas contain existing disturbance in the form of road shoulder, road base, existing compacted dirt, gravel, landscaping, pavement, existing facilities or a combination of the above. Vegetation within the Action Area is primarily Jeffrey Pine (*Pinus jeffreyi*) forest (Keeler-Wolf 2013) with an open canopy including some white fir (*Abies concolor*). The shrub layer is sparse and comprised of white leaf manzanita (*Arctostaphylos patula*), antelope bitterbrush (*Purshia tridentata*), and chinquapin (*Chrysolepis sempervirens*). The herbaceous layer is very minimal and includes common species like sulfur buckwheat (*Eriogonum ovalifolium* var. *ovalifolium*), groundsmoke (*Gayophytum diffusum*), and tansy mustard (*Descurania incisa*).

IV. PROJECT REVIEW AND PERMITTING

For work performed on the valves within the right-of-way, the District is allowed access for maintenance and construction based on the Service Agreement Contracts they hold with each individual customer and the City of South Lake Tahoe. Each property owner/customer will be notified prior to work that may interrupt water service for their respective property. Minor periods of water shut-off will occur during the installation process, which is anticipated to last less than four hours each day during installation.

Tahoe Regional Planning Agency

The Tahoe Regional Planning Agency (TRPA) enters into agreements with local agencies to streamline the permitting process. These agreements allow local agencies to perform environmental review on projects for conformance with TRPA standards. The agreements are in the form of Memorandum of Understanding (MOU) that are signed by each partner. The District currently has a Memorandum of Understanding with the Tahoe Regional Planning Agency dated 23 March 2012. The District's MOU with TRPA is an MOU for Public Works Providers that allows for repair and maintenance of underground facilities without TRPA's review. This allows for increased efficiency and provides for increased protection of local and natural resources as agreed to in the MOU. The Memorandum of Understanding between Tahoe Regional Planning Agency and South Tahoe Public Utility District can be located here:

http://www.trpa.org/wp-content/uploads/FINAL_Public_Works_MOU.pdf

Attachment A, identifying STPUD on page 5 of 9 can be found here:

<http://www.trpa.org/wp-content/uploads/FINAL-Public-Works-MOU-Attachment-A.pdf>

The listing of Exempt and Qualified Exempt Activities can be found here:

http://www.trpa.org/wp-content/uploads/FINAL_Public_Works_MOU_Attachment_B.pdf

City of South Lake Tahoe

The District must apply for a Right-of-Way Encroachment, Excavation and Grading Permit for waterline and sewer line repair and replacement within the Right-of-Way in the City of South Lake Tahoe. The Public Works Department will issue the permit after review and will require a BMP Plan to be implemented at all times during construction. The City of South Lake Tahoe has the right to revoke the permit if the NPDES permit is violated based on the lack of sediment controls.

Lahontan Regional Water Quality Control Board

The District must comply with General Waste Discharge Requirements specified by the Regional Water Quality Control Board and the Water Quality Control Plan for the Lahontan Region (Basin Plan). Board Order R6T-2016-0010 outlines the requirements for project coverage under what is commonly referred to as the Tahoe General Construction Permit. This General Permit regulates discharges of pollutants in storm water associated with construction activity (storm water discharges) to waters of the United States within the Lake Tahoe Hydrologic Unit from construction sites that disturb one or more acres of land surface, or that are part of a common plan of development or sale that disturbs one or more acres of land surface. However, activities associated with municipal facilities under an approved NPDES Storm Water Management Program for routine maintenance on existing facilities are not required or eligible to be covered under this permit.

US Forest Service

No Project activities will occur on National Forest System lands.

CEQA Process

An Initial Study was prepared to support a Categorical Exemption for the Project. The Project is consistent with the exemption for Class 2 Existing Facilities for the replacement or reconstruction of existing utility systems and/or facilities involving negligible or no expansion of capacity; per CCR Title 14, Section 15302 (c).

Staff will file a CEQA Notice of Exemption with the County of El Dorado and State Office of Planning and Research.

V. USFWS CONSULTATION HISTORY

The District requested consultation with the Reno Office of the US Fish and Wildlife Service (Service) for the Project. The Service responded in a letter dated January 8, 2021 (see Appendix B Consultation Code: 08ENV00-2021-SLI-0103). A total of three species were identified to have the potential to occur within the Action Area: Sierra Nevada yellow-legged frog (*Rana sierrae*), Whitebark pine (*Pinus albicaulis*), and Lahontan cutthroat trout (*Oncorhynchus clarkii henshawi*).

According to the letter: “A Biological Assessment is required for construction projects 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. Guidelines for preparing a Biological Assessment can be found at: http://www.fws.gov/midwest/endangered/section7/ba_guide.html.”

This BA has been prepared in response to the above referenced Consultation Code and at the request of the California State Water Resources Control Board.

VI. SPECIES/CRITICAL HABITAT CONSIDERED FOR THE BIOLOGICAL ASSESSMENT

The Biological Assessment (BA) portion of this document has been prepared to document analysis of the potential direct, indirect, and cumulative effects of the proposed project on federally listed threatened, endangered, proposed, and candidate species known or expected to occur within the project area. The USFWS identified the following species for evaluation in this BA; no critical habitat is present:

Lahontan cutthroat trout (*Oncorhynchus clarkii henshawi*)- Threatened

Sierra Nevada yellow-legged frog (*Rana sierrae*) – Endangered

Whitebark pine (*Pinus albicaulis*) – Proposed Threatened

VII. SPECIES/CRITICAL HABITAT CONSIDERED FOR THE BIOLOGICAL EVALUATION

The Biological Evaluation (BE) portion specifically addresses whether the project may result in a loss of viability of State-listed species or cause a sensitive species to trend toward federal listing. The list of CA Endangered, Threatened, Candidate Endangered, Candidate Threatened, Sensitive, Delisted or Rare species is provided by the California Natural Diversity Database (CNDDB) RareFind 5. A CNDDB occurrence report was generated for the 7 7.5 Min. maps region surrounding South Lake Tahoe Quad (Appendix B; accessed February 2021) as well as the CNPS Rare and Endangered Plant Database (February 2021). The occurrence reports identified seven State-listed wildlife species with occurrences in those quadrangles (Western

bumble-bee, *Bombus occidentalis*; willow flycatcher, *Empidonax traillii*; Sierra Nevada yellow-legged frog, *Rana sierrae*; bald eagle, *Haliaeetus leucocephalus*; California wolverine, *Gulo gulo*; Lahontan cutthroat trout, *Oncorhynchus clarkii henshawi*; and bank swallow *Riparia riparia*; (as noted in Table 3 below) and twenty state-listed (Rare, Threatened or Endangered) plant species Tulare rockcress, *Boechera tularensis*; upswept moonwort, *Botrychium ascendens*; scalloped moonwort, *Botrychium crenulatum*; Mingan moonwort, *Botrychium minganense*; watershield, *Brasenia schreberi*; Davy's sedge, *Carex davyi*; mud sedge, *Carex limosa*; Oregon fireweed, *Epilobium oreganum*; Jack's wild buckwheat, *Eriogonum luteolum* var. *saltuarium*; American manna grass, *Glyceria grandis*; Blandow's bog moss, *Helodium blandowii*; broad-nerved hump moss, *Meesia uliginosa*; Stebbins' phacelia, *Phacelia stebbinsii*; Whitebark pine, *Pinus albicaulis*; Robbins' pondweed, *Potamogeton robbinsii*; alder buckthorn, *Rhamnus alnifolia*; Tahoe yellow cress, *Rorippa subumbellata*; water bulrush, *Schoenoplectus subterminalis*; marsh skullcap, *Scutellaria galericulata*; slender-leaved pondweed, *Stuckenia filiformis* ssp. *Alpine*; golden violet *Viola purpurea* ssp. *Aurea* (as noted in Table 4 below).

The proposed Project Areas were then imported into GIS and a one-mile radius surrounding the Project Areas delineating the Action Area was searched for recorded occurrences in the BIOS database (CNDDDB 2021; accessed February 2021). **Figure 4** represents the locations of the proposed project in relation to known occurrences of sensitive species within 1-mile of the Project Areas.

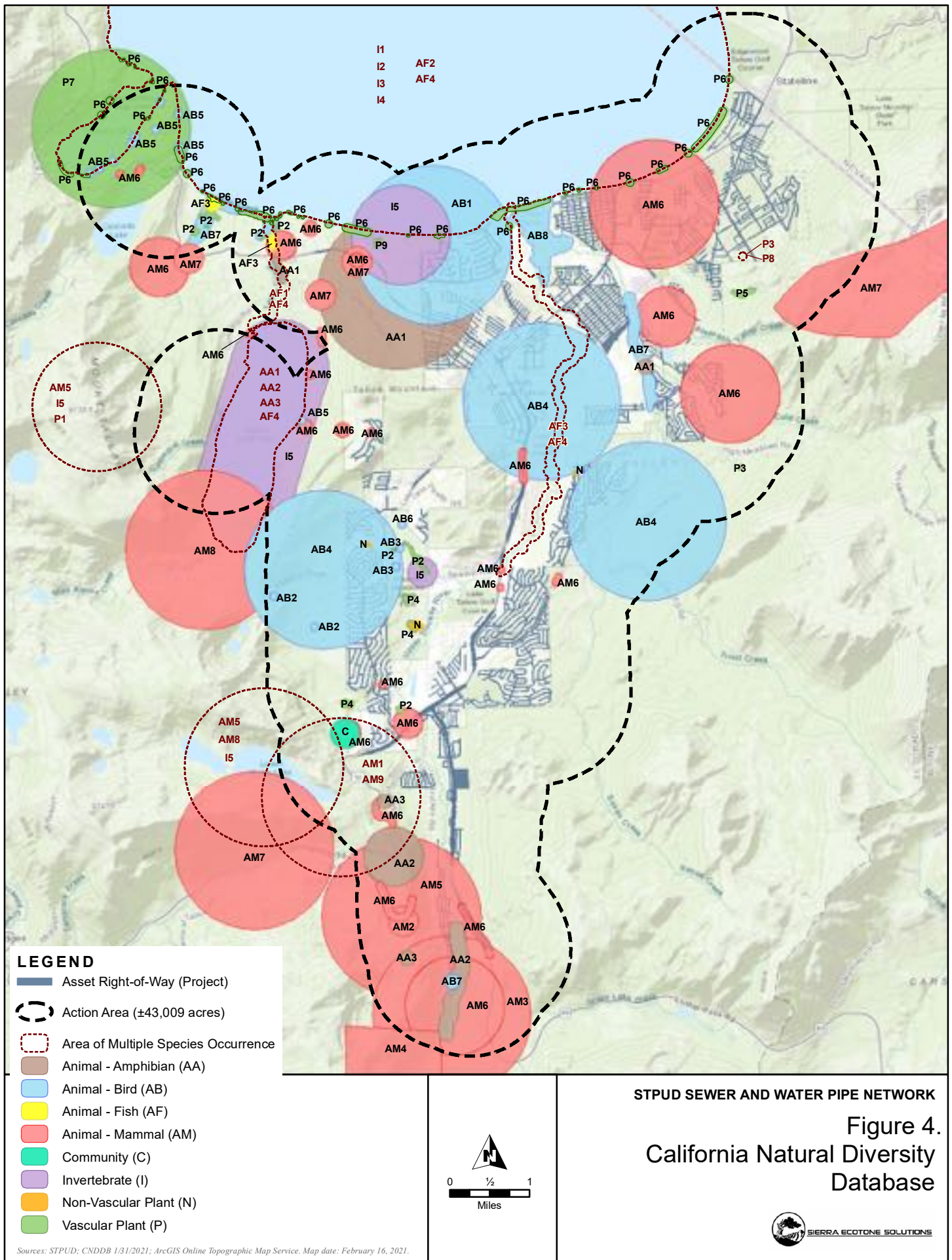


Table 3 Wildlife Species						
Scientific Name	Common Name	FESA	CESA	Habitats	General Habitat	Suitable Habitat in Project Area?
<i>Bombus occidentalis</i>	western bumble bee	None	Candidate Endangered	Flowering plants	Once common & widespread, species has declined precipitously from central CA to southern B.C., perhaps from disease.	No flowering plants in the project area but may be adjacent.
<i>Empidonax traillii</i>	willow flycatcher	None	Endangered	Meadow & seep Riparian scrub Riparian woodland Wetland	Inhabits extensive thickets of low, dense willows on edge of wet meadows, ponds, or backwaters; 2000-8000 ft elevation.	No meadows, seeps or riparian habitat in project area.
<i>Gulo gulo</i>	California wolverine	Proposed Threatened	Threatened	Alpine Alpine dwarf scrub Meadow & seep Montane dwarf scrub North coast coniferous forest Riparian forest Subalpine coniferous forest Upper montane coniferous forest Wetland	Found in the north coast mountains and the Sierra Nevada. Found in a wide variety of high elevation habitats. Prefers habitats away from human habitation.	No suitable habitat present within project area as project is within developed area and high human habitation.
<i>Haliaeetus leucocephalus</i>	bald eagle	Delisted	Endangered	Lower montane coniferous forest Old growth	Ocean shore, lake margins, and rivers for both nesting and wintering. Most nests within 1 mile of water.	Project area may be adjacent to suitable nesting habitat.
<i>Oncorhynchus clarkii henshawi</i>	Lahontan cutthroat trout	Threatened	None	Aquatic Great Basin flowing waters	Historically in all accessible cold waters of the Lahontan Basin in a wide variety of water temps and conditions.	No SEZ, creeks, rivers or lake areas within project area.
<i>Rana sierrae</i>	Sierra Nevada yellow-legged frog	Endangered	Threatened	Aquatic	Always encountered within a few feet of water. Tadpoles may require 2 - 4 years to complete their aquatic development. (Jennings and Hayes 1994)	No suitable habitat within project area as all riparian an SEZ habitats are outside project area.
<i>Riparia riparia</i>	bank swallow	None	Threatened	Riparian scrub Riparian woodland	Colonial nester; nests primarily in riparian and other lowland habitats west of the desert.	No suitable habitat within project area as all riparian an SEZ habitats are outside project area.

Source: CNDDDB 2021, Zeiner et al 1988

Table 4 Plant Species

Scientific Name	Common Name	CA Rare Plant Rank	CESA	FESA	Blooming Period	Habitat	Micro Habitat	Suitable Habitat in Project Area?
<i>Boechnera tularensis</i>	Tulare rockcress	1B.3	None	None	(May)Jun-Jul(Aug)	Subalpine coniferous forest, Upper montane coniferous forest	Rocky slopes	No rocky slopes in project area.
<i>Botrychium ascendens</i>	upswept moonwort	2B.3	None	None	(Jun)Jul-Aug	Lower montane coniferous forest, Meadows and seeps	mesic	No meadows and seeps in project area.
<i>Botrychium crenulatum</i>	scalloped moonwort	2B.2	None	None	Jun-Sep	Bogs and fens, Lower montane coniferous forest, Meadows and seeps, Marshes and swamps (freshwater), Upper montane coniferous forest		No meadows, seeps, bogs or fens in project area.
<i>Botrychium minganense</i>	Mingan moonwort	2B.2	None	None	Jul-Sep	Bogs and fens, Lower montane coniferous forest, Meadows and seeps (edges), Upper montane coniferous forest	Mesic	No meadows, seeps, bogs or fens in project area.
<i>Brusenina schreberi</i>	watershield	2B.3	None	None	Jun-Sep	Marshes and swamps (freshwater)		No marshes and swamps in project area.
<i>Carex davyi</i>	Davy's sedge	1B.3	None	None	May-Aug	Subalpine coniferous forest, Upper montane coniferous forest		No forest in project area. Project area only contains disturbed paved areas.
<i>Carex linosa</i>	mud sedge	2B.2	None	None	Jun-Aug	Bogs and fens, Lower montane coniferous forest, Meadows and seeps, Marshes and swamps, Upper montane coniferous forest		No meadows, seeps, bogs or fens in project area.
<i>Epilobium oreganum</i>	Oregon fireweed	1B.2	None	None	Jun-Sep	Bogs and fens, Lower montane coniferous forest, Meadows and seeps, Upper montane coniferous forest	mesic	No meadows, seeps, bogs or fens in project area.

Table 4 Plant Species								
Scientific Name	Common Name	CA Rare Plant Rank	CESA	FESA	Blooming Period	Habitat	Micro Habitat	Suitable Habitat in Project Area?
<i>Eriogonum luteolum</i> var. <i>salutarium</i>	Jack's wild buckwheat	1B.2	None	None	Jul-Sep	Great Basin scrub, Upper montane coniferous forest	sandy, granitic	No forest in project area. Project area only contains disturbed paved areas.
<i>Glyceria grandis</i>	American manna grass	2B.3	None	None	Jun-Aug	Bogs and fens, Meadows and seeps, Marshes and swamps (streambanks and lake margins)		No meadows, seeps, bogs or fens in project area.
<i>Helodium blandowii</i>	Blandow's bog moss	2B.3	None	None		Meadows and seeps, Subalpine coniferous forest	Damp soil	No meadows and seeps within the project area.
<i>Mesisa uliginosa</i>	broad-nerved hump moss	2B.2	None	None	Jul, Oct	Bogs and fens, Meadows and seeps, Subalpine coniferous forest, Upper montane coniferous forest	damp soil	No meadows, seeps, bogs or fens in project area.
<i>Phacelia siebinsi</i>	Stebbins' phacelia	1B.2	None	None	May-Jul	Cismontane woodland, Lower montane coniferous forest, Meadows and seeps		No meadows, seeps, bogs or fens in project area.
<i>Pinus albicaulis</i>	Whitebark pine	None	None	PT	May-Jun	Subalpine to timberline zones.		No subalpine or timberline habitat is within project area.
<i>Potamogeton robbinsii</i>	Robbins' pondweed	2B.3	None	None	Jul-Aug	Marshes and swamps (deep water, lakes)		No marshes and swamps within the project area.
<i>Rhamnus alnifolia</i>	alder buckhorn	2B.2	None	None	May-Jul	Lower montane coniferous forest, Meadows and seeps, Riparian scrub, Upper montane coniferous forest		No meadows, seeps, marshes or

Table 4 Plant Species								
Scientific Name	Common Name	CA Rare Plant Rank	CESA	FESA	Blooming Period	Habitat	Micro Habitat	Suitable Habitat in Project Area?
								swamps in project area.
<i>Rorippa subumbellata</i>	Tahoe yellow cress	1B.1	CE	None	May-Sep	Lower montane coniferous forest, Meadows and seeps, beaches and lake margin of Lake Tahoe (Stanton 2015)	decomposed granitic beaches	Project area does not include beaches of Lake Tahoe.
<i>Schoenoplectus subterminalis</i>	water bulrush	2B.3	None	None	Jun-Aug(Sep)	Bogs and fens, Marshes and swamps (montane lake margins)		No bogs, fens, marshes, or swamps in the project area.
<i>Scutellaria galericulata</i>	marsh skullcap	2B.2	None	None	Jun-Sep	Lower montane coniferous forest, Meadows and seeps (mesic), Marshes and swamps		No meadows, seeps, marshes or swamps in project area.
<i>Stuckenia filiformis</i> ssp. <i>alpina</i>	slender-leaved pondweed	2B.2	None	None	May-Jul	Marshes and swamps (assorted shallow freshwater)		No marshes or swamps in project area.
<i>Viola purpurea</i> ssp. <i>aurea</i>	golden violet	2B.2	None	None	Apr-Jun	Great Basin scrub, Pinyon and juniper woodland	sandy	No great basin scrub, pinyon and juniper woodland in project area.

CE: CA Endangered
PT: Proposed Threatened

Source: CNPS 2021

As noted in Table 3 and Table 4 above, there are a number of wildlife and plant species that have known occurrences within the Action Area but no suitable habitat within the Project Area. The proposed Project Area is within the road right-of-way in the City of South Lake Tahoe and unincorporated areas of El Dorado County. The proposed Project Areas contain existing disturbance in the form of road shoulder, road base, existing compacted dirt, gravel, landscaping, pavement, existing facilities or a combination of the above. This heavily human dominated and modified environment present within the project area is not suitable for many of the wildlife and plant species noted above. Additionally, The Project Area excludes lines within the ROW that are within a 250-foot buffer from a major stream, creek, or stream environment zone (SEZ) thereby eliminating suitable habitat for species that are located within riparian areas. Based on habitat suitability as noted in Tables 3 and 4 above, only the following species may have suitable habitat within the Project Area or have the potential to be impacted from activities within the Project Area:

BIRDS

Bald eagle (*Haliaeetus leucocephalus*)

INVERTEBRATES

Western bumble bee (*Bombus occidentalis*)

IX. SPECIES ACCOUNTS AND EFFECTS ANALYSIS

A. Federally Listed Species (Biological Assessment)

Based on the information provided in Table 3 and Table 4 above the following are the federally listed species that have the potential to occur within the Action Area: whitebark pine, California wolverine, Sierra Nevada yellow-legged frog, and Lahontan cutthroat trout. As noted in the tables, no suitable habitat is within the Project Area. The proposed project will not result in any impacts to these species as none are known to occur within the Project Area, nor will the project impact habitat or individual of these species. It is my determination there will be **no effect** to the following federally listed species as a result of project implementation: whitebark pine (*Pinus albicaulis*), California wolverine (*Gulo gulo*), Sierra Nevada yellow-legged frog (*Rana sierrae*), and Lahontan cutthroat trout (*Oncorhynchus clarkii henshawi*).

B. State Sensitive Species (Biological Evaluation)

BALD EAGLE

Range, Distribution, and Status: The bald eagle (*Haliaeetus leucocephalus*) was a federally threatened species until it was delisted in 2007 and is a California Endangered species. The bald eagle's breeding range in the western U.S. extends along the coast from southern Alaska through the Pacific Northwest to Northern California, with a few small populations in Arizona and

Colorado. It is estimated that between 100 to 300 bald eagles winter in the Sierra Nevada and at least 151 to 180 pairs remain year-round to breed. The bald eagle is known to occur on the LTBMU in both the summer and winter. The wintering population of bald eagles in the Lake Tahoe Basin is estimated at four to 42 birds (Tahoe Institute for Natural Science 2021 winter Bald Eagle Survey). A wintering Bald Eagle management area has been established along the southwest shore of Lake Tahoe and includes Taylor Creek, Cascade Lake, and Emerald Bay. The eastern boundary of this wintering area along Taylor Creek is located within the Action Area.

Habitat Requirements and Natural History: Bald eagles generally require large bodies of water such as lakes or rivers which provide abundant forage and adequate room for foraging. The most common prey items for bald eagles include fish, waterfowl, jackrabbits, and various types of carrion (USDI 1986). Habitat in California consists of mid-to-late successional stages of montane riparian and mixed conifer forests with standing dead trees (snags) and canopy cover less than 40% (Jackman and Jenkins 2004). Trees selected for nesting in California are characteristically one of the largest and tallest in the stand; nest tree heights often exceed 100 feet and average diameter at breast height (DBH) is 43 inches or greater (Jackman and Jenkins 2004). The majority of bald eagle nests are within one mile of water and almost always have an unobstructed view of a waterbody.

Bald eagles are sensitive to human/recreation disturbance. In Washington, bald eagles have been found to be adversely affected by recreation that involves both pedestrian traffic and boat use by adversely affecting feeding activity (Stalmaster and Kaiser 1998). Eagles were displaced in areas of high human activity and moved to areas of lower human activity. Flush distances were lower when the disturbance was on land than in the water and lower still if the eagle couldn't see the cause of the disturbance. Knight and Knight (1984) found that bald eagles became habituated to canoes in areas where they were common.

Potential for Occurrence: Although the Action Area includes the shoreline of Lake Tahoe, it is the most highly urbanized part of the lake. Most of the bald eagles sightings in the Basin have occurred along undeveloped shorelines. Bald eagles have been identified in the Action Area, and a known to nest within the Action Area in Emerald Bay State Park and in the Tallac Creek marsh. The project areas lie outside their disturbance zones for this species and project activities will not impact individuals or habitat suitability. The Project Area does not support suitable foraging habitat or suitable nesting habitat.

Determination: Based on the above assessment, it is my determination there will be **no effect** on bald eagles or their habitat from the Project activities and no further analysis will be conducted for this species.

WESTERN BUMBLE BEE

Range, Distribution, and Status: The western bumble bee (*Bombus occidentalis*) is a FSS. There are 94 collection records for the western bumble bee on 11 national forests in Region 5, including seven on the LTBMU (Hatfield 2012). There is only one record of the western bumble bee on the LTBMU since 2000. Historically, the western bumble bee was one of the most broadly distributed bumble bee species in North America (Cameron et al. 2011). The species was broadly distributed across western North America along the Pacific Coast and westward from Alaska to the Colorado Rocky Mountains (Thorp and Shepard 2005, Koch et al. 2012). Currently, the western bumble bee currently occurs in all states adjacent to California but is experiencing severe declines in distribution and abundance due to a variety of factors including diseases and loss of genetic diversity (Tommasi et al. 2004, Cameron et al. 2011, Koch et al. 2012).

The overall status of populations in the west is largely dependent on geographic region: populations west of the Cascade and Sierra Nevada mountains are experiencing dire circumstances with steeply declining numbers, while those to the east of this dividing line are more secure with relatively unchanged population sizes. The reasons for these differences are not known.

Habitat Requirements and Natural History: Bumble bees are threatened by many kinds of habitat alterations that may fragment or reduce the availability of flowers that produce the nectar and pollen they require, and decrease the number of abandoned rodent burrows that provide nest and hibernation sites for queens. Major threats that alter landscapes and habitat required by bumble bees include agricultural and urban development. Exposure to organophosphate, carbamate, pyrethroid and particularly neonicotinoid insecticides has recently been identified as a major contributor to the decline of many pollinating bees, including honey bees and bumble bees (Henry et al. 2012, Hopwood et al. 2012). In the absence of fire, native conifers encroach upon meadows and this can also decrease foraging and nesting habitat available for bumble bees.

Potential for Occurrence: No surveys have been performed for western bumble bees within the Project Area or within the Action Area. Nothing is known about the status of the species in the project area. Suitable foraging habitat is not included in the project area as most of the project is in paved or heavily disturbed areas that do not include flowering plants. Flowering plants may occur adjacent to the project area in landscaped areas or natural habitat, however impacts to natural areas will not occur and will therefore will not have an impact on foraging western bumble bees if they are in the area.

Determination: Based on the above assessment, it is my determination there will be **no effect** on western bumble bee or their habitat from the Project activities and no further analysis will be conducted for this species.

Based on the information provided in Table 3 and Table 4 above the following are the State listed species that have the potential to occur within the Action Area but do not have suitable habitat with the Project Area: willow flycatcher, *Empidonax traillii*; Sierra Nevada yellow-legged frog, *Rana sierrae*; bald eagle, *Haliaeetus leucocephalus*; Lahontan cutthroat trout, *Oncorhynchus clarkii henshawi*; bank swallow *Riparia riparia*; Tulare rockcress, *Boechera tularensis*; upswept moonwort, *Botrychium ascendens*; scalloped moonwort, *Botrychium crenulatum*; Mingan moonwort, *Botrychium minganense*; watershield, *Brasenia schreberi*; Davy's sedge, *Carex davyi*; mud sedge, *Carex limosa*; Oregon fireweed, *Epilobium oreganum*; Jack's wild buckwheat, *Eriogonum luteolum* var. *saltuarium*; American manna grass, *Glyceria grandis*; Blandow's bog moss, *Helodium blandowii*; broad-nerved hump moss, *Meesia uliginosa*; Stebbins' phacelia, *Phacelia stebbinsii*; Robbins' pondweed, *Potamogeton robbinsii*; alder buckthorn, *Rhamnus alnifolia*; Tahoe yellow cress, *Rorippa subumbellata*; water bulrush, *Schoenoplectus subterminalis*; marsh skullcap, *Scutellaria galericulata*; slender-leaved pondweed, *Stuckenia filiformis* ssp. *Alpine*; golden violet *Viola purpurea* ssp. *Aurea*. The proposed project will not result in any impacts to these species as none are known to occur within the Project Area, nor will the project impact habitat or individual of these species. It is my determination there will be **no effect** to the following State listed species as a result of project implementation: willow flycatcher, *Empidonax traillii*; Sierra Nevada yellow-legged frog, *Rana sierrae*; bald eagle, *Haliaeetus leucocephalus*; Lahontan cutthroat trout, *Oncorhynchus clarkii henshawi*; bank swallow *Riparia riparia*; Tulare rockcress, *Boechera tularensis*; upswept moonwort, *Botrychium ascendens*; scalloped moonwort, *Botrychium crenulatum*; Mingan moonwort, *Botrychium minganense*; watershield, *Brasenia schreberi*; Davy's sedge, *Carex davyi*; mud sedge, *Carex limosa*; Oregon fireweed, *Epilobium oreganum*; Jack's wild buckwheat, *Eriogonum luteolum* var. *saltuarium*; American manna grass, *Glyceria grandis*; Blandow's bog moss, *Helodium blandowii*; broad-nerved hump moss, *Meesia uliginosa*; Stebbins' phacelia, *Phacelia stebbinsii*; Robbins' pondweed, *Potamogeton robbinsii*; alder buckthorn, *Rhamnus alnifolia*; Tahoe yellow cress, *Rorippa subumbellata*; water bulrush, *Schoenoplectus subterminalis*; marsh skullcap, *Scutellaria galericulata*; slender-leaved pondweed, *Stuckenia filiformis* ssp. *Alpine*; golden violet *Viola purpurea* ssp. *Aurea*.

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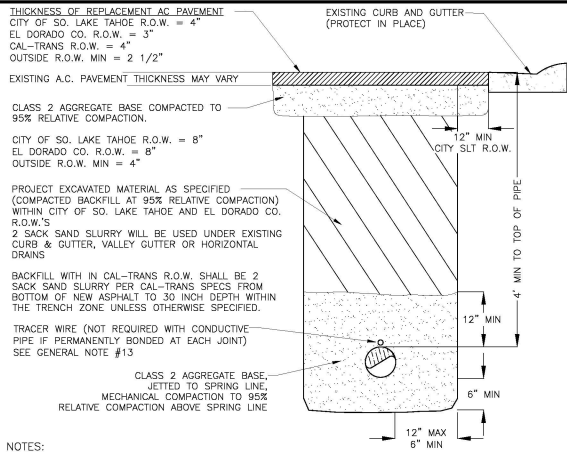
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Appendix A – Preliminary Design Plan Details



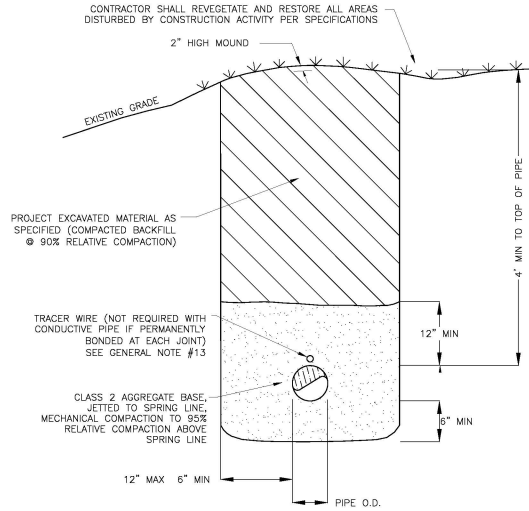
NOTES:

- 1) CONTRACTOR PAY ITEM FOR TRENCH WIDTH PLUS TWENTY FOUR INCHES (24") IN CITY OF SOUTH LAKE TAHOE AND EL DORADO COUNTY RIGHT OF WAY. TRENCH WIDTH AND TRENCH PAVEMENT REPLACEMENT EXCEEDING MAXIMUM AS DESCRIBED HERE IN AND IN THE SPECIFICATIONS SHALL BE COMPLETED AT NO ADDITIONAL EXPENSE TO THE DISTRICT.
- 2) CONTRACTOR SHALL REPLACE ALL TRAFFIC STRIPING DISTURBED BY CONSTRUCTION.
- 3) NO RECYCLED MATERIAL TO BE USED IN PIPE ZONE.

TRENCH DETAIL-
WITHIN PAVED AREAS

1
D1

NO SCALE



NOTE:

- 1) NO RECYCLED MATERIAL TO BE USED IN PIPE ZONE.

TRENCH DETAIL-
OUTSIDE PAVED AREAS

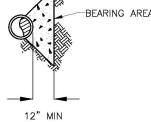
2
D1

NO SCALE

THRUST BLOCK AREA REQUIRED - SQUARE FEET

TYPE OF FITTING	90° ELBOW	45° ELBOW	22.5° ELBOW	11.25° ELBOW	TEE BRANCH	TEE W/ PLUG	CROSS W/ PLUG	CROSS
SIZE OF PIPE	6"	4"	2"	2"	4"	4"	4"	4"
8"	10	6	3	3	10	10	10	10
10"	12	8	4	4	15	15	15	15
12"	16	10	6	6	20	20	20	20
14"	21	12	6	6	22	21	22	21
16"	27	15	8	8	22	27	27	27
18"	45	25	13	13	32	45	45	45
24"	65	35	18	18	45	65	65	65

SECTION



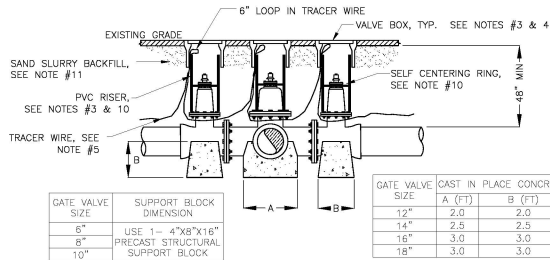
NOTES:

- 1) JOINTS, FLANGE BOLTS AND FACE OF PLUGS TO BE KEPT CLEAR OF CONCRETE.
- 2) BLOCKS MUST BE POURED AGAINST UNDISTURBED SOIL.
- 3) THRUST BLOCKS TO BE CONSTRUCTED OF CLASS 423-C-2500 OR BETTER P.C.C.
- 4) THRUST BLOCKS AREA IS BASED ON TEST PRESSURE OF 150 PSI AND A HORIZONTAL SOIL BEARING STRENGTH OF 1500 PSI.
- 5) NUTS AND BOLTS ON ALL MJ FITTINGS SHALL BE PAINTED WITH TWO COATS OF KOPPERS 505, TNEDEC 46-450*, AMERON OR EQUAL, 15 MILS EACH COAT.

4
D1

TYPICAL THRUST BLOCK

NO SCALE



NOTES:

- 1) GATE VALVES FOURTEEN INCH (14") DIAMETER AND SMALLER SHALL BE WUELLER OR APPROVED EQUAL, AS PER AWWA C-508, RESILIENT RUBBER SEAT RING, WEDGE DISC, NON-RISING STEM, BRONZE STEM NUT AND O-RING SEALS ABOVE AND BELOW THE THRUST COLLAR, WITH TWO INCH (2") SQUARE OPERATING NUT. VALVES SIXTEEN INCH (16") AND LARGER SHALL BE BUTTERFLY VALVES AS SPECIFIED AND SUBMITTED FOR APPROVAL.
- 2) THE MAIN LINE VALVE CLUSTER SHALL CONSIST OF A FLANGED TEE AND FLANGED X MECHANICAL JOINT VALVES OR FLANGED COUPLING ADAPTERS.
- 3) VALVE BOX RISER PIPE TO BE EIGHT INCH (8") PVC, SDR-35 AND INSTALLED PERPENDICULARLY CENTERED AROUND AND COVERING THE UPPER VALVE BONNET AND OPERATOR.
- 4) VALVE BOX SHALL BE CHRISTY GS BOX WITH METAL LID MARKED "WATER"
- 5) THE TRACER WIRE SHALL BE ROUTED FROM THE NEW MAIN, LOOPED THROUGH THE VALVE BOXES AND CLAMPED TO THE EXISTING WATER MAIN USING STAINLESS STEEL CLAMPS. CONTINUITY BETWEEN ALL NEW AND EXISTING PIPELINES SHALL BE MAINTAINED. SEE GENERAL NOTE #13.
- 6) EXPOSED NUTS AND BOLTS ON MJ FITTINGS TO BE PAINTED WITH TWO COATS OF KOPPERS 505, TNEDEC 46-450*, AMERON OR EQUAL 15 MILS EACH COAT.
- 7) ALL FLANGES TO BE BURIED, COAT ENTIRE ASSEMBLY WITH PETROLATUM SATURATED FABRIC TAPE WRAP SYSTEM IN ACCORDANCE WITH DISTRICT REQUIREMENTS.
- 8) CONCRETE FOR SUPPORT BLOCKS SHALL BE FORMED TO MAINTAIN MINIMUM TWO INCH (2") CLEARANCE FROM FLANGE BOLTS.
- 9) PRE CAST STRUCTURAL SUPPORT BLOCKS SHALL BE SOLID AND CONFORM TO ASTM C90.
- 10) PROVIDE AND INSTALL SELF CENTERING ALIGNMENT RING WITH SLIDING ADJUSTER AS MANUFACTURED BY THE AMERICAN FLOW CONTROL CORP. OR EQUAL AND SUPPLIED FOR A TRENCH ADAPTER VALVE BOX ASSEMBLY.
- 11) THE REQUIREMENTS FOR TRENCH BACK FILL AT ALL INTER TIE VALVE CLUSTERS SHALL INCLUDE THE PLACEMENT OF TWO SACK SAND SLURRY WITHIN 3' OF ALL VALVE BOXES BETWEEN THE AB PIPE ZONE MATERIAL AND BOTTOM OF AC PAVEMENT. THIS REQUIREMENT SHALL NOT APPLY TO SINGLE VALVE INSTALLATIONS.
- 12) FOR ALL VALVE OPERATING NUTS EXCEEDING FORTY EIGHT INCHES (48") BURY THE CONTRACTOR SHALL PROVIDE VALVE OPERATOR EXTENSIONS WITH TRASH RINGS TO A MINIMUM DEPTH OF THIRTY SIX INCHES (36").

5
D1

WATER VALVE ASSEMBLY

NO SCALE

FITTING AND PIPE RESTRAINT LENGTH REQUIREMENTS

TYPE OF FITTING	90° ELBOW	45° ELBOW	22.5° ELBOW	11.25° ELBOW	TEE BRANCH	TEE W/ PLUG	REDUCER	VALVE IN LINE	VALVE AT END	DEAD END
SIZE OF PIPE	6"	4"	2"	2"	4"	4"	4"	4"	4"	4"
8"	10	6	3	3	10	10	10	10	10	10
10"	12	8	4	4	15	15	15	15	15	15
12"	16	10	6	6	20	20	20	20	20	20
14"	21	12	6	6	22	21	22	21	22	21
16"	27	15	8	8	22	27	27	27	27	27
18"	45	25	13	13	32	45	45	45	45	45
24"	65	35	18	18	45	65	65	65	65	65

* MINIMUM 10' RESTRAINED LENGTH ON EACH RUN ON BOTH SIDES OF BRANCH

** LENGTHS GIVEN ARE VALID FOR UP TO 4" INCREASE IN NOMINAL DIAMETER FROM SIZE SHOWN

NOTES:

- 1) ALL MINIMUM RESTRAINT LENGTH CALCULATIONS BASED ON MINIMUM 10' PIPE LENGTH'S. MINIMUM PIPE LENGTH'S FOR DUCTILE IRON PIPE FITTINGS BASED ON POLYETHYLENE ENCASEMENT.
- 2) NUTS AND BOLTS ON ALL MJ FITTINGS SHALL BE PAINTED WITH TWO COATS OF KOPPERS 505, TNEDEC 46-450*, AMERON OR EQUAL, 15 MILS EACH COAT.
- 3) ALL FLANGES TO BE BURIED, COAT ENTIRE ASSEMBLY WITH PETROLATUM SATURATED FABRIC TAPE. WRAP SYSTEM IN ACCORDANCE WITH SPECIFICATIONS.
- 4) CONCRETE THRUST BLOCKING MAY BE REQUIRED IN CONJUNCTION WITH MECHANICAL THRUST RESTRAINT SYSTEMS IF DETERMINED NECESSARY BY THE ENGINEER.
- 5) VALVES PLACED IN A RUN OF PIPE OR AT A DEAD END TO BE RESTRAINED PER DEAD END RESTRAINT LENGTHS.
- 6) ALL VALVE CLUSTERS (CROSS OR TEE) USE THE RESTRAINT LENGTHS FOR THE 90° ELBOW.

3
D1

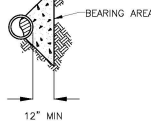
RESTRAINT LENGTH SCHEDULE

NO SCALE

THRUST BLOCK AREA REQUIRED - SQUARE FEET

TYPE OF FITTING	90° ELBOW	45° ELBOW	22.5° ELBOW	11.25° ELBOW	TEE BRANCH	TEE W/ PLUG	CROSS W/ PLUG	CROSS
SIZE OF PIPE	6"	4"	2"	2"	4"	4"	4"	4"
8"	10	6	3	3	10	10	10	10
10"	12	8	4	4	15	15	15	15
12"	16	10	6	6	20	20	20	20
14"	21	12	6	6	22	21	22	21
16"	27	15	8	8	22	27	27	27
18"	45	25	13	13	32	45	45	45
24"	65	35	18	18	45	65	65	65

SECTION



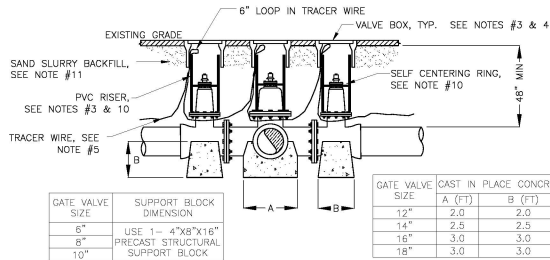
NOTES:

- 1) JOINTS, FLANGE BOLTS AND FACE OF PLUGS TO BE KEPT CLEAR OF CONCRETE.
- 2) BLOCKS MUST BE POURED AGAINST UNDISTURBED SOIL.
- 3) THRUST BLOCKS TO BE CONSTRUCTED OF CLASS 423-C-2500 OR BETTER P.C.C.
- 4) THRUST BLOCKS AREA IS BASED ON TEST PRESSURE OF 150 PSI AND A HORIZONTAL SOIL BEARING STRENGTH OF 1500 PSI.
- 5) NUTS AND BOLTS ON ALL MJ FITTINGS SHALL BE PAINTED WITH TWO COATS OF KOPPERS 505, TNEDEC 46-450*, AMERON OR EQUAL, 15 MILS EACH COAT.

4
D1

TYPICAL THRUST BLOCK

NO SCALE



NOTES:

- 1) GATE VALVES FOURTEEN INCH (14") DIAMETER AND SMALLER SHALL BE WUELLER OR APPROVED EQUAL, AS PER AWWA C-508, RESILIENT RUBBER SEAT RING, WEDGE DISC, NON-RISING STEM, BRONZE STEM NUT AND O-RING SEALS ABOVE AND BELOW THE THRUST COLLAR, WITH TWO INCH (2") SQUARE OPERATING NUT. VALVES SIXTEEN INCH (16") AND LARGER SHALL BE BUTTERFLY VALVES AS SPECIFIED AND SUBMITTED FOR APPROVAL.
- 2) THE MAIN LINE VALVE CLUSTER SHALL CONSIST OF A FLANGED TEE AND FLANGED X MECHANICAL JOINT VALVES OR FLANGED COUPLING ADAPTERS.
- 3) VALVE BOX RISER PIPE TO BE EIGHT INCH (8") PVC, SDR-35 AND INSTALLED PERPENDICULARLY CENTERED AROUND AND COVERING THE UPPER VALVE BONNET AND OPERATOR.
- 4) VALVE BOX SHALL BE CHRISTY GS BOX WITH METAL LID MARKED "WATER"
- 5) THE TRACER WIRE SHALL BE ROUTED FROM THE NEW MAIN, LOOPED THROUGH THE VALVE BOXES AND CLAMPED TO THE EXISTING WATER MAIN USING STAINLESS STEEL CLAMPS. CONTINUITY BETWEEN ALL NEW AND EXISTING PIPELINES SHALL BE MAINTAINED. SEE GENERAL NOTE #13.
- 6) EXPOSED NUTS AND BOLTS ON MJ FITTINGS TO BE PAINTED WITH TWO COATS OF KOPPERS 505, TNEDEC 46-450*, AMERON OR EQUAL 15 MILS EACH COAT.
- 7) ALL FLANGES TO BE BURIED, COAT ENTIRE ASSEMBLY WITH PETROLATUM SATURATED FABRIC TAPE WRAP SYSTEM IN ACCORDANCE WITH DISTRICT REQUIREMENTS.
- 8) CONCRETE FOR SUPPORT BLOCKS SHALL BE FORMED TO MAINTAIN MINIMUM TWO INCH (2") CLEARANCE FROM FLANGE BOLTS.
- 9) PRE CAST STRUCTURAL SUPPORT BLOCKS SHALL BE SOLID AND CONFORM TO ASTM C90.
- 10) PROVIDE AND INSTALL SELF CENTERING ALIGNMENT RING WITH SLIDING ADJUSTER AS MANUFACTURED BY THE AMERICAN FLOW CONTROL CORP. OR EQUAL AND SUPPLIED FOR A TRENCH ADAPTER VALVE BOX ASSEMBLY.
- 11) THE REQUIREMENTS FOR TRENCH BACK FILL AT ALL INTER TIE VALVE CLUSTERS SHALL INCLUDE THE PLACEMENT OF TWO SACK SAND SLURRY WITHIN 3' OF ALL VALVE BOXES BETWEEN THE AB PIPE ZONE MATERIAL AND BOTTOM OF AC PAVEMENT. THIS REQUIREMENT SHALL NOT APPLY TO SINGLE VALVE INSTALLATIONS.
- 12) FOR ALL VALVE OPERATING NUTS EXCEEDING FORTY EIGHT INCHES (48") BURY THE CONTRACTOR SHALL PROVIDE VALVE OPERATOR EXTENSIONS WITH TRASH RINGS TO A MINIMUM DEPTH OF THIRTY SIX INCHES (36").

5
D1

WATER VALVE ASSEMBLY

NO SCALE

FITTING AND PIPE RESTRAINT LENGTH REQUIREMENTS

TYPE OF FITTING	90° ELBOW	45° ELBOW	22.5° ELBOW	11.25° ELBOW	TEE BRANCH	TEE W/ PLUG	REDUCER	VALVE IN LINE	VALVE AT END	DEAD END
SIZE OF PIPE	6"	4"	2"	2"	4"	4"	4"	4"	4"	4"
8"	10	6	3	3	10	10	10	10	10	10
10"	12	8	4	4	15	15	15	15	15	15
12"	16	10	6	6	20	20	20	20	20	20
14"	21	12	6	6	22	21	22	21	22	21
16"	27	15	8	8	22	27	27	27	27	27
18"	45	25	13	13	32	45	45	45	45	45
24"	65	35	18	18	45	65	65	65	65	65

* MINIMUM 10' RESTRAINED LENGTH ON EACH RUN ON BOTH SIDES OF BRANCH

** LENGTHS GIVEN ARE VALID FOR UP TO 4" INCREASE IN NOMINAL DIAMETER FROM SIZE SHOWN

NOTES:

- 1) ALL MINIMUM RESTRAINT LENGTH CALCULATIONS BASED ON MINIMUM 10' PIPE LENGTH'S. MINIMUM PIPE LENGTH'S FOR DUCTILE IRON PIPE FITTINGS BASED ON POLYETHYLENE ENCASEMENT.
- 2) NUTS AND BOLTS ON ALL MJ FITTINGS SHALL BE PAINTED WITH TWO COATS OF KOPPERS 505, TNEDEC 46-450*, AMERON OR EQUAL, 15 MILS EACH COAT.
- 3) ALL FLANGES TO BE BURIED, COAT ENTIRE ASSEMBLY WITH PETROLATUM SATURATED FABRIC TAPE. WRAP SYSTEM IN ACCORDANCE WITH SPECIFICATIONS.
- 4) CONCRETE THRUST BLOCKING MAY BE REQUIRED IN CONJUNCTION WITH MECHANICAL THRUST RESTRAINT SYSTEMS IF DETERMINED NECESSARY BY THE ENGINEER.
- 5) VALVES PLACED IN A RUN OF PIPE OR AT A DEAD END TO BE RESTRAINED PER DEAD END RESTRAINT LENGTHS.
- 6) ALL VALVE CLUSTERS (CROSS OR TEE) USE THE RESTRAINT LENGTHS FOR THE 90° ELBOW.

3
D1

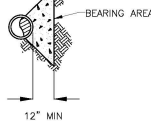
RESTRAINT LENGTH SCHEDULE

NO SCALE

THRUST BLOCK AREA REQUIRED - SQUARE FEET

TYPE OF FITTING	90° ELBOW	45° ELBOW	22.5° ELBOW	11.25° ELBOW	TEE BRANCH	TEE W/ PLUG	CROSS W/ PLUG	CROSS
SIZE OF PIPE	6"	4"	2"	2"	4"	4"	4"	4"
8"	10	6	3	3	10	10	10	10
10"	12	8	4	4	15	15	15	15
12"	16	10	6	6	20	20	20	20
14"	21	12	6	6	22	21	22	21
16"	27	15	8	8	22	27	27	27
18"	45	25	13	13	32	45	45	45
24"	65	35	18	18	45	65	65	65

SECTION



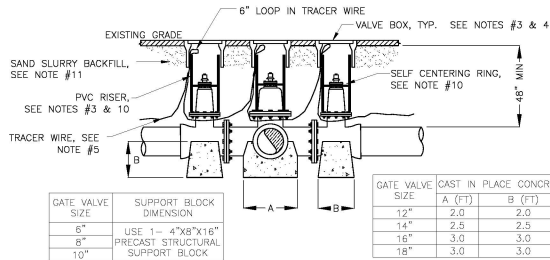
NOTES:

- 1) JOINTS, FLANGE BOLTS AND FACE OF PLUGS TO BE KEPT CLEAR OF CONCRETE.
- 2) BLOCKS MUST BE POURED AGAINST UNDISTURBED SOIL.
- 3) THRUST BLOCKS TO BE CONSTRUCTED OF CLASS 423-C-2500 OR BETTER P.C.C.
- 4) THRUST BLOCKS AREA IS BASED ON TEST PRESSURE OF 150 PSI AND A HORIZONTAL SOIL BEARING STRENGTH OF 1500 PSI.
- 5) NUTS AND BOLTS ON ALL MJ FITTINGS SHALL BE PAINTED WITH TWO COATS OF KOPPERS 505, TNEDEC 46-450*, AMERON OR EQUAL, 15 MILS EACH COAT.

4
D1

TYPICAL THRUST BLOCK

NO SCALE



NOTES:

- 1) GATE VALVES FOURTEEN INCH (14") DIAMETER AND SMALLER SHALL BE WUELLER OR APPROVED EQUAL, AS PER AWWA C-508, RESILIENT RUBBER SEAT RING, WEDGE DISC, NON-RISING STEM, BRONZE STEM NUT AND O-RING SEALS ABOVE AND BELOW THE THRUST COLLAR, WITH TWO INCH (2") SQUARE OPERATING NUT. VALVES SIXTEEN INCH (16") AND LARGER SHALL BE BUTTERFLY VALVES AS SPECIFIED AND SUBMITTED FOR APPROVAL.
- 2) THE MAIN LINE VALVE CLUSTER SHALL CONSIST OF A FLANGED TEE AND FLANGED X MECHANICAL JOINT VALVES OR FLANGED COUPLING ADAPTERS.
- 3) VALVE BOX RISER PIPE TO BE EIGHT INCH (8") PVC, SDR-35 AND INSTALLED PERPENDICULARLY CENTERED AROUND AND COVERING THE UPPER VALVE BONNET AND OPERATOR.
- 4) VALVE BOX SHALL BE CHRISTY GS BOX WITH METAL LID MARKED "WATER"
- 5) THE TRACER WIRE SHALL BE ROUTED FROM THE NEW MAIN, LOOPED THROUGH THE VALVE BOXES AND CLAMPED TO THE EXISTING WATER MAIN USING STAINLESS STEEL CLAMPS. CONTINUITY BETWEEN ALL NEW AND EXISTING PIPELINES SHALL BE MAINTAINED. SEE GENERAL NOTE #13.
- 6) EXPOSED NUTS AND BOLTS ON MJ FITTINGS TO BE PAINTED WITH TWO COATS OF KOPPERS 505, TNEDEC 46-450*, AMERON OR EQUAL 15 MILS EACH COAT.
- 7) ALL FLANGES TO BE BURIED, COAT ENTIRE ASSEMBLY WITH PETROLATUM SATURATED FABRIC TAPE WRAP SYSTEM IN ACCORDANCE WITH DISTRICT REQUIREMENTS.
- 8) CONCRETE FOR SUPPORT BLOCKS SHALL BE FORMED TO MAINTAIN MINIMUM TWO INCH (2") CLEARANCE FROM FLANGE BOLTS.
- 9) PRE CAST STRUCTURAL SUPPORT BLOCKS SHALL BE SOLID AND CONFORM TO ASTM C90.
- 10) PROVIDE AND INSTALL SELF CENTERING ALIGNMENT RING WITH SLIDING ADJUSTER AS MANUFACTURED BY THE AMERICAN FLOW CONTROL CORP. OR EQUAL AND SUPPLIED FOR A TRENCH ADAPTER VALVE BOX ASSEMBLY.
- 11) THE REQUIREMENTS FOR TRENCH BACK FILL AT ALL INTER TIE VALVE CLUSTERS SHALL INCLUDE THE PLACEMENT OF TWO SACK SAND SLURRY WITHIN 3' OF ALL VALVE BOXES BETWEEN THE AB PIPE ZONE MATERIAL AND BOTTOM OF AC PAVEMENT. THIS REQUIREMENT SHALL NOT APPLY TO SINGLE VALVE INSTALLATIONS.
- 12) FOR ALL VALVE OPERATING NUTS EXCEEDING FORTY EIGHT INCHES (48") BURY THE CONTRACTOR SHALL PROVIDE VALVE OPERATOR EXTENSIONS WITH TRASH RINGS TO A MINIMUM DEPTH OF THIRTY SIX INCHES (36").

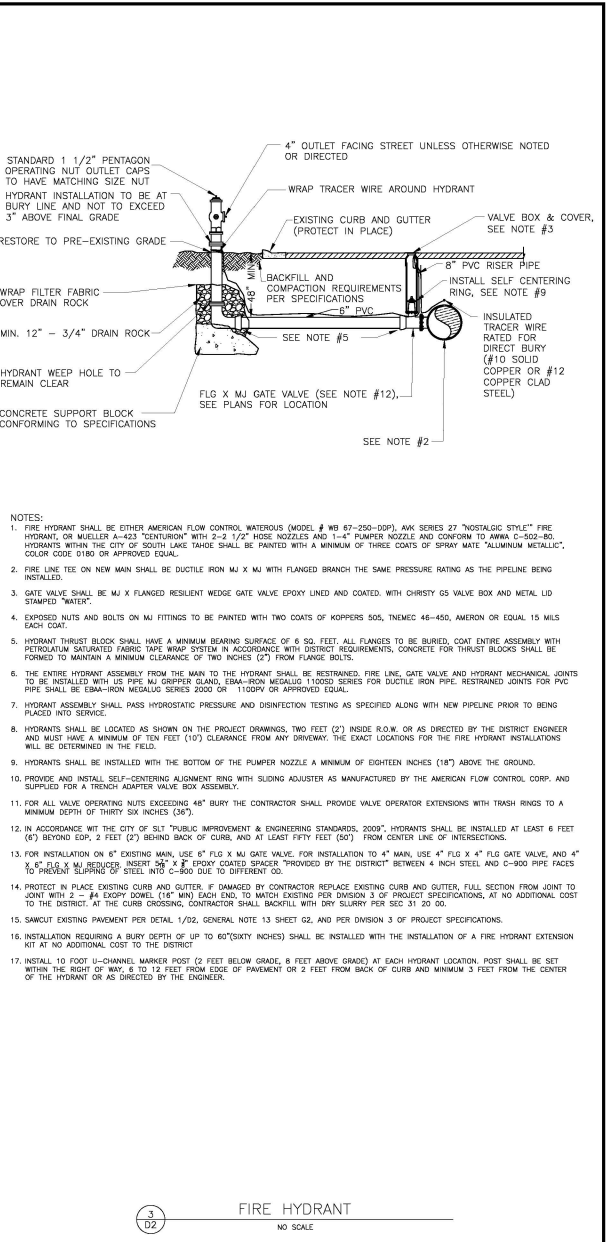
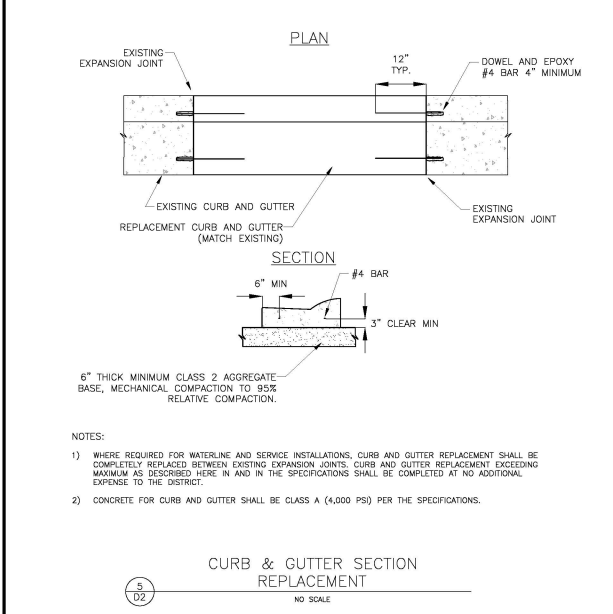
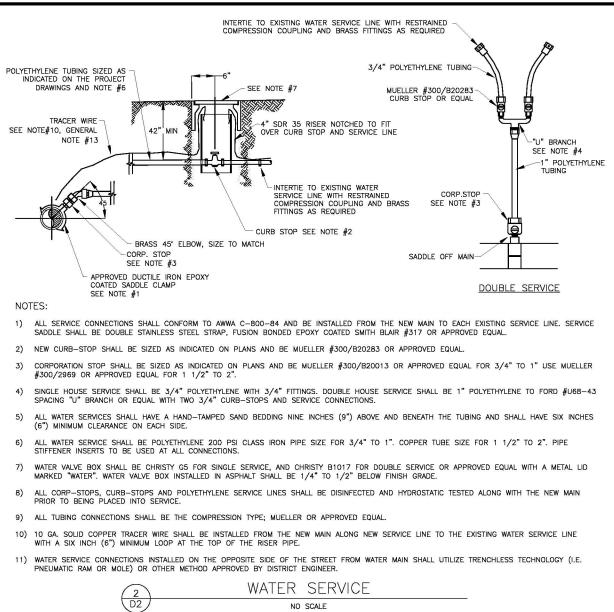
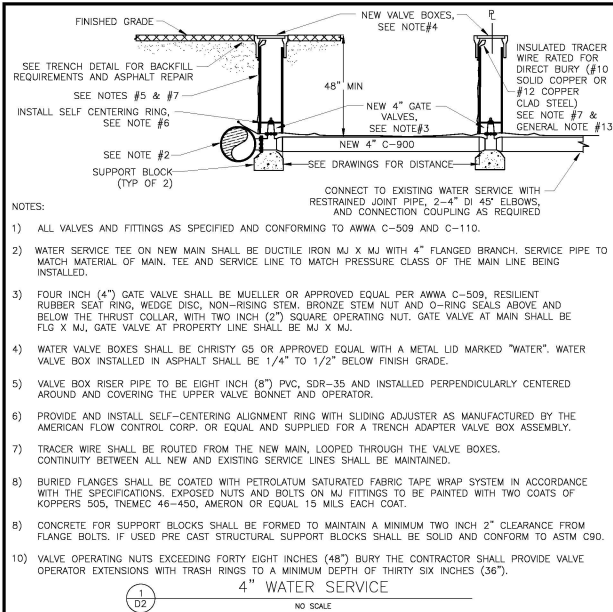
5
D1

WATER VALVE ASSEMBLY

NO SCALE

FITTING AND PIPE RESTRAINT LENGTH REQUIREMENTS

TYPE OF FITTING	90° ELBOW	45° ELBOW	22
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SOUTH LAKE TAHOE PUBLIC UTILITY DISTRICT

A PUBLIC UTILITY DISTRICT

1875 Main Street, South Lake Tahoe, CA 96150

Phone: (530) 544-6474 Fax: (530) 544-6339

WWW.SPTD.UTD

2019 ROCKY POINT II WATERLINE REPLACEMENT REBID DETAILS

DATE: MAY 2019

SCALE: NO SCALE

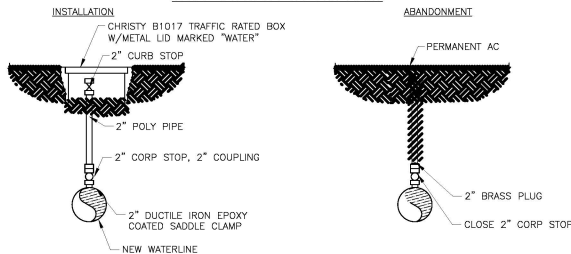
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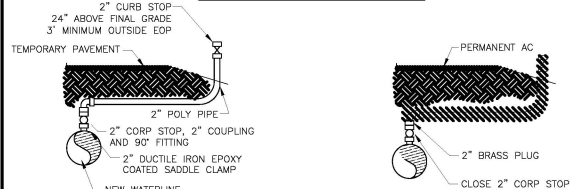
D2

6 OF 23 SHEETS

TEST STATION IN ASPHALT

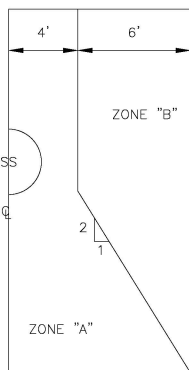


TEST STATION IN SHOULDER



- NOTE:
- CORPORATION STOP SHALL BE MUELLER #300/2969 OR APPROVED EQUAL.
 - CONTRACTOR TO DEMOLISH PIPING AFTER ALL DISINFECTION TESTING IS COMPLETE.

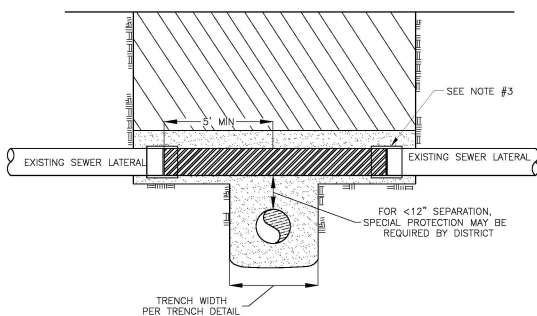
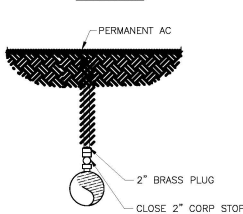
1
D3
TEST STATION
NO SCALE



- NOTES:
- PARALLEL CONSTRUCTION WILL BE ALLOWED ONLY WHEN TEN FEET (10') SEPARATION BETWEEN SEWER AND WATER MAINS CANNOT BE MAINTAINED.
 - WATER MAIN INSTALLATION IN ZONE "A" IS PROHIBITED.
 - PARALLEL WATER MAIN INSTALLATION IN ZONE "B" MUST BE DIP CLASS 350 OR CLASS 235 DR18C900PVC.

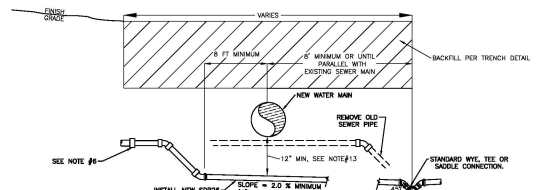
4
D3
TRENCH SECTION FOR PARALLEL
CONSTRUCTION
NO SCALE

ABANDONMENT



- NOTES:
- WHERE SEWER LATERAL IS DAMAGED DURING CONSTRUCTION, THE LATERAL SHALL BE CUT AND REPLACED FOR A DISTANCE OF AT LEAST FIVE FEET (5') ON EACH SIDE OF THE POINT OF CROSSING.
 - ALL SEWER LATERAL REPLACEMENT PIPING SHALL BE PVC SDR 26 UNLESS NOTED OR APPROVED BY THE DISTRICT.
 - ALL COUPLING, ADAPTERS AND MATERIALS USED TO CONNECT PVC SDR 26 PIPING TO OTHER PIPE MATERIALS SHALL BE APPROVED BY THE DISTRICT.
 - ALL SEWER LATERAL REPAIRS SHALL BE BACKFILLED WITH COMPACTED OR JETTED CLASS 2 AGGREGATE BASE MATERIAL AS REQUIRED BY THE DISTRICT PER TRENCH DETAIL.

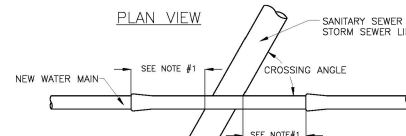
2
D3
SEWER LATERAL REPLACEMENT AT
CROSSING OF PIPE TRENCH
NO SCALE



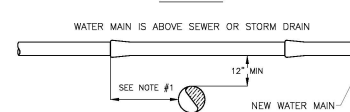
- NOTES:
- ALL JOINTS AND CONNECTIONS SHALL BE WATER TIGHT. ALL COUPLING, ADAPTERS AND MATERIALS USED TO CONNECT SEWER MAIN AND LATERAL SHALL BE APPROVED BY THE DISTRICT.
 - NEW SEWER LATERAL PIPE SHALL BE CONNECTED TO THE EXISTING SEWER SERVICE PIPE WITH A FERNOCO COUPLER OR APPROVED EQUAL WITH STAINLESS STEEL HOSE CLAMPS.
 - SEWER LATERAL REPLACEMENT PIPING AND FITTINGS SHALL BE PVC SDR 26 UNLESS APPROVED BY THE DISTRICT.
 - SEWER LATERAL SLOPE SHALL BE 45' OFF CENTERLINE OF MAIN.
 - ALL SEWERS LATERALS SHALL HAVE A MINIMUM GROUND COVER OF THREE FEET (3') OVER THE TOP OF PIPE. IF LESS THAN 30" COVER USE CAST IRON PIPE.
 - WHERE SEWER LATERAL CROSSES THROUGH WATER MAIN OR OTHER PROPOSED OBSTRUCTION, THE LATERAL SHALL BE CUT AND REPLACED FOR A MINIMUM DISTANCE OF AT LEAST EIGHT FEET (8') ON EACH SIDE OF THE OBSTRUCTION AND REPLACED UNTIL A CONTINUOUS SLOPE CAN BE ACHIEVED WITHOUT OBSTRUCTION.
 - SEWER LATERAL OFFSETS SHALL BE BEDDED IN NINE INCHES (9") OF CLEAN SAND THE REMAINING BACKFILL AS REQUIRED BY THE DISTRICTS TRENCH DETAIL.
 - THE DISTRICT SHALL RECEIVE IN WRITING 72 HOUR NOTICE PRIOR TO ANY WORK THAT RESULTS IN THE SHUT-DOWN OF A SEWER SERVICE. PROPERTY OWNER/RESIDENT SHALL RECEIVE A MINIMUM OF 48 HOUR WRITTEN NOTICE.
 - FOR PVC INSTALLATIONS, CONNECT TO EXISTING "BELL END" AND CONNECT OPPOSITE END WITH PVC TO PVC COUPLING.
 - CLEANOUTS LOCATED IN PAVEMENT OR DIRT PARKING AREAS SHALL HAVE A CHRISTY'S GS BOX OR EQUAL W/METAL LID MARKED "SEWER"
 - CONTRACTOR SHALL PROVIDE TO THE DISTRICT OR ENGINEER AN AS BUILT ON A CLEAN SET OF PLANS WITH THE FINAL STATIONING OR DISTANCE AND DIRECTION FROM NEAREST MANHOLE TO THE OFFSET SEWER LATERAL.
 - ALL RELOCATED SEWER LATERALS SHALL BE FLOW TESTED PRIOR TO BACKFILL. ALL JOINTS SHALL BE EXPOSED TO CHECK FOR LEAKS.
 - IF TWELVE INCH (12") SEPARATION CANNOT BE MAINTAINED, THEN SPECIAL PIPE IS REQUIRED CONFIRM WITH DISTRICT.

5
D3
SEWER LATERAL OFFSET AROUND NEW
WATER MAIN
NO SCALE

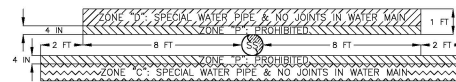
PLAN VIEW



PROFILE

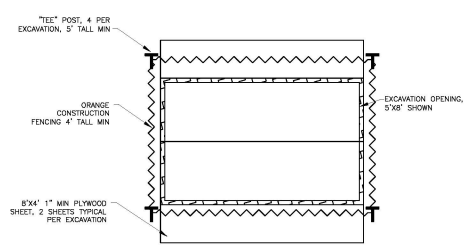


- NOTES:
- WHERE THE WATER MAIN IS CROSSING A SEWER LINE OR STORM DRAIN, THE CROSSING SHALL BE CONSTRUCTED IN SUCH A MANNER THAT:
 - THE WATER MAIN CROSSES AT LEAST 12" ABOVE THE SEWER MAIN OR STORM DRAIN, AND
 - THE CROSSING ANGLE IS NO LESS THAN 45 DEGREES.
 - IF SITE CONDITIONS DICTATE THAT THE WATER MAIN CROSSING CANNOT MEET ONE OR MORE OF THE CONDITIONS (OF NOTE #1), IT SHALL BE CONSTRUCTED IN THE FOLLOWING MANNER.



- 3) IF ANY OF THE CONDITIONS OF NOTE #2 CANNOT BE MET, THEN SPECIAL INSTRUCTIONS APPLY, AS SHOWN ON THE PLANS.
4) SPECIAL PIPE SHALL BE CONSTRUCTED OF PRESSURE CLASS 350 DIP OR PRESSURE CLASS 235 DR18 C900 PVC.

3
D3
WATER MAIN PROTECTION AT
SEWER CROSSING
NO SCALE



TYPICAL PROTECTED EXCAVATION

- NOTES:
- ALL EXCAVATIONS SHALL BE COVERED AND PROTECTED AT THE END OF EACH WORK DAY.
 - EXCAVATIONS IN PAVEMENT OR PARTIALLY IN PAVEMENT SHALL BE COVERED WITH A STEEL TRENCH PLATE WITH A MINIMUM OF TWO TRAFFIC CONES 42" TALL. EXCAVATION IN THE ROADWAY SHALL BE COVERED WITH A TRENCH PLATE AND THE EDGES SHALL BE COLD MIXED. SEE GENERAL NOTE #12.

6
D3
SECURE OPEN EXCAVATIONS
NO SCALE

SOUTH TAHOE PUBLIC UTILITY DISTRICT
A PUBLIC UTILITY DISTRICT
1275 Main Street, Suite 100
Incline Village, NV 89450
Phone (775) 844-6474 Fax (775) 844-6339
WWW.STPD.UTD.NV

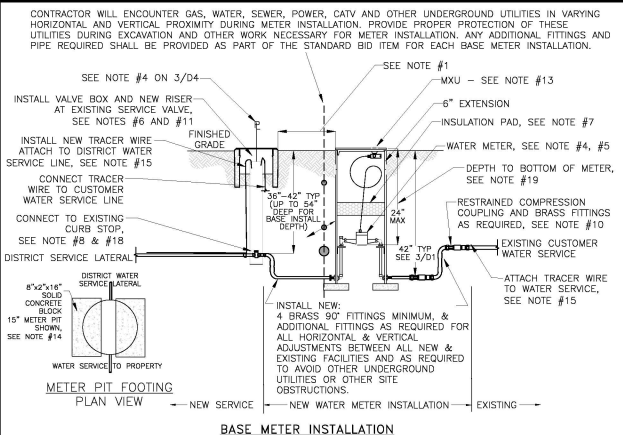
2019 ROCKY POINT II
WATERLINE REPLACEMENT REBID
DETAILS



DATE: MAY 2019
SCALE: NO SCALE
DRAWN: MAM, TAR
FILE: ROCKY2

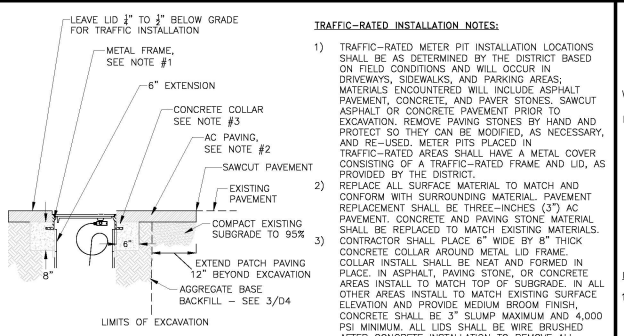
D3
7 OF 23
SHEETS

\\luma\engineering\projects\Rocky Point\2019\Rocky Point\DWG\2019-05-21-18 - ROCKY POINT WATERLINE REPLACEMENT REBID.dwg User: j204444 Date: 05-21-18 10:23:17 PM 10:23:17 PM

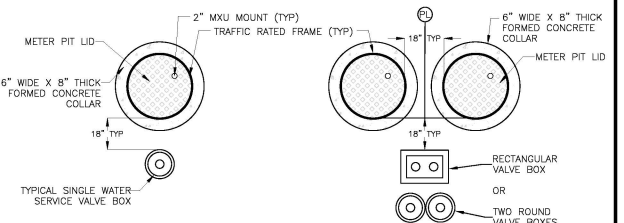


- BASE METER INSTALLATION NOTES:**
- 1) METER PITS SHALL BE INSTALLED AS DIRECTED BY THE DISTRICT BASED ON FIELD CONDITIONS, ON THE CUSTOMER SIDE OF THE PROPERTY LINE NEAR THE SERVICE VALVE. UNLESS APPROVED OTHERWISE, MAINTAIN A MINIMUM EIGHTEEN INCHES (18") BETWEEN THE SHUT OFF VALVE BOX AND METER PIT TO ALLOW FOR PROPER COMPACTION BETWEEN BOXES. BID ITEM TO INCLUDE UP TO 36" BETWEEN SERVICE BOX AND METER PIT TO ACCOMMODATE SITE-SPECIFIC CONDITIONS. SEE PLANS FOR PROPERTIES TO RECEIVE NEW METER INSTALLATIONS. METER PITS SHALL NOT BE INSTALLED IN ANY DRAINAGE, FLOW LINE, OR BMP UNLESS APPROVED OTHERWISE.
 - 2) METER PIT FOR 3" AND 1" WATER SERVICE SHALL BE FIFTEEN-INCH (15") AND EIGHTEEN-INCH (18") DIAMETER RESPECTIVELY. EZ-SETTER METER PIT BY MUELLER, FORD, OR APPROVED EQUAL. METER PITS SHALL BE 36" TALL PLUS A SINGLE 6" EXTENSION FOR A 42" TOTAL DEPTH. MUELLER MODEL #250RS1536FABNN, MCDONALD MODEL #780-240XPP 33X15X432 OR FORD MODEL #PFB-288-95707-001-NL, 15.5" METER DEPTH FOR 3/4" SERVICES AND MUELLER MODEL #330RS1536FABNN OR FORD MODEL #PFB-488-95300-008-NL, 15.5" METER DEPTH FOR 1" SERVICES, OR APPROVED EQUAL. METER PIT INLET SIZE SHALL BE AS REQUIRED TO MATCH WATER SERVICE AND METER SIZE.
 - 3) FOR DOUBLE WATER SERVICES, CONTRACTOR SHALL INSTALL ONE METER PIT OF THE APPROPRIATE SIZE PER WATER SERVICE. SEE NOTE 18. PAYMENT SHALL BE MADE BY THE APPROPRIATE BID ITEM.
 - 4) METERS SHALL BE SENSUS IPERL, REGISTERING IN 1 CUBIC FEET (1CF), AS PROVIDED BY THE DISTRICT.
 - 5) FOR 3" METERS, CONTRACTOR SHALL USE A 2" SHORT METER WITH A SEVEN AND ONE-HALF INCH (7 1/2") LAY LENGTH. FOR 1" METERS, CONTRACTOR SHALL USE A STANDARD TEN AND THREE QUARTER INCHES (10 3/4") LAY LENGTH METER.
 - 6) EXISTING VALVE BOXES MAY BE REUSED AT THE DIRECTION OF THE INSPECTOR OR WILL BE PROVIDED BY THE DISTRICT TO THE CONTRACTOR. WATER VALVE BOX INSTALLED IN TRAFFIC AREAS SHALL BE 1/4" TO 1/2" BELOW FINISHED GRADE. RISER TO BE 4" SDR 35, NOTCHED TO FIT OVER CURB STOP AND SERVICE LINE. RISER PIPE OPENINGS SHALL BE PROTECTED WITH DUCT TAPE COVERING PRIOR TO BACKFILL ACTIVITIES. TOP OF RISER SHALL BE TWO TO SIX INCHES (2"-6") BELOW THE BOTTOM OF THE VALVE BOX LID.
 - 7) FOUR-INCH (4") THICK METER PIT INSULATION PADS BY MUELLER, FORD, MCDONALD, OR APPROVED EQUAL, SHALL BE INSTALLED IN THE APPROPRIATE 15" OR 18" DIAMETER TO FIT THE METER PIT.
 - 8) FOR CONNECTION AT CURB STOP - LOCATE THE EXISTING CURB STOP, CONNECT TO THE CURB STOP WITH A MATCHING CONNECTION COMPRESSION COUPLING, AND INSTALL NEW POLY LINE FROM THE COMPRESSION COUPLING TO THE METER PIT FITTING. FOR CONNECTION TO THE SERVICE LINE - INSTALL NEW POLY FROM THE METER PIT FITTING TO THE EXISTING CUSTOMER SERVICE LINE. CONTRACTOR TO USE BRASS FITTINGS TO MAKE UP ALL HORIZONTAL AND VERTICAL ELEVATION AND ANGLE CHANGES. SERVICE LATERALS MUST BE CONNECTED TO THE METER PIT IN A STRAIGHT RUN - BENDING OR WRAPPING THE POLY SERVICE LINE AROUND THE OUTSIDE OF THE METER PIT IS NOT ACCEPTABLE UNLESS OTHERWISE APPROVED BY THE INSPECTOR FOR SPECIFIC LOCATIONS.
 - 9) SERVICE LATERAL SHALL BE 200 PSI CLASS POLYETHYLENE TUBING, IRON PIPE SIZE FOR 3" AND 1" INSTALLATIONS. PIPE STIFFENER INSERTS AND/OR OTHER REQUIRED ACCESSORIES SHALL BE USED PER MANUFACTURER'S INSTRUCTIONS AT ALL CONNECTIONS.
 - 10) ALL PLUMBING AND FITTINGS MUST COMPLY WITH THE CALIFORNIA HEALTH AND SAFETY CODE 116875 (B1953) REGARDING THE PROHIBITION OF LEAD FITTINGS.
 - 11) THE DISTRICT MAY ALSO REQUIRE THE REPLACEMENT OF THE WATER SERVICE VALVE. THIS WORK IS NOT PART OF THE BASE METER INSTALLATION. SEE DETAIL 4/D1 AND RELATED BID ITEM.
 - 12) NOTIFY CUSTOMER PRIOR TO ANY EXCAVATION AND/OR WATER SHUTOFF. EXPOSE VALVE PRIOR TO EXCAVATION. CONTRACTOR SHALL BE RESPONSIBLE FOR IMMEDIATELY RESOLVING ANY AND ALL CUSTOMER PLUMBING ISSUES RELATED TO THE METER INSTALLATION INCLUDING DIRT OR OTHER DEBRIS IN THE CUSTOMER'S PLUMBING.
 - 13) CONTRACTOR SHALL INSTALL A TR/PL READER MOUNT AND A SENSUS MXU RADIO READ UNIT, 520M SINGLE PORT, WITHIN THE METER PIT LID, AS PROVIDED BY THE DISTRICT. INSTALL ACCORDING TO MANUFACTURER'S INSTRUCTIONS.
 - 14) CONTRACTOR SHALL PROVIDE A MINIMUM OF TWO (2) 8"x2"x16" PRECAST SOLID CONCRETE STRUCTURAL SUPPORT BLOCKS CONFORMING TO ASTM C90 PLACED UNDER THE METER PIT.
 - 15) INSTALL TWO INSULATED PIT TRACER WIRES. ONE (1) WIRE FROM WATER SERVICE VALVE BOX TO THE DISTRICT. INSTALL TWO INSULATED PIT TRACER WIRES. ONE (1) WIRE FROM WATER SERVICE VALVE BOX PAST THE BOTTOM OF METER PIT TO EXISTING CUSTOMER WATER SERVICE LINE. USE STAINLESS STEEL PIPE CLAMP CONNECTIONS. TRACER WIRE SHALL BE CUT OR DISCONTINUED, LEAVING TWO (2) 6" WIRE TAILS AT THE TOP OF RISER PIPE IN WATER SERVICE VALVE BOX. CONTINUITY BETWEEN ALL NEW AND EXISTING PIPELINES AND/OR TRACER WIRES SHALL BE MAINTAINED REGARDLESS OF PIPE TYPE OR PRESENCE OF TRACER WIRE. SEAL CONNECTIONS WITH AN APPROVED MASTIC TYPE SEALER SPECIFICALLY MANUFACTURED FOR UNDERGROUND USE. SEE GENERAL NOTE #13.
 - 16) WHEN METER PITS ARE INSTALLED WITHIN 24" OF EACH OTHER, THE LIDS SHALL BE AT THE SAME ELEVATION.
 - 17) ALL METERS AND POLYETHYLENE SERVICE LINES SHALL BE DISINFECTED, FLUSHED, AND VISUALLY TESTED FOR LEAKS PRIOR TO BACKFILL.
 - 18) THE CURB STOP VALVE MAY BE ENCOUNTERED ON A SINGLE SERVICE LINE, TEE, OR "Y" BRANCH FOR DOUBLE SERVICES. CONTRACTOR SHALL CONFIRM WITH DISTRICT INSPECTOR FOR SINGLE OR DOUBLE INSTALL. ALSO BE AWARE THAT THERE ARE LOCATIONS WHERE WATER SERVICE VALVES EXIST FOR VACANT LOTS, OR OTHERWISE, AND WILL NOT REQUIRE A METER INSTALLATION. METER PITS TO BE LOCATED ON OR IN FRONT OF THE PROPERTY SERVED, AT THE DIRECTION OF THE FIELD INSPECTOR.
 - 19) FOR ALL INSTALLATION TYPES, DEPTH FROM BOTTOM OF METER TO TOP OF METER LID SHALL BE A MINIMUM OF 18" AND MAXIMUM OF 24".

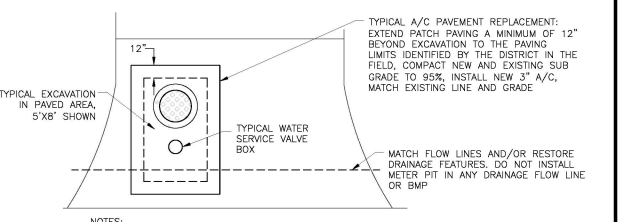
BASE METER INSTALLATIONS



TRAFFIC-RATED INSTALLATION PROFILE VIEW



TYPICAL TRAFFIC-RATED METER ORIENTATION PLAN VIEW



NOTES:

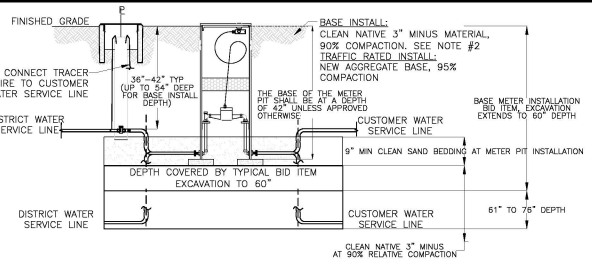
- 1) FINAL A/C REPLACEMENT AND SEAL COAT (IF REQUIRED) LIMITS TO BE CONFIRMED WITH ENGINEER IN FIELD PRIOR TO INSTALLATION.

TYPICAL ASPHALT REPLACEMENT PLAN VIEW

TRAFFIC RATED METER INSTALLATIONS

TRAFFIC-RATED INSTALLATION NOTES:

- 1) TRAFFIC-RATED METER PIT INSTALLATION LOCATIONS SHALL BE AS DETERMINED BY THE DISTRICT BASED ON FIELD CONDITIONS AND WILL OCCUR IN DRIVEWAYS, SIDEWALKS, AND PARKING AREAS. MATERIALS ENCOUNTERED WILL INCLUDE ASPHALT PAVEMENT, CONCRETE, AND PAVEMENT STONES, SAWCUT ASPHALT OR CONCRETE PAVEMENT. CONTRACTOR SHALL EXCAVATE, REMOVE PAVING STONES BY HAND AND PROTECT SO THEY CAN BE MODIFIED, AS NECESSARY, AND RE-USED. METER PITS PLACED IN TRAFFIC-RATED AREAS SHALL HAVE A METAL COVER CONSISTING OF A TRAFFIC-RATED FRAME AND LID, AS PROVIDED BY THE DISTRICT.
- 2) REPLACE ALL SURFACE MATERIAL TO MATCH AND CONFORM WITH SURROUNDING MATERIAL. PAVEMENT REPLACEMENT SHALL BE THREE-INCHES (3") AC PAVEMENT. CONCRETE AND PAVING STONE MATERIAL SHALL BE REPLACED TO MATCH EXISTING MATERIALS. CONTRACTOR SHALL PLACE 6" WIDE BY 8" THICK CONCRETE COLLAR AROUND METAL LID FRAME. COLLAR INSTALL SHALL BE NEAT AND FORMED IN PLACE. IN ASPHALT, PAVING STONE, OR CONCRETE AREAS INSTALL TO MATCH TOP OF SUBGRADE. IN ALL OTHER AREAS INSTALL TO MATCH EXISTING SURFACE ELEVATION AND PROVIDE MEDIUM BROOM FINISH. CONCRETE SHALL BE 3" SLUMP MAXIMUM AND 4,000 PSI MINIMUM. ALL LIDS SHALL BE WIRE BRUSHED AFTER CONCRETE INSTALLATION TO REMOVE ALL LANTANE. CONTRACTOR SHALL PROTECT CONCRETE DURING CURING AND BEFORE ASPHALT OR PAVING STONE MATERIAL CAN BE INSTALLED. PROVIDE TEMPORARY ASPHALT IN AREAS WITHIN THE RIGHT-OF-WAY UNTIL FINAL PAVING IS INSTALLED.
- 4) SERVICE BOXES AND METER PITS LOCATED IN TRAFFIC AREAS SHALL BE INSTALLED ONE QUARTER TO ONE HALF AN INCH (1/4" TO 1/2") BELOW FINISHED GRADE. INCORPORATE ALL ELEMENTS OF THE BASE-METER INSTALLATION (DETAILS 1/D4 AND 3/D4) EXCEPT WHERE MODIFIED BY THIS DETAIL 2/D4.
- 6) FOR PAVING STONE APPLICATIONS GAPS BETWEEN METER PIT FRAME AND VALVE BOX SHALL BE LESS THAN 1/2" AND ANY NEEDED MODIFICATIONS TO PAVING STONES SHALL BE MADE WITH APPROVED TOOLS DESIGNED FOR USE ON PAVING STONE MATERIAL. CUTS ADJACENT TO FRAME AND BOXES SHALL CONFORM TO SHAPE OF FRAMES AND BOXES.
- 7) METER PITS AND RISERS TO BE INSTALLED TO ACCOMMODATE FRAMES AND TRAFFIC RINGS.
- 8) DEPTH FROM BOTTOM OF METER TO TOP OF METER LID SHALL BE A MINIMUM OF 18" AND MAXIMUM OF 24".



NOTE:

- 1) THE STANDARD METER INSTALLATION SHALL INCLUDE EXCAVATION UP TO A DEPTH OF 60" AS NECESSARY TO CONNECT THE NEW METER TO THE EXISTING WATER SERVICE VALVE AND CUSTOMER SERVICE CONNECTIONS. WHEN ADDITIONAL EXCAVATION DEPTH IS REQUIRED TO MAKE THESE CONNECTIONS, THE CONTRACTOR WILL BE PAID ON A TIME AND MATERIALS BASIS. DEPTH SHALL BE MEASURED FROM THE TOP OF THE METER PIT LID TO NO MORE THAN SIX INCHES (6") BELOW THE EXISTING SERVICE LINE. ANY OVER EXCAVATION 6" BEYOND THE BOTTOM OF THE EXISTING SERVICE LINE SHALL BE AT THE CONTRACTORS EXPENSE TO DIG AND BACKFILL. EXCAVATIONS BELOW 8\"/>
- 2) BACKFILL THE NEW SERVICE LINES AND BOTTOM OF METER PIT IN NINE INCHES (9") OF CLEAN SAND. IN TRAFFIC AREAS, BACKFILL ABOVE BEDDING LAYER WITH AGGREGATE BASE, PLACED IN MAXIMUM TWELVE-INCH (12") LIFTS AND COMPACTED TO 95% RELATIVE COMPACTION. IN NON TRAFFIC INSTALL CLEAN THREE INCH MINUS (-3") NATIVE MATERIAL, OR AGGREGATE BASE COMPACTED TO 90% RELATIVE COMPACTION. IN NON TRAFFIC INSTALL TOP 12" LIFT IN NATIVE AND LANDSCAPED AREAS SHALL MATCH EXISTING MATERIAL AND BE COMPACTED TO 80% RELATIVE COMPACTION. NO RECYCLED BASE ALLOWED IN BACKFILL.
- 3) CONTRACTOR SHALL USE CLEAN NATIVE BACKFILL COMPACTED TO 90% RELATIVE COMPACTION OUTSIDE TRAFFIC AREAS. RAKE ALL DISTURBED AREAS SMOOTH, AND MULCH CONSISTENT WITH ADJACENT GROUND COVER CONDITIONS. CONTRACTOR SHALL PROTECT EXISTING LANDSCAPING, IRRIGATION, FENCING AND ANY OTHER EXISTING ITEMS INCLUDING NATURAL VEGETATION AND TREES. ANY ITEMS DISTURBED BY CONSTRUCTION ACTIVITIES SHALL BE REPLACED AT CONTRACTORS EXPENSE WITH ITEMS OF EQUAL OR SUPERIOR QUALITY.
- 4) CONTRACTOR WILL ENCOUNTER PROPERTY MARKERS DURING THE METER INSTALLATION PROCESS AS THE SERVICE VALVES ARE TYPICALLY PLACED AT OR NEAR THE PROPERTY CORNERS AND THE PUBLIC RIGHT-OF-WAY. CONTRACTOR SHALL PROTECT AND PRESERVE THE LOCATION OF THE PROPERTY MARKERS. CONTRACTOR SHALL NOTIFY DISTRICT IF A PROPERTY MARKER IS DISTURBED OR NEEDS TO BE DISTURBED. IN SUCH CASE, CONTRACTOR SHALL INSTALL STAKES, OFFSETS, OR OTHER MEANS TO ACCURATELY LOCATE THE PROPERTY MARKER TO ITS ORIGINAL LOCATION.
- 5) ANY EXCAVATION LEFT OPEN OVERNIGHT OR WEEKENDS/HOLIDAYS SHALL BE PROTECTED PER DETAIL 6/D3.
- 6) IN DISTURBED AREAS ON SLOPES OR IN NATIVE VEGETATION APPLY A 1" LAYER OF APPROVED MULCH AND NATIVE SEED MIX OR HYDROSEED WITH A BLEND OF TACKIFIER, MULCH, AND SEED.

METER PIT BACKFILL AND EXTRA DEPTH CONNECTIONS

3/04

NO SCALE

SOUTH TAHOE PUBLIC UTILITY DISTRICT



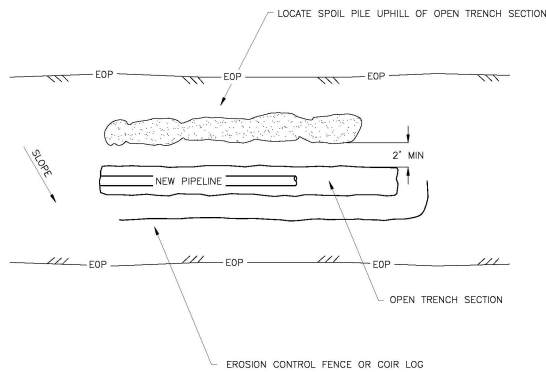
2019 ROCKY POINT WATERLINE REPLACEMENT REBID DETAILS



DATE: MAY 2019
SCALE: NO SCALE
DRAWN: MAM, TAR
FILE: ROCKY2

D4
8 OF 23
SHEETS

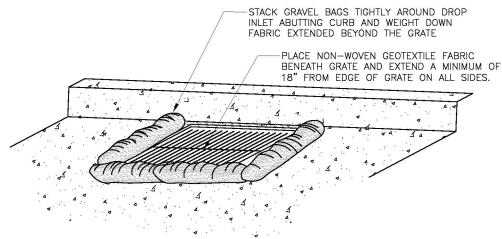
Water
Shower - 8550
1575 Main Street
South Lake Tahoe, CA 96150
Phone (888) 544-6474 Fax (888) 544-6395
WWW.STPDUSD.COM



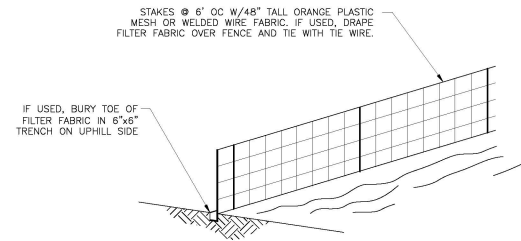
NOTE:

- 1) RELOCATE EROSION CONTROL FENCE/COIR LOG AS CONSTRUCTION PROGRESSES

1
D5
TYPICAL OPEN TRENCH SECTION
NO SCALE



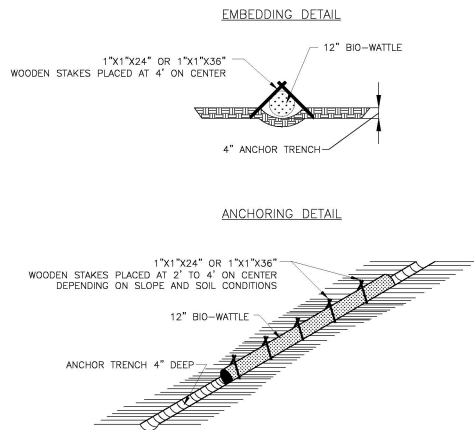
2
D5
DRAINAGE INLET SEDIMENT PROTECTION
NO SCALE



NOTE:

- 1) IF FILTER FABRIC IS USED, PLACE FENCING SUCH THAT STORM RUNOFF CANNOT PASS UNDER OR AROUND.

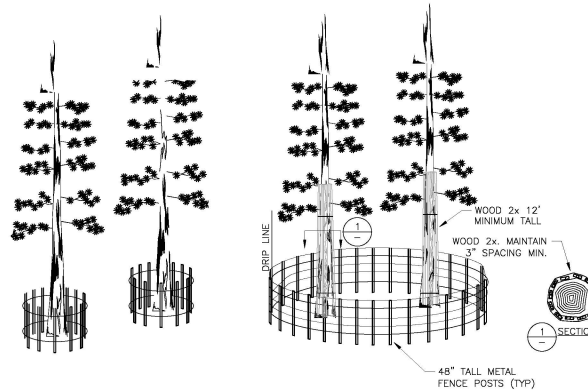
3
D5
SITE PROTECTION FENCING
NO SCALE



NOTE:

- 1) SEDIMENT CONTROL BARRIERS USED ON SLOPES, AS CHECK DAMS OR AS SEDIMENT TRAPS SHALL BE BIO-WATTLES AS DISTRIBUTED BY BON-TERRA AMERICA INC. OR APPROVED EQUAL AND INSTALLED AS RECOMMENDED BY THE MANUFACTURE.

4
D5
COIR LOG PLACEMENT
NO SCALE



INCORRECT

CORRECT

NOTES:

- 1) PLACING ANY MATERIAL -TEMPORARY OR OTHERWISE- WITHIN PROTECTIVE FENCING OR ENTERING PROTECTION AREAS MAY RESULT IN A FINE. (TRPA SEC. 65.2.1 I AND J)
- 2) FORTY EIGHT INCH (48") ORANGE PLASTIC FENCING TYPICAL, METAL OR WIRE MESH FENCING MAY BE REQUIRED PER TRPA.
- 3) ACTIVITY WITHIN THE DRIP LINE OF A TREE MUST BE AUTHORIZED BY AND DISCUSSED WITH TRPA IN THE FIELD BEFORE IT MAY OCCUR. IF WORK OR TRAFFIC HAS BEEN APPROVED WITHIN THE DRIP LINE AREA, THE PLACEMENT OF WOOD 2X MATERIAL IS REQUIRED

5
D5
VEGETATION PROTECTION FENCING
NO SCALE

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SOUTH TAHOE PUBLIC UTILITY DISTRICT



A PUBLIC UTILITY DISTRICT
SOUTH TAHOE PUBLIC UTILITY DISTRICT
1275 W. WILSON AVENUE
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2019 ROCKY POINT II
WATERLINE REPLACEMENT REBID
DETAILS



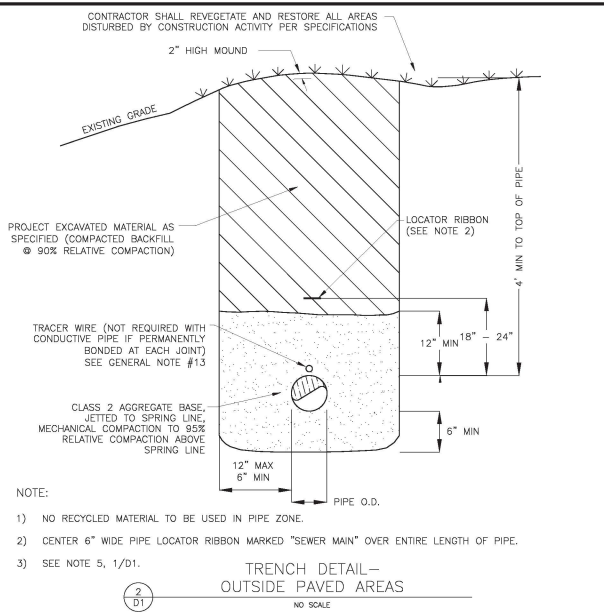
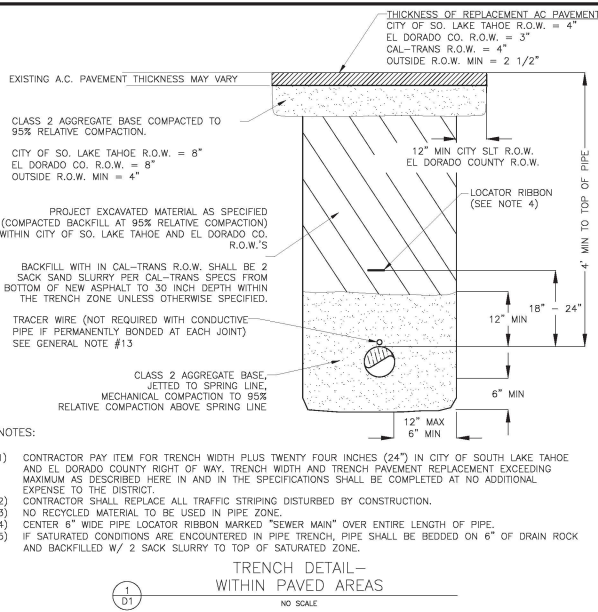
DATE: MAY 2019

SCALE: NO SCALE

DRAWN: MAM, TAR

FILE: ROCKY2

D5
9 OF 23
SHEETS



FITTING AND PIPE RESTRAINT LENGTH REQUIREMENTS

TYPE OF FITTING	90° ELBOW	45° ELBOW	22.5° ELBOW	11.25° ELBOW	TEE BRANCH*	TEE W/ PLUG	REDUCER**	VALVE IN LINE	VALVE AT END	DEAD END
6" PVC DIP	14'	8'	3'	2'	10'	14'	41'	42'	42'	42'
8" PVC DIP	16'	8'	4'	2'	10'	16'	61'	63'	63'	63'
10" PVC DIP	21'	9'	5'	2'	10'	21'	82'	82'	82'	82'
12" PVC DIP	22'	8'	5'	3'	10'	22'	83'	86'	86'	86'
14" PVC DIP	25'	10'	5'	3'	10'	25'	83'	90'	90'	90'
16" PVC DIP	26'	11'	6'	3'	15'	26'	43'	78'	78'	78'
18" PVC DIP	29'	12'	6'	3'	25'	29'	64'	117'	117'	117'
24" PVC DIP	33'	14'	7'	4'	39'	33'	84'	133'	133'	133'
16" DIP	36'	15'	8'	4'	50'	36'	85'	150'	150'	150'
18" PVC	36'	15'	8'	4'	46'	36'	82'	112'	112'	112'
18" DIP	40'	17'	8'	4'	76'	40'	82'	167'	167'	167'
24" PVC	45'	19'	9'	4'	76'	45'	82'	144'	144'	144'
24" DIP	51'	21'	10'	4'	116'	51'	92'	214'	214'	214'

* MINIMUM 10' RESTRAINED LENGTH ON EACH RUN ON BOTH SIDES OF BRANCH
** LENGTHS GIVEN ARE VALID FOR UP TO 4" INCREASE IN NOMINAL DIAMETER FROM SIZE SHOWN

NOTES:

- ALL MINIMUM RESTRAINT LENGTH CALCULATIONS BASED ON MINIMUM 10' PIPE LENGTH'S. MINIMUM PIPE LENGTH'S FOR DUCTILE IRON PIPE FITTINGS BASED ON POLYETHYLENE ENCASEMENT.
- NUTS AND BOLTS ON ALL MJ FITTINGS SHALL BE PAINTED WITH TWO COATS OF KOPPERS 505, TNEDEC 46-450', AMERON OR EQUAL, 15 MILS EACH COAT.
- ALL FLANGES TO BE BURIED, COAT ENTIRE ASSEMBLY WITH PETROLATUM SATURATED FABRIC TAPE. WRAP SYSTEM IN ACCORDANCE WITH SPECIFICATIONS.
- CONCRETE THRUST BLOCKING MAY BE REQUIRED IN CONJUNCTION WITH MECHANICAL THRUST RESTRAINT SYSTEMS IF DETERMINED NECESSARY BY THE ENGINEER.
- VALVES PLACED IN A RUN OF PIPE OR AT A DEAD END TO BE RESTRAINED PER DEAD END RESTRAINT LENGTHS.
- ALL VALVE CLUSTERS (CROSS OR TEE) USE THE RESTRAINT LENGTHS FOR THE 90° ELBOW.

3 D1 NO SCALE

THRUST BLOCK AREA REQUIRED - SQUARE FEET

TYPE OF FITTING	90° ELBOW	45° ELBOW	22.5° ELBOW	11.25° ELBOW	TEE BRANCH	TEE W/ PLUG	CROSS W/ PLUGS	CROSS
6"	4	4	2	2	4	4	4	4
8"	10	6	3	3	10	10	10	10
10"	12	8	4	4	15	15	15	15
12"	16	10	6	6	20	20	20	20
14"	21	12	6	6	22	21	22	21
16"	27	15	8	8	22	27	27	27
18"	45	25	13	13	32	45	45	45
24"	65	35	18	18	45	65	65	65

SECTION

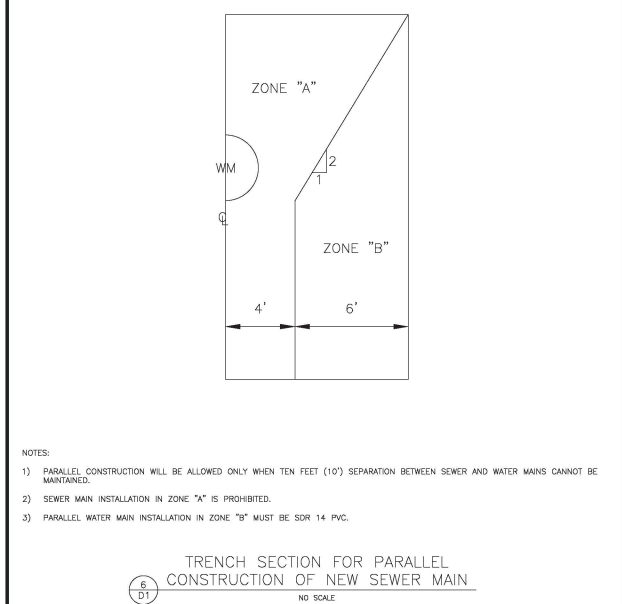
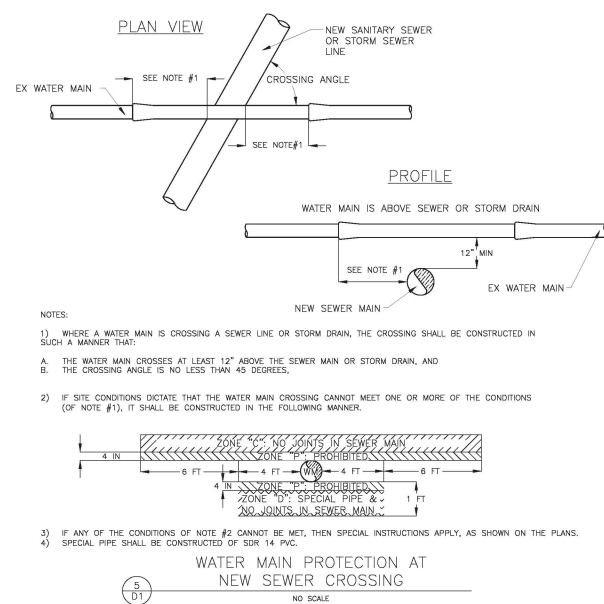
BEARING AREA

12" MIN

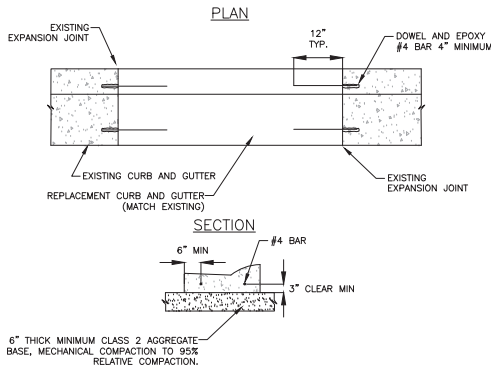
NOTES:

- JOINTS, FLANGE BOLTS AND FACE OF PLUGS TO BE KEPT CLEAR OF CONCRETE.
- BLOCKS MUST BE POURED AGAINST UNDISTURBED SOIL.
- THRUST BLOCKS TO BE CONSTRUCTED OF CLASS 423-C-2500 OR BETTER P.C.G.
- THRUST BLOCKS AREA IS BASED ON TEST PRESSURE OF 150 PSI AND A HORIZONTAL SOIL BEARING STRENGTH OF 1500 PSI.
- NUTS AND BOLTS ON ALL MJ FITTINGS SHALL BE PAINTED WITH TWO COATS OF KOPPERS 505, TNEDEC 46-450', AMERON OR EQUAL, 15 MILS EACH COAT.

4 D1 NO SCALE



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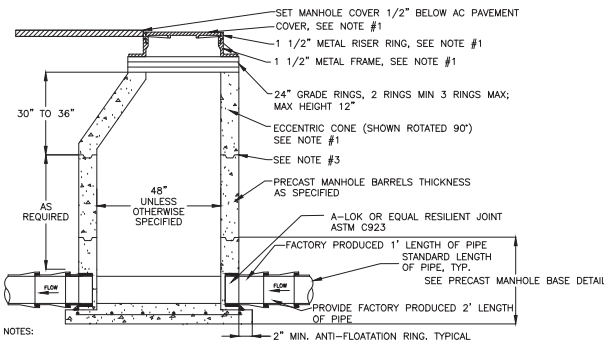


- NOTES:
- 1) WHERE REQUIRED FOR SEWERLINE AND LATERAL INSTALLATIONS, CURB AND GUTTER REPLACEMENT SHALL BE COMPLETELY REPLACED BETWEEN EXISTING EXPANSION JOINTS. CURB AND GUTTER REPLACEMENT EXCEEDING MAXIMUM AS DESCRIBED HERE IN AND IN THE SPECIFICATIONS SHALL BE COMPLETED AT NO ADDITIONAL EXPENSE TO THE DISTRICT.
 - 2) CONCRETE FOR CURB AND GUTTER SHALL BE CLASS A (4,000 PSI) PER THE SPECIFICATIONS.

CURB & GUTTER SECTION
REPLACEMENT

1
D2

NO SCALE

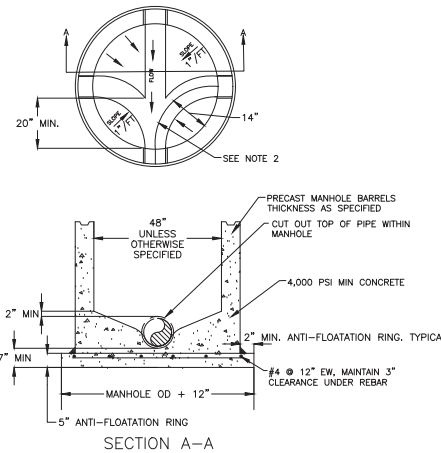


- NOTES:
- 1) INSTALL MANHOLE COVER ON DOWNSTREAM SIDE OF MANHOLE. TWENTY FOUR INCH (24") MANHOLE FRAME AND COVER TO BE SUPPLIED BY DISTRICT. MANHOLE TO BE LOCATED SUCH THAT THE CENTERLINE CROWN OF ROAD IS NOT WITHIN COVER RADIUS.
 - 2) CONTRACTOR MAY INSTALL A 3" MAX, NON SHRINK GROUT LEVELING COURSE; UNDER FRAME TO MATCH PAVEMENT GRADE.
 - 3) ALL JOINTS SHALL BE GROUTED INSIDE AND OUT; CONTRACTOR SHALL INSTALL JOINT SEALING COMPOUND AT ALL JOINTS AND UNDER FRAME COMPOUND SHALL BE: "RAM-NEK" BY K.T. SNYDER COMPANY; OR APPROVED EQUAL. ALL LIFTING HOLES MUST BE SEALED WITH NON-SHRINK GROUT.
 - 4) FOR SHALLOW MANHOLES, THE CONTRACTOR SHALL SUBSTITUTE A PRE CAST CONCRETE MANHOLE CAP, DESIGNED FOR H-20 TRAFFIC LOADING, IN LIEU OF THE ECCENTRIC CONE. THE TWENTY FOUR INCH (24") OPENING SHALL BE LOCATED IN THE CENTER OF THE MANHOLE CAP. PROVIDE A DESIGN SUBMITTAL, PREPARED AND SEALED BY A QUALIFIED REGISTERED ENGINEER, DEMONSTRATING COMPLIANCE WITH REQUIRED LOADING CRITERIA.
 - 5) ALL MANHOLE BASES MUST BE PRECAST BASES AND BE PLACED ON 10" MIN. OF 3/4" CRUSHED ROCK PLACED OVER UNDISTURBED MATERIAL. CONNECTION OF THE PIPE TO THE MANHOLE MUST USE A CAST-IN-PLACE PIPE. ALL MANHOLE BASES TO INCLUDE AN ANTI-FLOATATION RING PER STANDARD DRAWING 5/02.
 - 6) ANY LOWER LATERAL ENTERING A MANHOLE MUST BE INSTALLED WITH THE INVERT ELEVATION OF THE LOWER LATERAL. MATCHING THE CROWN ELEVATION OF THE EXIT SEWER, EXCEPT WHEN AN INTERNAL DROP CONNECTION IS USED. FOR MANHOLES AT THE END OF A CUL-DE-SAC OR END OF LINE WITH NO EXTENSION THE INVERT OF ANY LOWER LATERAL MUST BE A MINIMUM OF ONE INCH ABOVE THE INVERT OF THE EXIT PIPE WITH AN INDIVIDUAL SMOOTH TRANSITION CHANNEL.
 - 7) FLEX COUPLINGS NOT ALLOWED IN CONSTRUCTION OF MAINLINE, UNLESS SPECIFICALLY AUTHORIZED BY ENGINEER.

PRECAST 48" MANHOLE

4
D2

NO SCALE



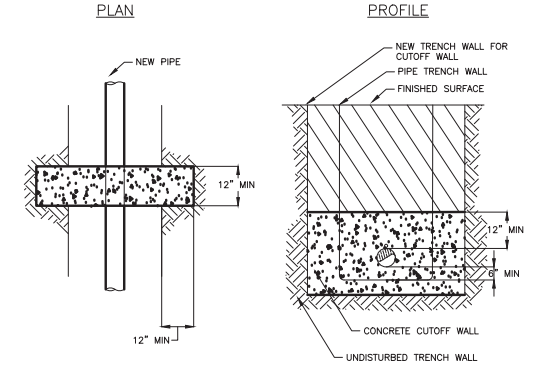
NOTES:

- 1) MINIMUM REINFORCEMENT SHOWN, REINFORCEMENT MUST BE DESIGNED BY A CALIFORNIA LICENSED CIVIL OR STRUCTURAL ENGINEER. PRECAST BASE SHALL BE DESIGNED TO SUPPORT H-20 LOADING.
- 2) RADIUS OF THE ARC MUST BE 24".
- 3) IF NO SIDE SEWER, CONSTRUCT CONTINUOUS CHANNEL STRAIGHT THROUGH.

PRECAST MANHOLE BASE

5
D2

NO SCALE

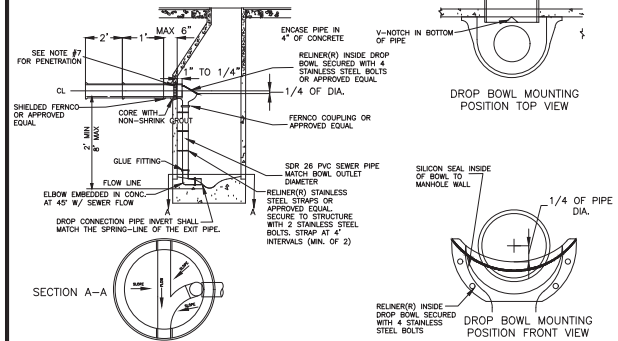


- NOTES:
- 1) CLASS C CONCRETE TRENCH CUTOFF WALLS SHALL BE LOCATED AS DIRECTED BY THE ENGINEER.
 - 2) PRIOR TO PLACING CONCRETE, UNDISTURBED TRENCH WALLS SHALL BE NOTCHED A MINIMUM OF 12 INCHES BEYOND THE WALL OF THE TRENCH. BOTTOM OF TRENCH SHALL BE NOTCHED 6 INCHES MINIMUM BELOW THE UNDISTURBED TRENCH FLOOR.
 - 3) CONCRETE SHALL BE PLACED MINIMUM OF TWELVE INCHES (12") OVER THE NEW PIPE.
 - 4) CONTINUE REMAINING PORTION OF THE TRENCH BACKFILL PER THE APPLICABLE TRENCH DETAIL.
 - 5) CUTOFF WALLS SHALL BE PLACED EVERY 100 LF WHERE SATURATED CONDITIONS ARE ENCOUNTERED IN PIPE TRENCH. ASSUME SATURATED CONDITIONS EXIST IN SEZ AREA SHOWN ON SHEET G4.

TRENCH CUTOFF WALL

3
D2

NO SCALE



NOTES:

- 1) DROP MANHOLES ARE TO BE USED ON ALL SANITARY SEWERS WITH MORE THAN TWO FEET (2') VERTICAL DROP AT MANHOLE. DROP SHALL NOT EXCEED EIGHT FEET (8') AT ANY MANHOLE.
- 2) MAINS SHALL BE SLOPED TO FALL AT LEAST ONE TENTH OF A FOOT (0.1') ACROSS MANHOLE SECTIONS.
- 3) ALL OTHER DIMENSIONS, NOTES AND REQUIREMENTS AS SHOWN ON STANDARD MANHOLE DETAIL SHALL APPLY TO DROP MANHOLES.
- 4) DIMENSIONS NOT SHOWN ARE GIVEN ON STANDARD MANHOLE DETAIL.
- 5) ALL JOINTS AND CONNECTIONS TO NEW OR EXISTING MANHOLES SHALL BE WATERTIGHT.
- 6) ALL JOINTS SHALL BE SEALED WITH "RAM-NEK" BY K.T. SNYDER COMPANY OR APPROVED EQUAL.
- 7) PENETRATIONS AT WALL SHALL HAVE UNISEAL OR APPROVED EQUAL; PENETRATION SHALL BE TROWEL SMOOTH INSIDE OUT WITH NON-SHRINK GROUT OVER UNISEAL.
- 8) DROP BOWL MODEL "A-4" MUST BE USED FOR ALL LINES UP THROUGH FULL 6" INLETS. DROP BOWL MODEL "A-6" MUST BE USED FOR ALL 8" INLETS. DROP BOWLS MODEL "B-8" MUST BE USED FOR ALL 10" INLETS. MODEL "B-10" MUST BE USED FOR ALL 12" INLETS, OR EQUAL.
- 9) ATTACH THE DROP BOWL & EACH CLAMPING BRACKET TO THE MANHOLE WALL WITH STAINLESS STEEL 3/8" X 3/4" RAMSET/RED HEAD BOLTS OR APPROVED EQUAL. PIPE-ROD DRILL AND SET BOLTS IN PLACE WITH EPOXY PASTE. EPOXY MUST BE SIKADUR 31 H-MOD GEL BY SIKKA CORPORATION OR APPROVED EQUAL.

INTERNAL DROP MANHOLE

6
D2

NO SCALE

SOUTH TAHOE PUBLIC UTILITY DISTRICT



A PUBLIC UTILITY
DISTRICT
South Tahoe, California 96150
Phone (530) 544-6774 Fax (530) 541-4335
WWW.STPD.UTD.CS

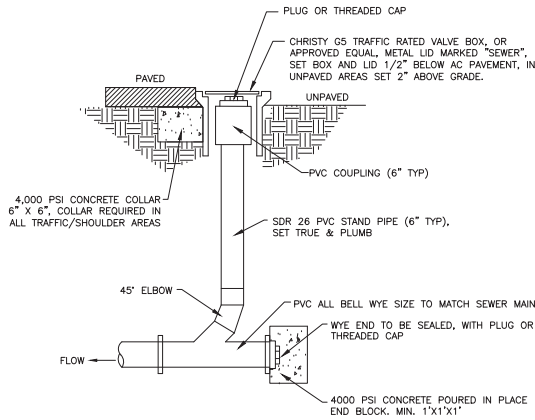
2020 SEWER IMPROVEMENTS
PROJECT
DETAILS



DATE: MAR 2020
SCALE: NO SCALE
DRAWN: BDC, CAL
FILE: BUOSWR

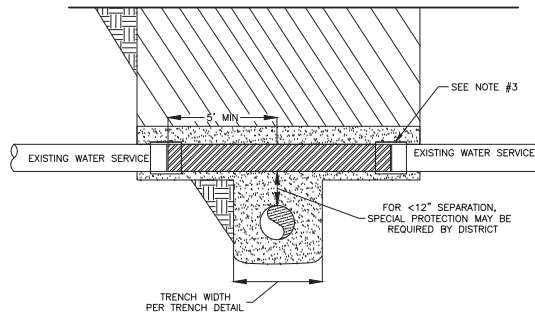
D2
8 OF 24
SHEETS

C:\Projects\Watermain\2020 Sewer Improvements\Project\Drawings\DWG\03-20-20 032036.dwg 03-20-20 032036 PM Unplotted



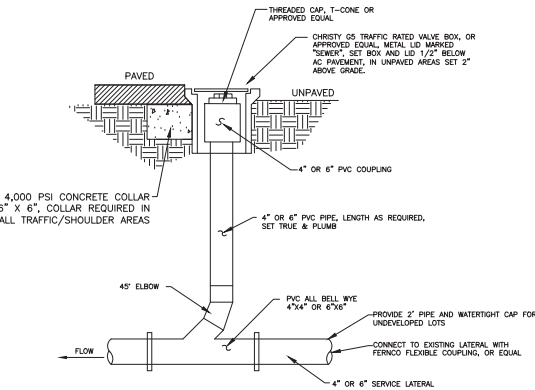
- NOTES:
- 1) FLUSH INSTALLED ON SEWER MAINS LARGER THAN SIX INCH (6") SHALL BE APPROVED BY THE DISTRICT.
 - 2) ALL PLUGS SHALL BE T-CONE OR APPROVED EQUAL.

1
D3
SEWER MAIN FLUSH INLET
NO SCALE

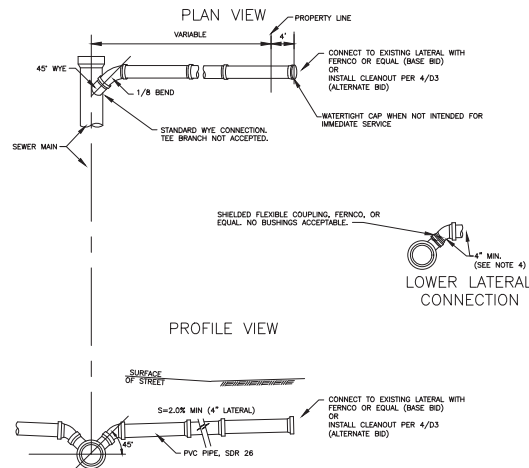


- NOTES:
- 1) WHERE WATER SERVICE IS DAMAGED DURING CONSTRUCTION, THE WATER SERVICE SHALL BE CUT AND REPLACED FOR A DISTANCE OF AT LEAST FIVE FEET (5') ON EACH SIDE OF THE POINT OF CROSSING.
 - 2) ALL WATER SERVICE REPLACEMENT PIPING SHALL BE POLYETHYLENE, OF SAME NOMINAL DIAMETER AS EXISTING UNLESS NOTED OR APPROVED BY THE DISTRICT.
 - 3) ALL COUPLING, ADAPTERS AND MATERIALS USED TO CONNECT POLYETHYLENE PIPING TO OTHER PIPE MATERIALS SHALL BE APPROVED BY THE DISTRICT.
 - 4) ALL WATER SERVICE REPAIRS SHALL BE BACKFILLED WITH COMPACTED OR JETTED CLASS 2 AGGREGATE BASE MATERIAL AS REQUIRED BY THE DISTRICT PER TRENCH DETAIL.

2
D3
WATER SERVICE REPLACEMENT AT CROSSING OF PIPE TRENCH
NO SCALE



4
D3
SEWER CLEAN OUT
NO SCALE



- NOTES:
- 1) ALL JOINTS AND CONNECTIONS SHALL BE WATERTIGHT. ALL JOINTS GASKETED UNLESS APPROVED BY ENGINEER.
 - 2) ALL LATERALS SHALL HAVE A MINIMUM GROUND COVER OF THREE FEET (3') OVER THE TOP OF PIPE IN ROW.
 - 3) ALL LATERALS SIX INCHES (6") AND LARGER SHALL BE CONNECTED TO SEWER MAIN USING A STANDARD MANHOLE.
 - 4) ALL RESIDENTIAL LOWER LATERALS MUST BE 4" INSIDE DIAMETER UNLESS OTHERWISE NOTED. ALL COMMERCIAL SERVICE LINES MUST BE 6" UNLESS OTHERWISE NOTED.

5
D3
SEWER LATERAL CONNECTION
NO SCALE

THIS SPACE
INTENTIONALLY
LEFT
BLANK

THIS SPACE
INTENTIONALLY
LEFT
BLANK

SOUTH TAHOE PUBLIC UTILITY DISTRICT



Shawn L. Biscoe, P.E. **Water**
A PUBLIC UTILITY DISTRICT
1275 Market Street, South Lake Tahoe, CA 96150
Phone (530) 544-6774 Fax (530) 544-6339
WWW.STPD.ORG

2020 SEWER IMPROVEMENTS
PROJECT
DETAILS



DATE: MAR 2020
SCALE: NO SCALE
DRAWN: BDC, CAL
FILE: BUGSWR

D3
9 OF 24
SHEETS



1
D5

TYPICAL OPEN TRENCH SECTION

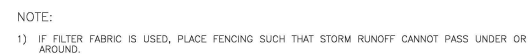
NO SCALE



2
D5

DRAINAGE INLET SEDIMENT PROTECTION

NO SCALE



3
D5

SITE PROTECTION FENCING

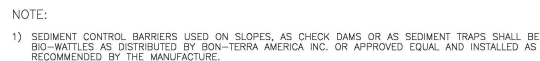
NO SCALE



4
D5

FILTER FABRIC FENCE

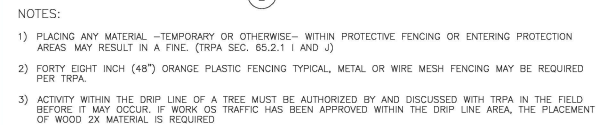
NO SCALE



5
D5

COIR LOG PLACEMENT

NO SCALE

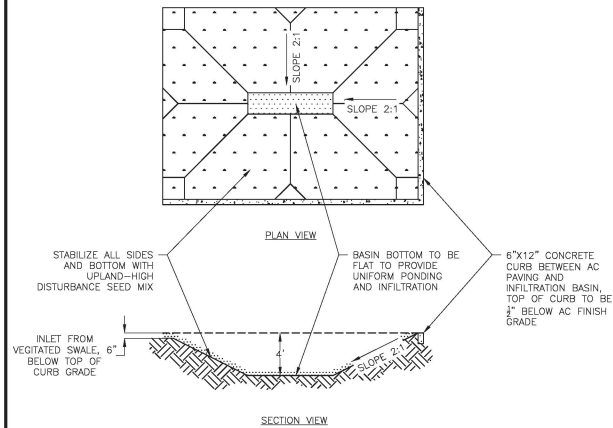


6
D5

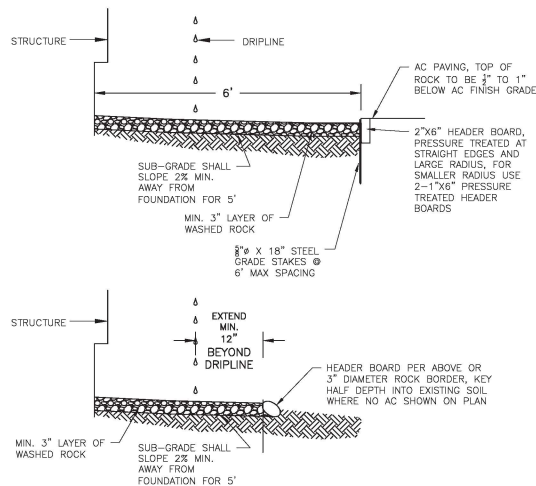
VEGETATION PROTECTION FENCING

NO SCALE

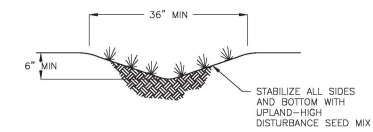
C:\projects\2020 Sewer Improvements\Drawings\2020 Sewer Improvements\Project\Yard Details\11-41-20-20 11-41-20-20.dwg 11:41:25 PM 11/4/2020



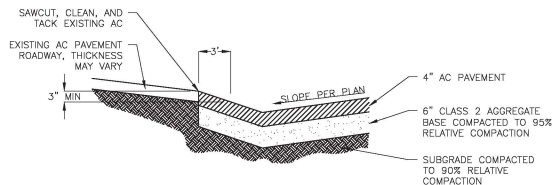
1 INFILTRATION BASIN
D5 NO SCALE



2 ARMORED DRIPLINE
D5 NO SCALE

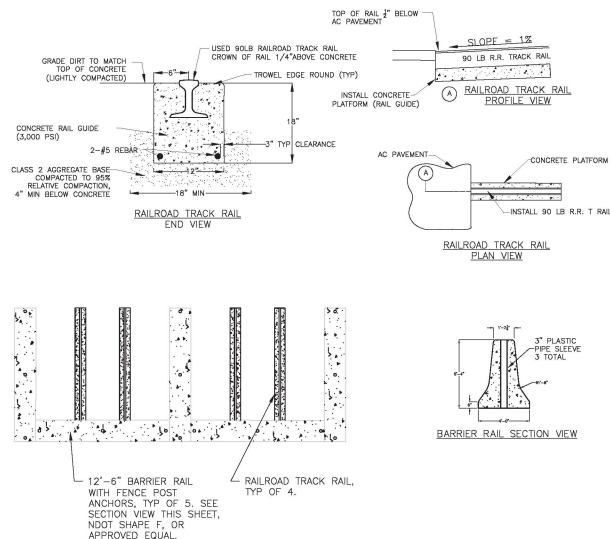


3 VEGETATED SWALE
D5 NO SCALE

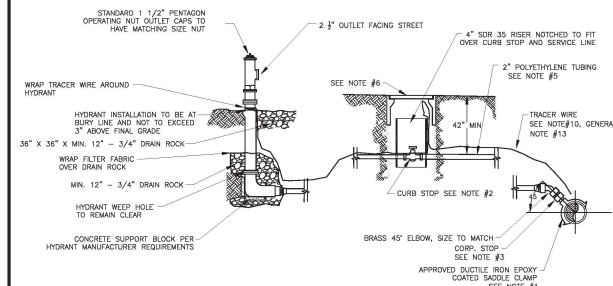


- NOTES:
1. INSTALL HEADER BOARD PER DETAIL 2/05 AROUND ENTIRE AC PAVING PERIMETER WHERE AC DOES NOT MEET ANOTHER SOLID SURFACE SUCH AS CONCRETE OR EXISTING AC.
 2. SEE DETAIL 1/01 FOR TRENCH BACKFILL AND ADDITIONAL REQUIREMENTS IN RIGHT OF WAY.

4 AC SWALE AND PAVING SECTION
D5 NO SCALE



5 BULK MATERIAL STOCKPILE AREA
D5 NO SCALE



- NOTES:
1. ALL SERVICE CONNECTIONS SHALL CONFORM TO AWWA C-800-84 AND BE INSTALLED FROM THE EXISTING MAIN. SERVICE SADDLE SHALL BE DOUBLE STAINLESS STEEL STRAP, FUSION BONDED EPOXY COATED SMITH BLAIR #317 OR APPROVED EQUAL.
 2. NEW CURB-STOP SHALL BE 2" MUELLER #300/820283 OR APPROVED EQUAL. CURB-STOP SHALL BE INSTALLED NEAR THE PROPERTY LINE.
 3. CORPORATION STOP SHALL BE 2" MUELLER #300/2999 OR APPROVED EQUAL.
 4. ALL WATER SERVICES SHALL HAVE A HAND-TAMPED SAND BEDDING NINE INCHES (9") ABOVE AND BENEATH THE TUBING AND SHALL HAVE SIX INCHES (6") MINIMUM CLEARANCE ON EACH SIDE.
 5. ALL WATER SERVICE SHALL BE POLYETHYLENE 200 PSI CLASS COPPER TUBE SIZE. PIPE STIFFENER INSERTS TO BE USED AT ALL CONNECTIONS.
 6. WATER VALVE BOX SHALL BE CHERRY DS OR APPROVED EQUAL WITH A METAL LID MARKED "WATER". WATER VALVE BOX INSTALLED IN ASPHALT SHALL BE 1/4" TO 1/2" BELOW FINISH GRADE.
 7. ALL CORP-STOPS, CURB-STOPS AND POLYETHYLENE SERVICE LINES SHALL BE DISINFECTED AND HYDROSTATIC TESTED PRIOR TO BEING PLACED INTO SERVICE.
 8. ALL TUBING CONNECTIONS SHALL BE THE COMPRESSION TYPE; MUELLER OR APPROVED EQUAL.
 9. TRACER WIRE SHALL BE INSTALLED ALONG NEW SERVICE LINE WITH A SIX INCH (6") MINIMUM LOOP AT THE TOP OF THE RISER PIPE.
 10. WATER SERVICE CONNECTIONS INSTALLED ON THE OPPOSITE SIDE OF THE STREET FROM WATER MAIN SHALL UTILIZE TRENCHLESS TECHNOLOGY (I.E. PNEUMATIC RAM OR MOLI) OR OTHER METHOD APPROVED BY DISTRICT ENGINEER.
 11. HYDRANT ASSEMBLY SHALL PASS HYDROSTATIC PRESSURE AND DISINFECTION TESTING ALONG WITH NEW PIPELINE PRIOR TO BEING PLACED INTO SERVICE.

6 2" WATER SERVICE AND YARD HYDRANT
D5 NO SCALE

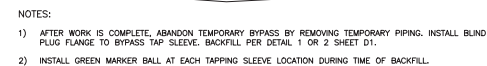
PROVIDE CLAMP WITH SUPPORT
 ROUND ALL SHARP CORNERS TO 1/2" RADIUS
 "B" SCHEDULE 40 STL PIPE
 LENGTH AND THREADS TO ALLOW MIN AND MAX
 DIMENSION SHOWN. USE STRAIGHT THREADS.
 "A" SCHEDULE 40 STL PIPE
 1/4"
 1'
 1/2" (TYP)
 SQ 3/4" PL
 1" NON-SHRINK GROUT
 4 - 3/4" DIA.
 CONC ANCHORS
 SST

- 1) HOT-DIP GALVANIZED SUPPORT AFTER FABRICATION
- 2) * USE 2 1/2" INCH SUPPORTS FOR PIPES LESS THEN 2 1/2" DIA.
- 3) ** NOMINAL PIPE SIZE

1
D6

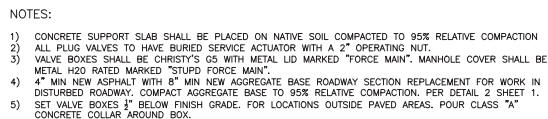


2
D6



LINE STOP
SECTION VIEW

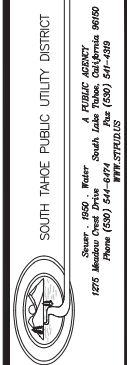
3
D6



4
D6

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LEFT
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INTENTIONALLY
LEFT
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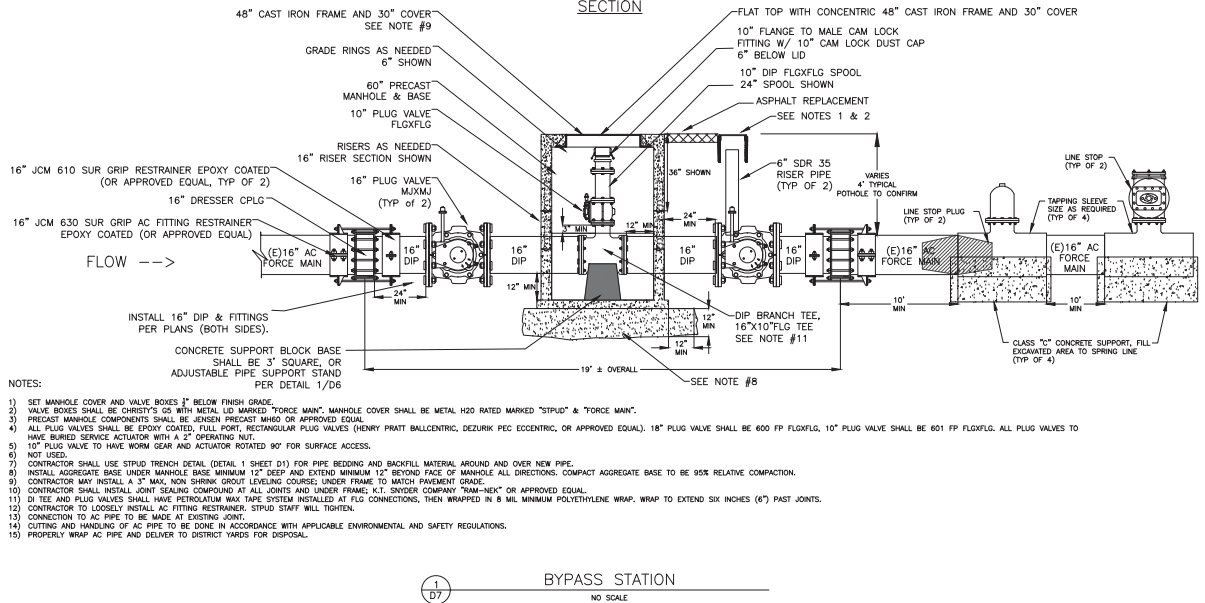


2020 SEWER IMPROVEMENTS PROJECT DETAILS



DATE: MAR 2020
SCALE: NO SCALE
DRAWN: CAL
FILE: FMBPTK

D6
12 OF 24
SHEETS



- NOTES:
- 1) AT LEAST TWO WEEKS PRIOR TO COMMENCING WORK ON BY PASS STATION, CONTRACTOR TO SUBMIT TEMPORARY 12" BY PASS PIPING PLAN AND SCHEDULE FOR APPROVAL BY ENGINEER.
 - 2) THE CONTRACTOR SHALL HAVE ALL NECESSARY EQUIPMENT, MATERIALS, AND PERSONNEL FOR REPAIR AND BYPASS OF A BREAK IN THE FM ON SITE DURING A CROSSING OF THE FM.
 - 3) THE CONTRACTOR SHALL ACT IMMEDIATELY TO CONTAIN, AND CLEANUP ANY SPILL. ADDITIONALLY THE CONTRACTOR SHALL INCUR ANY AND ALL COSTS AND FINES RESULTING FROM ANY SEWER FORCE MAIN DAMAGE RESULTING IN A SPILL.
 - 4) THE CONTRACTOR SHALL NOTIFY THE ENGINEER IN WRITING TWO (2) WORKING DAYS IN ADVANCE OF BEGINNING WORK TO CROSS THE FM.
 - 5) CROSSING OF THE FM WILL ONLY TAKE PLACE BETWEEN TUESDAY AND THURSDAY, UNLESS OTHERWISE APPROVED BY THE ENGINEER.
 - 6) THE CONTRACTOR SHALL POTHOLE THE FM IN ADVANCE OF INSTALLATION TO DETERMINE THE DEPTH AND LOCATION OF THE FM. POTHOLE SHALL BE ADVANCED USING A METHOD PROTECTIVE OF FM (VACUUM EXCAVATION OR EQUIVALENT). MECHANICAL EXCAVATION NOT ALLOWED.
 - 7) THIS WORK MUST BE CLOSELY COORDINATED WITH DISTRICT STAFF.
 - 8) TYPICAL OPERATING PRESSURE OF FM IS 35 PSI.
 - 9) MAXIMUM FLOW RATE OF PUMP STATION IS 2,200 GPM.
 - 10) THE MAXIMUM TIME THE PUMP STATION CAN BE SHUT DOWN IS 2.5 HOURS. AFTER SHUT DOWN THE PUMP STATION CAN BE BROUGHT BACK INTO OPERATION AND THE STORED SEWAGE PUMPED DOWN BEFORE A SECOND SHUT DOWN.
 - 11) DURING LINE STOP INSTALLATION THE PUMP STATION WILL BE SHUT DOWN BUT THE FORCE MAIN WILL BE FULL.
 - 12) TEMPORARY BY PASS PIPING, JOINTS AND FITTINGS MUST BE CAPABLE OF WITHSTANDING AT LEAST 150 PSI.
 - 13) AFTER A SHUTDOWN, THE STATION CAN BE PUMPED DOWN WITH 30-45 MINUTES. THIS IS FLOW DEPENDANT AND MAY TAKE LONGER.

- BYPASS STATION RECOMMENDED SEQUENCE OF CONSTRUCTION
- 1) INSTALL BOTH LINE STOP SADDLES AND BOTH BYPASS SADDLES & POUR CONCRETE BENEATH SADDLE & PIPE IN EXCAVATED AREA. THE TANDY KEYS PUMP STATION WILL BE OPERATING DURING THIS WORK.
 - 2) AFTER SEVEN (7) DAYS OR WHEN CONCRETE REACHES AT LEAST 60% OF 28 DAY STRENGTH, COORDINATE PUMP STATION SHUT DOWN AT LEAST 48 HOURS IN ADVANCE, INSTALL LINE STOP:
 - 2a) DISTRICT WILL SHUT DOWN PUMP STATION WHILE FIRST HOT TAP IS DRILLED, AND WILL RESUME PUMPING WHILE SECOND HOT TAP IS SET UP. REPEAT THIS FOR 3RD AND 4TH HOT TAPS.
 - 2b) ONCE PUMP STATION PUMPS DOWN, THE SECOND HOT TAP CAN BE DRILLED WITH THE PUMP STATION SHUT DOWN.
 - 2c) PUMP STATION WILL PUMP DOWN.
 - 2d) BOTH LINE STOPS CAN BE INSTALLED AND BY PASS PIPING CONNECTED WHILE PUMP STATION IS SHUTDOWN.
 - 3) BEGIN PUMPING THROUGH TEMPORARY BY PASS.
 - 4) CONSTRUCT BY PASS STATION.
 - 5) ONCE BY PASS STATION IS COMPLETE, COORDINATE PUMP STATION SHUTDOWN AT LEAST 48 HOURS IN ADVANCE AND REMOVE LINE STOP. REMOVE LINE STOPS AND TEMPORARY PIPING. INSTALL BLIND FLANGE AT LINE STOP SADDLES AND BYPASS SADDLES AND BACKFILL.

2020 SEWER IMPROVEMENTS
PROJECT – TKFM BYPASS
DETAILS

SOUTH TAHOE PUBLIC UTILITY DISTRICT
A PUBLIC AGENCY
Shower, 1950 - Reservoir
1275 - 1275
Phone (530) 544-6774 Fax (530) 541-4335
WWW.STPD.ORG

DATE: MAR 2020
SCALE: NO SCALE
DRAWN: CAL
FILE: FMBPTK
D7
13 OF 24
SHEETS

Appendix B – USFWS Species List and CNDDDB Database Search Results



*The database used to provide updates to the Online Inventory is under construction. [View updates and changes made since May 2019 here.](#)

Plant List

27 matches found. [Click on scientific name for details](#)

Search Criteria

California Rare Plant Rank is one of [1B, 2B], Found in Quads 3912011, 3812081, 3811988, 3811987, 3812071, 3811978 and 3811977; Elevation is above 6223 or below 9100 feet

[Modify Search Criteria](#) [Export to Excel](#) [Modify Columns](#) [Modify Sort](#) [Display Photos](#)

Scientific Name	Common Name	Lifeform	Blooming Period	CA Rare Plant Rank	Habitats
Arabis rigidissima var. demota	Galena Creek rockcress	perennial herb	Jul-Aug	1B.2	<ul style="list-style-type: none"> Broadleafed upland forest Upper montane coniferous forest
Astragalus austinae	Austin's astragalus	perennial herb	(May)Jul-Sep	1B.3	<ul style="list-style-type: none"> Alpine boulder and rock field Subalpine coniferous forest
Boechera tularensis	Tulare rockcress	perennial herb	(May)Jun-Jul(Aug)	1B.3	<ul style="list-style-type: none"> Subalpine coniferous forest Upper montane coniferous forest
Botrychium ascendens	upswept moonwort	perennial rhizomatous herb	(Jun)Jul-Aug	2B.3	<ul style="list-style-type: none"> Lower montane coniferous forest Meadows and seeps
Botrychium crenulatum	scalloped moonwort	perennial rhizomatous herb	Jun-Sep	2B.2	<ul style="list-style-type: none"> Bogs and fens Lower montane coniferous forest Meadows and seeps Marshes and swamps (freshwater) Upper montane coniferous forest
Botrychium minganense	Mingan moonwort	perennial rhizomatous herb	Jul-Sep	2B.2	<ul style="list-style-type: none"> Bogs and fens Lower montane coniferous forest Meadows and seeps (edges) Upper montane coniferous forest
Brasenia schreberi	watershield	perennial rhizomatous herb (aquatic)	Jun-Sep	2B.3	<ul style="list-style-type: none"> Marshes and swamps (freshwater)
Carex davyi	Davy's sedge	perennial herb	May-Aug	1B.3	<ul style="list-style-type: none"> Subalpine coniferous forest Upper montane coniferous forest
Carex limosa	mud sedge	perennial rhizomatous herb	Jun-Aug	2B.2	<ul style="list-style-type: none"> Bogs and fens Lower montane coniferous forest Meadows and seeps Marshes and swamps Upper montane coniferous forest

<u>Cryptantha crymophila</u>	subalpine cryptantha	perennial herb	Jul-Aug	1B.3	<ul style="list-style-type: none"> • Subalpine coniferous forest (volcanic, rocky)
<u>Draba asterophora var. asterophora</u>	Tahoe draba	perennial herb	Jul-Aug(Sep)	1B.2	<ul style="list-style-type: none"> • Alpine boulder and rock field • Subalpine coniferous forest
<u>Draba asterophora var. macrocarpa</u>	Cup Lake draba	perennial herb	Jul-Aug(Sep)	1B.1	<ul style="list-style-type: none"> • Subalpine coniferous forest (rocky)
<u>Epilobium oreganum</u>	Oregon fireweed	perennial herb	Jun-Sep	1B.2	<ul style="list-style-type: none"> • Bogs and fens • Lower montane coniferous forest • Meadows and seeps • Upper montane coniferous forest
<u>Epilobium palustre</u>	marsh willowherb	perennial rhizomatous herb	Jul-Aug	2B.3	<ul style="list-style-type: none"> • Bogs and fens • Meadows and seeps (mesic)
<u>Eriogonum luteolum var. saltuarium</u>	Jack's wild buckwheat	annual herb	Jul-Sep	1B.2	<ul style="list-style-type: none"> • Great Basin scrub • Upper montane coniferous forest
<u>Glyceria grandis</u>	American manna grass	perennial rhizomatous herb	Jun-Aug	2B.3	<ul style="list-style-type: none"> • Bogs and fens • Meadows and seeps • Marshes and swamps (streambanks and lake margins)
<u>Helodium blandowii</u>	Blandow's bog moss	moss		2B.3	<ul style="list-style-type: none"> • Meadows and seeps • Subalpine coniferous forest
<u>Lewisia longipetala</u>	long-petaled lewisia	perennial herb	Jul-Aug(Sep)	1B.3	<ul style="list-style-type: none"> • Alpine boulder and rock field • Subalpine coniferous forest (mesic, rocky)
<u>Meesia uliginosa</u>	broad-nerved hump moss	moss	Jul,Oct	2B.2	<ul style="list-style-type: none"> • Bogs and fens • Meadows and seeps • Subalpine coniferous forest • Upper montane coniferous forest
<u>Phacelia stebbinsii</u>	Stebbins' phacelia	annual herb	May-Jul	1B.2	<ul style="list-style-type: none"> • Cismontane woodland • Lower montane coniferous forest • Meadows and seeps
<u>Potamogeton robbinsii</u>	Robbins' pondweed	perennial rhizomatous herb (aquatic)	Jul-Aug	2B.3	<ul style="list-style-type: none"> • Marshes and swamps (deep water, lakes)
<u>Rhamnus alnifolia</u>	alder buckthorn	perennial deciduous shrub	May-Jul	2B.2	<ul style="list-style-type: none"> • Lower montane coniferous forest • Meadows and seeps • Riparian scrub • Upper montane coniferous forest
<u>Rorippa subumbellata</u>	Tahoe yellow cress	perennial rhizomatous herb	May-Sep	1B.1	<ul style="list-style-type: none"> • Lower montane coniferous forest • Meadows and seeps
<u>Schoenoplectus subterminalis</u>	water bulrush	perennial rhizomatous herb (aquatic)	Jun-Aug(Sep)	2B.3	<ul style="list-style-type: none"> • Bogs and fens • Marshes and swamps (montane lake margins)
<u>Scutellaria galericulata</u>	marsh skullcap	perennial rhizomatous herb	Jun-Sep	2B.2	<ul style="list-style-type: none"> • Lower montane coniferous forest • Meadows and seeps (mesic) • Marshes and swamps
<u>Stuckenia filiformis ssp. alpina</u>	slender-leaved pondweed	perennial rhizomatous herb (aquatic)	May-Jul	2B.2	<ul style="list-style-type: none"> • Marshes and swamps (assorted shallow freshwater)
<u>Viola purpurea ssp. aurea</u>	golden violet	perennial herb	Apr-Jun	2B.2	<ul style="list-style-type: none"> • Great Basin scrub • Pinyon and juniper woodland

Suggested Citation

California Native Plant Society, Rare Plant Program. 2021. Inventory of Rare and Endangered Plants of California (online edition, v8-03 0.39). Website <http://www.rareplants.cnps.org> [accessed 24 February 2021].

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Multiple Occurrences per Page
California Department of Fish and Wildlife
California Natural Diversity Database



Query Criteria: Quad> IS (Meeks Bay (3912011)> OR Emerald Bay (3812081)> OR South Lake Tahoe (3811988)> OR Minden (3811987)> OR Echo Lake (3812071)> OR Freel Peak (3811978)> IS (1B> OR Woodfords (3811977)> AND CNPS List> IS (1B> OR 1B.1> OR 1B.2> OR 1B.3> OR 2B> OR 2B.1> OR 2B.2> OR 2B.3> OR 3> OR 3.1> OR 3.2> OR 3.3> OR 4> OR 4.1> OR 4.2> OR 4.3)

Bruchia bolanderi

Element Code: NBMUS13010

Bolander's bruchia

Listing Status:	Federal: None	CNDDDB Element Ranks:	Global: G3G4
	State: None		State: S3
	Other: Rare Plant Rank - 4.2, USFS_S-Sensitive		
Habitat:	General: LOWER MONTANE CONIFEROUS FOREST, MEADOWS AND SEEPS, UPPER MONTANE CONIFEROUS FOREST.		
	Micro: MOSS WHICH GROWS ON DAMP CLAY SOILS. SEEMS TO COLONIZE BARE SOIL ALONG STREAMBANKS, MEADOWS, FENS AND SPRINGS. THIS SPECIES HAS AN EPHEMERAL NATURE AND IS DISTURBANCE ADAPTED. 1610-3340 M.		

Occurrence No.	15	Map Index: 73118	EO Index: 74049	Element Last Seen:	2009-07-27
Occ. Rank:	Good		Presence: Presumed Extant	Site Last Seen:	2009-07-27
Occ. Type:	Natural/Native occurrence		Trend: Unknown	Record Last Updated:	2010-04-27

Quad Summary: South Lake Tahoe (3811988)

County Summary: El Dorado

Lat/Long:	38.90058 / -119.90247	Accuracy:	80 meters
UTM:	Zone-11 N4309750 E248294	Elevation (ft):	7800
PLSS:	T12N, R18E, Sec. 12, SE (M)	Acres:	0.0

Location: NE END OF HIGH MEADOWS, APPROXIMATELY 5 MILES SE OF SOUTH LAKE TAHOE.

Detailed Location: MAPPED BY CNDDDB IN THE NE1/4 OF THE SE1/4 OF SECTION 12 ACCORDING TO 2006 GPS COORDINATES PROVIDED BY LEVY. DIRECTLY ACROSS FROM ROAD ON EAST SIDE OF MEADOW.

Ecological: HIGH OPEN MEADOW HABITAT. WOODED AREA SURROUNDING MEADOW HAS AN OVERSTORY DOMINATED BY PINUS CONTORTA. POPULATION FOUND HIDDEN IN CAREX SP. AT THE BASE OF A SMALL PINUS CONTORTA THAT HAS ENCROACHED INTO THE MEADOW.

General: 5 CLUMPS OF PLANTS SEEN IN 2006. A SAMPLE WAS COLLECTED IN 2007 AND ID OF PLANTS WAS VERIFIED AS BRUCHIA BOLANDERI. 5 CLUMPS OF PLANTS SEEN IN JULY OF 2009; SITE WAS VERY DRY AND SHOULD BE VISITED EARLIER NEXT TIME.

Owner/Manager: USFS-LAKE TAHOE BMU

Helodium blandowii

Element Code: NBMUS3C010

Blandow's bog moss

Listing Status:	Federal: None	CNDDDB Element Ranks:	Global: G4
	State: None		State: S2
	Other: Rare Plant Rank - 2B.3, USFS_S-Sensitive		
Habitat:	General: MEADOWS AND SEEPS, SUBALPINE CONIFEROUS FOREST.		
	Micro: MOSS GROWING ON DAMP SOIL, ESPECIALLY UNDER WILLOWS AMONG LEAF LITTER. 1490-3050 M.		



Multiple Occurrences per Page
California Department of Fish and Wildlife
California Natural Diversity Database



Occurrence No.	11	Map Index:	92934	EO Index:	94082	Element Last Seen:	2009-09-24
Occ. Rank:	Excellent			Presence:	Presumed Extant	Site Last Seen:	2009-09-24
Occ. Type:	Natural/Native occurrence			Trend:	Unknown	Record Last Updated:	2014-06-27
Quad Summary:	Freel Peak (3811978)						
County Summary:	El Dorado						
Lat/Long:	38.78893 / -119.95933			Accuracy:	80 meters		
UTM:	Zone-11 N4297515 E242961			Elevation (ft):	7600		
PLSS:	T11N, R18E, Sec. 23, NE (M)			Acres:	0.0		
Location:	SOUTH END OF GRASS LAKE, APPROXIMATELY 0.7 AIR MILE WNW OF LUTHER PASS, LAKE TAHOE BASIN MANAGEMENT UNIT.						
Detailed Location:	IN THE WEST 1/2 OF THE NE 1/4 OF SECTION 23.						
Ecological:	HELODIUM PRESENT ON MULTIPLE HUMMOCKS IN A SMALL DRAINAGE. BOTH SIDES OF DRAINAGE IN SMALL PATCHES. ASSOCIATED WITH PINUS CONTORTA, AULACOMNIUM PALUSTRE, KALMIA POLIFOLIA SSP. MICROPHYLLA, SPHENOSCIADIUM CAPITELLATUM, VACCINIUM, ETC.						
General:	5 PATCHES WERE IDENTIFIED RANGING FROM JUST 20 X 20 INCHES (80% COVER) TO 6 FEET BY 1 FOOT (10% COVER) IN 2009. LTBMU OCCURRENCE HEBL2A.						
Owner/Manager:	USFS-LAKE TAHOE BMU						

Occurrence No.	12	Map Index:	92936	EO Index:	94083	Element Last Seen:	2010-09-29
Occ. Rank:	Excellent			Presence:	Presumed Extant	Site Last Seen:	2010-09-29
Occ. Type:	Natural/Native occurrence			Trend:	Unknown	Record Last Updated:	2014-06-27
Quad Summary:	Freel Peak (3811978)						
County Summary:	El Dorado						
Lat/Long:	38.79291 / -119.96956			Accuracy:	specific area		
UTM:	Zone-11 N4297985 E242087			Elevation (ft):	7600		
PLSS:	T11N, R18E, Sec. 15, SE (M)			Acres:	18.0		
Location:	SOUTH SIDE OF THE NORTH END OF GRASS LAKE, APPROX 1.3 AIR MILES NW OF LUTHER PASS, LAKE TAHOE BASIN MANAGEMENT UNIT.						
Detailed Location:	GRASS LAKE RESEARCH NATURAL AREA. NEAR THE COMMON CORNER OF SECTIONS 14, 15, 22, & 23.						
Ecological:	UNDER PINUS CONTORTA AND SALIX EASTWOODIAE. ASSOCIATED WITH VACCINIUM ULIGINOSUM, AULACOMNIUM PALUSTRE, SPHAGNUM SP., DESCHAMPSIA DANTHONIOIDES, AND CAREX SP. NORTHERN ASPECT, 1% SLOPE.						
General:	A 4 X 8 METER PATCH WITH 30% COVER OBSERVED AT WEST END OF OCCURRENCE IN 2009. MULTIPLE HUMMOCKS WHERE HELODIUM IS PRESENT IN 2010. LTBMU OCCURRENCE HEBL2B.						
Owner/Manager:	USFS-LAKE TAHOE BMU						



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Occurrence No.	13	Map Index:	92937	EO Index:	94084	Element Last Seen:	2011-08-04
Occ. Rank:	Good			Presence:	Presumed Extant	Site Last Seen:	2011-08-04
Occ. Type:	Natural/Native occurrence			Trend:	Unknown	Record Last Updated:	2014-06-27
Quad Summary:	Freel Peak (3811978)						
County Summary:	El Dorado						
Lat/Long:	38.83551 / -119.91529				Accuracy:	specific area	
UTM:	Zone-11 N4302563 E246952				Elevation (ft):	8580	
PLSS:	T11N, R18E, Sec. 01, NE (M)				Acres:	8.0	
Location:	JUST NW OF ARMSTRONG PASS AT THE HEAD OF TROUT CREEK, LAKE TAHOE BASIN MANAGEMENT UNIT.						
Detailed Location:	IN THE NORTH 1/2 OF THE NE 1/4 OF SECTION 1.						
Ecological:	GROWING UNDER SALIX ALONG FEN OUTLET. DOMINANTS INCLUDE SALIX ORESTERA, VACCINIUM ULIGINOSUM, PINUS CONTORTA, CAREX AQUATILIS, KALMIA, PERIDERIDIA, SENECIO TRIANGULARIS, ELEOCHARIS, BRYUM, AULACOMNIUM PALUSTRE, AND SPHAGNUM.						
General:	5% COVER IN A 7 X 8 METER AREA IN 2009, 1% COVER IN A 7 X 8 METER AREA IN 2011. LTBMU OCCURRENCE HEBL1.						
Owner/Manager:	USFS-LAKE TAHOE BMU						



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Meesia triquetra

Element Code: NBMUS4L020

three-ranked hump moss

Listing Status: **Federal:** None

CNDDDB Element Ranks: **Global:** G5

State: None

State: S4

Other: Rare Plant Rank - 4.2

Habitat: **General:** BOGS AND FENS, MEADOWS AND SEEPS, UPPER MONTANE CONIFEROUS FOREST, SUBALPINE CONIFEROUS FOREST.

Micro: MOSS GROWING ON MESIC SOIL. SATURATED BOGS, FENS, SEEPS AND MEADOWS IN CONIFEROUS TO SUBALPINE FORESTS. 1300-2955 M.

Occurrence No. 3 **Map Index:** 58555 **EO Index:** 45438 **Element Last Seen:** 2004-09-21
Occ. Rank: Good **Presence:** Presumed Extant **Site Last Seen:** 2004-09-21
Occ. Type: Natural/Native occurrence **Trend:** Unknown **Record Last Updated:** 2005-08-03

Quad Summary: Freel Peak (3811978)

County Summary: El Dorado

Lat/Long: 38.79517 / -119.96527 **Accuracy:** specific area
UTM: Zone-11 N4298224 E242468 **Elevation (ft):** 7700
PLSS: T11N, R18E, Sec. 14, S (M) **Acres:** 24.3

Location: GRASS LAKE, SOUTH OF HIGHWAY 89 WEST OF LUTHER PASS.

Detailed Location: MAPPED BY CNDDDB AS THREE POLYGONS ON THE NORTH SIDE OF GRASS LAKE: WESTERN SMALL POLY FROM 2003 OBSERVATION, AND TWO LARGER EASTERN POLYS FROM 2004 SURVEYS. EXTENDS FROM SE 1/4 SECTION 15 TO NW 1/4 OF THE NE 1/4 OF SECTION 23.

Ecological: WET MEADOW / FEN AREA. GROWING JUST OUTSIDE SHRUBS AND TREES AT EDGE, INTERMIXED WITH SPHAGNUM AND DREPANOCLADUS. WHEN VEGETATION BECOMES THICKER, AND VERY DENSE MONOCULTURE, M. TRIQUETRA DISAPPEARS.

General: AREA NORTH OF GRASS LAKE SURVEYED IN 2004, BUT SOUTH AND WEST SIDE OF AREA NOT SURVEYED; MORE PLANTS WILL LIKELY BE FOUND.

Owner/Manager: USFS-ELDORADO NF

Occurrence No. 7 **Map Index:** 62175 **EO Index:** 62211 **Element Last Seen:** 2004-10-05
Occ. Rank: Excellent **Presence:** Presumed Extant **Site Last Seen:** 2004-10-05
Occ. Type: Natural/Native occurrence **Trend:** Unknown **Record Last Updated:** 2005-08-03

Quad Summary: Freel Peak (3811978)

County Summary: El Dorado

Lat/Long: 38.82846 / -119.94529 **Accuracy:** specific area
UTM: Zone-11 N4301863 E244322 **Elevation (ft):** 7700
PLSS: T11N, R18E, Sec. 01, SW (M) **Acres:** 1.4

Location: ABOUT 3.2 MILES SOUTHWEST OF FREEL PEAK, AT HELL HOLE.

Detailed Location: LOCATED IN WEST-CENTRAL AREA OF HELL HOLE (UTM ZONE 10, 765251E, 4301983N, NAD27). MAPPED IN THE NW 1/4 OF THE SW 1/4 OF SECTION 1.

Ecological: MEADOW / FEN AREA. ASSOCIATED WITH BRYUM, CAREX VESICARIA, DREPANOCLADUS, ELEOCHARIS, JUNCUS, MIMULUS PRIMULOIDES, AND MUHLENBERGIA. GROWING AMONG OTHER BRYOPHYTES IN SCATTERED PATCHES.

General: GROWING IN VERY SCATTERED PATCHES IN 2004; ENTIRE AREA NOT SURVEYED.

Owner/Manager: USFS-LAKE TAHOE BMU

Meesia uliginosa

Element Code: NBMUS4L030

broad-nerved hump moss

Listing Status: **Federal:** None

CNDDDB Element Ranks: **Global:** G5

State: None

State: S3



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Habitat:	Other:	Rare Plant Rank - 2B.2, USFS_S-Sensitive				
	General:	MEADOWS AND SEEPS, BOGS AND FENS, UPPER MONTANE CONIFEROUS FOREST, SUBALPINE CONIFEROUS FOREST.				
	Micro:	MOSS ON DAMP SOIL. OFTEN FOUND ON THE EDGE OF FENS OR RAISED ABOVE THE FEN ON HUMMOCKS/SHRUB BASES. 1095-2805 M.				

Occurrence No.	10	Map Index:	66664	EO Index:	66812	Element Last Seen:	2014-09-16
Occ. Rank:	Fair			Presence:	Presumed Extant	Site Last Seen:	2014-09-16
Occ. Type:	Natural/Native occurrence			Trend:	Unknown	Record Last Updated:	2017-09-22
Quad Summary:	South Lake Tahoe (3811988)						
County Summary:	El Dorado						

Lat/Long:	38.8927 / -119.98782			Accuracy:	specific area		
UTM:	Zone-11 N4309114 E240864			Elevation (ft):	6335		
PLSS:	T12N, R18E, Sec. 16, NE (M)			Acres:	1.0		

Location:	JUST EAST OF THE LAKE TAHOE AIRPORT AND THE UPPER TRUCKEE RIVER, SOUTH LAKE TAHOE.						
Detailed Location:	FOUND AT THE BASE OF A SALIX IN THE NE SECTION OF THE MEADOW AREA. MAPPED ACCORDING TO 2014 MCKNIGHT COORDINATES. WITHIN THE NE 1/4 OF THE NE 1/4 OF SECTION 16. THIS SITE IS LTBMU POPULATION MEUL2.						
Ecological:	SALIX IS THE DOMINANT SHRUB WITH SCATTERED JUNCUS AND EQUISETUM AS THE DOMINANT GROUND COVER. SLIGHTLY RAISED ABOVE WATER, SURROUNDED BY CIRSIUM VULGARE. MEESIA TRIQUETRA IS ALSO FOUND IN THE AREA.						
General:	UNKNOWN NUMBER OF INDIVIDUALS OBSERVED IN 2005. 5% COVER OF THIS SPECIES OBSERVED IN 2009 & 2014; GROSS AREA WAS 5 X 5 FT. THE AREA APPEARED VERY DRY IN 2009 (POSSIBLY RESULTING FROM WATER DIVERSION?).						
Owner/Manager:	USFS-TAHOE NF						

Occurrence No.	11	Map Index:	66665	EO Index:	66813	Element Last Seen:	2014-09-17
Occ. Rank:	Fair			Presence:	Presumed Extant	Site Last Seen:	2014-09-17
Occ. Type:	Natural/Native occurrence			Trend:	Unknown	Record Last Updated:	2017-09-22
Quad Summary:	Emerald Bay (3812081)						
County Summary:	El Dorado						

Lat/Long:	38.88067 / -120.03612			Accuracy:	specific area		
UTM:	Zone-10 N4307710 E757102			Elevation (ft):	6330		
PLSS:	T12N, R18E, Sec. 18, SW (M)			Acres:	2.0		

Location:	ANGORA CREEK, WEST OF WASHOE MEADOW STATE PARK, EAST OF FALLEN LEAF LAKE.						
Detailed Location:	MAPPED ACCORDING TO 2009 HEARD COORDINATES AND 2014 MCKNIGHT COORDINATES, IN THE SOUTH 1/2 OF THE SW 1/4 OF SECTION 18. THIS SITE IS LTBMU POPULATION MEUL1.						
Ecological:	TYPICAL FEN. GROUND IS SATURATED AND SOIL IS ORGANIC. VEGETATION CONSISTS OF CAREX, SALIX OLESTRA, VACCINIUM ULIGINOSUM, BRYUM ULIGINOSUM, B. PSEUDOTRIQUETRUM, TOMENTYPNUM NITENS, DREPANOCLADUS SORDIDUS, MEESIA TRIQUETRA, ETC.						
General:	UNKNOWN NUMBER OF INDIVIDUALS OBSERVED IN 2005. 95% COVER OF THIS SPECIES WAS OBSERVED IN 3 SMALL CLUSTERS IN 2009 & 2014. MENTIONED AS AN ASSOCIATE IN THREE 2007 COLLECTIONS OF TOMENTYPNUM NITENS BY WISHNER.						
Owner/Manager:	USFS-TAHOE NF						



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Occurrence No.	47	Map Index:	A6483	EO Index:	108244	Element Last Seen:	2014-07-30
Occ. Rank:	Good	Presence:	Presumed Extant	Site Last Seen:	2014-07-30	Record Last Updated:	2017-09-22
Occ. Type:	Natural/Native occurrence	Trend:	Unknown				
Quad Summary:	Echo Lake (3812071)						
County Summary:	El Dorado						
Lat/Long:	38.86573 / -120.02524				Accuracy:	specific area	
UTM:	Zone-10 N4306084 E758100				Elevation (ft):	6320	
PLSS:	T12N, R18E, Sec. 19, SE (M)				Acres:	9.0	
Location:	WASHOE MEADOWS STATE PARK; APPROXIMATELY 0.4 AIR MILE WEST OF COUNTRY CLUB DR/BAKERSFIELD ST INTERSECTION.						
Detailed Location:	MAPPED ACCORDING TO 2014 DEAN COORDINATES, IN THE SE 1/4 OF THE SE 1/4 OF SECTION 19.						
Ecological:	GROWING WITH PLATANHERA, MOSSES, JUNCUS, SALIX, DROSENA AT BASE OF LODGEPOLE PINE. GROWS ON BARE DAMP SOIL IN FEN-LIKE HABITAT.						
General:	29 PATCHES OBSERVED IN 2014; PATCHES RANGE IN SIZE FROM 1 FOOT TO 12 FEET IN DIAMETER.						
Owner/Manager:	DPR-WASHOE MEADOWS SP						

<i>Peltigera gowardii</i>				Element Code: NLVER00460			
western waterfan lichen							
Listing Status:	Federal:	None		CNDDDB Element Ranks:	Global:	G4?	
	State:	None			State:	S3	
	Other:	Rare Plant Rank - 4.2, USFS_S-Sensitive					
Habitat:	General:	RIPARIAN FOREST.					
	Micro:	ON ROCKS IN COLD WATER CREEKS WITH LITTLE OR NO SEDIMENT OR DISTURBANCE. OFTEN ASSOCIATED WITH RICH BRYOPHYTE FLORA. 1065-2375 M.					

Occurrence No.	26	Map Index:	75479	EO Index:	76485	Element Last Seen:	2008-10-02
Occ. Rank:	Good			Presence:	Presumed Extant	Site Last Seen:	2008-10-02
Occ. Type:	Natural/Native occurrence			Trend:	Unknown	Record Last Updated:	2009-06-11
Quad Summary:	Echo Lake (3812071)						
County Summary:	El Dorado						
Lat/Long:	38.83896 / -120.08322				Accuracy:	specific area	
UTM:	Zone-10 N4302950 E753163				Elevation (ft):	7800	
PLSS:	T12N, R17E, Sec. 34, SE (M)				Acres:	10.0	
Location:	ALONG A SMALL STREAM THAT FLOWS INTO THE S PORTION OF UPPER ECHO LAKE, BETWEEN UPPER ECHO LAKE AND CAGWIN LAKE.						
Detailed Location:	PELTIGERA IS FOUND THROUGHOUT THE SLOPED PORTION OF A STREAM CHANNEL PRIMARILY ON GRANITE BEDROCK. AS THE CHANNEL FLATTENS OUT, THE AMOUNT OF BEDROCK AND BOULDERS DECREASES AS DOES THE PELTIGERA.						
Ecological:	TWO INTERCONNECTED CHANNELS BOTH WITH PELTIGERA. ASSOC SPECIES INCL SENECIO TRIANGULARIS, TSUGA MERTENSIANA, SALIX SPP, ABIES MAGNIFICA, PINUS MONTICOLA, MIMULUS LEWISII, LEDUM GLANDULOSUM, CAREX HETERONEURA, ORTHILIA SECUNDA, VIOLA SP.						
General:	1000+ PLANTS IN 2008.						
Owner/Manager:	USFS-LAKE TAHOE BMU						

<i>Chaenactis douglasii</i> var. <i>alpina</i>				Element Code: PDAST20065			
alpine dusty maidens							
Listing Status:	Federal:	None	CNDDDB Element Ranks:		Global:	G5T5	
	State:	None			State:	S2	
	Other:	Rare Plant Rank - 2B.3					



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Habitat:	General: ALPINE BOULDER AND ROCK FIELD.			
	Micro: OPEN, SUBALPINE TO ALPINE GRAVEL AND CREVICES; GRANITIC SUBSTRATE. 2362-3355 M.			
Occurrence No.	4	Map Index: 27943	EO Index: 20727	Element Last Seen: 2009-07-25
Occ. Rank:	Fair		Presence: Presumed Extant	Site Last Seen: 2009-07-25
Occ. Type:	Natural/Native occurrence		Trend: Unknown	Record Last Updated: 2013-02-27
Quad Summary:	Freel Peak (3811978)			
County Summary:	Alpine, El Dorado			
Lat/Long:	38.85724 / -119.90181		Accuracy:	80 meters
UTM:	Zone-11 N4304937 E248199		Elevation (ft):	10700
PLSS:	T12N, R18E, Sec. 25, SE (M)		Acres:	0.0
Location:	FREEL PEAK, NEAR SUMMIT.			
Detailed Location:				
Ecological:	OPEN, BARREN SUBALPINE / ALPINE. ALSO OCCURS WITH THE RARE DRABA ASTEROPHORA VAR. ASTEROPHORA AT THIS SITE.			
General:	10 PLANTS OBSERVED BETWEEN THIS OCCURRENCE AND OCCURRENCE #12 IN 2009. HISTORIC COLLECTIONS FROM NEAR SUMMIT OF FREEL PEAK AND OBSERVATIONS BY TAYLOR (1970) AND GREENHOUSE (2006) ARE ALSO ATTRIBUTED TO THIS SITE.			
Owner/Manager:	USFS-LAKE TAHOE BMU			
Occurrence No.	5	Map Index: 27944	EO Index: 20728	Element Last Seen: 2012-09-25
Occ. Rank:	Good		Presence: Presumed Extant	Site Last Seen: 2012-09-25
Occ. Type:	Natural/Native occurrence		Trend: Unknown	Record Last Updated: 2013-03-05
Quad Summary:	Freel Peak (3811978)			
County Summary:	Alpine, El Dorado			
Lat/Long:	38.86037 / -119.88434		Accuracy:	specific area
UTM:	Zone-11 N4305236 E249726		Elevation (ft):	10500
PLSS:	T12N, R19E, Sec. 31, NE (M)		Acres:	10.0
Location:	ON NORTHWEST SLOPE AND SOUTH SLOPE OF JOBS SISTER.			
Detailed Location:	2 POLYGONS MAPPED BASED ON 2011 AND 2012 SURVEYS. IN 2012, PLANTS WERE VERY SPARSELY SCATTERED THROUGHOUT A LARGE AREA, FROM WESTERN POLYGON (ON WEST RATHER THAN "NW SLOPE") ALONG SADDLE TOWARDS FREEL PEAK.			
Ecological:	NW- AND S-FACING ALPINE SCREE SLOPES, LOOSE DECOMPOSING GRANITE. ASSOCIATED WITH PINUS ALBICAULIS, HULSEA ALGIDA, POLYGONUM SHASTENSE, PENSTEMON NEWBERRYI, ETC. THE RARE DRABA ASTEROPHORA VAR. ASTEROPHORA ALSO OCCURS HERE.			
General:	100 PLANTS OBSERVED ON S SLOPE OF PEAK IN 2011. 150-200 PLANTS ESTIMATED IN 2012; POP ESTIMATE DIFFICULT DUE TO SPARSELY SCATTERED PLANTS ACROSS SCREE SLOPES. COLLECTIONS FROM "JOBS SISTER" AND "JOBS SISTER PEAK" ARE ATTRIBUTED HERE.			
Owner/Manager:	USFS			



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Occurrence No.	11	Map Index:	73338	EO Index:	74305	Element Last Seen:	2006-09-12
Occ. Rank:	Unknown			Presence:	Presumed Extant	Site Last Seen:	2006-09-12
Occ. Type:	Natural/Native occurrence			Trend:	Unknown	Record Last Updated:	2009-01-06
Quad Summary:	Freel Peak (3811978)						
County Summary:	El Dorado						
Lat/Long:	38.79636 / -119.96513				Accuracy:	non-specific area	
UTM:	Zone-11 N4298356 E242484				Elevation (ft):	7750	
PLSS:	T11N, R18E, Sec. 14, SW (M)				Acres:	36.0	
Location:	HWY 89, 1.2 MILES WEST OF THE ALPINE COUNTY LINE, NEAR LUTHER PASS AND GRASS LAKE.						
Detailed Location:	MAPPED BY CNDDB ~1.2 ROAD MILES WEST OF THE ALPINE COUNTY LINE.						
Ecological:	PINE FOREST AND WET MEADOW. GROWING IN AN OPEN, DRY, FLAT, ROCKY AREA.						
General:	MENTIONED AS "COMMON" IN 2006. NEEDS FIELDWORK.						
Owner/Manager:	USFS-LAKE TAHOE BMU						
Occurrence No.	12	Map Index:	82708	EO Index:	83711	Element Last Seen:	2009-07-25
Occ. Rank:	Fair			Presence:	Presumed Extant	Site Last Seen:	2009-07-25
Occ. Type:	Natural/Native occurrence			Trend:	Unknown	Record Last Updated:	2011-05-27
Quad Summary:	Freel Peak (3811978)						
County Summary:	El Dorado						
Lat/Long:	38.86287 / -119.91021				Accuracy:	80 meters	
UTM:	Zone-11 N4305585 E247490				Elevation (ft):	9500	
PLSS:	T12N, R18E, Sec. 25, NE (M)				Acres:	0.0	
Location:	ALONG THE TAHOE RIM TRAIL JUST NW OF FREEL PEAK.						
Detailed Location:							
Ecological:	OPEN, BARREN SUBALPINE / ALPINE.						
General:	10 PLANTS OBSERVED BETWEEN THIS OCCURRENCE AND OCCURRENCE #4 IN 2009. A 1970 TAYLOR COLLECTION FROM "FREEL PEAK, 10,000 FT" AND A 2006 MATSON PHOTO FROM "FREEL PEAK, ON APPROACH FROM FOUNTAIN PLACE, 9600 FT" ARE ALSO ATTRIBUTED HERE.						
Owner/Manager:	USFS-LAKE TAHOE BMU						



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Erigeron miser

Element Code: PDAST3M2K0

starved daisy

Listing Status: **Federal:** None

CNDDDB Element Ranks: **Global:** G3?

State: None

State: S3?

Other: Rare Plant Rank - 1B.3, USFS_S-Sensitive

Habitat: **General:** UPPER MONTANE CONIFEROUS FOREST.

Micro: ROCKY, GRANITIC OUTCROPS. 1550-2775 M.

Occurrence No. 24 **Map Index:** 97677 **EO Index:** 99007 **Element Last Seen:** 1913-07-18

Occ. Rank: Unknown **Presence:** Presumed Extant **Site Last Seen:** 1913-07-18

Occ. Type: Natural/Native occurrence **Trend:** Unknown **Record Last Updated:** 2015-10-01

Quad Summary: Echo Lake (3812071), Pyramid Peak (3812072), Emerald Bay (3812081), Rockbound Valley (3812082)

County Summary: El Dorado

Lat/Long: 38.88350 / -120.12897 **Accuracy:** 3/5 mile

UTM: Zone-10 N4307768 E749036 **Elevation (ft):**

PLSS: T12N, R17E, Sec. 17 (M) **Acres:** 0.0

Location: SLOPE ABOVE SUZY LAKE, TAHOE.

Detailed Location: EXACT LOCATION UNKNOWN. MAPPED AS BEST GUESS BY CNDDDB AROUND SUZIE LAKE SOUTHWEST OF LAKE TAHOE BASED ON A 1913 SMILEY COLLECTION.

Ecological:

General: ONLY SOURCE OF INFORMATION FOR THIS SITE IS A 1913 SMILEY COLLECTION. NEEDS FIELDWORK.

Owner/Manager: USFS-LAKE TAHOE BMU



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Cryptantha crymophila

Element Code: PDBOR0A0R0

subalpine cryptantha

Listing Status: **Federal:** None

CNDDB Element Ranks: **Global:** G3

State: None

State: S3

Other: Rare Plant Rank - 1B.3

Habitat: **General:** SUBALPINE CONIFEROUS FOREST.

Micro: ON DRY TALUS OF VOLCANIC FORMATION. 2680-3295 M.

Occurrence No. 9 **Map Index:** 58020 **EO Index:** 58045 **Element Last Seen:** 2013-08-12

Occ. Rank: Unknown **Presence:** Presumed Extant **Site Last Seen:** 2013-08-12

Occ. Type: Natural/Native occurrence **Trend:** Unknown **Record Last Updated:** 2019-01-02

Quad Summary: Freel Peak (3811978)

County Summary: Alpine

Lat/Long: 38.75463 / -119.89845 **Accuracy:** 80 meters

UTM: Zone-11 N4293538 E248130 **Elevation (ft):** 8950

PLSS: T10N, R19E, Sec. 4, SW (M) **Acres:** 5.0

Location: ON COLUMNAR FORMATION JUST EAST OF PICKETT PEAK, ABOVE HOPE VALLEY.

Detailed Location: "ON RIDGELINE OF PEAK ~500 M SE OF SADDLE SE OF PICKETT PEAK. PLANTS FOUND WITHIN 50 M NNE FACE OF NARROW, STEEP RIDGELINE OF BROKEN VOLCANIC COLUMNAR FORMATION." MAPPED ACCORDING TO 2013 ROWE COORDINATES; POINT IS AT W EDGE OF OCCURRENCE.

Ecological: HABITAT IS AREA OF GRAVELLY AND LOAMY SOILS FOUND BETWEEN COBBLE AND BOULDERS OF DRY TALUS OF BROKEN COLUMNAR VOLCANICS. ASSOCIATED WITH ELYMUS ELYMOIDES, PHLOX DIFFUSA, AGERATINA OCCIDENTALIS, RIBES CEREUM, SYMPHORICARPOS, ETC.

General: ABOUT 60 PLANTS OBSERVED IN 2013. A 1973 TAYLOR COLLECTION FROM "JUST TO THE EAST OF PICKETT PEAK" IS ALSO ATTRIBUTED TO THIS SITE.

Owner/Manager: USFS-HUMBOLDT-TOIYABE NF



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Arabis rigidissima var. demota

Element Code: PDBRA061R1

Galena Creek rockcress

Listing Status: **Federal:** None

CNDDDB Element Ranks: **Global:** G3T3Q

State: None

State: S1

Other: Rare Plant Rank - 1B.2, USFS_S-Sensitive

Habitat: **General:** BROADLEAFED UPLAND FOREST, UPPER MONTANE CONIFEROUS FOREST.

Micro: WELL-DRAINED, STONY SOIL UNDERLAIN BY BASIC VOLCANIC ROCK. 2270-2805 M.

Occurrence No.	3	Map Index:	95692	EO Index:	96831	Element Last Seen:	2012-XX-XX
Occ. Rank:	Fair	Presence:	Presumed Extant	Site Last Seen:	2015-09-24		
Occ. Type:	Natural/Native occurrence	Trend:	Unknown	Record Last Updated:	2018-03-22		

Quad Summary: South Lake Tahoe (3811988)

County Summary: El Dorado

Lat/Long:	38.93407 / -119.91226	Accuracy:	specific area
UTM:	Zone-11 N4313494 E247565	Elevation (ft):	9200
PLSS:	T12N, R18E, Sec. 1, NE (M)	Acres:	17.0

Location: HEAVENLY SKI RESORT; VICINITY OF GONDOLA JUST NORTH AND SOUTH OF ROAD 12N40, JUST WEST OF THE CA/NV STATE LINE.

Detailed Location: LTBMU POP ARRID 3A-C. MAPPED BY CNDDDB AS 3 POLYGONS ACCORDING TO 2009 HEARD AND JENNINGS COORDINATES/MAP AND 2012 COORDINATES. N POLYGON NEEDS CONFIRMATION; COORDINATES DO NOT MATCH WRITTEN DESCRIPTION FOR THIS SITE ACC TO HEARD & JENNINGS.

Ecological: FORB AND GRAMINOID COVER IS SPARSE. GRANITE-SAND OPEN AREA SURROUNDED BY PINUS ALBICAULIS, P. CONTORTA, P. MONTICOLA, ERIOGONUM SP., ARABIS PLATYSPERMA, PHLOX SP., AND PERENNIAL GRASSES. PLANTS FOUND AT LOWER EDGE OF ARCTOSTAPHYLOS STAND.

General: N POLY: 2 PLANTS IN 2005, 0 IN 2009, 2012, 2014, & 2015; KEY TO B. LYALLII, B. SPARSIFLORA, & B. PINETORUM. MIDDLE POLY: 2 PLANTS IN 2009, 0 IN 2012 & 2015; KEY TO A. HOWELLII & A. PINETORUM. S POLY: 5 ARRID/ARPL HYBRIDS SEEN IN 2012.

Owner/Manager: USFS-LAKE TAHOE BMU

Occurrence No.	4	Map Index:	95693	EO Index:	96832	Element Last Seen:	2009-08-07
Occ. Rank:	Fair	Presence:	Presumed Extant	Site Last Seen:	2014-08-15		
Occ. Type:	Natural/Native occurrence	Trend:	Unknown	Record Last Updated:	2018-03-29		

Quad Summary: South Lake Tahoe (3811988)

County Summary: El Dorado

Lat/Long:	38.92050 / -119.92196	Accuracy:	specific area
UTM:	Zone-11 N4312015 E246675	Elevation (ft):	8800
PLSS:	T12N, R18E, Sec. 01, SE (M)	Acres:	9.0

Location: HEAVENLY SKI RESORT; ALONG POWDERBOWL LIFT LINE NEAR END OF ROAD 13N52L, ABOUT 2 MILES WEST OF THE CA/NV STATE LINE.

Detailed Location: LTBMU POPULATION ARRID 4A & 4B. MAPPED BY CNDDDB ACCORDING TO 2009 HEARD COORDINATES, IN THE NW 1/4 OF THE SE 1/4 OF SECTION 1.

Ecological: ASSOCIATED WITH PINUS MONTICOLA, ARCTOSTAPHYLOS NEVADENSIS (DOMINANT SHRUB), PENSTEMON SP., CERCOCARPUS LEDIFOLIUS, AND BROMUS SP. SEVERAL LARGE BOULDERS IN AREA. BOECHERA ELKOENSIS IS ABUNDANT IN THE AREA.

General: E PORTION OF POLYGON: 1 PLANT SEEN IN 2005, 0 PLANTS IN 2009. W PORTION OF POLYGON: 2 PLANTS SEEN IN 2009; LIKELY HYBRIDS SINCE THERE IS A. PLATYSPERMA AROUND. ALL PLANTS KEY TO A. PLATYSPERMA COMPLEX IN 2012 & 2014; POSSIBLE MIS-ID.

Owner/Manager: USFS-LAKE TAHOE BMU

Draba asterophora var. asterophora

Element Code: PDBRA110D1

Tahoe draba



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Listing Status:	Federal: None	CNDDB Element Ranks:	Global: G2T2?
	State: None		State: S2?
	Other: Rare Plant Rank - 1B.2, USFS_S-Sensitive		
Habitat:	General: ALPINE BOULDER AND ROCK FIELD, SUBALPINE CONIFEROUS FOREST.		
	Micro: ON OPEN TALUS SLOPES, ROCK OUTCROPS, AND CREVICES. ON DECOMPOSED GRANITE. 2770-3505 M.		

Occurrence No.	1	Map Index: 14533	EO Index: 20540	Element Last Seen:	2015-08-25
Occ. Rank:	Good		Presence: Presumed Extant	Site Last Seen:	2015-08-25
Occ. Type:	Natural/Native occurrence		Trend: Unknown	Record Last Updated:	2016-08-26

Quad Summary:	Freel Peak (3811978)
County Summary:	Alpine, El Dorado

Lat/Long:	38.85922 / -119.8956	Accuracy:	specific area
UTM:	Zone-11 N4305139 E248746	Elevation (ft):	10200
PLSS:	T12N, R19E, Sec. 31, W (M)	Acres:	171.0

Location:	VICINITY OF FREEL PEAK, CARSON RANGE, SE OF LAKE TAHOE.
Detailed Location:	MAPPED BY CNDDB AS 4 POLYGONS ACCORDING TO 2015 LTBMU DIGITAL DATA, AND 2009, 2011, & 2012 COORDINATES. INCLUDES FOREST SERVICE POPULATIONS DRASA1A-D, 10.
Ecological:	ON GRANITIC SCREE, MOSTLY BETWEEN 10,000 FEET AND THE SUMMIT. ALPINE FELL-FIELDS WITH PINUS ALBICAULIS, PENSTEMON SP., ERYSIMUM PERENNE, PHLOX SPP, AND ERIOGONUM SPP. VERY SPARSE VEGETATION GROWING WHERE DRABA DOMINATES.
General:	UNKNOWN NUMBER SEEN IN 1978, 5,000 PLANTS SEEN IN 1990, 5000+ IN 1993, <10,000 IN 1997, 4000+ IN 2004 & 2009, 5200+ IN 2015. S-MOST & E-MOST POLYGONS: 200-500 PLANTS IN 2011, 1650-1950+ IN 2012. INCLUDES FORMER OCCS #2, 3 & 8.
Owner/Manager:	USFS-LAKE TAHOE BMU

Occurrence No.	4	Map Index: 14554	EO Index: 20536	Element Last Seen:	2015-09-24
Occ. Rank:	Good		Presence: Presumed Extant	Site Last Seen:	2015-09-24
Occ. Type:	Natural/Native occurrence		Trend: Unknown	Record Last Updated:	2016-09-08

Quad Summary:	Freel Peak (3811978)
County Summary:	El Dorado

Lat/Long:	38.8719 / -119.88754	Accuracy:	specific area
UTM:	Zone-11 N4306524 E249490	Elevation (ft):	9400
PLSS:	T12N, R19E, Sec. 30, SE (M)	Acres:	9.0

Location:	SOUTH END OF STAR LAKE, ON SLOPE BELOW JOBS SISTERS RIDGE, CARSON RANGE, SE OF LAKE TAHOE.
Detailed Location:	MAPPED BY CNDDB AS 4 POLYGONS ACCORDING TO A 2003 GROSS MAP, 2009 & 2012 COORDINATES, AND 2015 USFS DATA. INCLUDES FOREST SERVICE POPULATIONS DRASA1I, 1J, 1L & 1M. GROSS (2003) NOTES THAT THERE ARE PROBABLY MORE PLANTS HIGHER UP SLOPE.
Ecological:	SUBALPINE CONIFEROUS MOUNTAIN HEMLOCK FOREST. ASSOCIATES INCLUDE TSUGA MERTENSIANA, PINUS ALBICAULIS, CASSIOPE MERTENSIANA, JUNCUS PARRYI, TONESTUS EXIMIUS, HIERACIUM HORRIDUM, JUNCUS PARRYI, OXYRIA DIGYNA, PENSTEMON NEWBERRYI, ETC.
General:	POP #S FOR PORTIONS OF SITE: >2000 PLANTS SEEN IN 1991, >500 IN 1992, >1000 IN 1993, >1138 IN 2003, 1340-1590 IN 2009, 6 PLANTS IN W POLYGON IN 2010, 1245 PLANTS IN TWO SE POLYGONS IN 2012, 1000+ PLANTS IN 2015.
Owner/Manager:	USFS-LAKE TAHOE BMU



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Occurrence No.	7	Map Index:	51156	EO Index:	51156	Element Last Seen:	1989-07-12
Occ. Rank:	Excellent			Presence:	Presumed Extant	Site Last Seen:	1989-07-12
Occ. Type:	Natural/Native occurrence			Trend:	Unknown	Record Last Updated:	2003-04-29
Quad Summary:	Woodfords (3811977)						
County Summary:	Alpine						
Lat/Long:	38.85813 / -119.86301				Accuracy:	non-specific area	
UTM:	Zone-11 N4304929 E251570				Elevation (ft):	10000	
PLSS:	T12N, R19E, Sec. 33, SW (M)				Acres:	85.8	
Location:	NORTH AND NORTHWEST FACING SLOPES OF JOBS PEAK, ALONG RIDGE CONNECTING TO JOBS SISTER, CARSON RANGE, SE OF LAKE TAHOE.						
Detailed Location:	MAPPED BY CNDDDB ACCORDING TO T-R-S PROVIDED BY DOYLE: T12N R19E NE 1/4 OF THE SE 1/4 OF SECTION 32 AND THE NW 1/4 OF THE SW 1/4 OF SECTION 33.						
Ecological:	ALPINE PLANT COMMUNITY WITH LOW GROWING FLOWERING PLANTS. SOME TSUGA MERTENSIANA AND PINUS ALBICAULIS ALSO PRESENT. DECOMPOSED GRANITIC SOILS AND ROCK OUTCROPS, AREA SPARSE OF VEGETATION OVERALL.						
General:	MORE THAN 2000 PLANTS OBSERVED BY DOYLE IN 1989. THIS SITE COULD BE CONSIDERED PART OF THE POPULATION ON JOBS SISTER (OCCURRENCE #1) ACCORDING TO SOURCE (BUT IT IS MORE THAN 0.25 MI AWAY).						
Owner/Manager:	USFS-HUMBOLDT-TOIYABE NF						

Occurrence No.	9	Map Index:	51158	EO Index:	51158	Element Last Seen:	2015-08-25
Occ. Rank:	Good			Presence:	Presumed Extant	Site Last Seen:	2015-08-25
Occ. Type:	Natural/Native occurrence			Trend:	Unknown	Record Last Updated:	2016-08-26
Quad Summary:	Freel Peak (3811978)						
County Summary:	El Dorado						
Lat/Long:	38.86444 / -119.91727				Accuracy:	specific area	
UTM:	Zone-11 N4305779 E246884				Elevation (ft):	9600	
PLSS:	T12N, R18E, Sec. 25, NE (M)				Acres:	18.0	
Location:	APPROXIMATELY 0.7 TO 1.7 AIR MILES NORTHWEST OF FREEL PEAK, SOUTH OF TRIMMER PEAK, CARSON RANGE, SE OF LAKE TAHOE.						
Detailed Location:	MAPPED AS 8 POLYGONS ACCORDING TO A 2004 GROSS MAP & 2015 DIGITAL DATA (5 EASTERN POLYGONS) AND 2011 & 2012 COORDINATES (3 WESTERN POLYGONS). INCLUDES FOREST SERVICE POPULATIONS: DRASA1E, 1F, 1G, 1H, 1K, 1N.						
Ecological:	DRY GRANITIC SCREE. DOMINANT PLANT SPECIES INCLUDE ARABIS PLATYSERMA, CHAENACTIS SP, ERIOGONUM INCANUM, E. LOBBII, PINUS ALBICAULIS, POLYGONUM SHASTENSE, SILENE SP., CALYPTRIDUM UMBELLATUM, CASTILLEJA NANA, CAREX SP, ETC.						
General:	1000+ IN 1989, 500 IN 1990, ~400 IN 1993. 5 EASTERN POLYGONS: A TOTAL OF 2204 PLANTS OBSERVED IN 2004, 1105-2255 PLANTS IN 2009, 5000+ IN 2015. 3 WESTERN POLYGONS: 224 PLANTS IN 2011 AND 168 PLANTS IN 2012.						
Owner/Manager:	USFS-LAKE TAHOE BMU						



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Occurrence No.	10	Map Index:	51164	EO Index:	51164	Element Last Seen:	2015-09-24
Occ. Rank:	Good			Presence:	Presumed Extant	Site Last Seen:	2015-09-24
Occ. Type:	Natural/Native occurrence			Trend:	Unknown	Record Last Updated:	2016-08-26
Quad Summary:	South Lake Tahoe (3811988)						
County Summary:	Alpine, El Dorado						
Lat/Long:	38.92414 / -119.90311			Accuracy:	specific area		
UTM:	Zone-11 N4312367 E248324			Elevation (ft):	9800		
PLSS:	T12N, R18E, Sec. 1, E (M)			Acres:	111.0		
Location:	SOUTH AND EAST OF HEAVENLY SKI RESORT, CARSON RANGE, SE OF LAKE TAHOE.						
Detailed Location:	MAPPED AS 12 POLYGONS ACC TO 2002 MILLER MAP, 2004 GROSS MAP, AND 2003, 2005, 2009, 2010, 2013, 2014 & 2015 COORDINATE INFO/DIGITAL DATA. SITE CONTAINS FS POP DRASA2 (SUB-POP A-F, H-K, N-P). PLANTS THRIVE ON AREAS OF DISTURBANCE.						
Ecological:	WHITEBARK PINE ZONE DOMINATED BY PINUS ALBICAULIS AND POLYGONUM SHASTENSE BUT MORE COMMON ON EXPOSED, UNFORESTED, SLIDING GRANITIC SAND, OFTEN WITH NO ASSOCIATED SPECIES ON NORTH TO NORTHEAST-FACING SLOPES WHERE SNOW ACCUMULATES.						
General:	1000 PLANTS OBSERVED IN 2002 BY MILLER. >980 IN 2003, >2600 IN 2004, 502 IN 2005, ~3140-5290 IN 2009. 780 IN S-MOST POLYGON IN 2010. 183 PLANTS IN 3 SUBPOPULATIONS IN 2013. 16,342+ PLANTS ESTIMATED IN 2014, ~6,628 IN 2015.						
Owner/Manager:	USFS-LAKE TAHOE BMU,TOIYABE NF						

Occurrence No.	15	Map Index:	88739	EO Index:	89747	Element Last Seen:	2013-07-30
Occ. Rank:	Good			Presence:	Presumed Extant	Site Last Seen:	2013-07-30
Occ. Type:	Natural/Native occurrence			Trend:	Unknown	Record Last Updated:	2016-08-26
Quad Summary:	Freel Peak (3811978)						
County Summary:	El Dorado						
Lat/Long:	38.81787 / -119.94635			Accuracy:	specific area		
UTM:	Zone-11 N4300691 E244193			Elevation (ft):	9100		
PLSS:	T11N, R18E, Sec. 12, NW (M)			Acres:	6.0		
Location:	APPROXIMATELY 400 METERS SOUTH OF SOUTHERN EDGE OF HELL HOLE MEADOW, 3.7 AIR MILES SSW OF FREEL PEAK, CARSON RANGE.						
Detailed Location:	IN THE FAR WEST HALF OF THE NW 1/4 OF SECTION 12. LTBMU POPULATION DRASA4.						
Ecological:	VERY STEEP (40-50 DEGREES) SCREE CHUTE. THIN LOOSE LAYER OF DG SCREE ON TOP AND INTERSPERSED WITH MANY GRANITE BOULDERS. NORTH-FACING SLOPE. ASSOCIATED WITH PINUS ALBICAULIS, TSUGA MERTENSIANA, ERIOGONUM LOBBII, LUZULA DIVARICATA, ETC.						
General:	250+ PLANTS OBSERVED IN 2011, 300+ PLANTS ESTIMATED IN 2013. POPULATION IN SCREE CHUTE WHICH IS BORDERED BY BOULDER WALLS ON BOTH SIDES AND EXTENDS BELOW AND TO THE EAST, SPORADICALLY CLUSTERED OVER 180 METERS.						
Owner/Manager:	USFS-LAKE TAHOE BMU						



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Occurrence No.	16	Map Index:	88740	EO Index:	89749	Element Last Seen:	2011-08-17
Occ. Rank:	Good			Presence:	Presumed Extant	Site Last Seen:	2011-08-17
Occ. Type:	Natural/Native occurrence			Trend:	Unknown	Record Last Updated:	2016-09-08
Quad Summary:	Freel Peak (3811978)						
County Summary:	El Dorado						
Lat/Long:	38.86541 / -119.88155				Accuracy:	specific area	
UTM:	Zone-11 N4305788 E249986				Elevation (ft):	10500	
PLSS:	T12N, R19E, Sec. 32, NW (M)				Acres:	1.0	
Location:	APPROXIMATELY 400 METERS NE OF JOBS SISTER AND APPROX 900 METERS SSE OF STAR LAKE, EAST OF FREEL PEAK, CARSON RANGE.						
Detailed Location:	IN THE FAR NW 1/4 OF THE NW 1/4 OF SECTION 32. LTBMU POPULATION DRASA1P.						
Ecological:	STEEP, SOUTH-FACING ALPINE SCREE SLOPE OF LOOSE, DECOMPOSED GRANITE AND SCATTERED BOULDERS. AREA OPEN AND EXPOSED. ASSOCIATES INCL PINUS ALBICAULIS, ERIOGONUM LOBBII, HULSEA ALGIDA, MIMULUS NUTTALLII VAR. GRACILIS, AND CHAENACTIS ALPIGENA.						
General:	300 PLANTS OBSERVED IN 2011. POPULATION COVERS A 50 X 20 METER AREA.						
Owner/Manager:	USFS-LAKE TAHOE BMU						

Draba asterophora var. macrocarpa

Element Code: PDBRA110D2

Cup Lake draba

Listing Status:	Federal:	None	CNDDDB Element Ranks:	Global:	G2T1
	State:	None		State:	S1
	Other:	Rare Plant Rank - 1B.1, USFS_S-Sensitive			
Habitat:	General:	SUBALPINE CONIFEROUS FOREST.			
	Micro:	IN RELATIVELY DEEP SOIL IN THE SHADE OF GRANITIC ROCKS. 2605-2745 M.			

Occurrence No.	1	Map Index:	14247	EO Index:	6778	Element Last Seen:	1993-08-20
Occ. Rank:	Good			Presence:	Presumed Extant	Site Last Seen:	1993-08-20
Occ. Type:	Natural/Native occurrence			Trend:	Unknown	Record Last Updated:	2008-11-10
Quad Summary:	Echo Lake (3812071)						
County Summary:	El Dorado						
Lat/Long:	38.82668 / -120.09384				Accuracy:	specific area	
UTM:	Zone-10 N4301557 E752285				Elevation (ft):	8800	
PLSS:	T11N, R17E, Sec. 03, SW (M)				Acres:	19.0	
Location:	CUP LAKE, SOUTHWEST OF UPPER ECHO LAKE, SOUTH OF LAKE TAHOE.						
Detailed Location:	PLANT GROWING FROM NEARLY LAKE LEVEL TO 100' UPSLOPE IN OPEN CONDITIONS AMONG GRANITE BOULDERS ALONG THE EAST, SOUTH, AND SOUTHWEST SIDES OF THE LAKE. SITE IS WITHIN THE DESOLATION WILDERNESS.						
Ecological:	SUBALPINE PLANT COMMUNITY. ASSOCIATES INCLUDE TSUGA MERTENSIANA, CAREX, CRYPTOGRAMMA ACROSTICHOIDES, MIMULUS LEWISII, STREPTANTHUS TORTUOSUS, ARABIS PLATYSPERMA, ETC. SOILS ARE DECOMPOSED GRANITE WITH GRANITE BLOCKS INTERMIXED.						
General:	20 PLANTS SEEN IN ONE COLONY IN 1978, 3 PLANTS IN SMALL COLONY IN 1989, 1000 PLANTS IN TWO COLONIES IN 1990, AND 1000+ PLANTS IN TWO COLONIES IN 1993.						
Owner/Manager:	USFS-ELDORADO NF						



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Occurrence No.	2	Map Index:	14268	EO Index:	12302	Element Last Seen:	2014-08-18
Occ. Rank:	Excellent			Presence:	Presumed Extant	Site Last Seen:	2014-08-18
Occ. Type:	Natural/Native occurrence			Trend:	Unknown	Record Last Updated:	2016-08-11
Quad Summary:	Echo Lake (3812071)						
County Summary:	El Dorado						
Lat/Long:	38.83179 / -120.08125				Accuracy:	specific area	
UTM:	Zone-10 N4302159 E753360				Elevation (ft):	8700	
PLSS:	T11N, R17E, Sec. 03, NE (M)				Acres:	24.0	
Location:	VICINITY OF SAUCER LAKE AND EXTENDING FOR ABOUT HALF A MILE WEST, SOUTH OF UPPER ECHO LAKE, SOUTH OF LAKE TAHOE.						
Detailed Location:	MAPPED BY CNDDB AS 11 POLYGONS ACCORDING TO A 2004 GROSS MAP AND 2009-2014 COORDINATES/DIGITAL DATA. INCLUDES FS POP #DRASM1A-F, I-K. SOME 2009/2014 FORMS SAY SEEDS WERE <15MM; PORTION OF SITE MAY CONTAIN VAR. ASTEROPHORA.						
Ecological:	GRANITIC BOULDERS. ASSOC INCLUDE ACHNATHERUM OCCIDENTALIS, ARABIS PLATYSPERMA, ARNICA LONGIFOLIA, CAREX SP., CRYPTANTHA AFFINIS, JUNCUS PARRYI, LUZULA DIVARICATA, PENSTEMON NEWBERRYI, PINUS ALBICAULIS, POA SECUNDA, SAMBUCUS RACEMOSA, ETC.						
General:	POPULATION NUMBERS FOR PORTIONS OF OCCURRENCE: PLANTS ABUNDANT IN 1981, 1000 PLANTS IN 1990, 1000+ IN 1993, >1500 IN 2004, 1145-2295 IN 2009, 1000+ IN 2010, 4250-5250+ IN 2011, 3880-4880 IN 2012, 867 IN 2013, 1923 IN 2014.						
Owner/Manager:	USFS-ELDORADO NF						

Occurrence No.	3	Map Index:	72818	EO Index:	73685	Element Last Seen:	2004-07-27
Occ. Rank:	Unknown			Presence:	Presumed Extant	Site Last Seen:	2011-09-28
Occ. Type:	Natural/Native occurrence			Trend:	Unknown	Record Last Updated:	2013-04-11
Quad Summary:	Echo Lake (3812071)						
County Summary:	El Dorado						
Lat/Long:	38.83422 / -120.10157				Accuracy:	specific area	
UTM:	Zone-10 N4302372 E751587				Elevation (ft):	9000	
PLSS:	T11N, R17E, Sec. 04, NE (M)				Acres:	9.0	
Location:	NORTH SLOPE OF RALSTON PEAK, SOUTH OF LAKE TAHOE.						
Detailed Location:	MAPPED ACCORDING TO A 2004 GROSS MAP. SITE WAS MAPPED BY GROSS USING A GPS POINT & BEARING TAKEN FROM THE TOP OF RALSTON PEAK. THIS IS FOREST SERVICE POPULATION DRASM1G.						
Ecological:							
General:	ORIGINALLY FOUND BY BRUCE POTTER IN 2004. NOT MUCH KNOWN ABOUT THE POPULATION; THERE COULD BE A FAIR NUMBER OF PLANTS AT BASE OF CLIFFS. NEED MORE INFORMATION TO GET POPULATION SIZE, DISTURBANCES, ETC. NONE OBSERVED IN 2010 OR 2011.						
Owner/Manager:	USFS-LAKE TAHOE BMU						



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Occurrence No.	4	Map Index:	88746	EO Index:	89760	Element Last Seen:	2012-08-23
Occ. Rank:	Good			Presence:	Presumed Extant	Site Last Seen:	2012-08-23
Occ. Type:	Natural/Native occurrence			Trend:	Unknown	Record Last Updated:	2013-04-11
Quad Summary:	Echo Lake (3812071)						
County Summary:	El Dorado						
Lat/Long:	38.83339 / -120.06838				Accuracy:	specific area	
UTM:	Zone-10 N4302373 E754472				Elevation (ft):	8550	
PLSS:	T11N, R17E, Sec. 02, NE (M)				Acres:	2.0	
Location:	TALKING MOUNTAIN, BETWEEN LOWER ECHO LAKE AND SAUCER LAKE, SOUTH OF LAKE TAHOE.						
Detailed Location:	NEAR THE CENTER OF THE NE 1/4 OF SECTION 2. THIS IS FOREST SERVICE POPULATION DRASM 1H.						
Ecological:	STEEP CHUTES WITH GRANITE BEDROCK AND BOULDERS WITH COMPACT SAND AND GRAVEL IN CHUTE. ASSOCIATED WITH TSUGA MERTENSIANA, JUNCUS PARRYI, CRYPTOGRAMMA ACROSTICHOIDES, SAMBUCUS RACEMOSA, ARABIS PLATYSERMA, PENSTEMON NEWBERRYI, ETC.						
General:	500-800 PLANTS OBSERVED IN 2011. 500-600 PLANTS OBSERVED IN 2012. BORDERING CHUTES TO THE EAST AND WEST WERE ALSO SURVEYED IN 2012 BUT NO PLANTS WERE FOUND.						
Owner/Manager:	USFS-ELDORADO NF						

<i>Rorippa subumbellata</i>		Element Code: PDBRA270M0	
Tahoe yellow cress			
Listing Status:	Federal:	None	CNDDB Element Ranks: Global: G1
	State:	Endangered	State: S1
	Other:	Rare Plant Rank - 1B.1, SB_BerrySB-Berry Seed Bank, SB_CalBG/RSABG-California/Rancho Santa Ana Botanic Garden, USFS_S-Sensitive	
Habitat:	General:	LOWER MONTANE CONIFEROUS FOREST, MEADOWS AND SEEPS.	
	Micro:	SANDY BEACHES, ON LAKESIDE MARGINS AND IN RIPARIAN COMMUNITIES; ON DECOMPOSED GRANITE SAND. 1895-2410 M.	

Occurrence No.	1	Map Index:	14462	EO Index:	8257	Element Last Seen:	2009-09-10	
Occ. Rank:	Unknown			Presence:	Presumed Extant		Site Last Seen:	2009-09-10
Occ. Type:	Natural/Native occurrence			Trend:	Unknown		Record Last Updated:	2013-11-04
Quad Summary:	South Lake Tahoe (3811988)							
County Summary:	El Dorado, Nevada State							
Lat/Long:	38.96378 / -119.94963				Accuracy:	80 meters		
UTM:	Zone-11 N4316896 E244432				Elevation (ft):	6230		
PLSS:	T13N, R18E, Sec. 27, NW (M)				Acres:	0.0		
Location:	SOUTH OF EDGEWOOD GOLF COURSE CLUBHOUSE, STATELINE, LAKE TAHOE.							
Detailed Location:	EDGEWOOD SITE; OCCURRENCE EXTENDS UP INTO NV. CA EXTENT OF OCCURRENCE MAPPED ACCORDING TO A 1981 MAP BY FERREIRA. 1986 COMMENT FROM FERREIRA STATES THAT THIS SITE IS EXTIRPATED; UNK IF RECENT EDGEWOOD OBSERVATIONS INCLUDE CA PORTION OF OCC.							
Ecological:	IN BEACH SAND WITH PHACELIA FRIGIDA AND PHLOX SP.							
General:	6 PLANTS SEEN IN 1981. NO PLANTS FOUND BY FERREIRA IN 1980'S. POP INFO FOR "EDGEWOOD" SITE (MOST OR ALL PLANTS IN NV): SEEN IN 1979-1988, 1990, 1993, & 1994, NO PLANTS IN 1995 OR 1996, SEEN IN 1999-2009. ADD'L POP INFO AVAILABLE AT CNDDB.							
Owner/Manager:	PVT							



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Occurrence No.	2	Map Index:	14455	EO Index:	20494	Element Last Seen:	2009-09-10
Occ. Rank:	Unknown	Presence:	Presumed Extant	Site Last Seen:		2009-09-10	
Occ. Type:	Natural/Native occurrence	Trend:	Unknown	Record Last Updated:		2013-11-04	
Quad Summary:	South Lake Tahoe (3811988)						
County Summary:	El Dorado						
Lat/Long:	38.95407 / -119.95471			Accuracy:	specific area		
UTM:	Zone-11 N4315832 E243956			Elevation (ft):	6230		
PLSS:	T13N, R18E, Sec. 28 (M)			Acres:	47.0		
Location:	TAHOE MEADOWS AND BIJOU PARK, LAKE TAHOE.						
Detailed Location:	MAPPED AT BIJOU PARK ACCORDING TO A 1981 FERREIRA MAP AND SCATTERED ALONG SHORE OF TAHOE MEADOWS ACCORDING TO 1979 KNAPP MAP & TEXT. LATER OBSERVATIONS AT TAHOE MEADOWS ONLY REPORT PLANTS FROM ALONG DITCH AT NORTHEAST END OF TAHOE MEADOWS.						
Ecological:	ALONG BEACH AND IN BANKS OF DITCH ENTERING LAKE. LAKE INUNDATED IN 1979 AND 1982.						
General:	BIJOU PARK: 1 PLANT SEEN IN 1981, 0 IN 1982. TAHOE MEADOWS: SEEN IN 1979-1981, NO PLANTS IN 1982, SEEN IN 1990 & 1993, NO PLANTS IN 1994-1997, SEEN IN 1998-2009. ADDITIONAL POPULATION INFORMATION AVAILABLE AT CNDDB. INCLUDES FORMER EO#3.						
Owner/Manager:	PVT						

Occurrence No.	4	Map Index:	14433	EO Index:	8255	Element Last Seen:	2015-06-09
Occ. Rank:	Good	Presence:	Presumed Extant	Site Last Seen:		2015-06-09	
Occ. Type:	Natural/Native occurrence	Trend:	Unknown	Record Last Updated:		2017-09-21	
Quad Summary:	South Lake Tahoe (3811988)						
County Summary:	El Dorado						
Lat/Long:	38.94771 / -119.96571			Accuracy:	specific area		
UTM:	Zone-11 N4315157 E242981			Elevation (ft):	6230		
PLSS:	T13N, R18E, Sec. 33, NW (M)			Acres:	6.0		
Location:	TAHOE LAKESHORE LODGE, BETWEEN TIMBER COVE MARINA AND THE TAHOE MARINA INN, SOUTH LAKE TAHOE.						
Detailed Location:	TIMBER COVE SITE. ON THE PROPERTY OF TAHOE LAKESHORE LODGE AND SPA, 930 BALBIJOU RD. 2013 OBSERVATION AT ELEVATION 6242' IS HIGHER THAN PREVIOUS POPULATIONS FOUND BETWEEN 6223' & 6230'; PLANTS TRANSPLANTED TO TYC MITIGATION SITE.						
Ecological:	ON DECOMPOSED GRANITE BEACH WITH SCATTERING OF GRASSES AND FORBS. COARSE SAND. ASSOCIATED WITH ACHILLEA MILLEFOLIUM, CAREX DOUGLASII, CHAMOMILLA SUAVEOLENS, ERIOGONUM NUDUM, GAYOPHYTUM DIFFUSUM, LEYMUS TRITICOIDES, LUPINUS LEPIDUS, ETC.						
General:	PLANTS SEEN IN 1981-1988 AND 1990, NO PLANTS FOUND IN 1993-2001, PLANTS SEEN IN 2002-2005, NO PLANTS IN 2006, PLANTS SEEN IN 2007-2009, 2013 (214 PLANTS) & 2015 (304 PLANTS). ADDITIONAL POPULATION INFORMATION IS AVAILABLE AT CNDDB.						
Owner/Manager:	PVT						



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Occurrence No.	5	Map Index:	14397	EO Index:	8251	Element Last Seen:	2010-08-22
Occ. Rank:	Good			Presence:	Presumed Extant	Site Last Seen:	2010-08-22
Occ. Type:	Natural/Native occurrence			Trend:	Unknown	Record Last Updated:	2013-11-04
Quad Summary:	South Lake Tahoe (3811988), Emerald Bay (3812081)						
County Summary:	El Dorado						
Lat/Long:	38.94241 / -119.99293			Accuracy:	specific area		
UTM:	Zone-11 N4314646 E240601			Elevation (ft):	6230		
PLSS:	T13N, R18E, Sec. 31 (M)			Acres:	41.0		
Location:	EAST TAHOE KEYES, UPPER TRUCKEE MARSH, AND BEACHES OF AL TAHOE, SOUTH LAKE TAHOE.						
Detailed Location:	INCLUDES SITES: TAHOE KEYS, UPPER TRUCKEE WEST, UPPER TRUCKEE EAST, AND REGAN/AL TAHOE. PORTIONS OF OCCURRENCE MAY BE EXTIRPATED. ADDITIONAL POPULATION INFORMATION IS AVAILABLE AT CNDDDB.						
Ecological:	ON DECOMPOSED GRANITE BEACH, DENSE GROWTH OF RUSHES/GRASSES ABOVE BEACH, AND IN MOIST BACKSHORE AREAS.						
General:	POPULATION INFORMATION IS FOR ENTIRE OCCURRENCE, ACTUAL YEARLY PRESENCE VARIES BETWEEN SITES: VARIOUS SITES SEEN IN 1979-1989 & 1993-2007, SEEN AT ALL 4 SITES IN 2008 & 2009. 2010 OBS ATTRIB HERE. INCLUDES FORMER EO #7, 8, & 23.						
Owner/Manager:	PVT, CTC						
Occurrence No.	6	Map Index:	14422	EO Index:	8254	Element Last Seen:	1979-XX-XX
Occ. Rank:	None			Presence:	Extirpated	Site Last Seen:	2009-09-10
Occ. Type:	Natural/Native occurrence			Trend:	Unknown	Record Last Updated:	2013-11-04
Quad Summary:	South Lake Tahoe (3811988)						
County Summary:	El Dorado						
Lat/Long:	38.94545 / -119.97324			Accuracy:	80 meters		
UTM:	Zone-11 N4314928 E242319			Elevation (ft):	6229		
PLSS:	T13N, R18E, Sec. 32, SE (M)			Acres:	0.0		
Location:	EL DORADO BEACH, BETWEEN BIJOU AND AL TAHOE, LAKE TAHOE.						
Detailed Location:	FOUND IN A HEAVILY USED PORTION OF THE BEACH, NEAR THE SECTION LINE BETWEEN SECTIONS 32 AND 33, APPROXIMATELY 50 FT EAST OF A DRAINAGE CULVERT DISCHARGE ON THE BEACH. PLANT WAS WEDGED BETWEEN TWO ROCKS IN AN AREA OF HEAVY FOOT TRAFFIC.						
Ecological:	ON BEACH WEDGED BETWEEN ROCKS.						
General:	1 PLANT SEEN IN 1979. NO PLANTS FOUND DURING SURVEYS IN 1980-1983, 1985, 1986, 1988, 1990, 1993-2009. SITE WAS EXTENSIVELY DISTURBED IN THE EARLY 1980'S BY A BANK STABILIZATION PROJECT.						
Owner/Manager:	PVT, CITY OF SOUTH LAKE TAHOE						



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Occurrence No.	9	Map Index:	14346	EO Index:	3908	Element Last Seen:	2009-09-10
Occ. Rank:	Fair			Presence:	Presumed Extant	Site Last Seen:	2009-09-10
Occ. Type:	Natural/Native occurrence			Trend:	Unknown	Record Last Updated:	2017-08-28
Quad Summary:	Emerald Bay (3812081)						
County Summary:	El Dorado						
Lat/Long:	38.9365 / -120.01811			Accuracy:	specific area		
UTM:	Zone-10 N4313959 E758463			Elevation (ft):	6230		
PLSS:	T12N, R18E, Sec. 5, NW (M)			Acres:	4.0		
Location:	EAST END OF POPE BEACH AND LIGHTHOUSE SHORES, TAHOE KEYS, LAKE TAHOE.						
Detailed Location:	POPE BEACH (USFS) AND LIGHTHOUSE (PVT) SITES. ON BOTH SIDES OF PROPERTY LINE BETWEEN POPE BEACH AND TAHOE KEYS. IN 1993 SEEN ALONG CHAIN LINK FENCE 150 FEET FROM LAKE. IN 1999 PLANTS FOUND ALONG BACKSHORE POOL ABOUT 2 METERS FROM THE WATER.						
Ecological:	ON BEACH WITH PHACELIA FRIGIDA, LEPIDIUM, SALIX, AND GRASSES.						
General:	POPE BEACH: SEEN IN 1979, NONE IN 1980, SEEN IN 1981, 1986, 1988, 1990-1994, 0 IN 1995-2000, SEEN IN 2001-2006, 0 IN 2007-2009. LIGHTHOUSE: SEEN IN 1979, 0 IN 1980, SEEN IN 1981, 0 IN 1995-1998, SEEN IN 1999-2009. ADD'L POP INFO AT CNDDDB.						
Owner/Manager:	PVT, USFS-LAKE TAHOE BMU						

Occurrence No.	10	Map Index:	14215	EO Index:	3105	Element Last Seen:	18XX-XX-XX
Occ. Rank:	None			Presence:	Possibly Extirpated	Site Last Seen:	1994-XX-XX
Occ. Type:	Natural/Native occurrence			Trend:	Unknown	Record Last Updated:	2000-03-02
Quad Summary:	Emerald Bay (3812081)						
County Summary:	El Dorado						
Lat/Long:	38.91207 / -120.11204			Accuracy:	80 meters		
UTM:	Zone-10 N4310985 E750405			Elevation (ft):	7900		
PLSS:	T12N, R17E, Sec. 04, SW (M)			Acres:	0.0		
Location:	TALLAC LAKE, SOUTHWEST OF LAKE TAHOE.						
Detailed Location:	MAPPED ALONG THE SHORELINE OF TALLAC LAKE BECAUSE TYPICALLY HABITAT IS ALONG THE BEACHES OF LAKES.						
Ecological:							
General:	PLANT SEEN IN THE 1800'S (CITATION BY STUCKEY). KNAPP COULD NOT FIND IN 1980, HE PRESUMES IT TO BE EXTIRPATED. SEARCHED FOR BUT NOT SEEN IN 1994.						
Owner/Manager:	USFS-ELDORADO NF						



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Occurrence No.	11	Map Index:	14293	EO Index:	3911	Element Last Seen:	2016-09-08
Occ. Rank:	Good			Presence:	Presumed Extant	Site Last Seen:	2016-09-08
Occ. Type:	Natural/Native occurrence			Trend:	Unknown	Record Last Updated:	2017-09-14
Quad Summary:	Emerald Bay (3812081)						
County Summary:	El Dorado						
Lat/Long:	38.94326 / -120.06815				Accuracy:	specific area	
UTM:	Zone-10 N4314568 E754101				Elevation (ft):	6230	
PLSS:	T13N, R17E, Sec. 26 (M)				Acres:	54.0	
Location:	BETWEEN CASCADE CREEK AND KIVA BEACH, LAKE TAHOE.						
Detailed Location:	MAPPED AS MANY POLYGONS FROM 1990 & 1991 MAPS, AND LTBMU DIGITAL DATA. SURVEYS INCLUDE PLANTED INDIVIDUALS. NW POLYGON IS NONSPECIFIC; MAPPED ALONG SHORELINE OF CALIFORNIA TAHOE CONSERVANCY PROPERTY. INCLUDES FORMER OCCS #12 & 32.						
Ecological:	ON COARSE SANDY BEACHES OF DECOMPOSED GRANITE, ALONG CREEK & EDGES OF MEADOW. GROWING WITH JUNCUS BALTICUS, VERBASCUM THAPSUS, RORIPPA CURVISILIQUA, EPILOBIUM SP, ETC. ADJACENT LAGOON AND CREEK MOUTH HAVE DRASTICALLY ALTERED HABITAT.						
General:	PLANTS PRESENT AT VARIOUS SITES FROM 1979-2009. POPULATION COUNT FOR PORTIONS OF OCCURRENCE: ABOUT 2321 PLANTS IN 2013, ~3718 IN 2014, AND ~3245 IN 2016. ADDITIONAL POPULATION INFO AVAILABLE AT CNDDB.						
Owner/Manager:	USFS-LAKE TAHOE BMU, PVT						

Occurrence No.	13	Map Index:	14314	EO Index:	3910	Element Last Seen:	2008-XX-XX
Occ. Rank:	Unknown			Presence:	Presumed Extant	Site Last Seen:	2009-09-10
Occ. Type:	Natural/Native occurrence			Trend:	Unknown	Record Last Updated:	2013-11-15
Quad Summary:	Emerald Bay (3812081)						
County Summary:	El Dorado						
Lat/Long:	38.93822 / -120.03881				Accuracy:	non-specific area	
UTM:	Zone-10 N4314091 E756661				Elevation (ft):	6229	
PLSS:	T13N, R17E, Sec. 25, S (M)				Acres:	27.0	
Location:	JAMESON BEACH AND KIVA BEACH, NEAR CAMP RICHARDSON, LAKE TAHOE.						
Detailed Location:	KIVA BEACH/VALHALLA AND JAMESON SITES. W POLYGON: KIVA BEACH BETWEEN POPE ESTATE AND VALHALLA ESTATE, MAPPED ACCORDING TO 1979 MAP. E POLYGON: NON-SPECIFIC, MAPPED BY CNDDB PARALLEL TO JAMESON BEACH RD BASED ON SITE NAME AND VAGUE 2010 MAP.						
Ecological:	ON BEACH. ONLY NARROW, MARGINAL HABITAT REMAINS.						
General:	KIVA BEACH/VALHALLA (INCL EO#11): SEEN IN 1979, 1981, 1991, 1992, NONE IN 1995-2002, SEEN IN 2003-2005, 0 IN 2006 & 2007, SEEN IN 2008, 0 IN 2009. JAMESON: UNK WHEN ORIGINALLY SEEN (PLANTED?), NONE IN 2001-2004, 13 IN 2006, 0 IN 2007-2009.						
Owner/Manager:	USFS-LAKE TAHOE BMU, PVT						



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Occurrence No.	14	Map Index:	14245	EO Index:	3914	Element Last Seen:	2016-07-19
Occ. Rank:	Fair			Presence:	Presumed Extant	Site Last Seen:	2016-07-19
Occ. Type:	Natural/Native occurrence			Trend:	Unknown	Record Last Updated:	2017-08-25
Quad Summary:	Emerald Bay (3812081)						
County Summary:	El Dorado						
Lat/Long:	38.95981 / -120.09601				Accuracy:	specific area	
UTM:	Zone-10 N4316328 E751626				Elevation (ft):	6225	
PLSS:	T13N, R17E, Sec. 22, NW (M)				Acres:	10.0	
Location:	NW SIDE OF EMERALD BAY, 0.5 & 0.7 AIR MILE NE OF FANNETTE ISLAND.						
Detailed Location:	ABOUT 25 FEET NORTHEAST OF BOAT DOCK AT EMERALD BAY BOAT CAMP, AS WELL AS IN BEACH COVE TO NE. MAPPED AS 2 POLYGONS BY CNDDB, IN THE NW 1/4 OF SECTION 22.						
Ecological:	PLANTS UNDER A LEANING SNAG, AS WELL AS IN OPEN SAND ON HIGHER PART OF BEACH.						
General:	S POLY: 15 PLANTS SEEN IN 1979, NONE SEEN IN 1980-83 & 1986, 8 IN '90, 0 IN '91-92, UNK # IN '93-94, 0 IN '95-96, '98, '00, 5 IN '01, UNK # IN '02, 0 IN '03, 24 IN '04, 77 IN '05, 0 IN '06-07, 6 IN '08, 0 IN '09. N POLY: 100 IN 2016.						
Owner/Manager:	DPR-EMERALD BAY SP						

Occurrence No.	15	Map Index:	14226	EO Index:	3915	Element Last Seen:	2009-09-10
Occ. Rank:	Good			Presence:	Presumed Extant	Site Last Seen:	2009-09-10
Occ. Type:	Natural/Native occurrence			Trend:	Unknown	Record Last Updated:	2013-11-05
Quad Summary:	Emerald Bay (3812081)						
County Summary:	El Dorado						
Lat/Long:	38.95008 / -120.10539				Accuracy:	specific area	
UTM:	Zone-10 N4315222 E750847				Elevation (ft):	6230	
PLSS:	T13N, R17E, Sec. 28, NE (M)				Acres:	11.0	
Location:	SOUTHWEST EMERALD BAY, FROM VIKINGSHOLM BOAT HARBOR EAST ABOUT 0.3 MILE, LAKE TAHOE.						
Detailed Location:	EAGLE CREEK/AVALANCHE SITE. PLANTS FOUND SOUTHEAST OF MOUTH OF EAGLE CREEK IN VICINITY OF AVALANCHE DEBRIS. MAPPED IN THE NORTH 1/2 OF THE NE 1/4 OF SECTION 28.						
Ecological:	FINE TO COARSE-GRAINED SAND. ASSOCIATES VARY FROM SITE TO SITE AND INCLUDE CAREX, RUMEX, ALNUS, SALIX, VERBASCUM, EPILOBIUM, AND MIMULUS.						
General:	15 PLANTS IN 1979, 27 IN 1990, 150 IN 1991, 220 IN 1992, 155 IN 1993, UNK # IN 1994, 0 PLANTS IN 1995, 1996, 1998, & 2000, 51 IN 2001, 35 IN 2002, 265 IN 2003, 493 IN 2004, 601 IN 2005, 71 IN 2006, 404 IN 2007, 354 IN 2008, 373 IN 2009.						
Owner/Manager:	DPR-EMERALD BAY SP						



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Occurrence No.	16	Map Index:	14228	EO Index:	3426	Element Last Seen:	2009-09-10
Occ. Rank:	Good	Presence:	Presumed Extant	Site Last Seen:		2009-09-10	
Occ. Type:	Natural/Native occurrence	Trend:	Unknown	Record Last Updated:		2013-11-07	
Quad Summary:	Emerald Bay (3812081), Meeks Bay (3912011)						
County Summary:	El Dorado						
Lat/Long:	39.00159 / -120.10327			Accuracy:	specific area		
UTM:	Zone-10 N4320946 E750849			Elevation (ft):	6230		
PLSS:	T13N, R17E, Sec. 04, SE (M)			Acres:	7.5		
Location:	SOUTH END OF RUBICON BAY, NORTHERN BOUNDARY OF D.L. BLISS STATE PARK, LAKE TAHOE.						
Detailed Location:	N COLONY = RUBICON BAY SITE: 200 FEET FROM LAKE EDGE AND JUST N OF THE N BOUNDARY OF DL BLISS STATE PARK. S COLONY = DL BLISS SP SITE: A TRANSPLANT SITE JUST INSIDE THE PARK BOUNDARY AT LESTER BEACH, ADJACENT TO THE DAY USE PARKING AREA.						
Ecological:	ON DECOMPOSED GRANITE BEACH WITH PHACELIA HASTATA SSP. COMPACTA ON FLAT GROUND. ADJACENT TO WILLOW THICKET WITH A JUNCUS "TURF" AT THE BASE.						
General:	N COLONY: PLANTS SEEN IN 1981-1983, 1986, 1988, 1990, 1993, 1994, NONE IN 1998, SEEN IN 1999, NONE IN 2000, SEEN IN 2001-2009. S COLONY: NONE IN 1979-1988, PLANTED IN 1989, PLANTS SEEN IN 1990, 1993-2009. ADD'L POP INFO AVAILABLE AT CNDDB.						
Owner/Manager:	DPR-DL BLISS SP, PVT						

Occurrence No.	17	Map Index:	14204	EO Index:	3427	Element Last Seen:	2015-06-10
Occ. Rank:	Unknown	Presence:	Presumed Extant	Site Last Seen:		2015-06-10	
Occ. Type:	Natural/Native occurrence	Trend:	Unknown	Record Last Updated:		2017-08-25	
Quad Summary:	Meeks Bay (3912011)						
County Summary:	El Dorado						
Lat/Long:	39.03686 / -120.12305			Accuracy:	specific area		
UTM:	Zone-10 N4324806 E749013			Elevation (ft):	6230		
PLSS:	T14N, R17E, Sec. 29, NE (M)			Acres:	17.0		
Location:	MEEKS BAY, LAKE TAHOE.						
Detailed Location:	MEEKS BAY AND MEEKS BAY ENCLOSURE SITES. POPULATIONS INCLUDE BOTH NATURALLY OCCURRING AND PLANTED INDIVIDUALS. MAPPED AS 4 POLYGONS IN THE SE 1/4 SECTION 20 & THE NE 1/4 SECTION 29. ADDITIONAL POPULATION INFORMATION IS AVAILABLE AT CNDDB.						
Ecological:	ON ROCKY, DECOMPOSED GRANITE BEACH, ALONG SANDBAR, IN SANDY AREAS BETWEEN BOULDERS, AND NEAR MOUTH OF CREEK. ASSOCIATES INCLUDE RUMEX, SALIX, RORIPPA CURVISILICUA, ALNUS INCANA, MIMULUS GUTTATUS, JUNCUS, SOLIDAGO CANADENSIS, ETC.						
General:	TYPE. MEEKS BAY SITE: SEEN IN 1979-1981, 0 IN 1982-83 & 1986, SEEN IN 1988, 1990-92, 0 IN 1993 -94, SEEN IN 1996-2003, 0 IN 2004, SEEN IN 2005, 0 IN 2006, SEEN IN 2007-09, 2013, 2015. MEEKS BAY ENCLOSURE: SEEN IN 1999-2004, 0 IN 2005-09.						
Owner/Manager:	USFS-LAKE TAHOE BMU						



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Occurrence No.	18	Map Index:	14198	EO Index:	13187	Element Last Seen:	2009-09-10
Occ. Rank:	Unknown			Presence:	Presumed Extant	Site Last Seen:	2009-09-10
Occ. Type:	Natural/Native occurrence			Trend:	Unknown	Record Last Updated:	2013-11-07
Quad Summary:	Meeks Bay (3912011), Homewood (3912012)						
County Summary:	El Dorado, Placer						
Lat/Long:	39.06790 / -120.12705				Accuracy:	specific area	
UTM:	Zone-10 N4328241 E748557				Elevation (ft):	6229	
PLSS:	T14N, R17E, Sec. 08, SW (M)				Acres:	13.3	
Location:	TAHOMA, ON SMALL PRIVATE BEACHES ABOUT 0.1 MILE NORTHWEST PLACER / EL DORADO COUNTY LINE, LAKE TAHOE.						
Detailed Location:	IN 1981, ONE PLANT OBSERVED GROWING NEXT TO A ROCK & CEMENT PATH AT THE BASE OF SOME WILLOWS. MAPPED ACCORDING TO A 1979 KNAPP MAP AND A 1981 FERREIRA MAP.						
Ecological:	WHITE, SANDY, DECOMPOSED GRANITE BEACH.						
General:	2 PLANTS SEEN IN 1979, 1 PLANT IN 1980 & 1981, 0 PLANTS SEEN IN 1982, 1983, 1986, 1988, 1990, UNK # OF PLANTS SEEN IN 1993 & 1994, 0 PLANTS IN 1995-2001, 7 IN 2003, 3 IN 2004, 500 IN 2005, 0 IN 2006 & 2007, 245 IN 2008, 339 IN 2009.						
Owner/Manager:	PVT						

Occurrence No.	24	Map Index:	32012	EO Index:	3948	Element Last Seen:	2016-08-02
Occ. Rank:	Good			Presence:	Presumed Extant	Site Last Seen:	2016-08-02
Occ. Type:	Natural/Native occurrence			Trend:	Unknown	Record Last Updated:	2017-09-26
Quad Summary:	Emerald Bay (3812081)						
County Summary:	El Dorado						
Lat/Long:	38.97783 / -120.09404				Accuracy:	specific area	
UTM:	Zone-10 N4318334 E751733				Elevation (ft):	6230	
PLSS:	T13N, R17E, Sec. 15, NW (M)				Acres:	1.0	
Location:	DL BLISS STATE PARK, ABOUT 1 MILE NORTHWEST OF EMERALD POINT, LAKE TAHOE.						
Detailed Location:	ALONG THE SHORE OF A SHALLOW COVE SOUTH OF LIGHTHOUSE. MAPPED BY CNDDDB FROM 2016 MCNAIR COORDINATES IN THE NW 1/4 OF THE NW 1/4 OF SECTION 15.						
Ecological:	GROWING IN COARSE GRANITE SAND ON BENCH AT THE BASE OF SLOPE LOCATED ABOUT 15 FEET FROM THE WATER'S EDGE. PRIMARILY ON BARE SAND WITH SOME CAREX, ALNUS, AND CHRYSOTHAMNUS.						
General:	33 PLANTS SEEN IN 1992. 84 PLANTS SEEN IN 1993. 12 PLANTS SEEN IN 2016.						
Owner/Manager:	DPR-DL BLISS SP						



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Occurrence No.	25	Map Index:	32013	EO Index:	3947	Element Last Seen:	2016-07-19
Occ. Rank:	Good			Presence:	Presumed Extant	Site Last Seen:	2016-07-19
Occ. Type:	Natural/Native occurrence			Trend:	Unknown	Record Last Updated:	2017-08-28
Quad Summary:	Emerald Bay (3812081)						
County Summary:	El Dorado						
Lat/Long:	38.96564 / -120.084			Accuracy:	specific area		
UTM:	Zone-10 N4317008 E752647			Elevation (ft):	6225		
PLSS:	T13N, R17E, Sec. 22, NE (M)			Acres:	8.0		
Location:	EMERALD POINT AND EAGLE POINT, MOUTH OF EMERALD BAY, LAKE TAHOE.						
Detailed Location:	7 COLONIES TOTAL. 4 COLONIES MAPPED ON EMERALD POINT AND 3 COLONIES MAPPED ON EAGLE POINT. ADDITIONAL POPULATION INFORMATION IS AVAILABLE AT CNDDb. INCLUDES FORMER OCCURRENCE #S 26 & 27.						
Ecological:	IN COARSE SAND AMONG SMALL COBBLES AND SANDY PATCHES OF DECOMPOSED GRANITE. ASSOCIATED WITH VERBASCUM, TRIFOLIUM, SALIX, POPULUS TREMULOIDES, GRASSES, AND CAREX. PLANTS ABOUT 15 TO 25 FEET FROM THE LAKE AND 1 FOOT ABOVE THE WATER LEVEL.						
General:	EMERALD POINT: SEEN IN 1979, 0 IN 1980-86, SEEN IN 1990-94, 0 IN 1995-98 & 2000, SEEN IN 2001-05, 2007-09 & 2016. EAGLE POINT: SEEN IN 1991-94, 0 IN 1995-1998, 2000-03, SEEN IN 2004-05, 0 IN 2006-07, SEEN IN 2008-09.						
Owner/Manager:	DPR-EMERALD BAY SP, DL BLISS						

Occurrence No.	33	Map Index:	70991	EO Index:	71909	Element Last Seen:	2008-XX-XX
Occ. Rank:	Unknown			Presence:	Presumed Extant	Site Last Seen:	2009-09-10
Occ. Type:	Natural/Native occurrence			Trend:	Unknown	Record Last Updated:	2013-11-08
Quad Summary:	Meeks Bay (3912011)						
County Summary:	El Dorado						
Lat/Long:	39.03135 / -120.11600			Accuracy:	80 meters		
UTM:	Zone-10 N4324214 E749641			Elevation (ft):	6225		
PLSS:	T14N, R17E, Sec. 29, E (M)			Acres:	0.0		
Location:	MEEKS BAY VISTA, SOUTH OF MEEKS BAY, LAKE TAHOE.						
Detailed Location:	ABOUT 100 YARDS SOUTH OF THE MEEKS BAY VISTA/RUBICON BAY PROPERTY LINE.						
Ecological:	JUST ABOVE WATER LINE ON A WHITE SAND POCKET BEACH.						
General:	15 PLANTS SEEN IN 1980 AND 1981, NO PLANTS FOUND IN 1982, 1983, 1986, & 1990, UNKNOWN NUMBER OF PLANTS SEEN IN 1993, 0 PLANTS IN 1994, 1998, 2000-2002, 230 PLANTS IN 2003, 0 IN 2005-2007, 3 IN 2008, 0 IN 2009.						
Owner/Manager:	PVT						



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Occurrence No.	34	Map Index:	90858	EO Index:	91896	Element Last Seen:	2014-06-21
Occ. Rank:	Fair			Presence:	Presumed Extant	Site Last Seen:	2014-06-21
Occ. Type:	Natural/Native occurrence			Trend:	Unknown	Record Last Updated:	2017-08-25
Quad Summary:	Meeks Bay (3912011)						
County Summary:	El Dorado						
Lat/Long:	39.05524 / -120.11356				Accuracy:	specific area	
UTM:	Zone-10 N4326872 E749770				Elevation (ft):	6230	
PLSS:	T14N, R17E, Sec. 16, SW (M)				Acres:	1.0	
Location:	MOUTH OF GENERAL CREEK, SUGAR PINE POINT STATE PARK, LAKE TAHOE.						
Detailed Location:	MAPPED BY CNDDB IN THE SW 1/4 OF THE SW 1/4 OF PROJECTED SECTION 16 BASED ON 2014 DEAN COORDINATES. ONLY AREAS NEAR CREEK MOUTH WERE SURVEYED IN 2014; MORE PLANTS MAY OCCUR IN AREA.						
Ecological:	UPLAND SANDY HABITAT NORTH AND SOUTH OF MOUTH OF CREEK.						
General:	13 PLANTS OBSERVED IN 2001, 383 PLANTS IN 2002, 104 IN 2003, 86 IN 2004, 908 IN 2005, 12 IN 2006, 69 IN 2007, 80 IN 2008, 56 IN 2009, 36 IN 2014.						
Owner/Manager:	DPR-Z'BERG SUGAR PINE POINT SP						

Occurrence No.	35	Map Index:	A6100	EO Index:	107854	Element Last Seen:	2014-09-04
Occ. Rank:	Unknown			Presence:	Presumed Extant	Site Last Seen:	2014-09-04
Occ. Type:	Natural/Native occurrence			Trend:	Unknown	Record Last Updated:	2017-08-25
Quad Summary:	Emerald Bay (3812081)						
County Summary:	El Dorado						
Lat/Long:	38.93674 / -120.02515				Accuracy:	specific area	
UTM:	Zone-10 N4313966 E757851				Elevation (ft):	6235	
PLSS:	T12N, R18E, Sec. 6, NE (M)				Acres:	1.0	
Location:	POPE BEACH PICNIC AREA NORTH OF TRUCKEE MARSH, LAKE TAHOE.						
Detailed Location:	AT PICNIC TABLES ABOUT 200 FEET WEST OF THE BATHROOM, JUST SOUTH OF PARKING AREA. MAPPED BY CNDDB FROM 2014 & 2016 LTBMU DIGITAL DATA, IN THE NE 1/4 OF THE NE 1/4 OF PROJECTED SECTION 6.						
Ecological:	WITH CAREX SP, WILLOWS AND PINES. AREA USED TO BE FENCED.						
General:	12 PLANTS OBSERVED IN 2014.						
Owner/Manager:	USFS-LAKE TAHOE BMU						

Occurrence No.	36	Map Index:	A6103	EO Index:	107855	Element Last Seen:	2016-08-02
Occ. Rank:	Fair			Presence:	Presumed Extant	Site Last Seen:	2016-08-02
Occ. Type:	Natural/Native occurrence			Trend:	Unknown	Record Last Updated:	2017-09-26
Quad Summary:	Emerald Bay (3812081)						
County Summary:	El Dorado						
Lat/Long:	38.98684 / -120.09443				Accuracy:	specific area	
UTM:	Zone-10 N4319333 E751668				Elevation (ft):	6230	
PLSS:	T13N, R17E, Sec. 10, W (M)				Acres:	1.0	
Location:	BEACH COVE ABOUT 1.5 AIR MILES NNW OF TIP OF EMERALD POINT, D.L. BLISS STATE PARK.						
Detailed Location:	MAPPED BY CNDDB IN THE WEST HALF OF SECTION 10, BASED ON 2016 MCNAIR COORDINATES.						
Ecological:	IN OPEN SAND ON HIGHER PART OF BEACH.						
General:	5 PLANTS OBSERVED IN 2016.						
Owner/Manager:	DPR-DL BLISS SP						



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Boechera tularensis

Element Code: PDBRA40130

Tulare rockcress

Listing Status: **Federal:** None

CNDDDB Element Ranks: **Global:** G3

State: None

State: S3

Other: Rare Plant Rank - 1B.3, USFS_S-Sensitive

Habitat: **General:** SUBALPINE CONIFEROUS FOREST, UPPER MONTANE CONIFEROUS FOREST.

Micro: ROCKY SLOPES. 1825-3355 M.

Occurrence No. 27 **Map Index:** 83738 **EO Index:** 84760 **Element Last Seen:** 1930-10-12

Occ. Rank: Unknown **Presence:** Presumed Extant **Site Last Seen:** 1930-10-12

Occ. Type: Natural/Native occurrence **Trend:** Unknown **Record Last Updated:** 2011-09-20

Quad Summary: Emerald Bay (3812081)

County Summary: El Dorado

Lat/Long: 38.95730 / -120.09376 **Accuracy:** 1 mile

UTM: Zone-10 N4316056 E751830 **Elevation (ft):**

PLSS: T13N, R17E, Sec. 22 (M) **Acres:** 0.0

Location: EMERALD BAY, LAKE TAHOE.

Detailed Location: EXACT LOCATION UNKNOWN. MAPPED BY CNDDDB AS BEST GUESS AROUND EMERALD BAY.

Ecological:

General: ONLY SOURCE OF INFORMATION FOR THIS SITE IS A 1930 WIGGINS COLLECTION. NEEDS FIELDWORK.

Owner/Manager: UNKNOWN



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Brasenia schreberi

Element Code: PDCAB01010

watershield

Listing Status: **Federal:** None

CNDDDB Element Ranks: **Global:** G5

State: None

State: S3

Other: Rare Plant Rank - 2B.3

Habitat: **General:** FRESHWATER MARSHES AND SWAMPS.

Micro: AQUATIC KNOWN FROM WATER BODIES BOTH NATURAL AND ARTIFICIAL IN CALIFORNIA. 1-2180 M.

Occurrence No.	8	Map Index:	82075	EO Index:	83065	Element Last Seen:	2017-08-17
Occ. Rank:	Excellent	Presence:	Presumed Extant	Site Last Seen:		2017-08-17	
Occ. Type:	Natural/Native occurrence	Trend:	Unknown	Record Last Updated:		2018-10-19	

Quad Summary: Echo Lake (3812071)

County Summary: El Dorado

Lat/Long:	38.81912 / -120.04402	Accuracy:	specific area
UTM:	Zone-10 N4300857 E756639	Elevation (ft):	7150
PLSS:	T11N, R17E, Sec. 12, NE (M)	Acres:	12.0

Location: LAKE AUDRIAN, NEAR ECHO SUMMIT.

Detailed Location: 0.3 AIR MILE S OF HWY. 50, APPROXIMATELY 1 MILE W OF ECHO SUMMIT. MAPPED BY CNDDDB TO THE EXTENT OF THE LAKE BASED ON 2017 ELDORADO NF DIGITAL DATA, IN THE NE 1/4 SECTION 12 AND THE NW 1/4 SECTION 7.

Ecological:

General: UNKNOWN NUMBER OF PLANTS SEEN IN 2010. 1000+ PLANTS SEEN IN 2017, COVERING ABOUT 50% OF LAKE. TOM BARR STATES THIS IS AN EXCELLENT BRASENIA OCCURRENCE. TWO 1964 SMITH COLLECTIONS FROM "AUDRAIN LAKE" ATTRIBUTED TO THIS SITE.

Owner/Manager: USFS-ELDORADO NF

Occurrence No.	9	Map Index:	82076	EO Index:	83066	Element Last Seen:	2002-07-13
Occ. Rank:	Unknown	Presence:	Presumed Extant	Site Last Seen:		2002-07-13	
Occ. Type:	Natural/Native occurrence	Trend:	Unknown	Record Last Updated:		2018-10-17	

Quad Summary: Emerald Bay (3812081)

County Summary: El Dorado

Lat/Long:	38.93580 / -120.03262	Accuracy:	specific area
UTM:	Zone-10 N4313840 E757206	Elevation (ft):	6240
PLSS:	T12N, R18E, Sec. 06, N (M)	Acres:	4.0

Location: TRUCKEE MARSH AT POPE BEACH, SOUTH LAKE TAHOE, E OF CAMP RICHARDSON.

Detailed Location: ON W END OF MARSH. MAPPED AS 1 POLYGON BASED ON 4 SETS OF COORDINATES FROM VEGETATION PLOTS.

Ecological: AQUATIC BED AND EMERGENT WETLAND. NUPHAR LUTEA SSP. POLYSEPALA IS ABUNDANT WITH BRASENIA SCHREBERI. POLYGONUM AMPHIBIUM, JUNCUS EFFUSUS, AND POTAMOGETON SP. ALSO PRESENT.

General: UNKNOWN NUMBER OF PLANTS SEEN IN 2002. 1886 HAGGIN COLLECTION FROM LAKE TAHOE IS ATTRIBUTED TO THIS SITE.

Owner/Manager: USFS-ELDORADO NF

Astragalus austini

Element Code: PDFAB0F120

Austin's astragalus

Listing Status: **Federal:** None

CNDDDB Element Ranks: **Global:** G2G3

State: None

State: S2S3

Other: Rare Plant Rank - 1B.3

Habitat: **General:** ALPINE BOULDER AND ROCK FIELD, SUBALPINE CONIFEROUS FOREST.



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Micro: ROCKY. 2440-2965 M.				
Occurrence No.	2	Map Index: 91188	EO Index: 92238	Element Last Seen: 2011-07-07
Occ. Rank:	Unknown		Presence: Presumed Extant	Site Last Seen: 2011-07-07
Occ. Type:	Natural/Native occurrence		Trend: Unknown	Record Last Updated: 2014-01-06
Quad Summary:	Echo Lake (3812071)			
County Summary:	El Dorado			
Lat/Long:	38.85539 / -120.07145		Accuracy: 1/10 mile	
UTM:	Zone-10 N4304805 E754127		Elevation (ft): 8750	
PLSS:	T12N, R17E, Sec. 26, SW (M)		Acres: 0.0	
Location:	APPROXIMATELY 200 METERS SE OF ECHO PEAK ALONG THE RIDGE TOWARDS FLAGPOLE PEAK, LAKE TAHOE BASIN MANAGEMENT UNIT.			
Detailed Location:	LOCATION DESCRIPTION SAYS "200 METERS SW OF ECHO PEAK" BUT SE BETTER MATCHES REMAINING LOCATION DESCRIPTION OF "ALONG THE RIDGE TOWARDS FLAGPOLE PEAK."			
Ecological:	IN GRANITE SAND BETWEEN LARGE STONES IN FLAT AREA OVERLOOKING MYERS.			
General:	SITE BASED ON A 2011 ROSENGREEN COLLECTION. A 1970 SMITH & NEILSON COLLECTION FROM "SUMMIT AREA ECHO PEAK" IS ALSO ATTRIBUTED TO THIS SITE. NEEDS FIELDWORK.			
Owner/Manager:	USFS-LAKE TAHOE BMU			
Occurrence No.	3	Map Index: 70026	EO Index: 92240	Element Last Seen: 1925-07-06
Occ. Rank:	Unknown		Presence: Presumed Extant	Site Last Seen: 1925-07-06
Occ. Type:	Natural/Native occurrence		Trend: Unknown	Record Last Updated: 2014-01-03
Quad Summary:	Emerald Bay (3812081)			
County Summary:	El Dorado			
Lat/Long:	38.90676 / -120.09849		Accuracy: 4/5 mile	
UTM:	Zone-10 N4310432 E751599		Elevation (ft):	
PLSS:	T12N, R17E, Sec. 09 (M)		Acres: 0.0	
Location:	MT TALLAC, NEAR FALLEN LEAF LAKE, LAKE TAHOE REGION.			
Detailed Location:	EXACT LOCATION UNKNOWN. MAPPED BY CNDDB AS BEST GUESS AT MT TALLAC.			
Ecological:				
General:	ONLY SOURCE OF INFORMATION FOR THIS SITE IS A 1925 HOWELL COLLECTION. NEEDS FIELDWORK.			
Owner/Manager:	USFS-LAKE TAHOE BMU			



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Occurrence No.	4	Map Index:	91196	EO Index:	92247	Element Last Seen:	1976-07-08
Occ. Rank:	Unknown	Presence:	Presumed Extant	Site Last Seen:	1976-07-08	Record Last Updated:	2014-01-06
Occ. Type:	Natural/Native occurrence	Trend:	Unknown				
Quad Summary:	Emerald Bay (3812081)						
County Summary:	El Dorado						
Lat/Long:	38.93822 / -120.11504				Accuracy:	2/5 mile	
UTM:	Zone-10 N4313879 E750052				Elevation (ft):	8400	
PLSS:	T13N, R17E, Sec. 28, SW (M)				Acres:	0.0	
Location:	RIDGE WEST OF GRANITE LAKE, SOUTH OF EMERALD BAY, DESOLATION WILDERNESS AREA.						
Detailed Location:	EXACT LOCATION UNKNOWN. MAPPED BY CNDDDB AS BEST GUESS AROUND RIDGE JUST WEST OF GRANITE LAKE.						
Ecological:	DRY GRAVELLY SOIL OF DECOMPOSED GRANITE.						
General:	ONLY SOURCE OF INFORMATION FOR THIS SITE IS A 1976 SMITH COLLECTION. NEEDS FIELDWORK.						
Owner/Manager:	USFS-LAKE TAHOE BMU						

Phacelia stebbinsii				Element Code: PDHYD0C4D0			
Stebbins' phacelia							
Listing Status:	Federal:	None		CNDDDB Element Ranks:	Global:	G3	
	State:	None			State:	S3	
	Other:	Rare Plant Rank - 1B.2, USFS_S-Sensitive					
Habitat:	General:	LOWER MONTANE CONIFEROUS FOREST, CISMONTANE WOODLAND, MEADOWS AND SEEPS.					
	Micro:	AMONG ROCKS AND RUBBLE ON METAMORPHIC ROCK BENCHES. 605-2320 M.					

Occurrence No.	59	Map Index:	95244	EO Index:	96379	Element Last Seen:	XXXX-XX-XX
Occ. Rank:	Unknown			Presence:	Presumed Extant	Site Last Seen:	XXXX-XX-XX
Occ. Type:	Natural/Native occurrence			Trend:	Unknown	Record Last Updated:	2015-02-17
Quad Summary:	Meeks Bay (3912011), Homewood (3912012)						
County Summary:	El Dorado, Placer						
Lat/Long:	39.04551 / -120.14365				Accuracy:	non-specific area	
UTM:	Zone-10 N4325711 E747198				Elevation (ft):		
PLSS:	T14N, R17E, Sec. 19 (M)				Acres:	2215.0	
Location:	ED Z'BERG SUGAR PINE POINT STATE PARK.						
Detailed Location:	EXACT LOCATION UNKNOWN. MAPPED AS BEST GUESS BY CNDDDB NON-SPECIFICALLY AROUND THE BOUNDARY OF ED Z'BERG SUGAR PINE POINT STATE PARK.						
Ecological:							
General:	ONLY SOURCE OF INFORMATION FOR THIS OCCURRENCE IS A 1989 CHECKLIST OF PLANTS FROM ED Z'BERG SUGAR PINE POINT STATE PARK BY SHOWERS AND BAKKEN. NEEDS FIELDWORK.						
Owner/Manager:	DPR-Z'BERG SUGAR PINE POINT SP						

Scutellaria galericulata				Element Code: PDLAM1U0J0			
marsh skullcap							
Listing Status:	Federal:	None		CNDDDB Element Ranks:	Global:	G5	
	State:	None			State:	S2	
	Other:	Rare Plant Rank - 2B.2					
Habitat:	General:	MARSHES AND SWAMPS, LOWER MONTANE CONIFEROUS FOREST, MEADOWS AND SEEPS.					
	Micro:	SWAMPS AND WET PLACES. 0-1950 M.					



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Occurrence No.	9	Map Index:	43331	EO Index:	43331	Element Last Seen:	2013-08-22
Occ. Rank:	Good			Presence:	Presumed Extant	Site Last Seen:	2013-08-22
Occ. Type:	Natural/Native occurrence			Trend:	Unknown	Record Last Updated:	2017-05-17
Quad Summary:	Emerald Bay (3812081)						
County Summary:	El Dorado						
Lat/Long:	38.93924 / -120.07213				Accuracy:	specific area	
UTM:	Zone-10 N4314111 E753769				Elevation (ft):	6230	
PLSS:	T13N, R17E, Sec. 26, SW (M)				Acres:	18.0	
Location:	TALLAC MARSH, TALLAC CREEK ABOUT 0.3 TO 0.6 MILE UPSTREAM FROM LAKE TAHOE, SOUTH END OF LAKE TAHOE.						
Detailed Location:	MAPPED BY CNDDDB AS 3 POLYGONS IN THE SW 1/4 OF SECTION 26 ACCORDING TO A 1999 PRESTON MAP (SOUTHERN POLYGON) AND 2013 LTBMU DIGITAL DATA (NORTH AND MIDDLE POLYGONS). LAKE TAHOE BASIN MANAGEMENT UNIT OCCURRENCE SCGA1A-C.						
Ecological:	GROWING IN FRESHWATER MARSH AND OPEN MEADOW NEAR STANDING WATER WITH JUNCUS NEVADENSIS, J. COVILLEI VAR. OBTUSATUM, CAREX UTRICULATA, C. SIMULATA, C. ANGUSTATA, C. LANGUINOSA, AND POTENTILLA GRACILIS SSP. FASTIGIATA.						
General:	S POLYGON: 30-50 PLANTS OBSERVED IN 1999. N POLYGON: ABOUT 7200 STEMS IN 2009, 684+ PLANTS IN 2012, 1000 IN 2013. MIDDLE POLYGON: 750 PLANTS ESTIMATED IN 2013. 1902 TEVIS COLLECTION FROM "TALLAC" ATTRIBUTED HERE.						
Owner/Manager:	USFS-LAKE TAHOE BMU						

Occurrence No.	22	Map Index:	62287	EO Index:	62324	Element Last Seen:	2014-08-02
Occ. Rank:	Good			Presence:	Presumed Extant	Site Last Seen:	2014-08-02
Occ. Type:	Natural/Native occurrence			Trend:	Unknown	Record Last Updated:	2017-05-18
Quad Summary:	Emerald Bay (3812081)						
County Summary:	El Dorado						
Lat/Long:	38.87831 / -120.0253				Accuracy:	specific area	
UTM:	Zone-10 N4307479 E758050				Elevation (ft):	6290	
PLSS:	T12N, R18E, Sec. 19, NE (M)				Acres:	19.0	
Location:	ALONG ANGORA CREEK, ABOUT 0.75 MILE WEST OF TWIN PEAKS.						
Detailed Location:	MAPPED BY CNDDDB AS 4 POLYGONS IN THE NE 1/4 OF SECTION 19 AND THE SE 1/4 OF SECTION 18 ACCORDING TO A 2003 SASAKI MAP AND 2014 DEAN DIGITAL DATA.						
Ecological:	NEAR CREEK RUNNING THROUGH MONTANE MEADOW, WITH LODGEPOLE PINE FOREST SURROUNDING. OFTEN WITH DOWNED LOGS AND BRANCHES, AMONG CAREX, OR IN AREAS PREVIOUSLY DISTURBED BY CREEK CHANNEL RESTORATION. ASSOCIATED WITH CAREX, MENTHA ARVENSIS, ETC.						
General:	11,205 PLANTS SEEN IN 2003. UNKNOWN NUMBER OF PLANTS SEEN IN 2006. "SEVERAL PLANTS" SEEN IN 2010. >10,000 PLANTS SEEN IN 2014.						
Owner/Manager:	DPR-WASHOE MEADOWS SP						



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Occurrence No.	31	Map Index:	83682	EO Index:	84710	Element Last Seen:	2011-08-01
Occ. Rank:	Good			Presence:	Presumed Extant	Site Last Seen:	2011-08-01
Occ. Type:	Natural/Native occurrence			Trend:	Unknown	Record Last Updated:	2017-05-18
Quad Summary:	Echo Lake (3812071)						
County Summary:	El Dorado						
Lat/Long:	38.85070 / -120.02966			Accuracy:	80 meters		
UTM:	Zone-10 N4304402 E757771			Elevation (ft):	6400		
PLSS:	T12N, R18E, Sec. 31, NE (M)			Acres:	0.0		
Location:	WEST SIDE OF UPPER TRUCKEE RIVER; ABOUT 0.27 AIR MILE NORTH OF THE JUNCTION OF US-50 AND N UPPER TRUCKEE ROAD, MEYERS.						
Detailed Location:	FROM MEYERS TURN RIGHT ON NORTH UPPER TRUCKEE, RIGHT ON E SAN BERNADINO, RIGHT ON SHAWNEE, RIGHT ON OAXACO. PARK AT END OF OAXACO, WALK DOWN THROUGH FOREST AND OUT INTO MEADOW. MAPPED BY CNDDB FROM 2010 ENGELHARDT COORDINATES.						
Ecological:	FOUND AT EDGE OF WET MEADOW/FEN COMPLEX ADJACENT TO SALIX. OTHER SPECIES INCLUDE CAREX NEBRASCENSIS, CAREX SIMULATA, EPILOBIUM CILIATUM, MIMULUS GUTTATUS, JUNCUS ARCTICUS, AND SALIX SP.						
General:	204 PLANTS OBSERVED IN 2010. 160 PLANTS IN 2011; PLANTS GROWING SLOWLY, NOT AS ROBUST AS AT OTHER SITES. THIS IS LAKE TAHOE BASIN MANAGEMENT UNIT OCCURRENCE SCGA3.						
Owner/Manager:	USFS-LAKE TAHOE BMU						

Occurrence No.	37	Map Index:	A4781	EO Index:	106481	Element Last Seen:	2013-08-22
Occ. Rank:	Good			Presence:	Presumed Extant	Site Last Seen:	2013-08-22
Occ. Type:	Natural/Native occurrence			Trend:	Unknown	Record Last Updated:	2017-05-22
Quad Summary:	Emerald Bay (3812081)						
County Summary:	El Dorado						
Lat/Long:	38.93712 / -120.05841			Accuracy:	specific area		
UTM:	Zone-10 N4313914 E754967			Elevation (ft):	6230		
PLSS:	T13N, R17E, Sec. 36, NW (M)			Acres:	4.0		
Location:	TAYLOR CREEK ABOUT 0.1-0.3 AIR MILE UPSTREAM FROM LAKE TAHOE, NORTH OF FALLEN LEAF LAKE, SOUTH END OF LAKE TAHOE.						
Detailed Location:	MAPPED BY CNDDB AS 3 POLYGONS FROM 2013 LTBMU DIGITAL DATA, IN THE NW 1/4 OF THE NW 1/4 OF SECTION 36 AND THE SW 1/4 OF THE SW 1/4 OF SECTION 25. LAKE TAHOE BASIN MANAGEMENT UNIT OCCURRENCE #SCGA1D-F.						
Ecological:							
General:	IN 2013, ABOUT 150 PLANTS OBSERVED IN WEST POLYGON, <1000 IN MIDDLE POLYGON, AND 1000 IN EAST POLYGON.						
Owner/Manager:	USFS-LAKE TAHOE BMU						



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Occurrence No.	38	Map Index:	A7648	EO Index:	109432	Element Last Seen:	2016-07-19
Occ. Rank:	Fair			Presence:	Presumed Extant	Site Last Seen:	2016-07-19
Occ. Type:	Natural/Native occurrence			Trend:	Unknown	Record Last Updated:	2017-12-19
Quad Summary:	Emerald Bay (3812081)						
County Summary:	El Dorado						
Lat/Long:	38.96889 / -120.08945			Accuracy:	specific area		
UTM:	Zone-10 N4317354 E752163			Elevation (ft):	6225		
PLSS:	T13N, R17E, Sec. 15, SW (M)			Acres:	1.0		
Location:	COVE ON NORTH SIDE OF EMERALD POINT, DL BLISS STATE PARK, WEST SIDE OF TAHOE BASIN.						
Detailed Location:	MAPPED ACCORDING TO 2016 DEAN COORDINATES, IN THE SE 1/4 OF THE SW 1/4 OF SECTION 15.						
Ecological:	SMALL GRAVELLY BEACH WITH A MORE DIVERSE ASSEMBLAGE OF PLANTS THAN THE USUAL SHORES WITHIN DL BLISS STATE PARK. PLANTS GROWING IN LARGE COBBLES (ROCKY HABITAT) AND HALF-WAY UP THE BEACH FROM THE WATER'S EDGE.						
General:	EIGHT STEMS (ABOUT 1/3 OF THE STEMS IN FLOWER) OBSERVED IN 2016. GROWING IN ATYPICAL HABITAT FOR SPECIES; IT IS POSSIBLE THAT PROPAGULES OF SPECIES WASHED DOWN INTO THE LAKE FROM NEARBY MARSHLANDS. POPULATION MAY NOT PERSIST.						
Owner/Manager:	DPR-DL BLISS SP						

Occurrence No.	39	Map Index:	A7649	EO Index:	109433	Element Last Seen:	2016-07-19
Occ. Rank:	Fair			Presence:	Presumed Extant	Site Last Seen:	2016-07-19
Occ. Type:	Natural/Native occurrence			Trend:	Unknown	Record Last Updated:	2017-12-19
Quad Summary:	Emerald Bay (3812081)						
County Summary:	El Dorado						
Lat/Long:	38.96238 / -120.09392			Accuracy:	specific area		
UTM:	Zone-10 N4316619 E751799			Elevation (ft):	6255		
PLSS:	T13N, R17E, Sec. 22, NW (M)			Acres:	1.0		
Location:	COVE ON SOUTH SIDE OF EMERALD POINT, EMERALD BAY STATE PARK, WEST SIDE OF TAHOE BASIN.						
Detailed Location:	MAPPED ACCORDING TO 2016 DEAN COORDINATES, IN THE NW 1/4 OF THE NW 1/4 OF SECTION 22.						
Ecological:	PLANTS GROWING IN LARGE COBBLES (ROCKY HABITAT) AND HALF-WAY UP THE BEACH FROM THE WATER'S EDGE.						
General:	24 STEMS (ABOUT 1/3 OF THE STEMS IN FLOWER) OBSERVED IN 2016. GROWING IN ATYPICAL HABITAT FOR SPECIES; IT IS POSSIBLE THAT PROPAGULES OF SPECIES WASHED DOWN INTO THE LAKE FROM NEARBY MARSHLANDS. POPULATION MAY NOT PERSIST.						
Owner/Manager:	DPR-EMERALD BAY SP						



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Utricularia ochroleuca

Element Code: PDLNT020E0

cream-flowered bladderwort

Listing Status: **Federal:** None

CNDDB Element Ranks: **Global:** G4G5

State: None

State: S1

Other: Rare Plant Rank - 2B.2

Habitat: **General:** MEADOWS AND SEEPS, MARSHES AND SWAMPS.

Micro: MESIC SITES, INCLUDING LAKE MARGINS. 1310-2350 M.

Occurrence No. 5 **Map Index:** 72978 **EO Index:** 73889 **Element Last Seen:** 2004-08-07

Occ. Rank: Unknown **Presence:** Presumed Extant **Site Last Seen:** 2004-08-07

Occ. Type: Natural/Native occurrence **Trend:** Unknown **Record Last Updated:** 2008-11-21

Quad Summary: Freel Peak (3811978)

County Summary: El Dorado

Lat/Long: 38.79527 / -119.96734 **Accuracy:** 80 meters

UTM: Zone-11 N4298241 E242288 **Elevation (ft):** 7710

PLSS: T11N, R18E, Sec. 14, SW (M) **Acres:** 0.0

Location: GRASS LAKE, NEAR LUTHER PASS.

Detailed Location: MAPPED ACCORDING TO COORDINATE INFORMATION MENTIONED IN A 2005 RICE ARTICLE; DATUM UNKNOWN.

Ecological: IN STERILE CONDITION IN A FEW CM OF WATER ON THE FLOATING VEGETATION MAT.

General: A SMALL POPULATION FIRST DOCUMENTED IN 2004.

Owner/Manager: USFS-LAKE TAHOE BMU

Epilobium palustre

Element Code: PDONA060R0

marsh willowherb

Listing Status: **Federal:** None

CNDDB Element Ranks: **Global:** G5

State: None

State: S2

Other: Rare Plant Rank - 2B.3

Habitat: **General:** BOGS AND FENS, MEADOWS AND SEEPS.

Micro: MESIC SITES. 1655-2350 M.

Occurrence No. 1 **Map Index:** 14440 **EO Index:** 43278 **Element Last Seen:** XXXX-XX-XX

Occ. Rank: Unknown **Presence:** Presumed Extant **Site Last Seen:** XXXX-XX-XX

Occ. Type: Natural/Native occurrence **Trend:** Unknown **Record Last Updated:** 2000-07-28

Quad Summary: Freel Peak (3811978)

County Summary: El Dorado

Lat/Long: 38.79104 / -119.96175 **Accuracy:** specific area

UTM: Zone-11 N4297755 E242759 **Elevation (ft):** 7700

PLSS: T11N, R18E, Sec. 23 (M) **Acres:** 292.4

Location: GRASS LAKE. ABOUT 1.2 MILES NORTH OF WATERHOUSE PEAK.

Detailed Location: EXACT LOCATION UNKNOWN. MAPPED IN BOGGY AREAS AROUND GRASS LAKE.

Ecological:

General:

Owner/Manager: USFS-LAKE TAHOE BMU

Element Code: PDONA06180



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Epilobium howellii

subalpine fireweed

Listing Status: **Federal:** None

CNDDB Element Ranks: **Global:** G4

State: None

State: S4

Other: Rare Plant Rank - 4.3

Habitat: **General:** MEADOWS AND SEEPS, SUBALPINE CONIFEROUS FOREST.

Micro: WET MEADOWS, MOSSY SEEPS. 2000-3120 M.

Occurrence No.	17	Map Index:	72779	EO Index:	73619	Element Last Seen:	2007-07-02
Occ. Rank:	Good	Presence:	Presumed Extant	Site Last Seen:		2007-07-02	
Occ. Type:	Natural/Native occurrence	Trend:	Unknown	Record Last Updated:		2008-11-03	

Quad Summary: Freel Peak (3811978)

County Summary: El Dorado

Lat/Long:	38.85572 / -119.94039	Accuracy:	80 meters
UTM:	Zone-11 N4304876 E244845	Elevation (ft):	7640
PLSS:	T12N, R18E, Sec. 25, SW (M)	Acres:	0.0

Location: AT THE END OF FOUNTAIN PLACE/ONEIDAS ROAD, SW OF TRIMMER PEAK.

Detailed Location: MAPPED ACC TO 2007 GPS COORDINATES FROM GROSS & OSBRACK. 2 CLUSTERS OF PLANTS FOUND HERE; THE 1ST CLUSTER IS ON THE S SIDE OF ARMSTRONG PASS TRAILHEAD & E SIDE OF STREAM WHILE THE 2ND CLUSTER IS IN THE DIRT PATH JUST BEFORE TRAILHEAD.

Ecological: 1ST CLUSTER WAS FOUND IN LOW GROWING VEGETATION WITH A W ASPECT AND PARTIAL SHADE; ASSOCIATES INCL SALIX SP., ALNUS INCANA, CAREX SPP, MIMULUS GUTTATUS, EPILOBIUM CILIATUM, SENECIO TRIANGULARIS, ETC. 2ND CLUSTER IN SPARSE, DRY VEGETATION.

General: 50 PLANTS SEEN IN 2007 (25 PLANTS IN EACH COLONY).

Owner/Manager: USFS-LAKE TAHOE BMU

Occurrence No.	18	Map Index:	72780	EO Index:	73620	Element Last Seen:	2006-08-10
Occ. Rank:	Good	Presence:	Presumed Extant	Site Last Seen:		2006-08-10	
Occ. Type:	Natural/Native occurrence	Trend:	Unknown	Record Last Updated:		2008-11-03	

Quad Summary: Freel Peak (3811978)

County Summary: El Dorado

Lat/Long:	38.84559 / -119.93568	Accuracy:	80 meters
UTM:	Zone-11 N4303737 E245218	Elevation (ft):	7800
PLSS:	T12N, R18E, Sec. 36, NW (M)	Acres:	0.0

Location: APPROXIMATELY 0.4 AIR MI SSW OF FOUNTAIN PLACE, NW OF ARMSTRONG PASS.

Detailed Location: DRIVE TO THE END OF FOUNTAIN PLACE RD (ONEIDAS RD), FOLLOW TRAIL BY FS GATE ABOUT 1 MI TO STREAM CROSSING. POPULATION IS LOCATED ON SE SIDE OF SMALL CREEK. MAPPED ACCORDING TO 2006 GPS COORDINATES FROM OSBRACK.

Ecological: SMALL STREAM CROSSING AN EXISTING TRAIL WITH SMALL SHADED OPENING. ASSOCIATED SPECIES FOUND INCLUDE ALNUS INCANA, TRIFOLIUM MONANTHUM V. MONANTHUM, VERATRUM CALIFORNICUM, MIMULUS GUTTATUS, SENECIO TRIANGULARIS, EPILOBIUM CILIATUS, ETC.

General: 100 PLANTS SEEN IN 2006.

Owner/Manager: USFS-LAKE TAHOE BMU



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Occurrence No.	19	Map Index:	72781	EO Index:	73621	Element Last Seen:	2007-07-12
Occ. Rank:	Good			Presence:	Presumed Extant	Site Last Seen:	2007-07-12
Occ. Type:	Natural/Native occurrence			Trend:	Unknown	Record Last Updated:	2008-11-03
Quad Summary:	Freel Peak (3811978)						
County Summary:	El Dorado						
Lat/Long:	38.77469 / -119.99142				Accuracy:	80 meters	
UTM:	Zone-11 N4296025 E240121				Elevation (ft):	7720	
PLSS:	T11N, R18E, Sec. 28, NE (M)				Acres:	0.0	
Location:	ALONG BIG MEADOW CREEK, APPROXIMATELY 0.5 MI SE OF BIG MEADOW.						
Detailed Location:	MAPPED ACCORDING TO 2007 GPS COORDINATES FROM OSBRACK.						
Ecological:	IN A SMALL FOREST OPENING BETWEEN A TRAIL & STREAM. THERE IS MESIC VEGETATION WITH A HIGH % COVER. E. HOWELLII FOUND NEXT TO A PATCH OF VERATRUM CALIFORNICUM. OVERSTORY OF ABIES MAGNIFICA & PINUS CONTORTA SURROUNDING THE OPEN AREA.						
General:	25 PLANTS SEEN IN 2007.						
Owner/Manager:	USFS-LAKE TAHOE BMU						

Occurrence No.	20	Map Index:	72782	EO Index:	73622	Element Last Seen:	2007-08-02
Occ. Rank:	Excellent			Presence:	Presumed Extant	Site Last Seen:	2007-08-02
Occ. Type:	Natural/Native occurrence			Trend:	Unknown	Record Last Updated:	2008-11-03
Quad Summary:	Freel Peak (3811978)						
County Summary:	El Dorado						
Lat/Long:	38.75960 / -119.99458				Accuracy:	80 meters	
UTM:	Zone-11 N4294360 E239792				Elevation (ft):	8223	
PLSS:	T10N, R18E, Sec. 03, NW (M)				Acres:	0.0	
Location:	ALONG BIG MEADOW CREEK JUST N OF THE ELD/ALP COUNTY LINE, APPROXIMATELY 0.9 AIR MI NE OF ROUND LAKE.						
Detailed Location:	MAPPED ACCORDING TO 2007 GPS COORDINATES FROM OSBRACK.						
Ecological:	ON THE SIDE OF A PERENNIAL STREAM IN A SMALL OPENING W/ PARTIAL SHADE. THERE IS AN OVERSTORY OF ABIES MAGNIFICA ALONG THE EDGE OF THE STREAM CORRIDOR. ASSOC SPP INCL MIMULUS GUTTATUS, SENECIO TRIANGULARIS, VERATRUM CALIFORNICUM, ETC.						
General:	25-30 PLANTS SEEN IN 2007.						
Owner/Manager:	USFS-LAKE TAHOE BMU						



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Eriogonum luteolum* var. *saltuarium

Element Code: PDPGN083S4

Jack's wild buckwheat

Listing Status:	Federal: None	CNDDDB Element Ranks:	Global: G5T1
	State: None		State: S1
	Other: Rare Plant Rank - 1B.2, USFS_S-Sensitive		
Habitat:	General: UPPER MONTANE CONIFEROUS FOREST, GREAT BASIN SCRUB.		
	Micro: SANDY, GRANITIC SUBSTRATES. 1885-2225 M.		

Occurrence No.	3	Map Index:	72001	EO Index:	72908	Element Last Seen:	1975-08-23
Occ. Rank:	Unknown	Presence:	Presumed Extant	Site Last Seen:			1975-08-23
Occ. Type:	Natural/Native occurrence	Trend:	Unknown	Record Last Updated:			2018-02-14

Quad Summary: Freel Peak (3811978)

County Summary: Alpine

Lat/Long:	38.79203 / -119.92084	Accuracy:	non-specific area
UTM:	Zone-11 N4297752 E246316	Elevation (ft):	7300
PLSS:	T11N, R18E, Sec. 24 (M)	Acres:	36.0

Location: ALONG HWY 89, 1.5 MILES SE OF LUTHER PASS.

Detailed Location: EXACT LOCATION UNKNOWN. MAPPED BY CNDDDB ALONG HWY 89 TO ENCOMPASS THE ABOVE LOCATION. MAPPED NEAR DANGBERG CAMP. GIVEN ELEVATION IS 7600 FEET BUT 1.5 MILES SE OF LUTHER PASS IS CLOSER TO 7300 FEET.

Ecological: IN SANDY SOIL WITH SALIX, EPILOBIUM, PINUS, AND ABIES.

General: ONLY SOURCE OF INFORMATION FOR THIS SITE IS A 1975 REVEAL COLLECTION. NEEDS FIELDWORK.

Owner/Manager: UNKNOWN



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Erythranthe carsonensis

Element Code: PDPHR01020

Carson Valley monkeyflower

Listing Status: **Federal:** None

CNDDDB Element Ranks: **Global:** G2

State: None

State: S1

Other: Rare Plant Rank - 1B.1, SB_CalBG/RSABG-California/Rancho Santa Ana Botanic Garden

Habitat: **General:** GREAT BASIN SCRUB.

Micro: GRANITIC OPENINGS. 1480 M.

Occurrence No. 1 **Map Index:** 90846 **EO Index:** 91883 **Element Last Seen:** 2011-05-23

Occ. Rank: Unknown **Presence:** Presumed Extant **Site Last Seen:** 2011-05-23

Occ. Type: Natural/Native occurrence **Trend:** Unknown **Record Last Updated:** 2013-11-05

Quad Summary: Woodfords (3811977)

County Summary: Alpine, Nevada State

Lat/Long: 38.85730 / -119.79434

Accuracy: specific area

UTM: Zone-11 N4304652 E257526

Elevation (ft): 4860

PLSS: T12N, R19E, Sec. 36, SE (M)

Acres: 9.0

Location: NORTH OF FREDERICKSBURG ALONG THE CALIFORNIA / NEVADA STATE LINE, CARSON VALLEY.

Detailed Location: PLANTS REPORTED TO OCCUR IN A NORTH-SOUTH PATTERN ALONG STATE BORDER. MAPPED TO ENCOMPASS TWO SETS OF COORDINATES, ONE FROM A 2011 FRAGA COLLECTION AND THE OTHER FROM A SERIES OF 2011 MATSON PHOTOS, IN THE NE 1/4 SE 1/4 SECTION 36.

Ecological: NE-FACING ON 6% SLOPE. SAGEBRUSH SCRUB DOMINATED BY ARTEMISIA TRIDENTATA, WITH PURSHIA TRIDENTATA, RIBES, AND CALYPTRIDUM.

General: ONLY SOURCES OF INFORMATION FOR THIS OCCURRENCE ARE 2011 MATSON PHOTOS AND A 2011 FRAGA COLLECTION.

Owner/Manager: BLM



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Claytonia megarhiza

Element Code: PDPOR030A0

fell-fields claytonia

Listing Status: **Federal:** None

CNDDDB Element Ranks: **Global:** G5

State: None

State: S2

Other: Rare Plant Rank - 2B.3

Habitat: **General:** ALPINE BOULDER AND ROCK FIELD, SUBALPINE CONIFEROUS FOREST.

Micro: IN THE CREVICES BETWEEN ROCKS, ROCKY OR GRAVELLY SOIL. 2560-3505 M.

Occurrence No. 20 **Map Index:** B3178 **EO Index:** 115097 **Element Last Seen:** 1976-07-09

Occ. Rank: Unknown **Presence:** Presumed Extant **Site Last Seen:** 1976-07-09

Occ. Type: Natural/Native occurrence **Trend:** Unknown **Record Last Updated:** 2019-06-04

Quad Summary: Emerald Bay (3812081), Rockbound Valley (3812082)

County Summary: El Dorado

Lat/Long: 38.90673 / -120.12739 **Accuracy:** 2/5 mile

UTM: Zone-10 N4310350 E749093 **Elevation (ft):** 9000

PLSS: T12N, R17E, Sec. 8, N (M) **Acres:** 280.0

Location: NE SIDE OF RIDGE, EAST OF DICK'S PASS, 2 MILES WEST OF MT. TALLAC, DESOLATION WILDERNESS AREA.

Detailed Location: MAPPED AS BEST GUESS JUST EAST OF DICKS PASS AND TO INCLUDE GIVEN ELEVATION OF 9000 FEET.

Ecological: STEEP TALUS OF METAMORPHIC ROCK.

General: SITE BASED ON A 1976 STEBBINS COLLECTION. A 1976 SMITH & STEBBINS COLLECTION FROM "EAST FACE OF DICKS PEAK, 9300 FT" IS ASSUMED TO BE FROM THE SAME SITE.

Owner/Manager: USFS-LAKE TAHOE BMU



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Lewisia longipetala

Element Code: PDPOR040K0

long-petaled lewisia

Listing Status: Federal: None

CNDDDB Element Ranks: Global: G2

State: None

State: S2

Other: Rare Plant Rank - 1B.3, USFS_S-Sensitive

Habitat: General: ALPINE BOULDER AND ROCK FIELD, SUBALPINE CONIFEROUS FOREST.

Micro: MESIC ROCKY SITES; IN CRACKS OF GRANITE OR GRAVELLY VOLCANIC SOILS. 2560-2865 M.

Occurrence No.	3	Map Index:	14237	EO Index:	22463	Element Last Seen:	2011-09-25
Occ. Rank:	Good	Presence:	Presumed Extant	Site Last Seen:		2011-09-25	
Occ. Type:	Natural/Native occurrence	Trend:	Unknown	Record Last Updated:		2015-02-23	

Quad Summary: Echo Lake (3812071)

County Summary: El Dorado

Lat/Long:	38.85692 / -120.09690	Accuracy:	specific area
UTM:	Zone-10 N4304905 E751912	Elevation (ft):	8400
PLSS:	T12N, R17E, Sec. 27, SW (M)	Acres:	37.0

Location: ON SLOPES OVERLOOKING LOST AND TRIANGLE LAKES, NEAR CREST OF KEITHS DOME RIDGE, DESOLATION WILDERNESS.

Detailed Location: MAPPED BY CNDDDB AS 3 POLYGONS BASED ON MAP DATA FROM 1981, 1990 & 2004, AND FROM 2009 COORDINATES. LTBMU POP #LELO3A & 3B.

Ecological: N TO NE-FACING SLOPES ON MOSSY BENCHES, GROWING IN SNOW MELT RIVULETS AND WET GRAVEL. HIGHEST NUMBER OF PLANTS GROWING IN SNOW MELT STREAM. ASSOCIATED WITH ANTENNARIA ALPINA, DODECATHEON ALPINUM, ASTER ALPIGENUS, CAREX, CASSIOPE, ETC.

General: "SCATTERED AMONG ROCKS, MORE ABUNDANT IN STREAMLETS" IN 1981. EAST POLYGON: OVER 500 PLANTS IN 1990, 1067 IN 2004, 500-1000 IN 2009. WEST-MOST POLYGON: 201 PLANTS IN 2009. 2011 MATSON PHOTOS FROM "NE OF SUMMIT OF KEITHS DOME" ATTRIB HERE.

Owner/Manager: USFS-LAKE TAHOE BMU

Occurrence No.	16	Map Index:	95287	EO Index:	96426	Element Last Seen:	2013-08-15
Occ. Rank:	Excellent	Presence:	Presumed Extant	Site Last Seen:		2013-08-15	
Occ. Type:	Natural/Native occurrence	Trend:	Unknown	Record Last Updated:		2015-02-23	

Quad Summary: Echo Lake (3812071)

County Summary: El Dorado

Lat/Long:	38.83156 / -120.09588	Accuracy:	specific area
UTM:	Zone-10 N4302093 E752090	Elevation (ft):	8540
PLSS:	T11N, R17E, Sec. 03, NW (M)	Acres:	1.0

Location: APPROXIMATELY 0.3 AIR MILE ESE OF RALSTON PEAK, NORTH OF CUP LAKE.

Detailed Location: LTBMU POPULATION #LELO5. MAPPED ACCORDING TO DIGITAL DATA AND COORDINATES IN THE SW 1/4 OF THE NW 1/4 OF SECTION 3.

Ecological: A SMALL, GRANITE OUTCROPPING SURROUNDED BY TALUS FIELDS IN A LARGE BOWL EAST OF RALSTON PEAK. 5-15% SLOPE WITH A NORTH-FACING ASPECT. THE GRANITE SLAB IS PERCHED ABOVE A VEGETATED BENCH WITH CAREX, ERIOGONUM, CASSIOPE, AND MOSS.

General: UNKNOWN NUMBER OF PLANTS IN 2009. 485 PLANTS OBSERVED IN 2012 (326 VEGETATIVE, 159 FLOWERING). 500+ PLANTS OBSERVED IN 2013.

Owner/Manager: USFS-ELDORADO NF



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Viola purpurea ssp. aurea

Element Code: PDVIO04420

golden violet

Listing Status: **Federal:** None

CNDDB Element Ranks: **Global:** G5T2

State: None

State: S2

Other: Rare Plant Rank - 2B.2

Habitat: **General:** GREAT BASIN SCRUB, PINYON-JUNIPER WOODLAND.

Micro: DRY, SANDY SLOPES. 1000-2500 M.

Occurrence No.	18	Map Index:	81508	EO Index:	82484	Element Last Seen:	1974-04-28
Occ. Rank:	Unknown	Presence:	Presumed Extant	Site Last Seen:		1974-04-28	
Occ. Type:	Natural/Native occurrence	Trend:	Unknown	Record Last Updated:		2011-01-31	

Quad Summary: Woodfords (3811977)

County Summary: Alpine

Lat/Long:	38.76831 / -119.80833	Accuracy:	non-specific area
UTM:	Zone-11 N4294812 E256008	Elevation (ft):	5000
PLSS:	T11N, R19E, Sec. 35, SE (M)	Acres:	18.0

Location: DIAMOND VALLEY ROAD, 0.6 MILE S OF HIGHWAY 89, DIAMOND VALLEY.

Detailed Location: MAPPED ALONG DIAMOND VALLEY ROAD 0.5-0.7 MILES S OF HIGHWAY 89. IN THE SE 1/4 SE 1/4 SECTION 35.

Ecological:

General: UNKNOWN NUMBER OF PLANTS SEEN. ONLY SOURCE OF INFORMATION IS A 1974 TAYLOR COLLECTION.

Owner/Manager: UNKNOWN

Occurrence No.	19	Map Index:	81509	EO Index:	82486	Element Last Seen:	1974-05-05
Occ. Rank:	Unknown	Presence:	Presumed Extant	Site Last Seen:		1974-05-05	
Occ. Type:	Natural/Native occurrence	Trend:	Unknown	Record Last Updated:		2011-01-31	

Quad Summary: Woodfords (3811977)

County Summary: Alpine

Lat/Long:	38.76613 / -119.76824	Accuracy:	non-specific area
UTM:	Zone-11 N4294464 E259485	Elevation (ft):	5400
PLSS:	T11N, R20E, Sec. 32, SW (M)	Acres:	20.0

Location: ALONG AIRPORT ROAD, 0.5 MILE SE OF DIAMOND VALLEY ROAD IN SCOSSA CANYON, DUTCH VALLEY.

Detailed Location: MAPPED ALONG AIRPORT ROAD (INDIAN CREEK RESERVOIR ROAD) FROM 0.4-0.6 MILES SE OF DIAMOND VALLEY ROAD. IN THE SW 1/4 SW 1/4 SECTION 32.

Ecological:

General: UNKNOWN NUMBER OF PLANTS SEEN. ONLY SOURCE OF INFORMATION IS A 1974 TAYLOR OBSERVATION.

Owner/Manager: BLM



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Carex davyi

Element Code: PMCYP033H0

Davy's sedge

Listing Status: **Federal:** None

CNDDB Element Ranks: **Global:** G3

State: None

State: S3

Other: Rare Plant Rank - 1B.3

Habitat: **General:** SUBALPINE CONIFEROUS FOREST, UPPER MONTANE CONIFEROUS FOREST.

Micro: 1605-3230 M.

Occurrence No.	8	Map Index:	82340	EO Index:	83355	Element Last Seen:	1946-07-20
Occ. Rank:	Unknown	Presence:	Presumed Extant	Site Last Seen:		1946-07-20	
Occ. Type:	Natural/Native occurrence	Trend:	Unknown	Record Last Updated:		2011-05-02	

Quad Summary: Echo Lake (3812071)

County Summary: El Dorado

Lat/Long:	38.84571 / -120.07468	Accuracy:	2/5 mile
UTM:	Zone-10 N4303722 E753881	Elevation (ft):	7500
PLSS:	T12N, R17E, Sec. 35 (M)	Acres:	0.0

Location: UPPER ECHO LAKE.

Detailed Location: NORTH SIDE OF LAKE.

Ecological: SHALLOW SOIL ON ROCKY SLOPE.

General: ONLY SOURCE OF INFORMATION IS A 1946 GRANT COLLECTION. NEEDS FIELDWORK.

Owner/Manager: USFS-LAKE TAHOE BMU

Occurrence No.	10	Map Index:	82342	EO Index:	83357	Element Last Seen:	1946-08-31
Occ. Rank:	Unknown	Presence:	Presumed Extant	Site Last Seen:		1946-08-31	
Occ. Type:	Natural/Native occurrence	Trend:	Unknown	Record Last Updated:		2011-05-02	

Quad Summary: Emerald Bay (3812081)

County Summary: El Dorado

Lat/Long:	38.89913 / -120.10701	Accuracy:	2/5 mile
UTM:	Zone-10 N4309562 E750886	Elevation (ft):	8800
PLSS:	T12N, R17E, Sec. 09 (M)	Acres:	0.0

Location: NE OF GILMORE LAKE, SIERRA NEVADA MOUNTAINS.

Detailed Location: MAPPED NE OF GILMORE LAKE CENTERED ON TRAIL AT ELEVATION PROVIDED ON COLLECTION LABEL.

Ecological:

General: ONLY SOURCE OF INFORMATION IS A 1946 HOWELL COLLECTION. NEEDS FIELDWORK.

Owner/Manager: USFS-LAKE TAHOE BMU



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Carex hystericina

Element Code: PMCYP036D0

porcupine sedge

Listing Status: **Federal:** None

CNDDDB Element Ranks: **Global:** G5

State: None

State: S2

Other: Rare Plant Rank - 2B.1

Habitat: **General:** MARSHES AND SWAMPS.

Micro: WET PLACES, SUCH AS STREAM EDGES. 225-2400 M.

Occurrence No. 3 **Map Index:** A7238 **EO Index:** 109004 **Element Last Seen:** 1984-08-30

Occ. Rank: Unknown **Presence:** Presumed Extant **Site Last Seen:** 1984-08-30

Occ. Type: Natural/Native occurrence **Trend:** Unknown **Record Last Updated:** 2017-11-22

Quad Summary: Carson Pass (3811968), Freel Peak (3811978), Caples Lake (3812061), Echo Lake (3812071)

County Summary: Alpine, El Dorado

Lat/Long: 38.75007 / -120.00604 **Accuracy:** 2/5 mile

UTM: Zone-10 N4293299 E760188 **Elevation (ft):** 7872

PLSS: T10N, R18E, Sec. 4 (M) **Acres:** 280.0

Location: NEAR ROUND LAKE, ELDORADO NATIONAL FOREST.

Detailed Location: MAPPED BY CNDDDB AS BEST GUESS AROUND ROUND LAKE.

Ecological: TSUGA MERTENSIANA AND ABIES CONCOLOR FOREST.

General: ONLY SOURCE OF INFORMATION FOR THIS SITE IS A 1984 NORRIS COLLECTION. COLLECTION IDENTIFIED AS CAREX HYSTERICINA BY GORDON LEPPIG IN 1996. THIS SITE IS FAR OUTSIDE OF THE RANGE GIVEN IN THE JEPSON MANUAL FOR THIS SPECIES.

Owner/Manager: USFS-LAKE TAHOE BMU

Carex limosa

Element Code: PMCYP037K0

mud sedge

Listing Status: **Federal:** None

CNDDDB Element Ranks: **Global:** G5

State: None

State: S3

Other: Rare Plant Rank - 2B.2

Habitat: **General:** BOGS AND FENS, LOWER MONTANE CONIFEROUS FOREST, MEADOWS AND SEEPS, MARSHES AND SWAMPS, UPPER MONTANE CONIFEROUS FOREST.

Micro: IN FLOATING BOGS AND SOGGY MEADOWS AND EDGES OF LAKES. 1370-2790 M.



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Occurrence No.	3	Map Index:	14440	EO Index:	28981	Element Last Seen:	2014-08-03
Occ. Rank:	Unknown			Presence:	Presumed Extant	Site Last Seen:	2014-08-03
Occ. Type:	Natural/Native occurrence			Trend:	Unknown	Record Last Updated:	2016-03-02
Quad Summary:	Freel Peak (3811978)						
County Summary:	El Dorado						
Lat/Long:	38.79104 / -119.96175			Accuracy:	specific area		
UTM:	Zone-11 N4297755 E242759			Elevation (ft):	7700		
PLSS:	T11N, R18E, Sec. 23, N (M)			Acres:	292.4		
Location:	GRASS LAKE NEAR LUTHER PASS ALONG HIGHWAY 89.						
Detailed Location:	MAPPED BY CNDDDB AROUND GRASS LAKE. UNSURE IF CAREX LIMOSA OCCURS THROUGHOUT LAKE; FULL CENSUS NEEDED. SPECIFIC COORDINATES PROVIDED FOR WEST END OF LAKE AND EAST END OF LAKE. 1984 NORRIS COLLECTION IS FROM SECTION 14 (MIDDLE OF LAKE).						
Ecological:	MARSHY BORDER OF LAKE; FLOATING BOG MAT NEAR OPEN WATER WITH MENYANTHES TRIFOLIATA, MEESIA TRIQUETRA, VACCINIUM ULIGINOSUM, POTENTILLA PALUSTRIS, MIMULUS PRIMULOIDES, ERIOPHORUM GRACILE, CAREX UTRICULATA, C. CANESCENS, C. SIMULATA, ET AL.						
General:	FAIRLY ABUNDANT IN 1991. MANY COLLECTIONS, OBSERVATIONS AND PHOTOGRAPHS FROM 1936-2014 FROM "GRASS LAKE" ATTRIBUTED TO THIS SITE.						
Owner/Manager:	USFS-LAKE TAHOE BMU						
Occurrence No.	17	Map Index:	55915	EO Index:	55931	Element Last Seen:	1897-06-22
Occ. Rank:	Unknown			Presence:	Presumed Extant	Site Last Seen:	1897-06-22
Occ. Type:	Natural/Native occurrence			Trend:	Unknown	Record Last Updated:	2004-06-24
Quad Summary:	Echo Lake (3812071)						
County Summary:	El Dorado						
Lat/Long:	38.81890 / -120.04391			Accuracy:	1/5 mile		
UTM:	Zone-10 N4300833 E756648			Elevation (ft):	7500		
PLSS:	T11N, R18E, Sec. 07 (M)			Acres:	0.0		
Location:	BOG NEAR LAKE AUDRIAN, EL DORADO COUNTY.						
Detailed Location:	EXACT LOCATION UNKNOWN; MAPPED IN GENERAL VICINITY OF LAKE AUDRIAN.						
Ecological:							
General:	ONLY SOURCE OF INFORMATION FOR THIS SITE IS AN 1897 COLLECTION BY BRAINERD. NEEDS FIELDWORK.						
Owner/Manager:	UNKNOWN						



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Occurrence No.	32	Map Index:	73271	EO Index:	74225	Element Last Seen:	2011-08-31
Occ. Rank:	Good			Presence:	Presumed Extant	Site Last Seen:	2011-08-31
Occ. Type:	Natural/Native occurrence			Trend:	Unknown	Record Last Updated:	2016-03-01
Quad Summary:	Freel Peak (3811978)						
County Summary:	El Dorado						
Lat/Long:	38.82466 / -119.94613			Accuracy:	specific area		
UTM:	Zone-11 N4301443 E244237			Elevation (ft):	8400		
PLSS:	T11N, R18E, Sec. 1, SW (M)			Acres:	17.0		
Location:	HELL HOLE, 1.85 MILES WEST OF ARMSTRONG PASS.						
Detailed Location:	OCCURRING IN PONDS/INUNDATED DEPRESSIONS. MAJORITY OF POPULATION OCCURS CONTIGUOUSLY IN THE MIDDLE OF THE MEADOW COMPLEX. MAPPED AS 3 POLYGONS ACCORDING TO 2010 AND 2011 CHRISTIE COORDINATES, AND 2011 CNPS DIGITAL DATA.						
Ecological:	SATURATED MEADOW/FEN COMPLEX WITH SOME AREAS OF SALIX VEGETATION. SOIL VARYING FROM EXTREMELY WET TO SATURATED TO INUNDATED. ASSOCIATED WITH SALIX EASTWOODIAE, S. LEMMONII, VACCINIUM ULIGINOSUM, CAREX UTRICULATA, C. VESICARIA, ETC.						
General:	UNKNOWN NUMBER OF PLANTS OBSERVED IN 2008. THOUSANDS OF PLANTS OBSERVED IN 2010 AND 2011. 2002 MATSON PHOTO IS ALSO ATTRIBUTED TO THIS SITE.						
Owner/Manager:	USFS-LAKE TAHOE BMU						

Occurrence No.	33	Map Index:	73272	EO Index:	74226	Element Last Seen:	2014-07-30
Occ. Rank:	Good			Presence:	Presumed Extant	Site Last Seen:	2014-07-30
Occ. Type:	Natural/Native occurrence			Trend:	Unknown	Record Last Updated:	2016-03-04
Quad Summary:	Echo Lake (3812071)						
County Summary:	El Dorado						
Lat/Long:	38.86613 / -120.02654			Accuracy:	specific area		
UTM:	Zone-10 N4306124 E757986			Elevation (ft):	6350		
PLSS:	T12N, R18E, Sec. 19, SE (M)			Acres:	17.0		
Location:	WASHOE MEADOWS STATE PARK.						
Detailed Location:	SOUTH EDGE OF LARGEST FEN AND ALONG ADJACENT LOGGING ROAD NEAR SEWER MANHOLE #66. MAPPED AS 2 POLYGONS ACCORDING TO 2014 DEAN COORDINATES AND 2011 CNPS DIGITAL DATA.						
Ecological:	BOGGY WET AREA DOMINATED BY MOSSES, CAREX, ELEOCHARIS, VACCINIUM ULIGINOSUM, DROSERA, DODECATHEON, MICRANTHES OREGANA, ASTER ALPIGENUS, JUNCUS OXYMERIS, CAREX NEBRASCENSIS, ETC. HIGH COVER OF DROSERA AT THIS SITE.						
General:	IN 2014, SOUTHERN POLYGON HAD ABOUT 500 PLANTS AND NORTHERN POLYGON HAD ABOUT 100 PLANTS. PLANTS SCATTERED THROUGHOUT FENS.						
Owner/Manager:	DPR-LAKE VALLEY SRA						



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Occurrence No.	37	Map Index:	99338	EO Index:	100884	Element Last Seen:	2008-XX-XX
Occ. Rank:	Unknown	Presence:	Presumed Extant	Site Last Seen:	2008-XX-XX		
Occ. Type:	Natural/Native occurrence	Trend:	Unknown	Record Last Updated:	2016-03-01		
Quad Summary:	Echo Lake (3812071)						
County Summary:	El Dorado						
Lat/Long:	38.85189 / -120.04175			Accuracy:	specific area		
UTM:	Zone-10 N4304500 E756717			Elevation (ft):	6500		
PLSS:	T12N, R17E, Sec. 25, SE (M)			Acres:	9.0		
Location:	JUST NORTH OF OSGOOD SWAMP, WEST EDGE OF MEYERS.						
Detailed Location:	MAPPED ACCORDING TO CNPS DIGITAL DATA.						
Ecological:	UNEVEN GROUND. KALMIA MICROPHYLLA DOMINATES. WOODY DEBRIS PRESENT. ASSOCIATED WITH JUNCUS OXYMERIS, OXYPOLIS OCCIDENTALIS, SPHAGNUM RUSSOWII, MEESIA TRIQUETRA, DROSENA ROTUNDIFOLIA, POROTHAMNIUM BIGELOVII, PERIDERIDIA PARISHII, ETC.						
General:	PLANTS OBSERVED DURING 2008 SURVEYS. A 1961 MAJOR COLLECTION FROM "OSGOOD SWAMP" IS ALSO ATTRIBUTED TO THIS SITE; MENTIONED AS "COMMON" IN 1961.						
Owner/Manager:	USFS-LAKE TAHOE BMU						

Occurrence No.	38	Map Index:	99340	EO Index:	100885	Element Last Seen:	2015-05-31
Occ. Rank:	Good	Presence:	Presumed Extant	Site Last Seen:	2015-05-31		
Occ. Type:	Natural/Native occurrence	Trend:	Unknown	Record Last Updated:	2016-03-04		
Quad Summary:	Meeks Bay (3912011)						
County Summary:	El Dorado						
Lat/Long:	39.0532 / -120.12381			Accuracy:	specific area		
UTM:	Zone-10 N4326618 E748890			Elevation (ft):	6300		
PLSS:	T14N, R17E, Sec. 17, S (M)			Acres:	7.0		
Location:	SUGAR PINE POINT STATE PARK, JUST SOUTH OF GENERAL CREEK CAMPGROUND, LAKE TAHOE BASIN.						
Detailed Location:	NEAR MIDDLE OF FEN TOWARDS EASTERN EDGE. MAPPED ACCORDING TO DEAN COORDINATES AND CNPS DIGITAL DATA.						
Ecological:	GROWING IN SODDEN GROUND AND RATHER GREEN MUD WITH MIMULUS PRIMULOIDES, MOSSES, AND DROSENA. IN 2015, FEN IS GETTING DRIER. ADDITIONAL ASSOCIATES INCLUDE VACCINIUM ULIGINOSUM, PERIDERIDIA PARISHII, CAREX CAPITATA, C. UTRICULATA, ETC.						
General:	THOUSANDS OF PLANTS OBSERVED IN 2012. HUNDREDS OF PLANTS IN 2015.						
Owner/Manager:	DPR-Z'BERG SUGAR PINE POINT SP						



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Schoenoplectus subterminalis

Element Code: PMCYP0Q1G0

water bulrush

Listing Status: **Federal:** None

CNDDB Element Ranks: **Global:** G4G5

State: None

State: S3

Other: Rare Plant Rank - 2B.3

Habitat: **General:** MARSHES AND SWAMPS, BOGS AND FENS.

Micro: MONTANE LAKE MARGINS, IN SHALLOW WATER. 880-2425 M.

Occurrence No.	1	Map Index:	37218	EO Index:	32218	Element Last Seen:	1990-10-29
Occ. Rank:	Unknown	Presence:	Presumed Extant	Site Last Seen:		1990-10-29	
Occ. Type:	Natural/Native occurrence	Trend:	Unknown	Record Last Updated:		1997-10-16	

Quad Summary: Freel Peak (3811978)

County Summary: El Dorado

Lat/Long:	38.79356 / -119.96451	Accuracy:	specific area
UTM:	Zone-11 N4298043 E242528	Elevation (ft):	7700
PLSS:	T11N, R18E, Sec. 14, SW (M)	Acres:	6.5

Location: GRASS LAKE, WEST OF LUTHER PASS ALONG HIGHWAY 89.

Detailed Location: ALONG THE SOUTH SIDE OF LAKE ON FLOATING EDGE OF SPHAGNUM MAT IN OPEN WATER.

Ecological: MARGIN OF LARGE MEADOW AND BOG. GROWING WITH CAREX LIMOSA, DROSELA ROTUNDIFOLIA, MENYANTHES TRIFOLIATA, SAXIFRAGA OREGANA, AND ELODEA NUTTALLII.

General: 1000+ PLANTS OBSERVED IN 1990. A 1972 TAYLOR COLLECTION FROM "GRASS LAKE, AT SUMMIT OF LUTHER PASS (HIGHWAY 89)" IS ALSO ATTRIBUTED TO THIS SITE.

Owner/Manager: USFS-ELDORADO NF

Occurrence No.	2	Map Index:	37219	EO Index:	32219	Element Last Seen:	1972-08-23
Occ. Rank:	Unknown	Presence:	Presumed Extant	Site Last Seen:		1972-08-23	
Occ. Type:	Natural/Native occurrence	Trend:	Unknown	Record Last Updated:		1997-10-16	

Quad Summary: Echo Lake (3812071)

County Summary: El Dorado

Lat/Long:	38.86261 / -120.06794	Accuracy:	1/10 mile
UTM:	Zone-10 N4305617 E754406	Elevation (ft):	7500
PLSS:	T12N, R17E, Sec. 26, NE (M)	Acres:	0.0

Location: UPPER ANGORA LAKE, NORTHEAST OF ECHO PEAK.

Detailed Location:

Ecological: GROWING IN WATER NEAR SHORE.

General: SITE BASED ON TWO COLLECTIONS BY G. SMITH IN 1972. NEEDS FIELDWORK.

Owner/Manager: USFS-ELDORADO NF



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Glyceria grandis

Element Code: PMPOA2Y080

American manna grass

Listing Status: **Federal:** None

CNDDDB Element Ranks: **Global:** G5

State: None

State: S3

Other: Rare Plant Rank - 2B.3

Habitat: **General:** BOGS AND FENS, MEADOWS AND SEEPS, MARSHES AND SWAMPS.

Micro: WET MEADOWS, DITCHES, STREAMS, AND PONDS, IN VALLEYS AND LOWER ELEVATIONS IN THE MOUNTAINS. 60-2045 M.

Occurrence No. 10 **Map Index:** 80403 **EO Index:** 81389 **Element Last Seen:** 1907-07-25
Occ. Rank: Unknown **Presence:** Presumed Extant **Site Last Seen:** 1907-07-25
Occ. Type: Natural/Native occurrence **Trend:** Unknown **Record Last Updated:** 2010-10-18

Quad Summary: Emerald Bay (3812081)

County Summary: El Dorado

Lat/Long: 38.87783 / -120.08883 **Accuracy:** non-specific area
UTM: Zone-10 N4307249 E752539 **Elevation (ft):** 6700
PLSS: T12N, R17E, Sec. 22, NW (M) **Acres:** 22.0

Location: ROADSIDE NEAR MODJESKA FALLS, GLEN ALPINE SPRINGS, NEAR SOUTH END OF FALLEN LEAF LAKE.

Detailed Location: MODJESKA FALLS ALSO KNOWN AS UPPER GLEN APLINE FALLS. MAPPED AS BEST GUESS BY CNDDDB ALONG ROAD NEAR THESE FALLS, BETWEEN LILY LAKE AND GLEN ALPINE SPRING.

Ecological:

General: ONLY SOURCE OF INFORMATION FOR THIS OCCURRENCE IS A 1907 COLLECTION BY REED. NEEDS POPULATION INFORMATION.

Owner/Manager: UNKNOWN

Stuckenia filiformis ssp. alpina

Element Code: PMPOT03091

slender-leaved pondweed

Listing Status: **Federal:** None

CNDDDB Element Ranks: **Global:** G5T5

State: None

State: S2S3

Other: Rare Plant Rank - 2B.2

Habitat: **General:** MARSHES AND SWAMPS.

Micro: SHALLOW, CLEAR WATER OF LAKES AND DRAINAGE CHANNELS. 5-2325 M.

Occurrence No. 9 **Map Index:** 50806 **EO Index:** 50806 **Element Last Seen:** 1929-10-04
Occ. Rank: Unknown **Presence:** Presumed Extant **Site Last Seen:** 1929-10-04
Occ. Type: Natural/Native occurrence **Trend:** Unknown **Record Last Updated:** 2003-03-27

Quad Summary: Emerald Bay (3812081)

County Summary: El Dorado

Lat/Long: 38.97217 / -120.10565 **Accuracy:** 1 mile
UTM: Zone-10 N4317673 E750747 **Elevation (ft):**
PLSS: T13N, R17E, Sec. 16 (M) **Acres:** 0.0

Location: WEST SIDE OF LAKE TAHOE ABOVE EMERALD BAY, 14 MILES FROM TAHOE CITY.

Detailed Location: EXACT LOCATION UNKNOWN. MAPPED ON WEST SIDE OF LAKE TAHOE NORTH OF EMERALD BAY.

Ecological:

General: ONLY SOURCE OF INFORMATION FOR THIS SITE IS A 1929 COLLECTION BY MASON. NEEDS FIELDWORK.

Owner/Manager: UNKNOWN



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Potamogeton robbinsii

Element Code: PMPOT030Z0

Robbins' pondweed

Listing Status: **Federal:** None

CNDDDB Element Ranks: **Global:** G5

State: None

State: S3

Other: Rare Plant Rank - 2B.3

Habitat: **General:** MARSHES AND SWAMPS.

Micro: DEEP WATER, LAKES. 1525-3495 M.

Occurrence No. 12 **Map Index:** 14440 **EO Index:** 90696 **Element Last Seen:** 1975-08-23

Occ. Rank: Unknown **Presence:** Presumed Extant **Site Last Seen:** 1975-08-23

Occ. Type: Natural/Native occurrence **Trend:** Unknown **Record Last Updated:** 2013-07-16

Quad Summary: Freel Peak (3811978)

County Summary: El Dorado

Lat/Long: 38.79104 / -119.96175 **Accuracy:** specific area

UTM: Zone-11 N4297755 E242759 **Elevation (ft):** 7700

PLSS: T11N, R18E, Sec. 23, N (M) **Acres:** 292.4

Location: GRASS LAKE, JUST NORTH OF LUTHER PASS.

Detailed Location: MAPPED BY CNDDDB AS BEST GUESS AROUND GRASS LAKE; EXACT LOCATION OF POTAMOGETON ROBBINSII WITHIN THE LAKE IS UNKNOWN.

Ecological: OPEN WATER, PROBABLY 2-3 METERS DEEP AT EDGE OF FLOATING SPHAGNUM BOG. WITH BRASENIA SCHREBERI, NUPHAR LUTEA POLYSEPALA, UTRICULARIA VULGARIS, MYRIOPHYLLUM VERTICILLATUM, ETC.

General: ONLY SOURCE OF INFORMATION FOR THIS OCCURRENCE IS A 1975 THORNE & DEBUHR COLLECTION.

Owner/Manager: USFS-LAKE TAHOE BMU



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Botrychium crenulatum

Element Code: PPOPH010L0

scalloped moonwort

Listing Status: **Federal:** None **CNDDB Element Ranks:** **Global:** G4
State: None **State:** S3
Other: Rare Plant Rank - 2B.2, USFS_S-Sensitive
Habitat: **General:** BOGS AND FENS, MEADOWS AND SEEPS, UPPER MONTANE CONIFEROUS FOREST, LOWER MONTANE CONIFEROUS FOREST, MARSHES AND SWAMPS.
Micro: MOIST MEADOWS, FRESHWATER MARSH, AND NEAR CREEKS. 1185-3110 M.

Occurrence No. 49 **Map Index:** 84445 **EO Index:** 85474 **Element Last Seen:** 2016-07-07
Occ. Rank: Excellent **Presence:** Presumed Extant **Site Last Seen:** 2016-07-07
Occ. Type: Natural/Native occurrence **Trend:** Unknown **Record Last Updated:** 2017-08-31

Quad Summary: South Lake Tahoe (3811988)

County Summary: El Dorado

Lat/Long: 38.92494 / -119.94755 **Accuracy:** specific area
UTM: Zone-11 N4312579 E244473 **Elevation (ft):** 6500
PLSS: T12N, R18E, Sec. 1, W (M) **Acres:** 14.0

Location: BIJOU CREEK AT POWERLINE TRAIL, APPROXIMATELY 1.25 AIR MILES EAST OF LAKE TAHOE COMMUNITY COLLEGE, SOUTH LAKE TAHOE.

Detailed Location: DIRECTIONS TO SITE: "TOP OF SKI RUN BLVD AND TURN RIGHT ON DEAD END ROAD. FOLLOW POWERLINE TRAIL SOUTH UNTIL IT MEETS BIJOU CREEK." ALONG CREEK ABOVE AND BELOW TRAIL. MAPPED AS A SINGLE POLYGON FROM 2015 LTBMU DIGITAL DATA.

Ecological: SMALL INTERMITTENT STREAM IN WHITE FIR, JEFFREY PINE, CALOCEDRUS FOREST. PLANTS EMERGING ON OPEN BARE SOIL AND THROUGH LITTER LAYER. ASSOC W/ ALNUS INCANA, SALIX, LISTERA, CAREX SP., RIBES SP., LILIUM, LUPINUS, GALIUM, STELLARIA, ETC.

General: 800-1000 PLANTS OBSERVED IN 2009. 169 PLANTS IN EASTERN PART OF POPULATION IN 2010; ENTIRE POPULATION PROBABLY NOT SURVEYED. 2011: 800-900 PLANTS IN W PART OF POPULATION, SEVERAL HUNDRED IN E PART. 127 PLANTS IN 2015, 870 IN 2016.

Owner/Manager: USFS-LAKE TAHOE BMU

Botrychium minganense

Element Code: PPOPH010R0

Mingan moonwort

Listing Status: **Federal:** None **CNDDB Element Ranks:** **Global:** G4G5
State: None **State:** S3
Other: Rare Plant Rank - 2B.2, USFS_S-Sensitive
Habitat: **General:** LOWER MONTANE CONIFEROUS FOREST, UPPER MONTANE CONIFEROUS FOREST, BOGS AND FENS, MEADOWS AND SEEPS.
Micro: CREEKBANKS IN MIXED CONIFER FOREST. 1190-3295 M.



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Occurrence No.	38	Map Index:	73117	EO Index:	92466	Element Last Seen:	2010-07-14
Occ. Rank:	Unknown	Presence:	Presumed Extant	Site Last Seen:		2010-07-14	
Occ. Type:	Natural/Native occurrence	Trend:	Unknown	Record Last Updated:		2014-01-30	
Quad Summary:	South Lake Tahoe (3811988)						
County Summary:	El Dorado						
Lat/Long:	38.93158 / -119.94737			Accuracy:	80 meters		
UTM:	Zone-11 N4313316 E244511			Elevation (ft):	6580		
PLSS:	T12N, R18E, Sec. 01, NW (M)			Acres:	0.0		
Location:	TRAIL OFF OF SKI RUN BLVD, ~0.15 AIR MI SSW OF ITS INTERSECTION WITH LUPINE WAY, SOUTHWEST OF HEAVENLY VALLEY SKI LODGE.						
Detailed Location:	AT THE END OF SKI RUN BLVD THROUGH THE GATES THERE IS A TRAIL TO THE SOUTH; POPULATION IS TO THE SOUTHEAST. MAPPED IN THE SW 1/4 OF THE NW 1/4 OF SECTION 1 ACCORDING TO 2010 ENGELHARDT COORDINATES.						
Ecological:	LEFT SIDE OF SEEP, AT BASE OF ALNINC IN LITTER, WITH CIRCAEA ALPINA AND RIBNEV ABOVE. THE RARE BOTRYCHIUM ASCENDENS IS LOCATED ~5-6 M DOWNSTREAM.						
General:	8 PLANTS REPORTED ON A 2010 SURVEY FORM FOR B. ASCENDENS & B. MINGANENSE; POPULATION NUMBER PRESUMED TO BE FOR B. ASCENDENS ONLY, THOUGH IT MAY REPRESENT A COMBINED TOTAL FOR BOTH SPECIES.						
Owner/Manager:	USFS-LAKE TAHOE BMU						

Occurrence No.	39	Map Index:	91355	EO Index:	92468	Element Last Seen:	2017-09-11
Occ. Rank:	Good	Presence:	Presumed Extant	Site Last Seen:		2017-09-11	
Occ. Type:	Natural/Native occurrence	Trend:	Unknown	Record Last Updated:		2018-08-21	
Quad Summary:	South Lake Tahoe (3811988)						
County Summary:	El Dorado						
Lat/Long:	38.89321 / -119.94913			Accuracy:	specific area		
UTM:	Zone-11 N4309061 E244222			Elevation (ft):	6640		
PLSS:	T12N, R18E, Sec. 14, NE (M)			Acres:	2.0		
Location:	SOUTHEAST OF SIERRA HOUSE; APPROXIMATELY 2.3 AIR MILES WEST OF HIGH MEADOWS AND 2 AIR MILES NORTHWEST OF TRIMMER PEAK.						
Detailed Location:	TAKE HIGH MEADOWS ROAD AND PARK AT THE 2ND FOREST SERVICE GATE PARKING LOT. TAKE THE FOOT TRAIL TO POWERLINES (BEARING 194 DEGREES) TO POST 651/652. MAPPED IN THE NE 1/4 OF THE NE 1/4 OF SECTION 14 BASED ON LTBMU DIGITAL DATA.						
Ecological:	FOUND ON BOTH SIDES OF A SMALL MOSSY STREAMBANK IN PLAGIOMNIUM MOSS WITHIN A POPULUS TREMULOIDES AND MIXED CONIFER STAND. OVERSTORY COMPOSED OF POPULUS TREMULOIDES, CALOCEDRUS DECURRENS, AND ABIES CONCOLOR.						
General:	1 PLANT OBSERVED IN 2009. 4 PLANTS OBSERVED IN 2010. 42 PLANTS OBSERVED IN 2015. ONLY 1 PLANT FOUND IN 2017; HEAVY SNOWPACK AND WET SPRING, NOTICEABLE DELAY IN PHENOLOGY THIS SEASON. LTBMU POPULATION #BOMI2.						
Owner/Manager:	USFS-LAKE TAHOE BMU						



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Occurrence No.	71	Map Index:	99349	EO Index:	100805	Element Last Seen:	2013-06-11
Occ. Rank:	Fair			Presence:	Presumed Extant	Site Last Seen:	2013-06-11
Occ. Type:	Natural/Native occurrence			Trend:	Unknown	Record Last Updated:	2016-03-01
Quad Summary:	Emerald Bay (3812081), Meeks Bay (3912011)						
County Summary:	El Dorado						
Lat/Long:	38.99995 / -120.12566				Accuracy:	specific area	
UTM:	Zone-10 N4320702 E748916				Elevation (ft):	7100	
PLSS:	T13N, R17E, Sec. 5, SW (M)				Acres:	1.0	
Location:	ABOVE RUBICON BAY; APPROXIMATELY 0.7 AIR MILE WEST OF PARADISE FLAT AND 0.8 AIR MILE NNE OF RUBICON PEAK.						
Detailed Location:	TAKE HWY 89 NORTH OF SOUTH LAKE TAHOE TO RUBICON BAY AND SCENIC DR. TAKE A LEFT ON SCENIC DR HEADING UP THROUGH THE SUBDIVISION TO THE END OF HIGH PARK RD. PARK HERE AND FOLLOW CONTOUR LINE 7160 TO THE PERENNIAL STREAM. N SIDE OF STREAM.						
Ecological:	ROCKY PERENNIAL STREAM WITH ABUNDANT BRYOPHYTES. E-FACING 45% SLOPE. ASSOCIATED WITH ALNUS INCANA, THALICTRUM FENDLERI, ATHYRIA AMERICANA, VIOLA GLABELLA, LILIUM PARVUM, EPILOBIUM CILIATUM, & GALIUM APARINE. NEAR A FALLEN LOG.						
General:	2 PLANTS OBSERVED IN 2012. 8 PLANTS IN 2013. POPULATION NEAR A LOG THAT ENTERS THE STREAM CHANNEL AND A LARGE ALGAE COVERED ROCK. PREVIOUSLY IDENTIFIED AS B. MONTANUM (FORMER EO #25). B. ASCENDENS ALSO OCCURS IN AREA.						
Owner/Manager:	USFS-LAKE TAHOE BMU						

<i>Botrychium ascendens</i>			Element Code: PPOPH010S0		
upswept moonwort					
Listing Status:	Federal:	None	CNDDB Element Ranks:	Global:	G3G4
	State:	None		State:	S2
	Other:	Rare Plant Rank - 2B.3, USFS_S-Sensitive			
Habitat:	General:	LOWER MONTANE CONIFEROUS FOREST, MEADOWS AND SEEPS.			
	Micro:	GRASSY FIELDS, CONIFEROUS WOODS NEAR SPRINGS AND CREEKS. 1115-3265 M.			

Occurrence No.	1	Map Index:	35111	EO Index:	75	Element Last Seen:	1906-XX-XX
Occ. Rank:	Unknown			Presence:	Presumed Extant	Site Last Seen:	1906-XX-XX
Occ. Type:	Natural/Native occurrence			Trend:	Unknown	Record Last Updated:	1996-04-03
Quad Summary:	Echo Lake (3812071), Emerald Bay (3812081)						
County Summary:	El Dorado						
Lat/Long:	38.87506 / -120.09673				Accuracy:	2/5 mile	
UTM:	Zone-10 N4306919 E751863				Elevation (ft):	6800	
PLSS:	T12N, R17E, Sec. 21, NE (M)				Acres:	0.0	
Location:	CAMP AGASSIZ IN THE LAKE TAHOE REGION.						
Detailed Location:	MAPPED NEAR GLEN ALPINE SPRING SOUTH OF FALLEN LEAF LAKE BASED ON COMMENTS BY A. SANDERS (1993).						
Ecological:							
General:	THIS OCCURRENCE IS BASED UPON A 1906 COLLECTION BY A. EASTWOOD. NO OTHER SITE INFORMATION AVAILABLE.						
Owner/Manager:	UNKNOWN						



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Occurrence No.	21	Map Index:	73117	EO Index:	74048	Element Last Seen:	2010-07-14
Occ. Rank:	Fair			Presence:	Presumed Extant	Site Last Seen:	2010-07-14
Occ. Type:	Natural/Native occurrence			Trend:	Unknown	Record Last Updated:	2018-11-05
Quad Summary:	South Lake Tahoe (3811988)						
County Summary:	El Dorado						
Lat/Long:	38.93158 / -119.94737			Accuracy:	80 meters		
UTM:	Zone-11 N4313316 E244511			Elevation (ft):	6560		
PLSS:	T12N, R18E, Sec. 01, NW (M)			Acres:	0.0		
Location:	APPROXIMATELY 0.15 AIR MI SSW OF THE INTERSECTION OF LUPINE WAY AND SKI RUN BLVD, E OF PIONEER TRAIL, SOUTH LAKE TAHOE.						
Detailed Location:	MAPPED BY CNDDB ACCORDING TO 2007 GPS COORDINATES PROVIDED BY DILLEY IN THE SW 1/4 OF THE NW 1/4 OF SECTION 1.						
Ecological:	GROWING IN BARE, WET SOIL ON RIGHT SIDE OF MUDDY SEEP (LOOKING DOWNHILL) UNDER ALNUS INCANA AND RIBES NEVADENSIS BY A STREAM IN PINUS JEFFREYI FOREST. SOME PYROLA ASARIFOLIA, GEUM MACROPHYLLUM, AND MOSS SPECIES NEARBY.						
General:	4 PLANTS SEEN IN 2007. 1 PLANT SEEN IN 2009 (TWO ADDITIONAL STEMS MAY HAVE ALSO BEEN BOTRYCHUM ASCENDENS BUT TOP HAD BEEN EATEN). 1 PLANT SEEN IN 2010. WITH THE RARE B. MINGANENSE.						
Owner/Manager:	USFS-LAKE TAHOE BMU						
Occurrence No.	30	Map Index:	97928	EO Index:	99322	Element Last Seen:	2013-06-27
Occ. Rank:	Good			Presence:	Presumed Extant	Site Last Seen:	2013-06-27
Occ. Type:	Natural/Native occurrence			Trend:	Unknown	Record Last Updated:	2015-10-23
Quad Summary:	Meeks Bay (3912011)						
County Summary:	El Dorado						
Lat/Long:	39.00059 / -120.12312			Accuracy:	specific area		
UTM:	Zone-10 N4320780 E749133			Elevation (ft):	6900		
PLSS:	T13N, R17E, Sec. 05, SE (M)			Acres:	6.0		
Location:	ALONG STREAM WEST OF PARADISE FLAT, SW OF RUBICON BAY.						
Detailed Location:	FROM MEYERS HEAD ON HWY 89N TO RUBICON BAY, LEFT ON SCENIC DRIVE AND FOLLOW TO TOP OF SUBDIVISION TO HIGHLAND DRIVE. MAPPED ACCORDING TO 2013 USFS DIGITAL DATA, IN THE NW 1/4 OF THE SE 1/4 OF SECTION 5.						
Ecological:	GROWING WHERE A SMALL STREAM MEETS MAIN STREAM, ON A ROCK WITH A LAYER OF ORGANIC SOIL WITH SEEPS ON EITHER SIDE, AND IN BRYOPHYTES ON EDGE OF STREAM. SOME PLANTS GROWING OUT OF MOSS COVERED ORGANIC SOIL, SOME OUT OF BARE SOIL.						
General:	POPULATION SCATTERED ALONG STREAM. 33 PLANTS OBSERVED IN 2012 AND 100-120 PLANTS ESTIMATED IN 2013. BOTRYCHUM MONTANUM MAY ALSO BE AT THIS SITE (ID NOT CONFIRMED).						
Owner/Manager:	USFS-LAKE TAHOE BMU						



United States Department of the Interior

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In Reply Refer To:

January 08, 2021

Consultation Code: 08ENV00-2021-SLI-0103

Event Code: 08ENV00-2021-E-00306

Project Name: South Tahoe Public Utility District - District Wide Water and Sewer Main Upgrade 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 attached species list indicates threatened, endangered, proposed, and candidate species and designated or proposed 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 of 1973, as amended (ESA, 16 U.S.C. 1531 *et seq.*), for projects that are authorized, funded, or carried out by a Federal agency. Candidate species have no protection under the ESA but are included for consideration because they could be listed prior to the completion of your project. Consideration of these species during project planning may assist species conservation efforts and may prevent the need for future listing actions. For additional information regarding species that may be found in the proposed project area, visit <http://www.fws.gov/nevada/es/ipac.html>.

The purpose of the ESA 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 ESA 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 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. Guidelines for preparing a Biological Assessment can be found at: http://www.fws.gov/midwest/endangered/section7/ba_guide.html.

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

New information based on updated surveys, changes in the abundance and distribution of species, changed habitat conditions, or other factors could change this species list. Please feel free to contact us if you need more current information or assistance regarding the potential impacts to federally listed, proposed, 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 ESA, the accuracy of this species list should be verified after 90 days. This verification can be completed formally or informally, as desired. The Service recommends that verification be completed by visiting the ECOS-IPaC website at regular intervals during project planning and implementation, for updates to species lists and information. An updated list may be requested through the ECOS-IPaC system by completing the same process used to receive the attached list.

The Nevada Fish and Wildlife Office (NFWO) no longer provides species of concern lists. Most of these species for which we have concern are also on the Animal and Plant At-Risk Tracking List for Nevada (At-Risk list) maintained by the State of Nevada's Natural Heritage Program (Heritage). Instead of maintaining our own list, we adopted Heritage's At-Risk list and are partnering with them to provide distribution data and information on the conservation needs for at-risk species to agencies or project proponents. The mission of Heritage is to continually evaluate the conservation priorities of native plants, animals, and their habitats, particularly those most vulnerable to extinction or in serious decline. In addition, in order to avoid future conflicts, we ask that you consider these at-risk species early in your project planning and explore management alternatives that provide for their long-term conservation.

For a list of at-risk species by county, visit Heritage's website (<http://heritage.nv.gov>). For a specific list of at-risk species that may occur in the project area, you can obtain a data request form from the website (http://heritage.nv.gov/get_data) or by contacting the Administrator of Heritage at 901 South Stewart Street, Suite 5002, Carson City, Nevada 89701-5245, (775) 684-2900. Please indicate on the form that your request is being obtained as part of your coordination with the Service under the ESA. During your project analysis, if you obtain new information or data for any Nevada sensitive species, we request that you provide the information to Heritage at the above address.

Furthermore, certain species of fish and wildlife are classified as protected by the State of Nevada (<http://www.leg.state.nv.us/NAC/NAC-503.html>). You must first obtain the appropriate license, permit, or written authorization from the Nevada Department of Wildlife (NDOW) to

take, or possess any parts of protected fish and wildlife species. Please visit <http://www.ndow.org> or contact NDOW in northern Nevada (775) 688-1500, in southern Nevada (702) 486-5127, or in eastern Nevada (775) 777-2300.

Please be aware that bald and golden eagles are protected under the Bald and Golden Eagle Protection Act (16 U.S.C. 668 *et seq.*), and projects affecting these species may require development of an eagle conservation plan (http://www.fws.gov/windenergy/eagle_guidance.html). Additionally, wind energy projects should follow the Service's wind energy guidelines (<http://www.fws.gov/windenergy/>) for minimizing impacts to migratory birds and bats.

The Service's Pacific Southwest Region developed the *Interim Guidelines for the Development of a Project Specific Avian and Bat Protection Plan for Wind Energy Facilities* (Interim Guidelines). This document provides energy facility developers with a tool for assessing the risk of potential impacts to wildlife resources and delineates how best to design and operate a bird- and bat-friendly wind facility. These Interim Guidelines are available upon request from the NFWO. The intent of a Bird and Bat Conservation Strategy is to conserve wildlife resources while supporting project developers through: (1) establishing project development in an adaptive management framework; (2) identifying proper siting and project design strategies; (3) designing and implementing pre-construction surveys; (4) implementing appropriate conservation measures for each development phase; (5) designing and implementing appropriate post-construction monitoring strategies; (6) using post-construction studies to better understand the dynamics of mortality reduction (*e.g.*, changes in blade cut-in speed, assessments of blade "feathering" success, and studies on the effects of visual and acoustic deterrents) including efforts tied into Before-After/Control-Impact analysis; and (7) conducting a thorough risk assessment and validation leading to adjustments in management and mitigation actions.

The template and recommendations set forth in the Interim Guidelines were based upon the Avian Powerline Interaction Committee's Avian Protection Plan template (<http://www.aplic.org/>) developed for electric utilities and modified accordingly to address the unique concerns of wind energy facilities. These recommendations are also consistent with the Service's wind energy guidelines. We recommend contacting us as early as possible in the planning process to discuss the need and process for developing a site-specific Bird and Bat Conservation Strategy.

The Service has also developed guidance regarding wind power development in relation to prairie grouse leks (sage-grouse are included in this). This document can be found at: http://www.fws.gov/southwest/es/Oklahoma/documents/te_species/wind%20power/prairie%20grouse%20lek%205%20mile%20public.pdf.

Migratory Birds are a Service Trust Resource. Based on the Service's conservation responsibilities and management authority for migratory birds under the Migratory Bird Treaty Act of 1918, as amended (MBTA; 16 U.S.C. 703 *et seq.*), we recommend that any land clearing or other surface disturbance associated with proposed actions within the project area be timed to avoid potential destruction of bird nests or young, or birds that breed in the area. Such destruction may be in violation of the MBTA. Under the MBTA, nests with eggs or young of migratory birds may not be harmed, nor may migratory birds be killed. Therefore, we recommend land clearing be conducted outside the avian breeding season. If this is not feasible,

we recommend a qualified biologist survey the area prior to land clearing. If nests are located, or if other evidence of nesting (*i.e.*, mated pairs, territorial defense, carrying nesting material, transporting food) is observed, a protective buffer (the size depending on the habitat requirements of the species) should be delineated and the entire area avoided to prevent destruction or disturbance to nests until they are no longer active.

Guidance for minimizing impacts to migratory birds for projects involving communications towers (*e.g.*, cellular, digital television, radio, and emergency broadcast) can be found at: <http://www.fws.gov/migratorybirds/CurrentBirdIssues/Hazards/towers/towers.htm>; <http://www.towerkill.com>; and <http://www.fws.gov/migratorybirds/CurrentBirdIssues/Hazards/towers/comtow.html>.

If wetlands, springs, or streams are known to occur in the project area or are present in the vicinity of the project area, we ask that you be aware of potential impacts project activities may have on these habitats. Discharge of fill material into wetlands or waters of the United States is regulated by the U.S. Army Corps of Engineers (ACOE) pursuant to section 404 of the Clean Water Act of 1972, as amended. We recommend you contact the ACOE's Regulatory Section regarding the possible need for a permit. For projects located in northern Nevada (Carson City, Churchill, Douglas, Elko, Esmeralda, Eureka, Humboldt, Lander, Lyon, Mineral, Pershing, Storey, and Washoe Counties) contact the Reno Regulatory Office at 300 Booth Street, Room 3060, Reno, Nevada 89509, (775) 784-5304; in southern Nevada (Clark, Lincoln, Nye, and White Pine Counties) contact the St. George Regulatory Office at 321 North Mall Drive, Suite L-101, St. George, Utah 84790-7314, (435) 986-3979; or in California along the eastern Sierra contact the Sacramento Regulatory Office at 650 Capitol Mall, Suite 5-200, Sacramento, California 95814, (916) 557-5250.

We appreciate your concern for threatened and endangered species. Please include the Consultation Tracking Number in the header of this letter with any request for consultation or correspondence about your project that you submit to our office.

The table below outlines lead FWS field offices by county and land ownership/project type. Please refer to this table when you are ready to coordinate (including requests for section 7 consultation) with the field office corresponding to your project, and send any documentation regarding your project to that corresponding office. Therefore, the lead FWS field office may not be the office listed above in the letterhead.

Lead FWS offices by County and Ownership/Program

County	Ownership/Program	Species	Office Lead*
Alameda	Tidal wetlands/marsh adjacent to Bays	Salt marsh species, delta smelt	BDFWO
Alameda	All ownerships but tidal/estuarine	All	SFWO
Alpine	Humboldt Toiyabe National Forest	All	RFWO

Alpine	Lake Tahoe Basin Management Unit	All	RFWO
Alpine	Stanislaus National Forest	All	SFWO
Alpine	El Dorado National Forest	All	SFWO
Colusa	Mendocino National Forest	All	AFWO
Colusa	Other	All	By jurisdiction (see map)
Contra Costa	Legal Delta (Excluding ECCHCP)	All	BDFWO
Contra Costa	Antioch Dunes NWR	All	BDFWO
Contra Costa	Tidal wetlands/marsh adjacent to Bays	Salt marsh species, delta smelt	BDFWO
Contra Costa	All ownerships but tidal/estuarine	All	SFWO
Del Norte	All	All	AFWO
El Dorado	El Dorado National Forest	All	SFWO
El Dorado	LakeTahoe Basin Management Unit		RFWO
Glenn	Mendocino National Forest	All	AFWO
Glenn	Other	All	By jurisdiction (see map)
	All except Shasta Trinity National Forest	All	AFWO
Humboldt			
Humboldt	Shasta Trinity National Forest	All	YFWO
Lake	Mendocino National Forest	All	AFWO
Lake	Other	All	By jurisdiction (see map)
Lassen	Modoc National Forest	All	KFWO
Lassen	Lassen National Forest	All	SFWO
Lassen	Toiyabe National Forest	All	RFWO
Lassen	BLM Surprise and Eagle Lake Resource Areas	All	RFWO

Lassen	BLM Alturas Resource Area	All	KFWO
Lassen	Lassen Volcanic National Park	All (includes Eagle Lake trout on all ownerships)	SFWO
Lassen	All other ownerships	All	By jurisdiction (see map)
Marin	Tidal wetlands/marsh adjacent to Bays	Salt marsh species, delta smelt	BDFWO
Marin	All ownerships but tidal/estuarine	All	SFWO
Mendocino	Russian River watershed	All	SFWO
Mendocino	All except Russian River watershed	All	AFWO
Modoc	Modoc National Forest	All	KFWO
Modoc	BLM Alturas Resource Area	All	KFWO
Modoc	Klamath Basin National Wildlife Refuge Complex	All	KFWO
Modoc	BLM Surprise and Eagle Lake Resource Areas	All	RFWO
Modoc	All other ownerships	All	By jurisdiction (See map)
Mono	Inyo National Forest	All	RFWO
Mono	Humboldt Toiyabe National Forest	All	RFWO
	All ownerships but tidal/estuarine	All	SFWO
Napa			
Napa	Tidal wetlands/marsh adjacent to San Pablo Bay	Salt marsh species, delta smelt	BDFWO
Nevada	Humboldt Toiyabe National Forest	All	RFWO
Nevada	All other ownerships	All	By jurisdiction (See map)

Placer	Lake Tahoe Basin Management Unit	All	RFWO
Placer	All other ownerships	All	SFWO
Sacramento	Legal Delta	Delta Smelt	BDFWO
Sacramento	Other	All	By jurisdiction (see map)
San Francisco	Tidal wetlands/marsh adjacent to San Francisco Bay	Salt marsh species, delta smelt	BDFWO
San Francisco	All ownerships but tidal/estuarine	All	SFWO
San Mateo	Tidal wetlands/marsh adjacent to San Francisco Bay	Salt marsh species, delta smelt	BDFWO
San Mateo	All ownerships but tidal/estuarine	All	SFWO
San Joaquin	Legal Delta excluding San Joaquin HCP	All	BDFWO
San Joaquin	Other	All	SFWO
Santa Clara	Tidal wetlands/marsh adjacent to San Francisco Bay	Salt marsh species, delta smelt	BDFWO
Santa Clara	All ownerships but tidal/estuarine	All	SFWO
Shasta	Shasta Trinity National Forest except Hat Creek Ranger District (administered by Lassen National Forest)	All	YFWO
Shasta	Hat Creek Ranger District	All	SFWO
Shasta	Bureau of Reclamation (Central Valley Project)	All	BDFWO
Shasta	Whiskeytown National Recreation Area	All	YFWO

Shasta	BLM Alturas Resource Area	All	KFWO
Shasta	Caltrans	By jurisdiction	SFWO/AFWO
Shasta	Ahjumawi Lava Springs State Park	Shasta crayfish	SFWO
Shasta	All other ownerships	All	By jurisdiction (see map)
Shasta	Natural Resource Damage Assessment, all lands	All	SFWO/BDFWO
Sierra	Humboldt Toiyabe National Forest	All	RFWO
Sierra	All other ownerships	All	SFWO
Siskiyou	Klamath National Forest (except Ukonom District)	All	YFWO
Siskiyou	Six Rivers National Forest and Ukonom District	All	AFWO
Siskiyou	Shasta Trinity National Forest	All	YFWO
Siskiyou	Lassen National Forest	All	SFWO
Siskiyou	Modoc National Forest	All	KFWO
Siskiyou	Lava Beds National Volcanic Monument	All	KFWO
Siskiyou	BLM Alturas Resource Area	All	KFWO
Siskiyou	Klamath Basin National Wildlife Refuge Complex	All	KFWO
Siskiyou	All other ownerships	All	By jurisdiction (see map)
Solano	Suisun Marsh	All	BDFWO
Solano	Tidal wetlands/marsh adjacent to San Pablo Bay	Salt marsh species, delta smelt	BDFWO
Solano	All ownerships but tidal/estuarine	All	SFWO
Solano	Other	All	By jurisdiction (see map)

Sonoma	Tidal wetlands/marsh adjacent to San Pablo Bay	Salt marsh species, delta smelt	BDFWO
Sonoma	All ownerships but tidal/estuarine	All	SFWO
Tehama	Mendocino National Forest	All	AFWO
Tehama	Shasta Trinity National Forest except Hat Creek Ranger District (administered by Lassen National Forest)	All	YFWO
Tehama	All other ownerships	All	By jurisdiction (see map)
Trinity	BLM	All	AFWO
Trinity	Six Rivers National Forest	All	AFWO
Trinity	Shasta Trinity National Forest	All	YFWO
Trinity	Mendocino National Forest	All	AFWO
Trinity	BIA (Tribal Trust Lands)	All	AFWO
Trinity	County Government	All	AFWO
Trinity	All other ownerships	All	By jurisdiction (See map)
Yolo	Yolo Bypass	All	BDFWO
Yolo	Other	All	By jurisdiction (see map)
All	FERC-ESA	All	By jurisdiction (see map)
All	FERC-ESA	Shasta crayfish	SFWO
All	FERC-Relicensing (non-ESA)	All	BDFWO

***Office Leads:**

AFWO=Arcata Fish and Wildlife Office

BDFWO=Bay Delta Fish and Wildlife Office

KFWO=Klamath Falls Fish and Wildlife Office

RFWO=Reno Fish and Wildlife Office

YFWO=Yreka Fish and Wildlife Office

Attachment(s):

- Official Species List
 - USFWS National Wildlife Refuges and Fish Hatcheries
 - Migratory Birds
 - Wetlands
-

Official Species List

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

This species list is provided by:

Reno Fish And Wildlife Office

1340 Financial Boulevard, Suite 234

Reno, NV 89502-7147

(775) 861-6300

Project Summary

Consultation Code: 08ENV00-2021-SLI-0103

Event Code: 08ENV00-2021-E-00306

Project Name: South Tahoe Public Utility District - District Wide Water and Sewer Main Upgrade Project

Project Type: WATER SUPPLY / DELIVERY

Project Description: Replace/upgrade water and sewer mains within existing right-of-ways district wide.

Project Location:

Approximate location of the project can be viewed in Google Maps: <https://www.google.com/maps/@38.8816324,-120.01263582137844,14z>



Counties: El Dorado County, California

Endangered Species Act Species

There is a total of 3 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 Fisheries¹, 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.

Amphibians

NAME	STATUS
Sierra Nevada Yellow-legged Frog <i>Rana sierrae</i> There is final critical habitat for this species. The location of the critical habitat is not available. Species profile: https://ecos.fws.gov/ecp/species/9529	Endangered

Fishes

NAME	STATUS
Lahontan Cutthroat Trout <i>Oncorhynchus clarkii henshawi</i> No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/3964	Threatened

Conifers and Cycads

NAME	STATUS
Whitebark Pine <i>Pinus albicaulis</i> No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/1748	Proposed Threatened

Critical habitats

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

USFWS National Wildlife Refuge Lands And Fish Hatcheries

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

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

Migratory Birds

Certain birds are protected under the Migratory Bird Treaty Act¹ and the Bald and Golden Eagle Protection Act².

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

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

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

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

NAME	BREEDING SEASON
Bald Eagle <i>Haliaeetus leucocephalus</i> This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities. https://ecos.fws.gov/ecp/species/1626	Breeds Jan 1 to Aug 31
Cassin's Finch <i>Carpodacus cassinii</i> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9462	Breeds May 15 to Jul 15

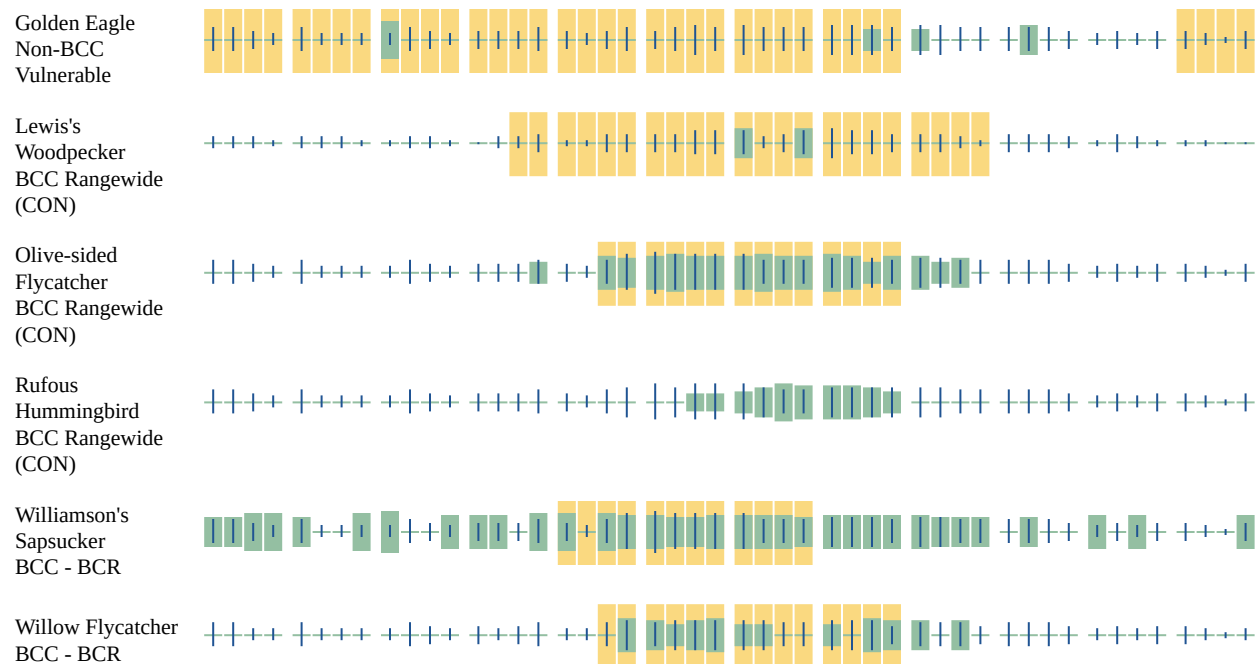
NAME	BREEDING SEASON
Golden Eagle <i>Aquila chrysaetos</i> This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities. https://ecos.fws.gov/ecp/species/1680	Breeds Dec 1 to Aug 31
Lewis's Woodpecker <i>Melanerpes lewis</i> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9408	Breeds Apr 20 to Sep 30
Olive-sided Flycatcher <i>Contopus cooperi</i> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/3914	Breeds May 20 to Aug 31
Rufous Hummingbird <i>selasphorus rufus</i> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/8002	Breeds elsewhere
Williamson's Sapsucker <i>Sphyrapicus thyroideus</i> This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA https://ecos.fws.gov/ecp/species/8832	Breeds May 1 to Jul 31
Willow Flycatcher <i>Empidonax traillii</i> This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA https://ecos.fws.gov/ecp/species/3482	Breeds May 20 to Aug 31

Probability Of Presence Summary

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

Probability of Presence (■)

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



Additional information can be found using the following links:

- Birds of Conservation Concern <http://www.fws.gov/birds/management/managed-species/birds-of-conservation-concern.php>
- Measures for avoiding and minimizing impacts to birds <http://www.fws.gov/birds/management/project-assessment-tools-and-guidance/conservation-measures.php>
- Nationwide conservation measures for birds <http://www.fws.gov/migratorybirds/pdf/management/nationwidestandardconservationmeasures.pdf>

Migratory Birds FAQ

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

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

What does IPaC use to generate the migratory birds potentially occurring in my specified location?

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

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

Again, the Migratory Bird Resource list includes only a subset of birds that may occur in your project area. It is not representative of all birds that may occur in your project area. To get a list of all birds potentially present in your project area, please visit the [AKN Phenology Tool](#).

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

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

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

How do I know if a bird is breeding, wintering, migrating or present year-round in my project area?

To see what part of a particular bird's range your project area falls within (i.e. breeding, wintering, migrating or year-round), you may refer to the following resources: [The Cornell Lab of Ornithology All About Birds Bird Guide](#), or (if you are unsuccessful in locating the bird of interest there), the [Cornell Lab of Ornithology Neotropical Birds guide](#). If a bird on your migratory bird species list has a breeding season associated with it, if that bird does occur in your project area, there may be nests present at some point within the timeframe specified. If "Breeds elsewhere" is indicated, then the bird likely does not breed in your project area.

What are the levels of concern for migratory birds?

Migratory birds delivered through IPaC fall into the following distinct categories of concern:

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

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

Details about birds that are potentially affected by offshore projects

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

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

What if I have eagles on my list?

If your project has the potential to disturb or kill eagles, you may need to [obtain a permit](#) to avoid violating the Eagle Act should such impacts occur.

Proper Interpretation and Use of Your Migratory Bird Report

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

Wetlands

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

For more information please contact the Regulatory Program of the local [U.S. Army Corps of Engineers District](#).

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

FRESHWATER EMERGENT WETLAND

- [PEM1/FOCh](#)
- [PEM1/SS1C](#)
- [PEM1A](#)
- [PEM1B](#)
- [PEM1C](#)
- [PEM1F](#)
- [PEM1Cx](#)

FRESHWATER POND

- [PAB3F](#)
- [PUBHx](#)
- [PUBFh](#)
- [PABF](#)
- [PABH](#)
- [PUBF](#)
- [PUBFx](#)
- [PUBH](#)
- [PUSCx](#)

FRESHWATER FORESTED/SHRUB WETLAND

- [PSS/EM1A](#)
 - [PFO4A](#)
 - [PFO4C](#)
 - [PFO4/SS1A](#)
 - [PSS1/FO4A](#)
 - [PSS1A](#)
 - [PSS1B](#)
 - [PSS1C](#)
-

- [PSS4A](#)
- [PFOA](#)
- [PFO1A](#)
- [PFOC](#)
- [PSS/EM1C](#)
- [PSSA](#)
- [PSSC](#)

RIVERINE

- [R4SBCx](#)
- [R4SBC](#)
- [R5UBF](#)
- [R3UBH](#)
- [R4SBA](#)
- [R3USC](#)
- [R3UBHx](#)

LAKE

- [L1UBH](#)
 - [L1UBHx](#)
 - [L2ABF](#)
 - [L2USC](#)
-

Appendix D: Construction Phase Air Quality and Greenhouse Gas Emissions Summary

Road Construction Emissions Model Data Entry Worksheet		Version 8.1.0																																								
<p><small>Note: Required data input sections have a yellow background. Optional data input sections have a blue background. Only areas with a yellow or blue background can be modified. Program defaults have a white background. The user is required to enter information in cells D10 through D24, E28 through G35, and D38 through D41 for all project types. Please use "Clear Data Input & User Overrides" button first before changing the Project Type or begin a new project.</small></p>																																										
<div style="display: flex; justify-content: space-between;"> <div> <p>Input Type</p> <p>Project Name</p> <p>Construction Start Year</p> <p>Project Type</p> <p>Project Construction Time</p> <p>Working Days per Month</p> <p>Predominant Soil/Site Type: Enter 1, 2, or 3 (for project within "Sacramento County", follow soil type selection instructions in cells E18 to E20 otherwise see instructions provided in cells J18 to J22)</p> <p>Project Length</p> <p>Total Project Area</p> <p>Maximum Area Disturbed/Day</p> <p>Water Trucks Used?</p> </div> <div style="border: 1px solid black; padding: 5px;"> <p>STPUD Water and Sewer Main Replacement</p> <p>2022</p> <p>4</p> <p>5.00</p> <p>22.00</p> <p>1</p> <p>4.38</p> <p>1.59</p> <p>0.08</p> <p>1</p> </div> <div style="font-size: 0.8em;"> <p>Enter a Year between 2014 and 2025 (inclusive)</p> <p>1) New Road Construction : Project to build a roadway from bare ground, which generally requires more site preparation than widening an existing roadway 2) Road Widening : Project to add a new lane to an existing roadway 3) Bridge/Overpass Construction : Project to build an elevated roadway, which generally requires some different equipment than a new roadway, such as a crane 4) Other Linear Project Type: Non-roadway project such as a pipeline, transmission line, or levee construction</p> <p>1) Sand Gravel : Use for quaternary deposits (Delta/West County) 2) Weathered Rock-Earth : Use for Laguna formation (Jackson Highway area) or the lone formation (Scott Road, Rancho Murieta) 3) Blasted Rock : Use for Salt Springs Slate or Copper Hill Volcanics (Folsom South of Highway 50, Rancho Murieta)</p> <p>1. Yes 2. No</p> </div> <div style="border: 1px solid black; padding: 5px; width: 200px;"> <p style="text-align: center; font-size: 0.7em;">SACRAMENTO METROPOLITAN AIR QUALITY MANAGEMENT DISTRICT</p> </div> </div>																																										
<p>Material Hauling Quantity Input</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 20%;">Material Type</th> <th style="width: 15%;">Phase</th> <th style="width: 20%;">Haul Truck Capacity (yd³) (assume 20 if unknown)</th> <th style="width: 20%;">Import Volume (yd³/day)</th> <th style="width: 25%;">Export Volume (yd³/day)</th> </tr> </thead> <tbody> <tr> <td rowspan="4">Soil</td> <td>Grubbing/Land Clearing</td> <td>20.00</td> <td></td> <td>20.00</td> </tr> <tr> <td>Grading/Excavation</td> <td></td> <td></td> <td></td> </tr> <tr> <td>Drainage/Utilities/Sub-Grade</td> <td>20.00</td> <td>63.00</td> <td>63.00</td> </tr> <tr> <td>Paving</td> <td></td> <td></td> <td></td> </tr> <tr> <td rowspan="4">Asphalt</td> <td>Grubbing/Land Clearing</td> <td></td> <td></td> <td></td> </tr> <tr> <td>Grading/Excavation</td> <td></td> <td></td> <td></td> </tr> <tr> <td>Drainage/Utilities/Sub-Grade</td> <td></td> <td></td> <td></td> </tr> <tr> <td>Paving</td> <td>20.00</td> <td>285.00</td> <td>285.00</td> </tr> </tbody> </table>				Material Type	Phase	Haul Truck Capacity (yd ³) (assume 20 if unknown)	Import Volume (yd ³ /day)	Export Volume (yd ³ /day)	Soil	Grubbing/Land Clearing	20.00		20.00	Grading/Excavation				Drainage/Utilities/Sub-Grade	20.00	63.00	63.00	Paving				Asphalt	Grubbing/Land Clearing				Grading/Excavation				Drainage/Utilities/Sub-Grade				Paving	20.00	285.00	285.00
Material Type	Phase	Haul Truck Capacity (yd ³) (assume 20 if unknown)	Import Volume (yd ³ /day)	Export Volume (yd ³ /day)																																						
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<p>Mitigation Options</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <tbody> <tr> <td style="width: 40%;">On-road Fleet Emissions Mitigation</td> <td></td> <td rowspan="2" style="font-size: 0.8em; vertical-align: top;"> <p>Select "2010 and Newer On-road Vehicles Fleet" option when the on-road heavy-duty truck fleet for the project will be limited to vehicles of model year 2010 or newer</p> <p>Select "20% NOx and 45% Exhaust PM reduction" option if the project will be required to use a lower emitting off-road construction fleet. The SMAQMD Construction Mitigation Calculator can be used to confirm compliance with this mitigation measure (http://www.airquality.org/ceqa/mitigation.shtml).</p> <p>Select "Tier 4 Equipment" option if some or all off-road equipment used for the project meets CARB Tier 4 Standard</p> </td> </tr> <tr> <td>Off-road Equipment Emissions Mitigation</td> <td></td> </tr> </tbody> </table>				On-road Fleet Emissions Mitigation		<p>Select "2010 and Newer On-road Vehicles Fleet" option when the on-road heavy-duty truck fleet for the project will be limited to vehicles of model year 2010 or newer</p> <p>Select "20% NOx and 45% Exhaust PM reduction" option if the project will be required to use a lower emitting off-road construction fleet. The SMAQMD Construction Mitigation Calculator can be used to confirm compliance with this mitigation measure (http://www.airquality.org/ceqa/mitigation.shtml).</p> <p>Select "Tier 4 Equipment" option if some or all off-road equipment used for the project meets CARB Tier 4 Standard</p>	Off-road Equipment Emissions Mitigation																																			
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The remaining sections of this sheet contain areas that require modification when 'Other Project Type' is selected.

Note: The program's estimates of construction period phase length can be overridden in cells D53, and F50 through F53.

Construction Periods				Program	Program
	User Override of Construction Months	Calculated Months	User Override of Phase Starting Date	Phase Starting Date	Program Default
Gubbling/Land Clearing	0.10	0.50	5/1/2022	1/1/2022	
Grading/Excavation	0.00	2.00	5/7/2022	1/5/2022	
Drainage/Utilities/Sub-Grade	4.50	1.75	5/8/2022	1/5/2022	
Paving	0.40	0.75	10/1/2022	5/22/2022	
Totals (Months)		5			

Note: Soil Hauling emission default values can be overridden in cells D61 through D64, and F61 through F64.

[illegible]

Note: Asphalt Hauling emission default values can be overridden in cells D87 through D90, and F87 through F90.

Asphalt Hauling Emissions							
User Input	User Override of Miles/Round Trip	Program Estimate of Miles/Round Trip	User Override of Round Trips/Day	Default Values Round Trips/Day	Calculated Daily VMT		
Miles/round trip: Grubbing/Land Clearing				0	0.00		
Miles/round trip: Grading/Excavation				0	0.00		
Miles/round trip: Drainage/Utilities/Sub-Grade				0	0.00		
Miles/round trip: Paving	10.00		15	29	150.00		
Emission Rates	ROG	CO	NOx	PM10	PM2.5	SOx	CO2
Grubbing/Land Clearing (grams/mile)	0.07	0.37	1.39	0.10	0.04	0.01	1,548.71
Grading/Excavation (grams/mile)	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Drainage/Utilities/Sub-Grade (grams/mile)	0.07	0.37	1.39	0.10	0.04	0.01	1,548.71
Paving (grams/mile)	0.07	0.37	1.39	0.10	0.04	0.01	1,548.71
Emissions	ROG	CO	NOx	PM10	PM2.5	SOx	CO2
Pounds per day - Grubbing/Land Clearing	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tons per const. Period - Grubbing/Land Clearing	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Pounds per day - Grading/Excavation	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tons per const. Period - Grading/Excavation	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Pounds per day - Drainage/Utilities/Sub-Grade	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tons per const. Period - Drainage/Utilities/Sub-Grade	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Pounds per day - Paving	0.02	0.12	0.46	0.03	0.01	0.00	\$12.15
Tons per const. Period - Paving	0.00	0.00	0.00	0.00	0.00	0.00	2.28
Total tons per construction project	0.00	0.00	0.00	0.00	0.00	0.00	2.28

Note: Worker commute default values can be overridden in cells D113 through D118.

Worker Commute Emissions		User Override of Worker Commute Default Values		Default Values	
User Input					
Miles/one-way trip	5				
One-way trips/day	2			Calculated Daily VMT	
No. of employees: Grubbing/Land Clearing	10			20	100.00
No. of employees: Grading/Excavation	20			0	0.00
No. of employees: Drainage/Utilities/Sub-Grade	10			40	200.00
No. of employees: Paving				20	100.00

Emission Rates	ROG	CO	NOx	PM10	PM2.5	SOx	CO2	CH4	N2O	CO2e
Grubbing/Land Clearing (grams/mile)	0.02	0.92	0.08	0.05	0.02	0.00	348.29	0.01	0.00	348.29
Grading/Excavation (grams/mile)	0.02	0.92	0.08	0.05	0.02	0.00	348.29	0.01	0.00	348.29
Drainage/Utilities/Sub-Grade (grams/mile)	0.02	0.92	0.09	0.05	0.02	0.00	348.29	0.01	0.00	348.29
Paving (grams/mile)	0.02	0.92	0.09	0.05	0.02	0.00	348.29	0.01	0.00	348.29
Grubbing/Land Clearing (grams/trip)	0.87	2.06	0.16	0.00	0.00	0.00	79.59	0.01	0.01	81.77
Grading/Excavation (grams/trip)	0.87	2.06	0.16	0.00	0.00	0.00	79.59	0.01	0.01	81.77
Drainage/Utilities/Sub-Grade (grams/trip)	0.87	2.06	0.16	0.00	0.00	0.00	79.59	0.01	0.01	81.77
Paving (grams/trip)	0.87	2.06	0.16	0.00	0.00	0.00	79.59	0.01	0.01	81.77
Emissions	ROG	CO	NOx	PM10	PM2.5	SOx	CO2	CH4	N2O	CO2e
Pounds per day - Grubbing/Land Clearing	0.04	0.29	0.03	0.01	0.00	0.00	80.29	0.00	0.00	80.68
Tons per const. Period - Grubbing/Land Clearing	0.00	0.00	0.00	0.00	0.00	0.00	0.09	0.00	0.00	0.09
Pounds per day - Grading/Excavation	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tons per const. Period - Grading/Excavation	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Pounds per day - Drainage/Utilities/Sub-Grade	0.08	0.59	0.05	0.02	0.01	0.00	160.59	0.00	0.00	161.36
Tons per const. Period - Drainage/Utilities/Sub-Grade	0.00	0.03	0.00	0.00	0.00	0.00	7.95	0.00	0.00	7.99
Pounds per day - Paving	0.04	0.29	0.03	0.01	0.00	0.00	80.29	0.00	0.00	80.68
Tons per const. Period - Paving	0.00	0.00	0.00	0.00	0.00	0.00	0.35	0.00	0.00	0.35
Total tons per construction project	0.00	0.03	0.00	0.00	0.00	0.00	8.39	0.00	0.00	8.43

Note: Water Truck default values can be overridden in cells D145 through D148, and F145 through F148.

Water Truck Emissions		User Override of Default # Water Trucks		Program Estimate of Number of Water Trucks		User Override of Miles Traveled/Vehicle/Day		Default Values Miles Traveled/Vehicle/Day		Calculated Daily VMT	
User Input											
Grubbing/Land Clearing - Exhaust	2					2.00				4.00	
Grading/Excavation - Exhaust	2					2.00				4.00	
Drainage/Utilities/Subgrade	1					2.00				2.00	
Paving											

Emission Rates	ROG	CO	NOx	PM10	PM2.5	SOx	CO2	CH4	N2O	CO2e
Grubbing/Land Clearing (grams/mile)	0.07	0.37	1.39	0.10	0.04	0.01	1,548.71	0.00	0.05	1,563.97
Grading/Excavation (grams/mile)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Drainage/Utilities/Sub-Grade (grams/mile)	0.07	0.37	1.39	0.10	0.04	0.01	1,548.71	0.00	0.05	1,563.97
Paving (grams/mile)	0.07	0.37	1.39	0.10	0.04	0.01	1,548.71	0.00	0.05	1,563.97
Emissions	ROG	CO	NOx	PM10	PM2.5	SOx	CO2	CH4	N2O	CO2e
Pounds per day - Grubbing/Land Clearing	0.00	0.00	0.01	0.00	0.00	0.00	13.66	0.00	0.00	13.79
Tons per const. Period - Grubbing/Land Clearing	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.00	0.00	0.02
Pounds per day - Grading/Excavation	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tons per const. Period - Grading/Excavation	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Pounds per day - Drainage/Utilities/Sub-Grade	0.00	0.00	0.01	0.00	0.00	0.00	13.66	0.00	0.00	13.79
Tons per const. Period - Drainage/Utilities/Sub-Grade	0.00	0.00	0.00	0.00	0.00	0.00	0.68	0.00	0.00	0.68
Pounds per day - Paving	0.00	0.00	0.01	0.00	0.00	0.00	6.83	0.00	0.00	6.90
Tons per const. Period - Paving	0.00	0.00	0.00	0.00	0.00	0.00	0.03	0.00	0.00	0.03
Total tons per construction project	0.00	0.00	0.00	0.00	0.00	0.00	0.72	0.00	0.00	0.73

Note: Fugitive dust default values can be overridden in cells D171 through D173.

Fugitive Dust		User Override of Max Acreage Disturbed/Day		Default Maximum Acreage/Day		PM10 pounds/day		PM2.5 tons/per period	
Fugitive Dust - Grubbing/Land Clearing	0.08					0.80	0.00	0.17	0.00
Fugitive Dust - Grading/Excavation							0.00	0.00	0.00
Fugitive Dust - Drainage/Utilities/Subgrade	0.08					0.79	0.04	0.16	0.01

Values in cells D2163 through D2166, D234 through D267, D285 through D318, and D336 through D369 are required when "Other Project Type" is selected.

Off-Road Equipment Emissions																
Grubbing/Land Clearing	Default		Mitigation Option		Default Equipment Tier	Type	ROG pounds/day	CO pounds/day	NOx pounds/day	PM10 pounds/day	PM2.5 pounds/day	SOx pounds/day	CO2 pounds/day	CH4 pounds/day	N2O pounds/day	CO2e pounds/day
	Number of Vehicles		Override of													
	Program-estimate	Default	Default Equipment Tier (applicable only when "Tier 4 Mitigation" Option Selected)													
Override of Default Number of Vehicles																
	2.00				Model Default Tier	Aerial Lifts	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
					Model Default Tier	Air Compressors	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
					Model Default Tier	Bore/Drill Rigs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
					Model Default Tier	Cement and Mortar Mixers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
					Model Default Tier	Concrete/Industrial Saws	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
					Model Default Tier	Cranes	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
					Model Default Tier	Crawler Tractors	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
					Model Default Tier	Crushing/Proc. Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
					Model Default Tier	Excavators	0.30	2.24	2.84	0.09	0.08	0.01	988.08	0.31	0.01	978.52
					Model Default Tier	Forklifts	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
					Model Default Tier	Generator Sets	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
					Model Default Tier	Graders	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
					Model Default Tier	Off-Highway Tractors	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
					Model Default Tier	Off-Highway Trucks	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
					Model Default Tier	Other Construction Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
					Model Default Tier	Other General Industrial Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
					Model Default Tier	Other Material Handling Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
					Model Default Tier	Pavers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
					Model Default Tier	Paving Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
					Model Default Tier	Plate Compactors	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Pressure Washers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
			Model Default Tier	Pumps	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
			Model Default Tier	Rollers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
			Model Default Tier	Rough Terrain Forklifts	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
2.00			Model Default Tier	Rubber Tired Dozers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
			Model Default Tier	Rubber Tired Loaders	0.25	1.33	2.63	0.09	0.08	0.01	525.85	0.17	0.00	531.53		
			Model Default Tier	Scrapers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
			Model Default Tier	Signal Boards	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
			Model Default Tier	Skid Steer Loaders	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
			Model Default Tier	Surfacing Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
			Model Default Tier	Sweepers/Scrubbers	0.05	0.27	0.22	0.02	0.01	0.00	25.57	0.01	0.00	25.85		
			Model Default Tier	Tractors/Loaders/Backhoes	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
			Model Default Tier	Trenchers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
			Model Default Tier	Welders	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
User-Defined Off-road Equipment							If non-default vehicles are used, please provide information in "Non-default Off-road Equipment" tab									
	0.00				Equipment Tier	Type	ROG pounds/day	CO pounds/day	NOx pounds/day	PM10 pounds/day	PM2.5 pounds/day	SOx pounds/day	CO2 pounds/day	CH4 pounds/day	N2O pounds/day	CO2e pounds/day
					N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
					N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
					N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
					N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	0.00				N/A		0.61	3.83	5.69	0.19	0.18	0.02	1,519.50	0.49	0.01	1,535.90
				Grubbing/Land Clearing	0.00	0.00	0.01	0.00	0.00	0.00	1.67	0.00	0.00	1.69		

Data Entry Worksheet

Data Entry Worksheet

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Equipment default values for horsepower and hours/day can be overridden in cells D391 through D424 and F391 through F424.

Equipment	User Override of Horsepower	Default Values Horsepower	User Override of Hours/day	Default Values Hours/day
Aerial Lifts		63		8
Air Compressors	25.00	78	1.00	8
Boat/Drill Rigs		206		8
Cement and Mortar Mixers		9		8
Concrete/Industrial Saws	3.00	81	1.00	8
Cranes		226		8
Crawler Tractors		208		8
Crushing/Proc. Equipment		85		8
Excavators	204.00	163	6.00	8
Forklifts		89		8
Generator Sets		84		8
Graders		175		8
Off-Highway Tractors		123		8
Off-Highway Trucks	89.00	400	4.00	8
Other Construction Equipment		172		8
Other General Industrial Equipment		88		8
Other Material Handling Equipment		167		8
Pavers	188.00	126	6.00	8
Paving Equipment		131		8
Plate Compactors	7.00	8	4.00	8
Pressure Washers		13		8
Pumps		84		8
Rollers	130.00	81	8.00	8
Rough Terrain Forklifts		100		8
Rubber Tired Dozers		255		8
Rubber Tired Loaders	235.00	200	3.00	8
Scrapers		302		8
Signal Boards		6		8
Skid Steer Loaders	80.00	65	4.00	8
Surfacing Equipment		254		8
Sweepers/Scrubbers	24.00	64	1.00	8
Tractors/Loaders/Backhoes	98.00	98	5.00	8
Trenchers		81		8
Welders		48		8

END OF DATA ENTRY SHEET

Appendix E: Cultural Resources Report **CONFIDENTIAL**

**SOUTH TAHOE PUBLIC UTILITY DISTRICT
WATER AND SEWER REPLACEMENTS PROJECT
CULTURAL RESOURCE STUDY**

Report prepared by:

**Susan Lindström, Ph.D. (RPA), Consulting Archaeologist
Truckee, California**

Report prepared for:

**South Tahoe Public Utilities District
South Lake Tahoe, California**

November 2020

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<p><i>Note that this appendix contains confidential archaeological site information. To prevent the deliberate and/or inadvertent destruction of cultural resources, this information should be used for planning purposes only and should not be distributed to the public. Releasing information about the nature and location of archaeological resources is restricted under Section 304 of the National Historic Preservation Act (16 U.S.C. 470w-3) and Section 9 of the Archaeological Resources Protection Act (16 U.S.C. 470hh; 36 CFR296.18).</i></p>	
• Map and List of Known Cultural Resources	

SUMMARY

PROJECT DESCRIPTION AND LOCATION

The South Lake Tahoe Public Utility District (STPUD or District) is proposing to rehabilitate or replace existing water and sewer pipelines at various locales throughout their 23-square-mile service area in the City of South Lake Tahoe and surrounding unincorporated areas of El Dorado County. Over the next 10 years STPUD would replace over 39,000 linear feet of existing water main and rehabilitate or replace over 42,000 linear feet of existing sewer main. The water and sewer line projects would focus primarily on present water and sewer lines within the utility right-of-way and in areas that have previously been disturbed (e.g., paved roadways, road shoulders, etc.).

PROJECT AUTHORITY AND SCOPE

Baseline environmental studies typically include a cultural resource report, one that needs to comply with El Dorado County guidelines under the California Environmental Quality Act (CEQA Section 5024, Public Resource Code) and Tahoe Regional Planning Agency procedures (Chapter 67 of the TRPA Code of Ordinances). Although funding is indeterminate at this early stage of planning, the STPUD would likely be pursuing various forms of federal or state funding, thereby also necessitating compliance with Section 106 of the National Historic Preservation Act.

Cultural studies are customarily performed in a series of phases, each one building upon information gained from the prior study. The inventory phase (*Phase 1*) involves a prefield records search and Native American contact (*Phase 1A*), field reconnaissance/resource discovery (*Phase 1B*), and documentation of any cultural resources located within the project area (*Phase 1C*). If cultural properties are present and/or it they may be subject to project impacts, their significance is evaluated according to eligibility criteria established in the National Register of Historic Places and/or California Register of Historical Resources (*Phase 2*). If project redesign to avoid impacts to significant resources is unfeasible, then mitigation measures are implemented (*Phase 3*). Mitigation (or data recovery) typically involves supplemental archival research, field excavation, photo documentation, mapping, archaeological monitoring, interpretation, etc. The scope of work for this cultural study is designed to satisfy regulations pertaining to aspects of *Phase 1A* work.

To accomplish this cultural study, the STPUD contracted with Susan Lindström, Ph.D., Consulting Archaeologist. Dr. Lindström exceeds the Secretary of Interior's Professional Qualifications Standards (48 FR 44738-44739). She has over four decades of professional experience in regional prehistory and history, holds a doctoral degree in anthropology/archaeology and has maintained certification by the Register of Professional Archaeologists (RPA, former Society of Professional Archaeologists) since 1982. Study tasks included:

- historical and archaeological background research of the project area
- a records search by the California Historical Resources Information System, North Central Information Center at California State University, Sacramento, which maintains a master inventory of prior archaeological surveys and known cultural resources located in El Dorado County, and

- presentation of findings in a technical report.

The cultural contextual background for the current study (*Phase 1A*) draws heavily from comprehensive cultural studies conducted in 2015 and 2016 when the STPUD embarked on a District-wide program to install water meters and fire hydrants throughout their service area. This work has now been updated in 2020 with a new records search by the North Central Information Center. This report also outlines a set of cultural resource management protocols to be implemented as part of the necessary agency permitting process.

Native American outreach is not part of this preliminary planning effort. A search of the Sacred Lands Files by the Native American Heritage Commission and follow-up communications with tribes/individuals on the Commission's contact list (*Phase 1A*) would be accomplished with future implementation of specific water and sewer line rehabilitation/replacement projects.

Archaeological field surveys (*Phase 1B*) are deferred until waterline and sewer line rehabilitation/replacement areas are delineated.

This *Phase 1A* report is intended to have wider applications, serving as a baseline study and complementary companion piece to aid in the preparation of subsequent cultural resource studies as the STPUD moves forward to year-to-year project implementation of future pipeline rehabilitation/replacement projects. Therefore, cultural resource reporting is projected to be a phased process.

RESULTS

Results are presented in this report in narrative and GIS mapping format, where the cultural context has been summarized and known and suspected archaeological resources within the District service area have been identified as a map overlay that is indicative of relative cultural resource sensitivity. Findings disclosed that 221 prior archaeological studies have been conducted within the STPUD service area with an additional 16 studies occurring outside the project area but within the 1/16-mile search radius. To date 192 archaeological sites have been recorded in the project area and 66 more in the search radius. Out of a total of 1,149 entries for historic buildings/structures documented in El Dorado County, 332 structures are contained within South Lake Tahoe. In addition, Caltrans has inventoried and evaluated 13 historic bridges. The *California Inventory of Historic Resources* listed "Yanks Station-Overland Pony Express Route" in Meyers as State Historic Landmark #708. The Office of Historic Preservation has made determinations of eligibility for listing in the National and California Registers on 18 of these cultural properties.

Locales containing known archaeological resources or issues of Native American concern, along with any sensitive environmental areas (e.g., stream crossings, wetlands), would be excluded from upcoming projects and thereby eliminated from any construction ground disturbance activities. No historic buildings/structures/objects would be directly impacted, nor would the setting surrounding any archaeological or historical property be indirectly affected or altered from its present state. However, it is possible that buried or concealed cultural resources could be present and detected during project ground disturbance activities. A registered professional archaeologist should be on-call during future project construction; if cultural resources are discovered, work should stop near the find and the project sponsor should consult on recommended mitigation

procedures. In the unlikely event that human remains are encountered, all activities should stop, and the County Coroner's Office should be contacted.



PROJECT BACKGROUND

PROJECT DESCRIPTION AND LOCATION

The South Lake Tahoe Public Utility District (STPUD or District) maintains a robust infrastructure replacement program. Over the next 10 years STPUD is planning to replace an additional 39,000 linear feet of existing water main, and to rehabilitate or replace over 42,000 linear feet of existing sewer main. The waterline replacement program would increase water supply for fire protection by upsizing undersized waterlines and adding fire hydrants where there currently are none. The program would also improve water efficiency by reducing losses from leaking pipes that have reached the end of their useful life. The sewer main rehabilitation program would repair existing pipes using lining techniques that cause minimal disturbance. Rehabilitation would extend the useful life of the facilities, minimize stormwater entering the sewer system, and minimize the potential for blockage, spills, and leakage. Where rehabilitation is not effective to address known sewer deficiencies, sewer mains would be replaced, with the same benefits to the environment.

Water and sewer pipeline upgrades and associated staging would generally occur within existing and disturbed utility rights-of-ways, primarily within paved roadways, compacted road shoulders and other hardscapes. The overall project area is perceived as a three-dimensional area encompassing all surface ground that may be affected by the project and extending below ground to the depth of any project excavation. The vast majority of STPUD water and sewer mains are small diameter pipelines (8-inches and under) installed in trenches generally three to five feet wide. Waterline trenches are typically five feet deep and sewer line trenches vary from four feet to over 15 feet deep, depending on terrain. Construction work may entail saw-cutting and removal of existing pavement, excavation, pipefitting, backfilling and compaction, paving, striping, landscape repair, and short-term erosion controls.

The project is located in Township 11 North/Range 18 East/sections 5, 6, 8, 17; Township 12 North/Range 17 East/sections 1-3, 10-15, 22-24, 36; Township 12 North/Range 18 East/sections 12-11, 15-21, 28-32; Township 13 North/Range 17 East/sections 22, 26, 27, 34-36; Township 13 North/Range 18 East/sections 32-35 M.D.M. (USGS Echo Lake, Emerald Bay, Freel Peak, and South Lake Tahoe 7.5 quads). (See the accompanying map showing the STPUD's rights-of-ways containing utilities.)

PROJECT AUTHORITY AND SCOPE

Although funding is indeterminate at this early stage of planning, to finance the project, STPUD would likely be pursuing various forms of federal or state agency funding, which would necessitate compliance with Section 106 of the National Historic Preservation Act, guidelines under the California Environmental Quality Act and regional procedures stated in Chapter 67 of the Tahoe Regional Planning Agency Code of Ordinances. A set of cultural resource management protocols to be implemented as part of the necessary agency permitting process is outlined. When properly applied, these protocols ensure that project implementation should not have an adverse impact to significant cultural resources.

Cultural Resource Protocols

A cultural resource is a broad term that includes prehistoric, historic, architectural, and traditional cultural properties. Cultural resource studies are customarily performed in a series of phases that comprise a sequence of steps or "protocols", each one building upon information gained from the prior one.

PHASE 1 INVENTORY: First, archival research and an archaeological field reconnaissance are performed to inventory and record known cultural resources and identify potential project constraints. *Phase 1A* of the inventory involves prefield research, Native American consultation, the required records search at the appropriate archaeological clearing house, and a field survey to identify surface sites, features, buildings, and/or artifacts. If cultural remains are discovered, and based upon their number and complexity, a subsequent task and cost proposal is prepared to complete *Phase 1B* cultural resource field recording for archaeological resources.

PHASE 2 EVALUATION: Once cultural properties are recorded and if they may be subject to project-related impacts, their significance is evaluated according to criteria established in the National Register of Historic Places and/or California Register of Historical Resources. For significant resources, a determination of project impacts is assessed and detailed measures to mitigate impacts are proposed. If project redesign to avoid impacts is unfeasible, then mitigation measures are recommended to recover the significant information contained within these cultural properties prior to project ground disturbance activities.

PHASE 3 IMPACT MITIGATION AND DATA RECOVERY: A final phase may involve the implementation of mitigation measures recommended during the prior evaluation phase. Mitigation, or data recovery, typically involves additional archival research, field excavation, photo documentation, mapping, archaeological monitoring, etc.

Objectives of this study are designed to satisfy guidelines pertaining to aspects of *Phase 1A* prefield research, with *Phase 1B* field reconnaissance to follow (if appropriate) on a project specific basis. Pending results of the *Phase 1B* field reconnaissance, *Phase 1C* archaeological resource field recording/documentation, *Phase 2* resource evaluations, and *Phase 3* implementation of mitigation measures may or may not be necessary. The primary goal at the project outset is to avoid as much as reasonably possible potential impacts to cultural resources, secondarily to minimize any impacts that are unavoidable, and finally to identify mitigation for any given impact to reduce its impact to a less than significant level. This avoid-minimize-mitigate approach is the basis for any further analysis that would be necessary for future pipeline rehabilitation/replacement projects.

Federal Guidelines

The National Historic Preservation Act of 1966, as amended (16 USC§ 470 *et seq.*), is the primary federal legislation that outlines the federal government's responsibility to cultural resources. Section 106 of the act requires the federal government to take into consideration the effects of an undertaking on cultural resources listed on or eligible for inclusion in the National Register of Historic

Places. Those resources that are on or eligible for inclusion on the National Register are referred to as historic properties. The Section 106 process is outlined in the federal regulations at 36 Code of Federal Regulations (CFR) Part 800. These regulations describe the process that the federal agency takes to identify cultural resources and the level of effect that the proposed undertaking would have on historic properties. In summary, an agency must first determine if the action is the type of action that has the potential to affect historic properties. If the action is the type of action to affect historic properties, the agency must identify the "area of potential effect" or APE, determine if historic properties are present within that APE, determine the effect that the undertaking would have on historic properties, and consult with the State Historic Preservation Office (SHPO), to seek concurrence on the agency's findings. In addition, the agency is required through the Section 106 process to consult with Indian tribes concerning the identification of sites of religious or cultural significance, and consult with individuals or groups who are entitled to be consulting parties or have requested to be consulting parties.

State Guidelines

In compliance with state antiquities guidelines under the California Environmental Quality Act (CEQA Section § 21084.1, the CEQA Guidelines § 15064.5, and Public Resource Code § 5024) the project sponsor is required to consider potential project impacts on significant historical and archaeological resources. For the purposes of CEQA, "historic resources" include "a resource listed in, or determined to be eligible for listing in, the California Register of Historical Resources" (CEQA Section § 21084.1). The CEQA process is outlined in CEQA Guidelines Section 15060-15065. For the purposes of CEQA, significant "historical resources" and "unique archaeological resources" are defined as (Section 15064.5[a]):

(1) A resource listed in or determined to be eligible by the State Historical Resources Commission, for listing in the California Register of Historical Resources (Pub. Res. Code SS5024.1, Title 14 CCR, Section 4850 et seq.).

(2) A resource included in a local register of historical resources, as defined in section 5020.1(k) of the Public Resources Code or identified as significant in an historical resource survey meeting the requirements section 5024.1(g) of the Public Resources Code, shall be presumed to be historically or culturally significant. Public agencies must treat any such resource as significant unless the preponderance of evidence demonstrates that it is not historically or culturally significant.

(3) Any object, building, structure, site, area, place, record, or manuscript which a lead agency determines to be historically significant or significant in the architectural, engineering, scientific, economic, agricultural, educational, social, political, military, or cultural annals of California may be considered to be an historical resource, provided the lead agency's determination is supported by substantial evidence in light of the whole record.

Regional Guidelines

The Tahoe Regional Planning Agency (TRPA) has also adopted procedures (stated in Chapter 67 of the TRPA Code of Ordinances) for the identification, recognition, protection, and preservation of the region's significant cultural, historical, archaeological, and paleontological resources. Sections 67.3.2, 67.4 and 67.5 require a site survey by a qualified archaeologist, an

inventory of any extant cultural resources, and consultation with the appropriate Native American group. Provisions for a report documenting compliance with the TRPA Code are contained in Section 67.7.

Cultural Resource Significance

The significance of a cultural resource is typically evaluated in terms of criteria established in the National Register of Historic Places. The National Register (as authorized under Section 106 of the National Historic Preservation Act of 1966) is an elite register of districts, sites, buildings, structures, and objects of significance in American history, architecture, archaeology, engineering, and culture that fall under the jurisdiction of the federal government and/or on private land. Properties can be significant on the national, state or local level. A determination of significance and eligibility under CEQA (Section 15064.5) for listing in the California Register of Historical Resources (criteria 1-4) is commonly based upon the criteria of significance (criteria A-D) established by the National Register of Historic Places (36 CFR 60.4).

In general, provisions of Section 106 of the Historic Preservation Act and CEQA provide protection to cultural properties that meet one or more of the criteria for listing in either the National Register or California Register. Criteria for listing in either register focus on a cultural property's associations with significant *events* and *personalities* in the nation's history and cultural heritage; its *distinctive* technical, architectural or artistic *characteristics*; and/or a property's *information potential*. Resources are evaluated within a specific and important time frame or *period of significance* during which time the property was occupied or used. (Sequential or overlapping periods of significance are possible.) Once a period of significance has been established, the property must be associated with the era that has been designated as "significant." A district, site, building, structure, or object must be at least 50 years old (unless it is an "exceptional" younger property). Properties that may not be individually eligible for listing on the register could meet the criteria of eligibility if they are contributing elements or integral parts of an eligible district.

A property must not only be shown to be significant under one or more of these criteria, but it must also have *integrity*. The quality of significance in American history, architecture, archaeology, and culture is present in districts, sites, buildings, structures, and objects that possess integrity of location, design, setting, materials, workmanship, feeling, and association. The property must remain in its original location. Its design must be in conformance with the original construction plan and without significant alterations or cumulative loss of features during the past 50 years. The materials should be original, and repairs should incorporate in-kind materials so that the property retains evidence of the original workmanship. The setting should be relatively free of modern-day intrusions. A property that is clearly visible and interpretable should convey an association or connectedness with historic patterns, persons, designs, or technologies and evoke a strong sense of feeling when viewed by contemporary observers.

SETTING

PHYSICAL ENVIRONMENT

The project area occupies a north-to-south-trending glacial landscape containing outwash and morainal deposit dating from the Pleistocene, with the limited advance of small cirque glaciers during

the Holocene (Birkeland 1964). Topography is generally flat to moderate sloping, with elevations ranging between about 6,225 to 6,600 feet. Terrain is drained by the Upper Truckee River, Trout, Saxon, Cold and Heavenly creeks and their unnamed tributaries. Burnette (1968) has described the Quaternary geology of the general project area. Soils have been mapped and are discussed in the TRPA soils report (1971a).

Vegetation falls within the Lodgepole Pine-Red Fir Belt or Canadian Life Zone (Storer and Usinger 1971; TRPA 1971b). In the project vicinity, lodgepole pine (*Pinus contorta*), Jeffrey pine (*Pinus jeffreyi*), and white fir (*Abies concolor*) dominate forest stands. Understory species include sagebrush (*Artemisia tridentata*), bitterbrush (*Pursia tridentata*), currant (*Ribes* spp.), wild rose (*Rosa* spp.), and *Ceanothus* spp. Young aspens (*Populus tremuloides*), willows (*Salix* spp.) and/or lush grass occupy the riparian zones. Typical fauna associated with these plant communities are described in the TRPA series (1971c). Many of these plants and animals were of economic importance to the prehistoric and historic residents of the area. However, it is doubtful that modern plant and animal communities closely resemble their pristine composition due to historic and modern disturbance involving historic logging, transportation, and recreation activities, and more recent commercial/residential developments. During prehistoric times the area is thought to have supported a luxuriant growth of native bunch grasses that allowed an abundant large game population and provided a nutritious source of seeds for use by early peoples. Tributaries to Lake Tahoe, such as the Upper Truckee River, were once considered prime fisheries and were used by the Washoe Indians and historic Euroamerican residents.

PREHISTORY

Current understanding of northern Sierra Nevada and western Great Basin prehistory is framed within a chronological sequence spanning nearly 12,000 years that is drawn from paleoclimatic and archaeological studies throughout the western Great Basin, eastern Sierra front and the Tahoe-Truckee area (as summarized in Waechter and Lindström 2014; especially see Elston 1971, 1982, 1986; Elston et al. 1977, 1994, 1995; Heizer and Elsasser 1953; Grayson 1993). In broadest terms, the archaeological signature of the Tahoe Sierra marks a trend from hunting-based societies in earlier times to more dispersed populations that were increasingly reliant upon diverse resources by historic contact. The change in lifeways may be attributed partially to factors involving paleoclimatic fluctuations, a shifting subsistence base, and variable demographics.

Pre-Archaic remains suggest occupation by at least 9,000 years ago in the Tahoe Sierra during the Late Pleistocene/Early Holocene (~12,500-8,000 years ago) as glaciers retreated, pluvial lakes shrank, and climates warmed (Elston's et al. 1977 "Tahoe Reach Phase"). Early populations were highly mobile in the pursuit of large game animals.

Pre-Archaic to Early Archaic occupation dates from about 7,000-5,500 years ago during the Middle Holocene (~8,000 to 5,500 years ago). Increased warming and drying caused diminished creek flows and lake levels in Tahoe and other regional lakes to drop, allowing trees to grow in areas that were once inundated (Lindström et al. 2000). This period is characterized by a decrease in the number of archaeological sites that may reflect declining resources and populations in the Tahoe Sierra. Early populations around Tahoe are represented by scant occurrences of isolated projectile points (large stemmed, edge-ground projectile points of the Great Basin Stemmed series).

The Early Archaic Period (Elston's et al. 1977 "Spooners Phase" ca. 7,000 to 4,000 years ago) begins with a mid-Holocene warming trend. Drying lowlands may have prompted sparse populations to travel into upland resource zones like the Tahoe Sierra to hunt. Archaeological sites dated to the Early Archaic are rare and no diagnostic projectile point types have been identified until ca. 5,000 years ago, which is when the Martis Contracting Stem and Split Stem atlatl dart points appear. Big game hunting continued supplemented by intensified seed processing and storage.

The "Early" Late Holocene dating between 5,500 and 2,000 years ago (Elston's et al. 1977 "Early, Middle and Late Martis Phase") witnessed the end of the Mid-Holocene droughts, with a consequent expansion of forests and woodlands and a rise in Lake Tahoe and other regional lakes and streams that drowned ancient forests along the shoreline (Lindström et al. 2000). This was the most intensive period of prehistoric occupation and diversified land use in the region. A continuing trend toward cooling and increased moisture during the Late Holocene (after ca. 4,000 years ago) with expanding populations of foragers-collectors marks the beginning of the Middle Archaic Period during the Early Martis Phase and continues through the Late Martis Phase to ca. 1,300 years ago (Elston et al. 1995). Martis Corner-notched and Elko Eared projectile points (dating from ca. 3,000 to 1,300 years ago) are the predominant Middle Archaic time markers. Another hallmark of Middle Archaic prehistoric culture in the Tahoe Sierra is the use of basalt in the manufacture of stone tools and production of large bifaces.

A warming and drying trend with a decline in winter precipitation during the "Middle" Late Holocene between 2,000 and 1,000 years ago (Elston's et al. "Late Martis" / "Early Kings Beach" phases) coincided with profound cultural changes. Around 1,000 years ago during the Late Holocene (Elston's et al 1977 "Kings Beach" Phase), much of the west was affected by frequent and dramatic fluctuations in temperature and precipitation marked by prolonged and severe droughts punctuated by cool-moist episodes that lasted until about 500 years ago (Stine 1994). Late Archaic human populations continued to rise and stressed by periodic but extreme warm and dry conditions (known as the "Medieval Climatic Anomaly"), shifted away from large game hunting to the further pursuit of foods previously ignored (e.g., plants, fish and small game). This period is reflected archaeologically in more intensive use of all parts of the Tahoe Sierra landscape, with more dispersed and ephemeral settlement patterns allowing for year-round residence in the Tahoe highlands at sometimes and prohibiting even seasonal occupation at other times. These changes may reflect the arrival of incoming Numic-speaking populations (e.g., Paiute groups) into an area that had been occupied for thousands of years by Hokan-speakers (Jacobsen 1966), the protohistoric ancestors of the Washoe Indians.

The early half of this period ("Early Kings Beach Phase" ca. 1,300 to 700 years ago) is characterized by Rose Spring series arrow points and the latter half ("Late Kings Beach Phase" ca. 700 – 150 years ago) is marked by Desert Side-notched and Cottonwood series arrow points. The bow and arrow (with emphasis on core/flake technology) replaced the atlatl and dart (and production of large bifaces). This period has been associated with the Washoe Indians. It is estimated that the prehistoric Washoe had one of the highest population densities in the western Great Basin, attributed to the bountiful environment in which they lived (Price 1962:2). Historic declines in Washoe population and traditional resource use were caused by disruptions imposed by incoming Euroamerican groups. The Washoe regard all "prehistoric" remains and sites within the Tahoe-Truckee basins as associated with their own history. In support of this contention, they point to the

traditions of their neighbors (the Northern Paiute, California Indians, and non-Indian Americans) that include stories about migrations and movement, whereas theirs do not (Rucks 1996:6).

WASHOE HISTORY

The study area lies entirely within the nuclear territory of the Washoe Indians (Downs 1966) or *Wa she shu* (Nevers 1976). However, use by neighboring Maidu, Miwok and Northern Paiute groups is not ruled out (Bloomer and Lindström 2006:10). The Southern Washoe, or *Hung a lel ti* of Woodfords and Markleeville, distinguished themselves from the Eastern (Valley) Washoe, or *Paw wa lu* of Carson Valley, and the Northern Washoe, or *Wel mel ti* of the Truckee Basin, Washoe, Eagle, and Sierra valleys, and Honey Lake (Downs 1966:49; Nevers 1976; d'Azevedo 1984, 1986). The Southern Washoe and Eastern Washoe most likely utilized the project vicinity.

Lake Tahoe was both the spiritual and physical center of the Washoe world. The Washoe lived along its shores, referring to it as *Da ow a ga*, which means "edge of lake." The Washoe word, *Da ow*, mispronounced by whites as "Tahoe," gave rise to the lake's modern name. Freed (1966) and d'Azevedo (1956) have reported the locations of several Washoe encampments at the southern end of the Tahoe Basin, most occurring along the lakeshore and near the major drainages. The Upper Truckee River was the most valued fishery in the Lake Tahoe Basin and its extensive wetland and meadow system was a particularly valued resource (Lindström et al. 2000).

According to d'Azevedo's (1956:85) Washoe consultants, the Upper Truckee River was called *imgi wa'ta*. *ImgiwO'tha* (*Imgi* = cutthroat trout; *wO'tha* = river) was a fishing camp along the Upper Truckee River. *MathOcahuwo'tha* (*mathOcauwa'* = white fish; *wO'tha* = river) was a fall camp on Trout Creek to collect late ripening berries and catch and prepare whitefish for transport on their treks to the Pine Nut Mountains to the east or the acorn groves to the west. The next stopping place after the Trout Creek fish camp, on their journey west to procure acorns, was near Meyers Station on the Upper Truckee River. Minnows and suckers were caught here. Washoe families are reported to have taken up seasonal residence along the meadows bordering Trout Creek and in the vicinity of the Lake Tahoe Community College until the 1940s (Lindström et al. 2000).

The Washoe once embodied a blend of Great Basin and California in their geographical position and cultural attributes. While they were an informal and flexible political collectivity, Washoe ethnography hints at a level of technological specialization and social complexity for Washoe groups, which is non-characteristic of their surrounding neighbors in the Great Basin. Semi-sedentism and higher population densities, concepts of private property, and communal labor and ownership are reported and may have developed in conjunction with their residential and subsistence resource stability (Lindström 1992, 1996).

The Washoe have a tradition of making long treks across the sierran passes for the purpose of hunting, trading and gathering acorns. The ethnographic record suggests that during the mild season, small groups traveled through high mountain valleys collecting edible and medicinal roots, seeds and marsh plants. While there was a tendency for groups to move from lower to higher elevations during the mild seasons, and to return to lower elevations the remainder of the year (Downs 1966), a fixed seasonal round was not rigidly adhered to by all Washoe and some Washoe may have wintered in the Tahoe Sierra during milder seasons (d'Azevedo 1984; 1986:472-473). Although some Washoe trekked to distant places for desired resources, most groups circulated in the vicinity of their traditional habitation sites due to the large variety of predictable resources close at hand (d'Azevedo 1984;

1986:472). In the higher elevations, men hunted large game (mountain sheep, deer) and trapped smaller mammals. Suitable toolstone (such as basalt) was quarried at various locales. Archaeological evidence of these ancient subsistence activities is found along the mountain flanks as temporary small hunting camps containing flakes of stone and broken tools. In the high valleys more permanent base camps are represented by stone flakes, tools, grinding implements, and house depressions.

Their relatively rich environment afforded the Washoe a degree of isolation and independence from neighboring peoples and may account for their long tenure in their known area of historic occupation (d'Azevedo 1984; 1986:466, 471; Price 1962), as also evidenced by linguistic studies (Jacobsen 1966). The Washoe are part of an ancient Hokan-speaking population, which has been subsequently surrounded by incoming Numic speakers, such as the Northern Paiute (Jacobsen 1966). By the 1850s Euroamericans had permanently occupied the Washoe territory and changed traditional lifeways. Mining, lumbering, grazing, commercial fishing, tourism, and the growth of settlements disrupted traditional Indian relationships to the land. As hunting and gathering wild foods were no longer possible, the Washoe were forced into dependency upon the Euroamerican settlers (Lindström et al. 2000). Beginning in 1917, however, the Washoe Tribe began acquiring back a small part of their traditional lands (Nevers 1976:90-91). The Washoe remain as a recognized tribe by the U.S. government and have maintained an established land base. Its tribal members are governed by a tribal council which consists of members of the Carson, Dresslerville, Woodfords, and Reno-Sparks Indian colonies, as well as members from non-reservation areas. Even into the 21st Century, the Washoe have not been completely displaced from their traditional lands. The contemporary Washoe have developed a Comprehensive Land Use Plan (Washoe Tribal Council 1994) that includes goals of reestablishing a presence within the Tahoe Sierra and re-vitalizing Washoe cultural and cultural knowledge, including the harvest and care of traditional plant resources and the protection of traditional properties within the cultural landscape (Rucks 1996:3).

EUROAMERICAN HISTORY

Transportation and Communication

Aside from a few trappers and probably some adventuresome miners moving east from the foothills, the Tahoe Basin was essentially unsettled following the visit by John C. Fremont in 1844 until the later 1850s. The demand for trans-sierra routes was generated by the need to transport people and supplies to the mines of the Comstock and the Mother Lode. The opening of the Comstock mining boom in Nevada, beginning in mid-1859, prompted a sudden surge of heavy wagon and freight traffic through the Tahoe Basin and quicker routes were sought across the Tahoe Sierra.

The project area is in proximity to two major historic routes over the sierra to and through Lake Tahoe's south shore (known historically as Lake Valley), Johnson Pass and Luther Pass. From the gold fields of California through Placerville, the "Bonanza Road", or old Placerville Road (US 50), traversed Johnson Cut-off (Echo Summit), down to Lake Valley (modern-day South Lake Tahoe), and then to Mormon Station (Genoa) on the way to the Washoe mines. Laid out in 1852, it was passable for wagons before 1854.

Luther Pass (SR 89), which was used as early as 1850, branches off the Johnson Pass Route (US 50) near Meyers. The road up Luther Pass follows south in the vicinity of the Upper Truckee River, to join the Carson Pass Route (SR 88) at historic Pickett's Junction in Hope Valley. In 1854

Asa Hershel Hawley pioneered a new route into upper Lake Valley. When Luther Pass was surveyed the Hawley Grade was improved.

In 1860 the Pony Express route was designated through Lake Valley over Echo Summit and Daggett Pass (US 50/Pioneer Trail/Highway 19/SR 207). By 1863 and throughout the 1870s, the new Lake Bigler (Tahoe) Wagon Road had rechanneled the flow of travel over Echo Pass along Tahoe's south shore and over Spooner Summit (US 50).

The "Old Alpine Highway" over Luther Pass (later known as Forest Highway 33 and State Route 34) was established in 1911 by an act passed by the State of California. The highway served as an important trans-sierra link between central California and western Nevada, promoting commerce and providing access to timber tracts, summer ranch lands and hydro-electric development (Psota and Newland 2001)

During the 1940s US Highway 50 over Echo Summit and State Route 89 from Truckee to Tahoe City were improved as all-weather roads with year-round maintenance.

Lumbering

Between 1859 and the early 1870s small-scale logging was developed to supply lumber for local settlers and way stations. For example, Pixley's Mill was established on Heavenly Valley Creek in 1859 and Woodburn's Mill operated on Trout Creek in 1860.

The urgent demand for fuel wood and the more pressing needs of the mines (with their square-set timbering system) and those of the growing settlements created an insatiable demand for lumber. Areas east of the crest of the Carson Range were soon depleted of their timber and harvesting was directed to the Lake Tahoe Basin. Much of the logging was done on a contract basis with local loggers who supplied stipulated amounts of timber for large firms. Four major lumber companies operated within the Tahoe Basin. Each developed an impressive network of sawmills, railroads, tramways, flumes, and rafting operations that were designed to cut and move the lumber over the crest of the Carson Range and down to the mines of Washoe. In 1874 the Carson and Tahoe Lumber and Fluming Company (CTLFC) began acquiring timber tracts in Lake Valley. Formed in 1873, the company cut on lands in proximity to Upper Lake Valley eastward to Heavenly Valley during the late 1880s until 1898. With headquarters at Glenbrook, the company (along with its "shadow" organization the El Dorado Wood and Fluming Company, EDWFC) emerged as the chief operator, with holdings in the east central, south and southwestern portion of the Tahoe Basin and in the project vicinity. The company(s) subcontracted out much of its logging to independent operators such as G. W. Chubbuck, who acquired land near Bijou for the EDWFC in 1884. Chubbuck constructed a four-mile logging railroad from the lake up Cold Creek, which was incorporated into the CTLFC's Lake Valley Railroad in 1886. The Lake Valley Railroad logging system comprised at least 13 miles of grade, 16 miles of wagon haul roads, two miles of V-flume and 28 associated railroad/wood camps.

The Celio family incorporated their lumber company in 1905 and five years later the corporation built a steam-powered sawmill on property they owned five miles to the south of Meyers. C. G. Celio & Sons supplied local lumber needs from their mill at Meyers Station from 1911. By the end of the 1927 season they had cut out their timber in the upper end of Lake Valley and had to move

their mill to a new site. The second mill was a new and larger plant that they built in 1928 on the county road between Meyers and Fallen Leaf Lake (Knowles 1942:43). For 47 years the Celio family continued in the lumber business.

Small-scale logging was conducted in 1946 by the Placerville Lumber Company in upper Trout Creek. Limited logging continued between 1955 and the 1970s as timber stands were re-entered along Trout Creek, upper Saxon Creek, and around Meyers. Modern logging during the 1980s to the present time has been limited to fuelwood and saw log sales aimed at fire and vegetation management.

Ranching

During the mid-1850s to 1860s markets created by teamsters traveling through Lake Valley prompted the development of seasonal farming and ranching and meadowlands were quickly preempted. By the summer of 1862 over 400 tons of hay had been cut in Lake Valley's meadowlands, a figure that increased to 800 tons in 1875. By 1880 Lake Valley afforded pasturage for 1,800 cows. The Barton family grazed dairy cattle on Barton Meadows along the Upper Truckee River during the 1880s and 1890s.

After the demise of logging at the turn of the century, cut-over lands were leased and/or sold for grazing purposes. In 1900 Harry O. Comstock and Melville Lawrence grazed cattle along Trout Creek. By 1908 Chris and Knox Johnson were running cattle around Bijou Meadows, leasing other lands within a radius of Bijou, Lake Christopher, Fountain Place, and Meyers. Members of the Johnson family were pioneer irrigators and developed a ditch system and a series of small dams on Trout, Cold and Heavenly Valley creeks to water Bijou and Trout meadowlands during the summer. The Dresslers first used High Meadows as a summer sheep grazing range in 1915. John C. Scott began acquiring grazing land from lumber companies ca. 1910s and the Johnsons negotiated the purchase of cut-over lands into the mid -1930s. In 1928 John E. Dunlap operated a dairy ranch on land purchased from the CTLFC along the west side of the Upper Truckee River floodplain.

Community Development

In the spring of 1851 Martin Smith preempted land surrounding a broad and fertile meadow that was later to become Upper Lake Valley. Smith, who bore the distinction as Lake Valley's and the Tahoe region's first white settler, established his trading post in this backcountry wilderness. Smith's trading post was later developed by Ephraim "Yank" Clement into one of the most famous hostelries and stage stops on the Bonanza Road to Washoe known as Yank's Station. Yank's Station was the site of the most eastern remount station of the Central Overland Pony Express in California. Yank stayed as owner-proprietor of the station until 1873, when he sold the famous way station, along with several quarter sections of adjoining land, to George Henry Dudley Meyers. Meyers ran a dairy and cattle ranch and sold timber rights. After 30 years at Yank's Station, Meyers began to sell his holdings to Charles G. Celio, who had settled in Lake Valley during the 1860s. A post office was established in 1904.

By the 1930s housing subdivisions at Meyers, Al Tahoe and Bijou were thriving. In 1945 Aram Harootunian offered 670 lots for sale at Al Tahoe. To provide basic water and power utilities for growing communities, in 1923-1924 the Tahoe Electric Power Company appropriated surplus

waters on Cold Creek and at Star Lake. Frank Globin's Al Tahoe Hotel and Water Company developed three settling ponds on Cold Creek in 1924 and in 1952. The Company built Lake Christopher as a reservoir and stocked it with fish. Tahoe's south shore expanded with the gaming industry during the 1950s and the opening of Heavenly Valley Ski Resort in 1956, followed by the 1960 Winter Olympics at Squaw Valley created a boom in housing and hospitality development. New subdivision developments continued into the 1960s (Tahoe Paradise, Golden Bear and Meadow Lakes) until environmental regulations during the 1970s began to curb development with the inception of the bi-state Tahoe Regional Planning Agency. To provide basic water and power for growing communities, multiple private utility companies were established; most have now been consolidated under the STPUD.

RESULTS

To accomplish the cultural study, the STPUD contracted with Susan Lindström, Ph.D., Consulting Archaeologist. Dr. Lindström exceeds the Secretary of Interior's Professional Qualifications Standards (48 FR 44738-44739). She has over four decades of professional experience in regional prehistory and history, holds a doctoral degree in anthropology/archaeology and has maintained certification by the Register of Professional Archaeologists (RPA, former Society of Professional Archaeologists) since 1982 (Appendix 2).

PREFIELD RECORDS SEARCH

Prefield research (*Phase 1A*) entailed a literature review of prehistoric and historic themes for the project area and included a review of prior archaeological research and of pertinent published and unpublished literature.

Native American outreach is deferred to records searches to be conducted at a later stage of project development. A search of the Sacred Lands Files by the Native American Heritage Commission and follow-up communications with tribes/individuals on the Commission's contact list would be accomplished with future implementation of specific water and sewer line rehabilitation/replacement projects, using this report as contextual background.

An in-house records search (NCIC File No.: Eld-20-98) was performed on October 6, 2020 by staff at the North Central Information Center (NCIC) at California State University, Sacramento. The center is a branch of the California Historical Resources Information System (CHRIS), an adjunct of the State Historic Preservation Office (SHPO). Records were reviewed by NCIC staff to identify any properties listed on the National Register, California Register and other listings. Given the large number of prior archaeological studies and previously recorded archaeological sites in the project vicinity, the NCIC search area radius was limited to an area within and/or immediately adjacent to the defined project neighborhoods (no greater than 1/16 mile). In addition to the records and maps for sites and studies in El Dorado County, other official inventories were also reviewed:

- ✓ Office of Historic Preservation's *Historic Property Directory*
- ✓ *Determination of Eligibility*
- ✓ *California Inventory of Historical Resources*
- ✓ *California State Historical Landmarks*
- ✓ *National Register of Historical Places/California Register of Historic Resources listings*
- ✓ *California Points of Historical Interest*

✓ *Caltrans State and Local Bridge Surveys*

Results of the prefield North Central Information Center records search (*Phase 1A*) disclosed that 221 prior archaeological studies have been conducted within the STPUD service area with an additional 16 studies occurring outside the project area but within the 1/16-mile search radius. To date 192 archaeological sites have been recorded in the project and 66 more in the search radius. Out of a total of 1,149 entries for historic buildings/structures documented in El Dorado County, 332 structures are contained within South Lake Tahoe. In addition, Caltrans has inventoried and evaluated 13 historic bridges. The *California Inventory of Historic Resources* lists “Yanks Station-Overland Pony Express Route” in Meyers as State Historic Landmark #708. The Office of Historic Preservation (SHPO) has made determinations of eligibility for listing in the National and California Registers on 18 of these cultural properties.

Prior archaeological studies and known archaeological resources within the District service area have been identified as a map overlay that is indicative of relative cultural resource sensitivity. A detailed listing of these archaeological reports and maps showing their locations are contained in Appendix 1 attached to this report.

- List of prior archaeological study reports
- Location maps of prior archaeological study reports
- Caltrans Structure Maintenance and Investigations: Historical Significance – State Agency Bridges (El Dorado County)
- El Dorado County Built Environment Resources Directory, South Lake Tahoe
- Office of Historic Preservation (OHP) Archaeological Determinations of Eligibility

Lists of known cultural resources and maps showing their locations appear in the accompanying confidential appendix (filed under separate cover).

- List of known cultural resource
- Location maps of known cultural resources

ARCHAEOLOGICAL FIELD SURVEY

Pipeline upgrades are currently in the early stages of planning. Accordingly, archaeological field surveys (*Phase 1B*) are pending until waterline and sewer line rehabilitation/replacement areas are specifically defined. Therefore, phased cultural resource reporting is anticipated as archaeological fieldwork is conducted on a project-specific basis.

Prior archaeological field studies have primarily involved disturbed ground surfaces along existing STPUD utility rights-of-ways and/or large neighborhood blocks covered by hardscape (e.g., asphalt paving, buildings, etc.). Construction of upcoming water and sewer rehabilitation/replacement projects is also anticipated within the utility right-of-way in previously disturbed surfaces and/or where the ground is obscured by the built environment. General types of disturbance have been organized into six categories based on prior studies conducted throughout much of the District service area:

(1) undisturbed

- (2) disturbed interface between road shoulder and residential/commercial developed lot, ground surface not obscured
- (3) disturbed interface along road shoulder and/or between road shoulder and residential/commercial developed lot, ground surface obscured
- (4) buried utilities and/or drainage ditches
- (5) cut and fill
- (6) paved over.

Under these circumstances, mixed survey strategies incorporating both a “wind-shield” survey and pedestrian reconnaissance are warranted. Previous field surveys produced negative results, where no known or new cultural resources were discovered. Prior disturbance extends to a considerable depth and likely below any potentially intact archaeological surface or subsurface deposits that could once have been present.

POTENTIAL PROJECT IMPACTS

Locales containing known archaeological resources or issues of Native American concern, along with any sensitive environmental areas (e.g., stream crossings, wetlands), would be excluded from upcoming projects and thereby eliminated from any construction ground disturbance activities. No historic buildings/structures/objects would be directly impacted, nor would the setting surrounding any archaeological or historical property be indirectly affected or altered from its present state.

Apart from known cultural resources, it is possible that buried or concealed cultural resources could be present and detected during project ground disturbance activities. A registered professional archaeologist should be on-call during future project construction; if cultural resources are discovered, work should stop near the find and the project sponsor should consult on recommended mitigation procedures. In the unlikely event that human remains are encountered, all activities should stop, and the County Coroner’s Office should be contacted. In the unlikely event that human remains are encountered during the proposed project, all activities should be stopped immediately, and the County Coroner’s Office should be contacted pursuant to Public Resources Code (PRC) Section 7050.5. If the remains are determined to be of Native American origin, the NAHC should be notified within 24 hours of determination, as required by PRC Section 5097.94, 5097.98 and 5097.99. The NAHC should notify designated *Most Likely Descendants* (in this case the Washoe Tribe), who should provide recommendations for the treatment of the remains within 24 hours.

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Washoe Tribal Council

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APPENDIX 1

NORTH CENTRAL INFORMATION CENTER RECORDS SEARCH RESULTS

North Central Information Center Correspondence

List and Maps of Prior Archaeological Studies

Caltrans Structure Maintenance and Investigations: Historical Significance – State Agency Bridges (El Dorado County)

El Dorado County Built Environment Resources Directory (excerpts), South Lake Tahoe

OHP Archaeological Determinations of Eligibility



10/6/2020

NCIC File No.: ELD-20-98

Susan Lindström
Consulting Archaeologist
P.O. Box 3324
Truckee, CA 96160

Re: STPUD 2020 Water and Sewer Project

The North Central Information Center received your records search request for the project area referenced above, located on the Emerald Bay, South Lake Tahoe, Echo Lake, and Freck Peak USGS 7.5' quads. The following reflects the results of the records search for the project area and a 1/16-mi radius (built environment resources not included).

As indicated on the data request form, the locations of resources and reports are provided in the following format: ☒ custom GIS maps ☒ shapefiles

Resources within project area:	See list below
Resources outside project area, within radius:	See list below
Reports within project area:	See list below
Reports outside project area, within radius:	See list below

Resource Database Printout (list):

☒ enclosed ☐ not requested ☐ nothing listed/NA

Resource Database Printout (details):

☒ enclosed ☐ not requested ☐ nothing listed/NA

Resource Digital Database Records:

☐ enclosed ☒ not requested ☐ nothing listed/NA

Report Database Printout (list):

☒ enclosed ☐ not requested ☐ nothing listed/NA

Report Database Printout (details):

☒ enclosed ☐ not requested ☐ nothing listed/NA

Report Digital Database Records:

☐ enclosed ☒ not requested ☐ nothing listed/NA

Resource Record Copies:

☐ enclosed ☒ not requested ☐ nothing listed/NA

Report Copies:

☐ enclosed ☒ not requested ☐ nothing listed/NA

<u>Built Environment Resources Directory:</u>	<input checked="" type="checkbox"/> enclosed	<input type="checkbox"/> not requested	<input type="checkbox"/> nothing listed/NA
<u>Archaeological Determinations of Eligibility:</u>	<input checked="" type="checkbox"/> enclosed	<input type="checkbox"/> not requested	<input type="checkbox"/> nothing listed/NA
<u>CA Inventory of Historic Resources (1976):</u>	<input checked="" type="checkbox"/> enclosed	<input type="checkbox"/> not requested	<input type="checkbox"/> nothing listed/NA
<u>Caltrans Bridge Survey:</u>	<input checked="" type="checkbox"/> enclosed	<input type="checkbox"/> not requested	<input type="checkbox"/> nothing listed/NA
<u>Ethnographic Information:</u>	<input type="checkbox"/> enclosed	<input checked="" type="checkbox"/> not requested	<input type="checkbox"/> nothing listed/NA
<u>Historical Literature:</u>	<input type="checkbox"/> enclosed	<input checked="" type="checkbox"/> not requested	<input type="checkbox"/> nothing listed/NA
<u>Historical Maps:</u>	<input type="checkbox"/> enclosed	<input checked="" type="checkbox"/> not requested	<input type="checkbox"/> nothing listed/NA
<u>Local Inventories:</u>	<input type="checkbox"/> enclosed	<input type="checkbox"/> not requested	<input checked="" type="checkbox"/> nothing listed/NA
<u>GLO and/or Rancho Plat Maps:</u>	<input type="checkbox"/> enclosed	<input checked="" type="checkbox"/> not requested	<input type="checkbox"/> nothing listed/NA
<u>Shipwreck Inventory:</u>	<input type="checkbox"/> enclosed	<input checked="" type="checkbox"/> not requested	<input type="checkbox"/> nothing listed/NA
<u>Soil Survey Maps:</u>	<input type="checkbox"/> enclosed	<input checked="" type="checkbox"/> not requested	<input type="checkbox"/> nothing listed/NA

Please forward a copy of any resulting reports from this project to the office as soon as possible. Due to the sensitive nature of archaeological site location data, we ask that you do not include resource location maps and resource location descriptions in your report if the report is for public distribution. If you have any questions regarding the results presented herein, please contact the office at the phone number listed above.

The provision of CHRIS Data via this records search response does not in any way constitute public disclosure of records otherwise exempt from disclosure under the California Public Records Act or any other law, including, but not limited to, records related to archaeological site information maintained by or on behalf of, or in the possession of, the State of California, Department of Parks and Recreation, State Historic Preservation Officer, Office of Historic Preservation, or the State Historical Resources Commission.

Due to processing delays and other factors, not all of the historical resource reports and resource records that have been submitted to the Office of Historic Preservation are available via this records search. Additional information may be available through the federal, state, and local agencies that produced or paid for historical resource management work in the search area. Additionally, Native American tribes have historical resource information not in the California Historical Resources Information System (CHRIS) Inventory, and you should contact the California Native American Heritage Commission for information on local/regional tribal contacts.

Should you require any additional information for the above referenced project, reference the record search number listed above when making inquiries. Requests made after initial invoicing will result in the preparation of a separate invoice.

Sincerely,

Paul Mendes, Coordinator
North Central Information Center

Archaeological resources within project area:

P-09-000113	P-09-003264	P-09-003848
P-09-000114	P-09-003265	P-09-003849
P-09-000115	P-09-003267	P-09-003851
P-09-000158	P-09-003268	P-09-003854
P-09-000159	P-09-003274	P-09-003862
P-09-000166	P-09-003275	P-09-003863
P-09-000254	P-09-003276	P-09-003864
P-09-000256	P-09-003277	P-09-003865
P-09-000258	P-09-003281	P-09-003883
P-09-000262	P-09-003283	P-09-003885
P-09-000263	P-09-003382	P-09-003886
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P-09-006072
P-09-006073

Reports within project area:	007034	008636
	007036	008686
	007041	008814
000027	007042	008845
000189	007044	008849
000206	007048	009184
000261	007051	009219
000272	007055	009220
000428	007058	009299
000482	007088	009300
000624	007132	009318
000810	007134	009377
002185	007135	009378
002205	007136	009379
002212	007143	009380
002213	007209	009381
002283	007210	009382
002328	007211	009384
002515	007212	009385
002574	007213	009386
002724	007215	009388
002725	007216	009395
002815	007217	009405
002850	007222	009406
002851	007578	009411
002852	007656	009412
002853	007835	009413
002854	007837	009414
002855	007987	009420
002858	008218	009421
002859	008531	009424
002862	008532	009425
002863	008533	009426
002864	008534	009427
002866	008603	009429
002868	008604	009431
002869	008605	009647
004395	008607	009779
006569	008608	009862
006616	008609	009865
006633	008610	009877
006781	008611	009881
006782	008612	009883
006783	008617	009963
006788	008620	009966
006793	008621	009970
006857	008626	010006
006914	008627	010007
006930	008631	010207
007031	008633	010238
007032	008635	010241

010259	012629
010276	012634
010301	012649
010367	012650
010394	012692
010407	012731
010413	012752
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010441	012937
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012626	

Archaeological resources outside project area, within radius:

P-09-000112	P-09-003481
P-09-000116	P-09-003483
P-09-000117	P-09-003722
P-09-000255	P-09-003807
P-09-000257	P-09-003811
P-09-000259	P-09-003812
P-09-000260	P-09-003866
P-09-000261	P-09-003867
P-09-000264	P-09-003868
P-09-000265	P-09-003927
P-09-000266	P-09-003954
P-09-000273	P-09-004332
P-09-000279	P-09-004361
P-09-000281	P-09-004362
P-09-000615	P-09-004363
P-09-000621	P-09-004367
P-09-000940	P-09-004372
P-09-001208	P-09-004505
P-09-001929	P-09-004506
P-09-002838	P-09-004523
P-09-002839	P-09-004528
P-09-003260	P-09-004538
P-09-003266	P-09-005288
P-09-003271	P-09-005403
P-09-003272	P-09-005409
P-09-003279	P-09-005508
P-09-003282	P-09-005727
P-09-003326	P-09-005817
P-09-003397	P-09-006070
P-09-003438	P-09-006071
P-09-003475	P-09-006074
P-09-003477	P-09-006075
P-09-003480	P-09-006076

Reports outside project area, within radius:

002856
002857
002860
002865
002867
006785
006786
006789
008606
008628
009780
010544
011672
012627
012941
013052

Report List

Report No.	Other IDs	Year	Author(s)	Title	Affiliation	Resources
000027		1975	Donald Starr and Gloria Cadden	Archaeological Investigations within the City of South Lake Tahoe		09-000254, 09-000255, 09-000256
000180		1978	Peak, Ann S. and Associates	South Lake Tahoe Public Utility District Wastewater Disposal, El Dorado and Alpine Counties, California.	Peak & Associates, Inc.	
000189B		1978	Peak, Ann S. and Associates	Cultural Resource Assessment of the Proposed South Lake Tahoe Public Utilities District Wastewater Treatment Facilities - Phase I.		
000189C			Chavez, David and Cindy Desgrandchamp	Cultural Resources Assessment for the Tahoe Regional Environmental Evaluation Study.		
000206		1985	Bass, Henry	Negative Archaeological Survey Report 03-ED-59 74.4/75.4 Proposed Erosional Control Devices, South Lake Tahoe, El Dorado County.		
000261		1979	Peak, Ann S. and Associates	Record Search of Cultural Resources For the South Lake Tahoe Public Utility District Water System Master Plan, El Dorado County, California.	Peak & Associates	09-000114, 09-000115, 09-000116, 09-000254, 09-000255, 09-000256
000272		1988	Stearns, Steven M. and Jeffrey S. Seidomridge	Cultural Resource Assessment of the Blyss Community Park, South Lake Tahoe, California.	S & S Archaeological Consultants	
000428	USFS - Contract No. 30-4640	1974	Jonathan O. Davis, Robert Eklon, and Gail Townsend	A Preliminary Archaeological Reconnaissance of Fallen Leaf Lake.	USFS	09-000117, 09-000159, 09-000257, 09-000258, 09-000259, 09-000260, 09-000261, 09-000262, 09-000263, 09-000264, 09-000265, 09-000266, 09-000267, 09-000268, 09-000269, 09-000270, 09-000271, 09-000272, 09-000273, 09-000274, 09-000275, 09-000276, 09-000277, 09-000278, 09-000279, 09-000280, 09-000281, 09-000282, 09-000283
000482		1991	Woodward, Jim	Archaeological Survey of the Emerald Bay Shoreline in Emerald Bay State Park, El Dorado County, California.		09-000052, 09-000053, 09-000817
000624		1980	Peak, Ann S. and Associates	Cultural Resource Assessment of the South Lake Tahoe Public Utility District College Well Project, El Dorado County, California.	Peak & Associates	

Report List

Report No.	Other IDs	Year	Author(s)	Title	Affiliation	Resources
000810		1996	Trish Fernandez and Dana McGowan	Cultural Resources Report for the Spring Creek/Cathedral Road Broadcast Burn Project, Lake Tahoe Basin Management Unit, El Dorado National Forest.	Jones & Stokes Associates, Inc.	
002185		1990	Lakeck, Anthony	Archaeological and Historical Resources Survey and Impact Assessment for Tahoe Mountain Timber Harvest Plan.		09-003855
002205		1991	Lindstrom, Susan	A Cultural Resources Evaluation of the South Tahoe Public Utilities District Emergency Retention Basin Project. A Surface Survey of Five Acres Near South Lake Tahoe, California.	Archaeological Consultant	
002212		1990	Baker, Scott and Charlie Francis	An Archaeological and Historical Resources Survey of the Tahoe Pines Apartments Project. APNs 025-241-061, South Lake Tahoe, El Dorado County, California.	Gens Heritage Services	
002213		1995	Napton, L. Kyle	Cultural Resource Investigations of the Proposed Emerald Bay Apartments Project Site, South Lake Tahoe, El Dorado County, California.		
002283		1990	Davis, Herschel D.	Cultural Resources Report for Individual Parcels Acquired Under Public Law 96-586 (Burton/Santini) Lake Tahoe Management Unit, CRR # 05-19-3058, for Parcels 28-153-2607 and 3304.	United States Forest Service, Lake Tahoe Basin Management Unit.	
002328		2000	Campes, Lynn	Archaeological Survey and Inventory Report for the 15th Street Bike Trail Project, South Lake Tahoe, El Dorado County, California.		09-001207, 09-001208
002515		2000	Lindstrom, Susan	A Cultural Resources Evaluation of the CHP Meyers Project, South Lake Tahoe, California, El Dorado County.	Consulting Archaeologist	
002574		2000	Hoefel, Jonathan	Confidential Archaeological Addendum for Timber Operations for Lake Tahoe Community College.		
002724		1998	Lindstrom, Susan and Jeffrey Hall	Archaeological Survey and Site Recording for the Pioneer Timber Sale, with a Contextual History of the Lake Valley Railroad.	Consulting Archaeologist (Lindstrom), Garcia and Associates (Hall)	34-000501
002725		2001	Starns, Jean	Echo Creek Ranch: A Group Facility: Negative Cultural Resource Report.	Consulting Archaeologist	

Report List

Report No.	Other IDs	Year	Author(s)	Title	Affiliation	Resources
002815		1987	Hobbs, Christine	19-ELD-89 PM 6.5 486500 - Changeable Message Sign		
002850		1981	Chevez, David	An Archeological Survey of the South Lake Tahoe Bike Trail Project		
002851		1994	Early, David E.	Archaeological and Historical Resources Survey and Impact Assessment: A Supplemental Report for a Timber Harvesting Plan: City of South Lake Tahoe Emergency THP		
002852		1988	Knick, Kristen	Archaeological Reconnaissance Report for Individual Parcels Acquired Under Public Law 95-586, Lake Tahoe Basin Management Unit.		
002853		1989	Hardy, Kathryn D.	Archaeological Reconnaissance Report for Individual Parcels Acquired Under Public Law 95-586, Lake Tahoe Basin Management Unit.		
002854		1983	Hardy, Kathy	Summary Form: Archaeological Reconnaissance Report, Lake Tahoe Basin Management Unit.		
002855		1990	Young, Bertrand T.	Cultural Resource Inventory of a Proposed 120 KV Transmission Line, Roundhill Substation to Stateline Substation, El Dorado Co., CA and Douglas Co., NV.	Archaeological Research Services, Inc.	
002856		1991	Brown, Jody L.	First Addendum Historic Property Survey Report for Three Bridges within the Lake Tahoe Basin on State Route 50, El Dorado Co., CA.		
002857		1971	Knick, Kristen	Archaeological Reconnaissance Report for Individual Parcels Acquired under Public Law 95-586 Lake Tahoe Basin Management Unit.		
002858		1988	Hardy, Kathy	Summary Form: Archaeological Reconnaissance Report, Lake Tahoe Basin Management Unit ARR# 05-19-175	US Forest Service	
002859		1991	Burke, Thomas D.	Addendum No. 1 to Cultural Resources Inventory of the Paiute Pipeline for their 1992 Operations: Two Parcels in Douglas Co., NV, And El Dorado Co., CA.		

Report List

Report No.	Other IDs	Year	Author(s)	Title	Affiliation	Resources
002860		1988	Knick, Kristin	Archaeological Reconnaissance Report for Individual Parcels Acquired Under Public Law 95-506 Lake Tahoe Basin Management Unit. ARRB 05-19-198		
002862		1990	Melanga, Peter F., Jr.	Cultural Resources Survey for the South Lake Tahoe Loop Road Expansion	Research Archaeology	
002863		1995	Early, David E.	Archaeological and Historical Resources Survey and Impact Assessment, A Supplemental Report for a Timber Harvesting Plan		
002864		1988	Chavez, David and Sally B. Woodbridge	Cultural Resources Evaluations for the South Lake Tahoe Redevelopment Plan (ER)	David Chavez & Associates	
002865		1995	Bartholomew, Harland	Martin Ave. Culvert Replacement Project: Historic and Archaeological Survey Report- Negative Findings	Harland Bartholomew & Associates, Inc.	
002866		1986	Hardy, Kathy	Summary Form: Archaeological Reconnaissance Report, Lake Tahoe Basin Management Unit. ARRB 05-19-145	US Forest Service	
002867		1985	Dietz, Stephen A.	Archaeological Reconnaissance Report for Individual Parcels Acquired Under Public Law 95-506 Lake Tahoe Basin Management Unit. ARRB 05-19-196		
002868		1975	Henley, Robert	Archaeological Reconnaissance Report: ARRB 05-AC-03-05, STPUD Exchange (proposed)	US Forest Service	
002869		1982	Fester, Daniel G.	An Archaeological Reconnaissance of the Lake Tahoe Community College, El Dorado Co., CA	California Department of Forestry	09-000114, 09-000615, 09-000616, 09-000617
004395		2001	Susan Lindström	Cellular Communications Tahoe Sites Heritage Resource Inventory Placer and El Dorado Counties	Consulting Archaeologist	
006569		2005	Bilant, Lorne	621 Meyers CA-16448		
006616		2005	Lindström, Susan	Van Sickle State Park Phase 1 Project Heritage Resource Inventory		09-003257, 09-003258, 09-003259

Report List

Report No.	Other IDs	Year	Author(s)	Title	Affiliation	Resources
006633		2004	Shapiro, Lisa A, Robert Jackson, Trish Fernandez, Susan Lindström, William Bloomer, and Penny Ruck	Cultural Resources Survey, Inventory, and Site Evaluations: Washoe Meadows State Park, El Dorado County, California	Pacific Legacy, Inc.	09-000618, 09-000619, 09-000620, 09-000627, 09-000641, 09-000642, 09-000643, 09-000644, 09-000645, 09-002838, 09-002839, 09-003260, 09-003263, 09-003264, 09-003265, 09-003266, 09-003267, 09-003268, 09-003269, 09-003270, 09-003271, 09-003272, 09-003273, 09-003274, 09-003275, 09-003276, 09-003277, 09-003278, 09-003279, 09-003280, 09-003281, 09-003282, 09-003283, 09-003284, 09-003285, 09-003286
006701		1992	Ferber, Alfred	Archaeological Survey of the 60-acre South Tahoe High School Site South Lake Tahoe El Dorado County California		
006702		2002	Nguyen, L. Kyle	Cultural Resource Investigations of the Proposed Accessible Space Inc., 2.83 acre Property, 714 and 750 Emerald Bay Road		
006703		1987	Hardy, Kathryn	Emerald Bay Recreation Rehab Project ARR No. 65-19-160	USFS	
006705		1976	Kraushaar, Richard	Taylor Creek Rorippa submelata Fence Project		
006706		2002	Windmiller, Ric	Archaeological Survey Report At & T Wireless Survey Report Site ID #959002012A- Lake Valley South Lake Tahoe, El Dorado County		
006708		1995	Dexter, Sean	Angora Highlands Shaded Fuelbreak		
006709		2001	Lindström, Susan	Angora Creek Stream Environment Zone Restoration Project, Heritage Resource Inventory, Meyers, California, El Dorado County		09-003326
006793		1995	Dexter, Sean	Ebights Dairy, Emerald Bay		09-000261, 09-000262
006857		2005	Lindström, Susan	Emerald Bay Submarine Cable Project Emerald Bay State Park El Dorado County, CA		09-003382
006914		2006	Alpergroup	Historic Documentation of the Butler House, Tahoe Meadows, 3901 Cedar Road, South Lake Tahoe, CA APN 029-141-381		

Report List

Report No.	Other IDs	Year	Author(s)	Title	Affiliation	Resources
000030		2005	Helselt, Brian W.	New Tower Submission Packet FCC Form 820 Project Name: Meyers Project Number: 36201484 01484	URS	
007031		2002	Ludwig, Brian	South Lake Tahoe Juvenile Hall Cultural Resources Survey		09-003436
007032		2005	Mervin, Judith	Historic Structure Report for Hansen Cabin 990 Cave Rock Avenue, South Lake Tahoe, El Dorado County, CA APN 26-261-04		
007034		2002	Lindström, Susan	Heritage Resource Study Final Report Van Sickle Ranch Water Line Project		
007036		2003	Lindström, Susan	Heritage Resource Inventory Rocky Point Erosion Control Watershed Restoration Project Phases 3&4, PWC 2602-14		09-000606
007041		2002	Windmiller, Ric	Archeological Survey Report AT&T Wireless Services Site No. 059002016801- Pioneer Trail 1857 Heaps Drive 1857 Heaps Drive South Lake Tahoe, El Dorado County, CA		
007042		1984	Peters, Mary and Peak, Melinda	Cultural Resource Assessment of the South Lake Tahoe Airport Expansion Project, El Dorado County, CA		09-003438
007044		1999	California Department of Transportation	Historic Property Survey Report For The Proposed Improvement of US Highway 50 In South Lake Tahoe, El Dorado County, CA	Caltrans	09-003437, 09-003439, 09-003440
007044B		1996	William Kestura	Historic Architectural Survey Report for the Proposed Improvements to U.S. Highway 50 Between State Highway 89 and Ski Run Boulevard in South Lake Tahoe, El Dorado County	Caltrans	
007048		2001	Lindström, Susan	Heritage Resource Inventory Henry Van Sickle Unit Lake Tahoe Nevada State Park Master Plan and Phase I Development		09-003257
007051		2003	California State University, Stanislaus	Cultural Resource Investigations of the Proposed Evergreen Project, 2.63 Acre Property on Kyburz Avenue and Melba Drive, South Lake Tahoe, El Dorado County, CA		
007055		2004	Lindström, Susan	Heritage Resource Inventory Sierra Tract Project Erosion Control Project	Consulting Archaeologist	09-000114, 09-003445, 09-003446, 09-003447, 09-003448, 09-003449, 09-003450

Report List

Report No.	Other IDs	Year	Author(s)	Title	Affiliation	Resources
007056		1984	Mary Pyle Peters and Melinda Peak	Lake Tahoe Community College Cultural Resources Study	Peak & Associates	09-000615, 09-000616, 09-000617, 09-001917
007065		1993	Lindström, Susan	A Cultural Resource Inventory of Golden Bear Park (303 Acres) South Lake Tahoe, El Dorado County, California U.S. Forest Service CRR #05-19-218		09-003457, 09-003458, 09-003459, 09-003460
007132		1982	Peterson, Fredic F., Jeffrey S. Seidomridge, and Steven Stearns	Cultural Resources Inventory of the Heavenly Ski Resort, Nevada and California, Phase I Preliminary Fieldwork and Volumes 1 and 2, CRR 05-216	S&S Archaeological Consultants	09-004112
007134		2002	Hofer, Jonathan F.	Confidential Archaeological Addendum for Timber Operations in non-federal lands in California. Project Name: El Dorado County Community Play Fields		09-001917
007135		2005	Supernowicz, Dana	Cultural Resources Study, Assessors Parcel Map 33-60-06, Tahoe Paradise Addition Unit No. 2, 1261 Acacia Circle, South Lake Tahoe, El Dorado County, California	Historic Resource Associates	
007136		1993	O'Brien, Sheryl	Addendum: Cultural Resource Report CRR No. 05-19-170 B Project Name: Heavenly Valley 883 Forest Health Project	Lake Tahoe Basin Management Unit	09-003472, 09-003473, 09-003474, 09-003475, 09-003476, 09-003477, 09-003478, 09-003479, 09-003480, 09-003481, 09-003482, 09-003483, 09-003484
007143		2003	Napton, L. Kyle	Cultural Resource Investigations of the Proposed American Baptist Homes of the West Project 3.16 Acre Property, Herbert Avenue and Pioneer Trail, South Lake Tahoe, El Dorado County, California		09-003485
007209		1995	Broeh, Jody L. and Joan Rappold	STUPD / USFS Luther Pass Pump Station Land Transfer Project: Cultural Resources Investigation		
007210		1991	Lindström, Susan	A Cultural Resources Evaluation of the Meyers Bike Trail, South Lake Tahoe, CA El Dorado County	Consulting Archaeologist	09-003528, 09-003577
007211		1990	Herschel D. Davis	Cultural Resources Report For Individual Parcels Acquired Under Public Law 96-586 (Burton/ Santini) Lake Tahoe Basin Management Unit		
007212		1991	Stubble, Mark	Cultural Resources Report #05-19-273		

Report List

Report No.	Other IDs	Year	Author(s)	Title	Affiliation	Resources
007213		1990	Davis, Herschel D.	Cultural Reconnaissance Report For Re-Location of CA-ELD-24 & CA-ELD-25. (CRR #05-19-244)		09-000112, 09-000113
007215		1995	Lindström, Susan	Arrowhead Water Storage Tank Facility Heritage Resource Inventory 5 Acres Near Myers, CA El Dorado County		
007216		1995	Dexter, Sean David	Lake Tahoe Basin Management Unit Heritage Resource Report ———URBAN FRINGE MANAGEMENT PROJECT——— (California Portion)	Lake Tahoe Basin Management Unit	
007217		1988	Hardy, Kathy	Short Form Archaeological Reconnaissance Report ANR NO. 05-19-178 PROJECT NAME: SANTE FE ROAD EROSION CONTROL PROJECT	Lake Tahoe Basin Management Unit	
007222		1995	Peak, Melinda A.	A Determination of Eligibility and Effect on Cultural Resources Within the Angora Creek and Washoe Meadows Wildlife Habitat Enhancement Project		09-000358, 09-000940
007578		1997	Davis, Herschel	Lands Department Urban Lot Management Project	Lake Tahoe Basin Management Unit	
007656		2006	Daugherty, Christy	An Archaeological Survey Report for the Fallen Leaf Lake Fuel Reduction El Dorado County, California		09-003674
007635		1997	Broen, Jody	STPUD A-Line Pipeline Replacement Project: Cultural Resources Investigation	Holland Bartholomew & Associates Inc	
007637		2002	Heidecker, Kelly, Jody Broen, and Jeff Creighton	STPUD B-Line Export Pipeline Replacement Project: Phase III Cultural Resources Inventory and Evaluation Report	Parsons, Inc.	09-003692, 09-003714
007637B		2001	Parsons, Inc.	South Tahoe Public Utility District B-Line Phase III Project Environmental Impact Report/Environmental Impact Statement	Parsons, Inc.	
007967		1992	Davis, Herschel	Ground Truthing of Heidecker and d'Azevedo Places	USFS	09-000158, 09-000166
008218		1992	Gay Berman	Lake Valley Fire District Lot Transfer	Lake Tahoe Basin Management Unit	
008531		1989	Kristen Hauge	Cascade Salvage Sale	USDA Forest Service	
008532		1988	Kristen Knud	Archaeological Reconnaissance Report for Individual Parcels Acquired Under Public Law 95-608, Lake Tahoe Basin Management Unit	USFS	

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00653		2002	Judith Marvin	Historic Property Survey Report, SR 88 KP 13.7 and SR 50 KP 121.5		
006534		1982	Mark Lyett and John Hanson	A Cultural Resources Survey for the Tahoe Mountain Fuels Reduction and Southshore Bike Trail Development Projects, Lake Tahoe Basin Management Unit, El Dorado County, California	BioSystems Analysis	09-003883, 09-003884, 09-003885, 09-003886, 09-003887, 09-003888, 09-003889, 09-003890, 09-003891, 09-003892, 09-003893, 09-003894, 09-003895, 09-003896, 09-003897
006603		1987	Kathryn Hardy	Tahoe Mountain Erosion Control Project, El Dorado County Santschi-Burton Erosion Control Project	USFS Archaeologist	
006604		1987	Kathy Hardy	B-H Salvage Sale	Forest Archaeologist	
006605		1989	Janis K. Offermann	DOT Negative Archaeological Survey Report-Addendum, Cascade Creek Bridge Replacement	California Dept. of Transportation	
006606		1979	Gary E. Cooper	Bayview Timber Sale	Lake Tahoe Basin Management Unit	
006607		1987	Kathy Hardy	1987 Rorippa Reestablishment, Archaeological Reconnaissance Report, ARR No. 05-19-163	Lake Tahoe Basin Management Unit	09-003848
006608		1995	Sean David Dexter	Ebright Forest Health Heritage Resource Report	Lake Tahoe Basin Management Unit	09-000269, 09-000279, 09-000281, 09-000282
006609		1995	Anthony Luraco	Mule Deer THP		09-003909
006610		1990	Susan Lindstrom	Cultural Resource Evaluation, Emerald Bay C.F.I.P., El Dorado County	Archaeological Consultant	
006611		1982	Robert Elstan	Archaeological Reconnaissance of the Proposed Washoe Cultural Center near Lake Tahoe, El Dorado County, California	Mountain Research	09-000286
006612		1993	Nancy Schwiager	Ebright Land Exchange	USFS	
006617		1996	Melinda Peak	Cultural Resource Assessment of APN 33-110-09, Near the South Lake Tahoe Airport, El Dorado County, California	Peak and Associates, Inc.	
006620		1989	Susan Lindstrom	A Cultural Resource Evaluation of the Casside Lake Sanitary Sewer Extension Project, El Dorado County	Archaeological Consultant	
006621		1986	Kathy Hardy	Dodgess Timber Sale	Forest Archaeologist	09-003917, 09-003921
006626		1985	Susan Lindstrom	Archaeological Investigations at Tallac Point	Far Western Anthropological Research Group, Inc.	

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006627		1991	Gay L. Berrien	Cultural Resource Report, Angora Management Area	Archaeology Technician, Lake Tahoe Basin Management Unit	09-003885, 09-003909, 09-003926, 09-003927, 09-003928
006628		1991		Historic Property Survey Report, Request for Determination of Eligibility and Finding of Effect for a Bridge Replacement Project at Taylor Creek on State Route 89, El Dorado County, California	State of California, Department of Transportation	09-000117, 09-000159, 09-000267, 09-000268, 09-000271, 09-000272, 09-000273, 09-000274, 09-000275
006629A		1988	Janis K. Offermann	An Extended Phase I Investigation at Sites CA-ELD-179 and -180 Along Taylor Creek Near South Lake Tahoe, El Dorado County, California	California Dept of Transportation	
006629B		1979	Sheila L. Mone	Report on a Preliminary Archaeological Reconnaissance for a Proposed Highway Improvement and and Bridge Replacement Project in El Dorado County, California	California Dept of Transportation	
006631		2007	Susan Lindström	South Lake Tahoe Public Utility District Well Improvement Project Heritage Resource Inventory, Meyers, California, El Dorado County	Consulting Archaeologist	
006633		1982	Eleonor H. Den	An Archaeological Survey and Historic Assessment of Fallen Leaf Lodge, El Dorado County, California	Archaeological Study Center, Dept. of Anthropology, CSUS	09-003950
006635		1976	Alan Leventhal and Robert Elstan	A Preliminary Archaeological and Historical Reconnaissance for the Proposed Sewer Line for the Fallen Leaf Lake Area		09-003956
006636		1991	Neil McQuillie	Camp Richardson Water Line and Well		
006646		2006	Judith Marvin	Section 110 Consultation on the National Register of Historic Places Eligibility for the Fredericks Residential Complex Forest Service Site No. 05-19-621 Fallen Leaf Lake	Foothill Resources	09-003391
006614		1996	Lise A. Shapiro and Robert J. Jackson	Evaluation of Heritage Resources for the Pacific House Echo Summit Power Line Safety Project, Eldorado National Forest	Pacific Legacy, Inc.	09-000916, 09-003842, 09-003966, 09-004000, 09-004039, 09-004166, 09-004167
006645		1990	Herschel D. Davis	Hersch Davis's Site Surveys	Certified Archaeological Surveyor	09-000256, 09-004168
006649		1992	Susan Lindström	A Cultural Resource Surface Survey, City of South Lake Tahoe Fire Station, One-Half-Acre Parcel (APN 027-323-17), South Lake Tahoe, California, El Dorado County	Archaeological Consultant	09-003983, 09-004169, 09-004170

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000104		2007	Richard Perry	Cultural Resources Survey of 167 Acres for the Angels Fire Restoration Project in South Lake Tahoe, El Dorado County, California	U.S. Army Corps of Engineers	
000219		2007	Judith Mervin and Linda Thorpe	Upper Truckee River Middle Reach Preliminary Restoration Alternative, South Lake Tahoe, El Dorado County, California	Fedhill Resources, Ltd.	09-004330, 09-004331, 09-004332
000220		2007	Peter Jensen	Archaeological Survey, <1-acre Parcel Split, El Dorado County, California	Genesis Society	
000299		2008	Charles Zeier	Heritage Resource Inventory Report: Christmas Valley 2 Erosion Control Project, EIP Projects #708 and #190	Zeier & Associates, El Dorado Department of Transportation	
000300		2008	Brian Hatzoff	Cultural Resources Technical Report Phase 1 Field Survey/Vegetation Wireless, Meyers, 2181 Cebo Circle	URS Corporation	
000318		2008	EarthTouch	South Lake Tahoe Middle School	EarthTouch	
000377		1994	Mike Vroman	S.T.P.U.D. Timber Harvest Plan	Fibreboard Corporation	09-001917, 09-004504
000378		1994	Herschel Davis	Hersh's Projects: Cherry's Orchard	Lake Tahoe Basin Management Unit	09-004506
000379		1996	Sean Dexter	City of South Lake Tahoe Urban Lot Transfer	Lake Tahoe Basin Management Unit	
000380		2002	Scott Bilal	Lake Tahoe Airport CA-1645B		
000381		1992	Gay Benian	Heavenly Public Fuelwood Sale - Unit 7	USFS	
000382		1998	Jerry Reiss	Cultural Resource Inventory Report for Trout Creek Restoration along Trout Creek	Natural Resource Conservation Service	09-001917, 09-001929
000384		1993	Susan Lindstrom	Bijou/El Tahoe Community Plan (EIR/EIS) Cultural Resources Component	Archaeological Consultant	
000385		1996	Susan Lindstrom	Phase I Addendum, Archaeological Field Inventory Upper Truckee River Wetlands Restoration Project	Consulting Archaeologist	09-000809, 09-000827, 09-003465
000386		1999	Michael Drews	Moshier Timber Harvest Plan	California Department of Forestry and Fire Protection	09-001363, 09-004513, 09-004514, 09-004515, 09-004516, 09-004518, 09-004519, 09-004520, 09-004521

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009386		1994	Susan Lindström	Heritage Resource Inventory South Tahoe Public Utilities District A-Line Export Pipeline Relocation Project	Consulting Archaeologist	09-004523, 09-004524, 09-004525, 09-004526, 09-004527, 09-004528, 09-004529, 09-004530, 09-004531, 09-004532, 09-004533, 09-004534, 09-004535, 09-004536, 09-004537, 09-004538
009395		1990	Herschel Davis	Archaeological Survey Addendum Report For Lake Tahoe Community College (ARR #05-19-237)		09-000527, 09-000529, 09-000616, 09-001917, 09-004560
009405		2002		James S. Outtip Project		
009406		1990	Herschel Davis	Cultural Resources Report for Individual Parcels Acquired Under Public Law 96-386 Lake Tahoe Basin Management Unit		
009411		1995	Jody L. Brown	South Tahoe Public Utility District A-Line Pipeline Relocation Extension Project	Hatland Bartholomew & Associates, Inc.	
009412		2001	Susan Lindström	Cellular Communications Skyline Drive Site Heritage Resource Inventory Meyers, California, El Dorado County	Consulting Archaeologist	
009413		1999	Sarah J. Moran	Negative Archaeological Survey Report For The Proposed Erosion Control Project Along State Route 50 in El Dorado County	California Department of Transportation	
009414		1991	Susan Lindström	South Lake Tahoe Public Utilities District, Luther Pass Effluent Tank Construction and Rehabilitation Project	Archaeological Consultant	
009420			Herschel Davis	Cultural Reconnaissance Report CRR No. 05-19-315C	Archaeological Surveyor	
009421		2002	Karen Blum	Cultural Resources Report HRR No. TB-2002-054, Fish Hatchery Recreation Residence Archaeological Survey	Archaeologist	
009424		1986	Kathy Hardy	Upper Truckee Erosion Control Project	Forest Archaeologist	
009425		1982	Henry O. Bass	An Archaeological Survey Report For Three Proposed Projects on State Route 50 in El Dorado County	Department of Transportation	
009426		1987	Kathy Hardy	Lake Country Estates Land Exchange	Forest Archaeologist	
009427		1996	Sean O. Dwyer	Developed Sites Pest Management Project	US Forest Service	09-003707
009429		2003	Susan Lindström	Upper Truckee River Reclamation Project Upper Reach, Planning and Design Heritage Resource Study Phase I	Consulting Archaeologist	

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009431		2003	Dept of Transportation	Negative Historic Property Survey Report for the Proposed Enclosure of the Existing Lo-Cal Avalanche Gun Platform on US Highway 50 Near Meyers El Dorado County, California		
009647		1992	Herschel Davis	Survey of the Lake Tahoe Community College: 05-19-237	Lake Tahoe Basin Management Unit	09-001917
009779		2006	A. Martinez and N. Sikes	Cultural Resources Inventory for Montgomery Estates Area 1 Erosion Control Project	SWCA Environmental consultants	
009780		2006	A. Martinez and N. Sikes	Cultural Resources Inventory for Cold Creek Fisheries Enhancement Project	SWCA Environmental Consultants	
009862		2006	City of South Lake Tahoe	At Tahoe BMP Erosion Control Project EIP Project #696	City of South Lake Tahoe	
009865		2006	El Dorado County Department of Transportation and Zeier & Associates	Seasmit Phase 2 Bike Path and Erosion Control Project		
009877		2006	El Dorado County Department of Transportation and Zeier & Associates, LLC	Elche View Estates Phase 2 Erosion Control Project		
009881		2006	Mark Bowen	Final Historical Resources Evaluation Report for Proposed Water Quality Improvements on U.S. 50, El Dorado County, California	Jones & Stokes	09-000829, 09-003398, 09-003815, 09-003838, 09-004843
009881B		2006	Gabriel Roark	Final Archaeological Survey Report for Proposed Water Quality Improvements on U.S. Highway 50	Jones & Stokes	
009883		2006	St. John, Gail	Historic Property Survey Report for: US 50 South Lake Tahoe (43601)	CALTRANS	09-004905, 09-004906
009883B		2006	Green, Julia	SUPPLEMENTAL ARCHAEOLOGICAL SURVEY REPORT FOR THE PROPOSED WATER QUALITY IMPROVEMENTS PROJECT ON US 50, SOUTH LAKE TAHOE, EL DORADO COUNTY, CALIFORNIA CALIFORNIA DEPARTMENT OF TRANSPORTATION, DISTRICT 3 03-ED-59 PM 77 3-79.3 (KP 124.4-127.6) EA 03-43601	CALTRANS	

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009630		2006	St. John, Gail	SUPPLEMENTAL HISTORICAL RESOURCES EVALUATION REPORT FOR PROPOSED IMPROVEMENTS ON STATE ROUTE 50 IN SOUTH LAKE TAHOE, EL DORADO COUNTY, CALIFORNIA 03-ED-50 PM 77 3-79 3 KP124 4-127 6 EA 05-1A7300	CALTRANS	
009663		2007	Mark Bowen and Gabriel Roark	Historical Resources Evaluation and Archaeological Survey Report for the SR 89 Water Quality Improvement Project	Jones and Stokes	09-004976, 09-004979, 09-004980
009666		2008	Christopher McMoris	U.S. Highway 50, segment 2 - Lake Tahoe Airport to Junction vs 50/SR 89 Water Quality Improvement Project	JEP Historic Consulting	09-000809, 09-003696, 09-004983
009870		2007	Christine K. Michalcuk	El Dorado 85, segment 1 - Luther Pass to Meyers Water Quality Improvement Project	URS	09-003091, 09-003692, 09-003693, 09-003694, 09-003695, 09-003696, 09-003709, 09-003801, 09-003802, 09-004991, 09-004992
010006		2008	Susan Lindström	Heritage Resource Inventory Angora Tank Replacement Environmental Assessment	Private Consultant	
010007		2008	Susan Lindström	Heritage Resource Inventory Meyers Ld	Private Consultant	
010207		2009	Susie Kaiser	Archaeological Survey Report for Christmas Valley 3 Defense Zone Phase II	Lake Valley Fire Protection District	09-005216
010238		2007	Teen Hintz	An Archaeological Survey Report for the Tahoe Mountain Fuel Reduction 2007 El Dorado County, California	Forestry Assistant II	
010241		1995	Lindström, Susan	El Dorado County Department of Transportation Angora Erosion Control Project Heritage Resource Inventory, 17 USFS Parcels near Meyers, California, El Dorado County HRR T8-95-01		
010259		2009	Daugherty, Christy	An Archaeological Survey Report for the Golden Bear 2009 Fuel Reduction Project Forest Fire Prevention Exemption (14 CCR 1036(c)) El Dorado County, California	RPF	09-005250
010276		2009	Susie Kaiser	Archaeological Survey Report for Christmas Valley 1 Defense Zone	Lake Valley Fire Protection District	
010301		1995	Thomas P. Martin and William Bloemer	Archaeological Test Excavations at the Visitor Center Site, An Early Holocene Site in South Lake Tahoe, CA	Sonoma State University	09-000272, 09-003919

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010367		2010	Harcourt, Steve	Fallen Leaf Lake FD Project 2 Phase 2 Taggart El Dorado, California		09-005368
010394		2009	Lindström, Susan	Heritage Resource Inventory South Tahoe Public Utility District Inquiries Boulder Station Project South Lake Tahoe, California (El Dorado County)	Consulting Archaeologist	
010407		2009	Danielle Banchio	An Archaeological Survey Report for the City of South Lake Tahoe Cold Creek Hazardous Fuels Reduction Project, El Dorado County, California	North Valley Resource Management	
010413		2010	Stephen Pappas and Lisa Westwood	Cultural Resources Inventory Report, Siberslein Property	ECORP Consulting, Inc.	09-005288, 09-005289, 09-005290
010416		2009	Candyn Losee	Cultural Resources Investigation for AT&T Wireless Site CNE0308 "Tahoe Grill" 2543 Lake Tahoe Boulevard, South Lake Tahoe, El Dorado County, California 96150	Archaeological Resources Technology	
010441		2010	Hatoff, Bill	Angels Road URS Project Number: 38103742-03742	URS	
010484		2009	Danielle Banchio, RPP	An Archaeological Survey Report for the City of South Lake Tahoe Springwood II Hazardous Fuels Reduction Project, El Dorado County, California	North Valley Resource Management	
010544		2001	Eleanor H. Den	Historical and Cultural Resource Assessment Existing Telecommunications Facility Site No. SA-455-01, 561 Emerald Bay Road, El Dorado County, California	Brown & Mills, Inc. Geotechnical and Environmental Consultants	
010651		2010	Judith Marvin	Section 106 Consultation on the National Register of Historic Places Eligibility Camp Richardson Campground Toilet Replacement	Foothill Resources, Ltd.	09-005376
010671		2010	Kaiser, Susie	Christmas Valley 1 Defense Zone TWP 1038b Exemptions El Dorado County, California	Lake Valley Fire Protection District	09-005389
010724		2010	Dwyer, Erin	HISTORIC PROPERTY SURVEY REPORT	El Dorado County Department of Transportation	09-000112, 09-000620, 09-000622
010724B		2010	Zeier, Charles	HERITAGE RESOURCE INVENTORY REPORT SAWMILL PHASE 2 BIKE PATH AND EROSION CONTROL PROJECT EIP PROJECTS #756 AND #10034 JN 95165	Zeier & Associates, LLC Caltrans District 3	

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0107240		2010	Zeier, Charles	Results of an Extended Phase I Inventory of CA-ELD-24, CA-ELD-532, and CA-ELD-534 Conducted on behalf of The Summit Phase 2 Bike Path and Erosion Control Project, El Dorado County, California. Project Federal Identification Number: CML 5525 (063)	Zeier & Associates, LLC	
0107240		2010	Dwyer, Erin	FINDING OF NO ADVERSE EFFECT WITH STANDARD CONDITIONS/ESA ACTION PLAN FOR THE SAWMILL BIKEPATH PROJECT EL DORADO COUNTY, CALIFORNIA	California Department of Transportation District 3	
010733		2010	Branchio, Danielle	An Archaeological Survey Report for the City of South Lake Tahoe "Lake Christopher" Hazardous Fuels Reduction Project El Dorado County, California	North Valley Resource Management	09-000809, 09-001917, 09-001929, 09-003450, 09-003457, 09-004505, 09-004560
010734		2010	Branchio, Danielle	An Archaeological Survey Report for the City of South Lake Tahoe "Homestead" Hazardous Fuels Reduction Project El Dorado County, California	North Valley Resource Management	09-000615, 09-000616, 09-000617
010744		2011	Jesse Krauskramer	Chateau Du Lac Retaining Wall Replacement Archaeological Inventory Report	Consulting Archaeologist	
010745		2011	Jesse Krauskramer	Colony Inn Meadow Restoration Archaeological Inventory Report	Consulting Archaeologist	
010750		2010	Sharon A. Waechter	Cultural Resources Study for the Meyers-to-Buckeye 111 Transmission Line Hazard-Tree Removal Project Lake Tahoe Basin Management Unit, South Lake Tahoe, California. LTBAU Report No. TB-2009-046/R2009051900076	Far Western Anthropological Research Group	09-001917, 09-005403, 09-005404, 09-005405, 09-005406, 09-005407, 09-005408, 09-005409, 09-005410, 09-005411, 09-005412, 09-005413, 09-005414, 09-005415, 09-005416, 09-005417, 09-005418, 09-005419, 09-005420, 09-005421, 09-005422
010954		2011	Danielle E. Branchio	An Archaeological Survey Report for the City of South Lake Tahoe "Lake Christopher II" Hazardous Fuels Reduction Project El Dorado County, California	North Valley Resource Management	
011090		2012	Charles Zeier	Archaeological Survey Report (Draft) Pioneer Trail Pedestrian Improvement Project El Dorado County, California	Zeier & Associates, LLC	

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011096		2010	Charles D. Zeier	Results of an Extended Phase I Inventory at CA-EIS-24, CA-EIS-532, and CA-EIS-534, Conducted on Behalf of The Summit Phase 2 Bike Path and Erosion Control Project, El Dorado County California	Zeier & Associates	09-000112, 09-000620, 09-000622
011188		2012	Susan Lindström	Van Sickle Trails Project Heritage Resource Inventory	Consulting Archaeologist	
011192		2012	Charles Zeier	Archaeological Survey Report (Draft) Harrison Avenue Streetscape Improvement Project City of South Lake Tahoe, El Dorado County, California CML 5395 (009)	Zeier & Associates, LLC	
011613		2014	Dina M. Bazzill and Matthew Beasley	Section 106 Review: TCNS ID 106513, Proposed 95-foot Overall Height Monopole Telecommunications Structure, Capital Telecom Site- South Lake Tahoe, CA, ECA Project No. G5419	Environmental Corporation of America	
011634		2011	Brian Ludwig	Draft Cultural Resources Inventory and Evaluation Report, Upper Truckee River and Marsh Restoration Project	AIECOM	09-000114, 09-005503, 09-005504, 09-005505, 09-005506, 09-005507, 09-005508
011672		2014	Holly Robinson, John Ethendige, and MacKenzie Cornelius	Tahoe Valley/Estate #23641 (205352)	EBI Consulting	
011679		2014	Dana E. Supendwitz	Archaeological Survey Study of the Skyline Drive & Crystal Air Drive Project AT&T Mobility Site No. CNU8214 1887 Skyline Drive South Lake Tahoe El Dorado County, California 96150	Historic Resource Associates	
011697		2015	Sennie Francisco and John Ethendige	Emerald Bay/Estate #24672 (249778) S Side HWY 89 at Sugar Pine Rd, South Lake Tahoe, CA	EBI Consulting	
011717		2004	Sheila McCarthy, Ray McCullough, and Mike Pedrotty	Inventory and Evaluation of National Register of Historic Places Eligibility Stanford Recreation Residence Trsd Lake Tahoe Basin Management Unit El Dorado County Lake Tahoe, CA	Interagency Professional Services Group	
011801		2013	Denise Jaffee	Section 106 Compliance Report for the North Fork Angara Creek Restoration Project, Washoe Meadows State Park, Lake Tahoe Finding of No-effect	California State Parks	

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011802		2015	Lucy Kopp and Mark D. Selverston	Cultural Resources Survey Report Emerald Bay State Park El Dorado County, California	Anthropological Studies Center Sonoma State University	09-005050, 09-005726, 09-005727, 09-005728, 09-005729, 09-005730, 09-005731, 09-005732, 09-005733, 09-005734
011803		2015	Sarah Greully, Peter Morris, and Michael Wray	El Dorado Beach / CNR05291 / CVL06291	EBI Consulting	
011878		2015	Susan Lindström	Luther Pass Pump Station Upgrades Project Cultural Resource Inventory		
011877		2015	Susan Lindström	South Tahoe Public Utility District Plant Upgrade Project Cultural Resource Inventory		
011878		2015	Susan Lindström	South Tahoe Public Utility District Fire Hydrant Service Expansion Project Cultural Resource Inventory		
011888		2012	Susan Lindström	Van Sickle Trails Project Heritage Resource Inventory	California Tahoe Conservancy South Lake Tahoe, California	
012181		2015	Steven Harcourt	An Archaeological Survey Report for the Airport Hazardous Fuels Reduction Project, El Dorado County, California	Consulting Forester, South Lake Tahoe	09-005014, 09-005815, 09-005816
012187		2016	Susan Lindström	South Tahoe Public Utility District Waterline Replacement Project Cultural Resource Inventory	Consulting Archaeologist, Truckee, CA	
012187B		2018	Susan Lindström	South Lake Tahoe Public Utility 2018 Improvements Project, Mariette Circle Letter Addendum, Cultural Resource Inventory	Consulting Archaeologist	
012188		2016	Susan Lindström	South Tahoe Public Utility District Water Meter Installations Project Cultural Resource Inventory	Consulting Archaeologist, Truckee, CA	
012198		2018	Steven J. Harcourt	An Archaeological Survey Report for the South Lake Tahoe Airport Hazardous Fuels Reduction Project in El Dorado County, California	Consulting Forester, South Lake Tahoe, CA	09-005017
012210		1998	John Maher	Washoe Cultural Center: Determinations of Eligibility and Effect	Lake Tahoe Basin Management Unit, USFS	09-000268, 09-003960
012218		2016	Margo Noyner	Historical Resource Evaluations for the Bjouk Creek Watershed Management/Southwest Center Project, City of South Lake Tahoe, California	Michael Baker International	09-005821

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012240		2016	Thomas L. Fuller	Historical Resources Evaluation Report For The Taylor Falls Restoration Project Lake Tahoe Basin Management Unit USDA Forest Service El Dorado County, California R2016051900006/TB-2016-007	USDA Forest Service	
012245		2015	Cerie D With	Proposed T-Mobile West, LLC Candidate SC145448 (Keenak Street) 2223 Keenak Street, South Lake Tahoe, El Dorado County, California	Environmental Assessment Specialists, Inc	
012424		2015	Jason Drew, Dave Ross, and Jeremy Hall	Heritage Resource Inventory Report, Meyers Erosion Control Project-Expanded Area, El Dorado County, California (JN 90179)	NCE	09-005805, 09-005886
012525		2015	Michelle D. Noble	Phase I Investigation for the Pioneer Trail Tower Tower Project, South Lake Tahoe, El Dorado County, California	NWB Environmental Services, LLC	
012541		2015	Michael Himba	Historical Resources Evaluation Report California Portion of the U.S. 50/ South Shore Community Revitalization Project	LSA Associates, Inc.	09-005908, 09-005909, 09-005910, 09-005911, 09-005912, 09-005913, 09-005914, 09-005915, 09-005916, 09-005917, 09-005918, 09-005919, 09-005920, 09-005921, 09-005922, 09-005923, 09-005924, 09-005925, 09-005926, 09-005927, 09-005928, 09-005929, 09-005930, 09-005931, 09-005932, 09-005933, 09-005934, 09-005935, 09-005936, 09-005937, 09-005938, 09-005939, 09-005940, 09-005941, 09-005942, 09-005943, 09-005944, 09-005945, 09-005946, 09-005947, 09-005948, 09-005949, 09-005950, 09-005951, 09-005952, 09-005953, 09-005957, 09-005958, 09-005959, 09-005960, 09-005961, 09-005962, 09-005963, 09-005964, 09-005965, 09-005966, 09-005967, 09-005968, 09-005969, 09-005970, 09-005971, 09-005972, 09-005973, 09-005974, 09-005975, 09-005976, 09-005977, 09-005978, 09-005979, 09-005980, 09-005981, 09-005982, 09-005983, 09-005984, 09-005985, 09-005986, 09-005987, 09-005988, 09-005989, 09-005990, 09-005991, 09-005992, 09-005993, 09-005994

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0125418		2015	Neal Kaplan	Archaeological Survey Report for the California Portion of the U.S. 50/ South Shore Community Revitalization Project	LSA Associates, Inc.	
012553		2017	Susan Lindström	South Tahoe Public Utility District Fire Hydrant Service Expansion Project Cultural Resource Inventory Addendum 3		
012554		2017	Susan Lindström	South Lake Tahoe Public Utility District Fire Hydrant Service Expansion Project Cultural Resource Inventory Addendum 2		
012561		2018	Susan Lindström	South Tahoe Public Utility District Fire Hydrant Service Expansion Project Cultural Resource Inventory Addendum	RPA	
012625		2018	Susan Lindström	South Tahoe Public Utility 2018 Improvements Project, Sierra Boulevard Water Line Cultural Resource Inventory	Consulting Archaeologist	
012626		2018	Susan Lindström	South Tahoe Public Utility 2018 Improvements Project, Pine Valley PRTV Improvements, Cultural Resource Inventory	Consulting Archaeologist	
012627		2018	Susan Lindström and Devin Blom	Tahoe Keys Property Owners Association Corporation Yard Relocation Project	Consulting Archaeologist (Lindström), Battle Born GIS (Blom)	
012629		2018	Susan Lindström, Lizzie Bennett, and Devin Blom	Tahoe Pines Restoration and Access Project Cultural Resource Inventory and Evaluation Addendum	Consulting Archaeologists (Lindström and Bennett), Battle Born GIS Consulting (Blom)	09-006001
012634		2018	Cindy J. Arreghian	Cultural Resources Inventory and Effects Assessment for the Alta Mesa Public Access and Shoreline Stabilization Project, El Dorado County, California	Natural Investigations Company	
012649		2018	Danielle Bradfield	An Archaeological Survey Report for the Edwight Combined CFIP, El Dorado County, California	North Valley Resource Management	
012650		2018	Susan Lindström	South Lake Tahoe Utility District Keller-Heavenly Water System Improvement Project Cultural Resource Inventory (USFS Report R2018051900015)	Consulting Archaeologist	
012692		2017	Dana Suprenawicz	South Lake Tahoe/ SF25XC844	EarthTouch Inc	

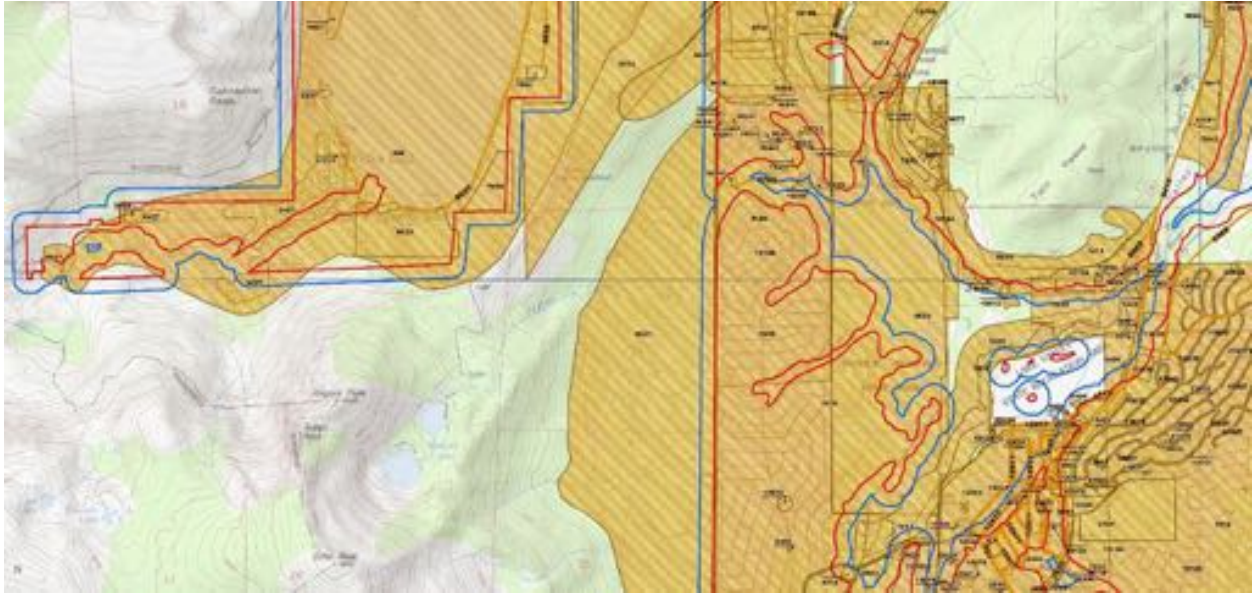
Report List

Report No.	Other IDs	Year	Author(s)	Title	Affiliation	Resources
012731		2018	Anela Travers	Cultural Resources Records Search and Site Visit Results for Cello Partnership and their Controlled Affiliates doing business as Verizon Wireless Candidate Kakanee-A-C, 1301 Al Tahoe Boulevard, South Lake Tahoe, El Dorado County, California	Hells Environmental Planning	
012731B		2018	Don Perez	KOKANE-A-C / Fuze 5045045 1301 Al Tahoe Blvd, South Lake Tahoe, El Dorado County, Ca 96150	EBI Consulting	
012752		2018	Susan Lindström	South Tahoe Public Utility District Rocky 2 Water Line Replacement Project Cultural Resource Inventory	Consulting Archaeologist	
012753		2018	Susan Lindström	South Tahoe Public Utility District Tahoe Keys and Upper Truckee Pump Station Rehabilitation Project Cultural Resource Inventory	Consulting Archaeologist	
012937		2018	Rabin Haeflner, Came Wills, and A. Travers	Ski Run BLVD-AFUZE 816083859 (444780)	EBI Consulting (EBI 8118004820)	
012941		2018	Judith Marvin	Request for Consultation on Resource Recovery Plan for the Proposed Demolition of the Glick Cabin at 848 Stateline Ave, South Lake Tahoe, El Dorado County, TRPA File No. VBOG2108-008, APN 829-010-18	FootHill Resources, Ltd. And Mesa Technical (photographs)	09-006056
012946		2014	Judith Marvin	Historic Facilities BMP Reboot Project, Camp Richardson vicinity, Lake Tahoe Management Unit	FootHill Resources, Ltd.	
012972		2019	Tim Spillane	Cultural Resources Inventory and Effects Assessment for Phase I of the Johnson Meadow Restoration Project, South Lake Tahoe, El Dorado County, California	Natural Investigations Company	09-006058
012977		2012		Heritage Resource Inventory Report, Meyers Erosion Control Project, EIP Project #191, El Dorado County, California, JN 95179 (U.S. Forest Service Report Number R2012051900004, Heritage Resource Report TB-2012-064, Zeier & Associates, LLC Project Number 11-07-04)	El Dorado County Department of Transportation, Zeier & Associates	

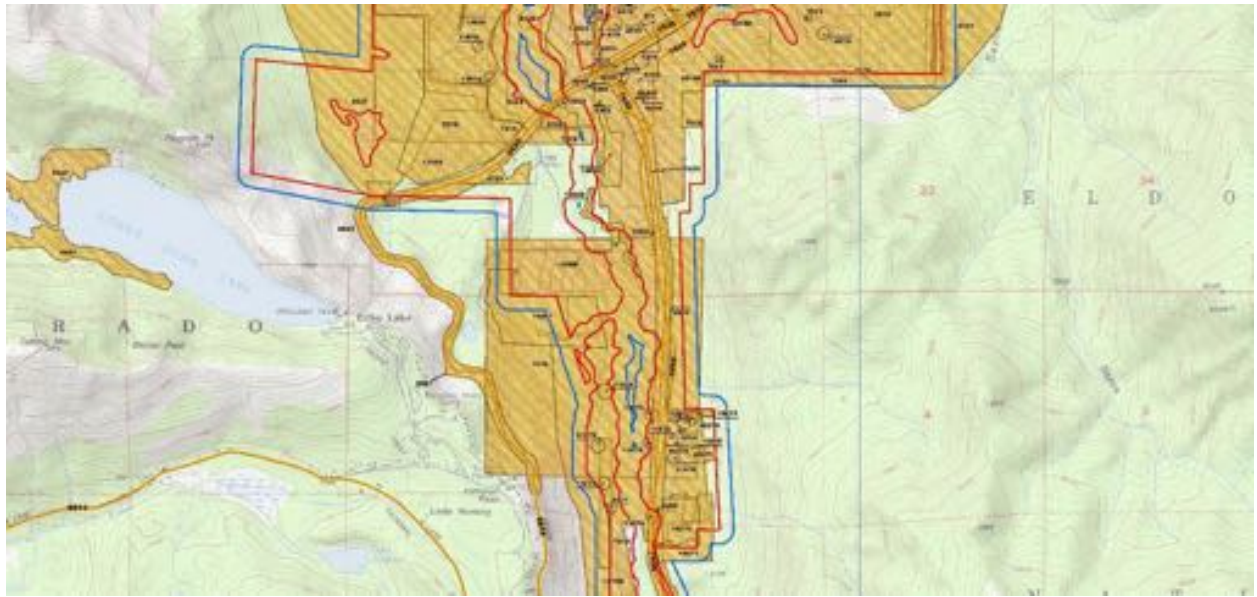
Report List

Report No.	Other IDs	Year	Author(s)	Title	Affiliation	Resources
013016		2012	Judith Marvin	Section 110 Consultation on the National Register of Historic Places Eligibility for the Old Mill Cabin Historical Evaluation Site No. 05-19-77, Forest Service Project No. TB-2012-021, Event No. R2012051900031, Fallen Leaf Lake, Lake Tahoe, El Dorado County, California	Foothill Resources, Ltd.	09-000277
013017		2019	Tim Spillane	Cultural Resources Assessment for the Liberty Utilities-Meyers 3400 Project in South Lake Tahoe, El Dorado County, California	Natural Investigations Company, Inc.	09-003395, 09-003838
013018		2019	Tim Spillane	Cultural Resources Inventory and Effects Assessment for the Ruby Way-Overlook, Court Drainage and Erosion Control Project, El Dorado County, California	Natural Investigations Company	09-006099
013027		2016	Molly Latinen, Jeremy Hall, and Dave Rice	Heritage Resource Inventory Report, Offing Water Quality Control Project, El Dorado County, California	NCE	09-003805, 09-005228
013028		2019	Molly Latinen	Archaeological Survey Report for the Environmental and Geotechnical Support Services for San Bernardino-Class 1 Bike Trail, El Dorado County, California	NCE	09-004506
013031		2019	Jeremy Hall and Molly Latinen	Phase II Addendum to: Heritage Resource Inventory Report, County Club Heights Erosion Control Project, El Dorado County, California (USFS Heritage Project #R2020051900005)	NCE	
013032		2016	Jeremy Hall and Dave Rice	Heritage Resource Inventory Report, County Club Heights Erosion Control Project, El Dorado County, California	NCE	09-003805, 09-003898, 09-006074, 09-006078, 09-006079
013052		2017	Susan Lindström	South Tahoe Greenway Shared-Use Trail Archaeological Monitoring Report		
013060		2019	Judith Marvin and Melinda Pacheco Patrick	Region Programmatic Agreement Section 110 Historic Evaluation Report for the Rainbow Summer Home Tract near Meyers, El Dorado County, California, USFS Site No. 05190061310, Event No. R2019051900006	Patrick GIS Group, Inc. (Melinda Pacheco Patrick), Foothill Resources, Ltd. (Judith Marvin)	09-006109





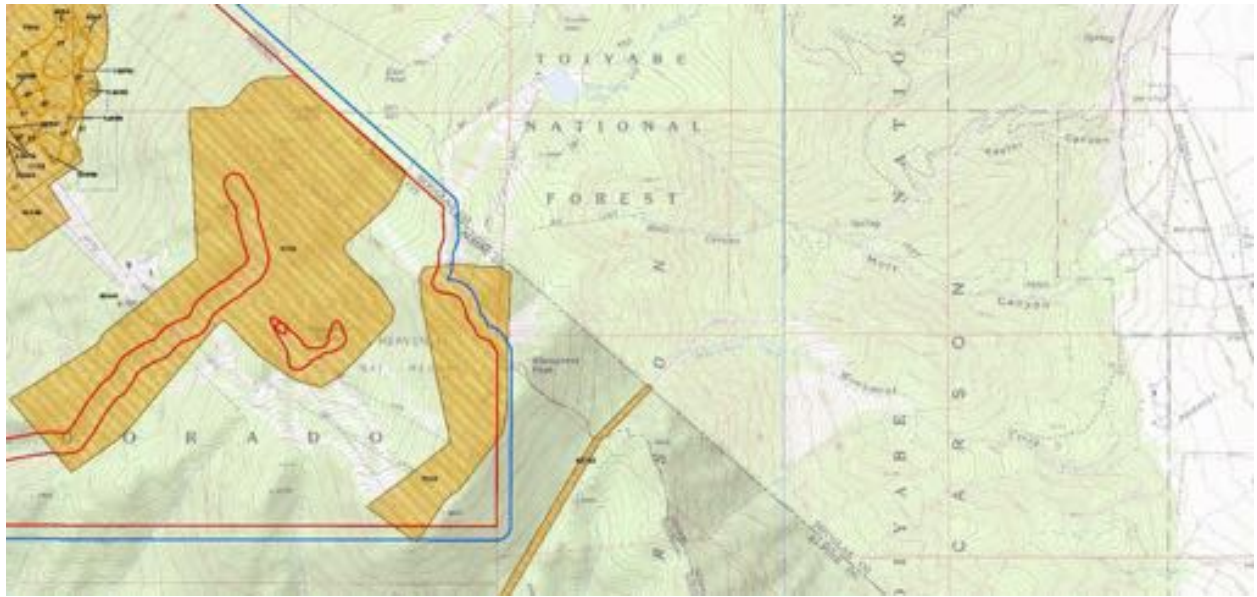














Structure Maintenance & Investigations

Historical Significance - Local Agency Bridges



District 03				
ID Darake County				
Bridge Number	Bridge Name	Location	Historical Significance	Year Built
200001	NORTH FORK COLUMBIAN RIVER	1.2 MI N. MT. AIRBORNE RD	1. Bridge not eligible for NHP	1940
200004	SOUTH FORK AMERICAN RIVER	0.1 MI E. OF SR 40	1. Bridge is eligible for NHP	1915
200008	HANDTOWN CREEK	47 SR 50	1. Bridge not eligible for NHP	1924
200010	HANDTOWN CREEK	02 MI E. SOUTH OF U.S. 50	1. Bridge not eligible for NHP	1934
200014	NORTH FORK COLUMBIAN RIVER	0.8 MI S. PULASKI VALLEY RD	1. Bridge not eligible for NHP	1980
200016	UPPER THUNDER RIVER	0.7 MI S. OF SR 50	1. Bridge not eligible for NHP	1940
200018	BOHO CREEK	0.2 MI S. OF U.S. 50	1. Bridge not eligible for NHP	1951
200020	UPPER THUNDER RIVER	0.1 MI N. OF SR 50	1. Bridge not eligible for NHP	1980
200022	NORTH FORK WEBER CREEK	1.7 MI S. OF U.S. 50	1. Bridge not eligible for NHP	1975
200023	WALDOCK WAY BRIDGE	0.1 MI E. OF U.S. 50	1. Bridge not eligible for NHP	1987
200025	CAMP CREEK	0.3 MI S. OF MT. AIRBORNE RD	1. Bridge is eligible for NHP	1930
200027	WEDDLE FORK COLUMBIAN RIVER	0.4 MI S. PULASKI VALLEY RD	1. Bridge not eligible for NHP	1988
200028	CEDAR CREEK	1.2 MI S. OF MT. AIRBORNE RD	1. Bridge not eligible for NHP	2005
200029	HANDTOWN CREEK	0.3 MI N. OLD SPRINGS RD	1. Bridge not eligible for NHP	1931
200031	SPAWK CREEK	0.4 MI S. PULASKI VALLEY RD	1. Bridge not eligible for NHP	1977
200032	CLARK CREEK	2.9 MI S. OF PULASKI VALLEY RD	1. Bridge not eligible for NHP	1987
200033	SOUTH FORK WEBER CREEK	0.7 MI N. OF SR 40 RD	1. Bridge not eligible for NHP	1928
200034	CLARK CREEK	402 MI S. OF HANCOCK CTY	1. Bridge not eligible for NHP	1983
200035	DEER CREEK	4.8 MI S. OF U.S. 50	1. Bridge not eligible for NHP	1987
200036	NEW YORK CREEK	1.2 MI N. GREEN VALLEY RD	1. Bridge not eligible for NHP	1975
200037	SOUTH FORK AMERICAN RIVER	4.3 MI S. FLINT HILL	1. Bridge not eligible for NHP	1953
200038	DRY CREEK	0.1 MI WEST OF U.S. 50	1. Bridge not eligible for NHP	2000
200041	WOUND SPRINGS CREEK	0.8 MI N. WESLEY FLAT RD	1. Bridge not eligible for NHP	1930
200042	WEBER CREEK	1.2 MI N. GREEN VALLEY RD	1. Bridge not eligible for NHP	1987
200043	TELLS CREEK	10.8 MI N. OF SR 50	1. Bridge not eligible for NHP	1983
200044	BIG BLUES CREEK	10.0 MI N. OF U.S. 50	1. Bridge not eligible for NHP	1982
200045	JONES FORK BLUES CREEK	10.8 MI N. OF U.S. 50	1. Bridge not eligible for NHP	1981
200046	SOUTH FORK BLUES CREEK	8.4 MI N. OF U.S. 50	1. Bridge not eligible for NHP	1980
200047	CLARK CREEK	1.1 MI S. OF PULASKI VALLEY RD	1. Bridge not eligible for NHP	1938
200048	LAKE JENNIFER BRIDGE	0.7 MI N. S. W. OF MT. AIRBORNE RD	1. Bridge not eligible for NHP	1981
200051	NORTH BRACKEN GREENWOOD CREEK	0.3 MI S. OF SR 100	1. Bridge not eligible for NHP	1927
200053	BEAVER HOLLOW CREEK	0.4 MI S. PULASKI VALLEY RD	1. Bridge not eligible for NHP	1930
200060	SOUTH FORK AMERICAN RIVER	0.7 MI N. OF U.S. 50	1. Bridge not eligible for NHP	1938
200062	BEAT CAMP LC	10 MI N. OF SR 50	1. Bridge not eligible for NHP	1975
200063	WEBER CREEK	0.8 MI S. PULASKI VALLEY RD	1. Bridge not eligible for NHP	1930
200065	BEAT CAMP LC	160 SR 50	1. Bridge not eligible for NHP	1975
200071	GRANITE CREEK	0.3 MI N. OF U.S. 50	1. Bridge not eligible for NHP	1944
200072	CUTCH CREEK	0.4 MI N. OF MT. MURPHY RD	1. Bridge not eligible for NHP	1927
200073	TRAVERS CREEK	1.1 MI S. OF GEORGETOWN RD	1. Bridge not eligible for NHP	1925
200074	BEAR CREEK	0.3 MI S. OF TRAVERS CR RD	1. Bridge not eligible for NHP	1938
200075	WAGGOLD CREEK	47 QUARRY RD	1. Bridge not eligible for NHP	1980
200076	WEBER CREEK	1.2 MI N. OF PULASKI VALLEY RD	1. Bridge not eligible for NHP	1923
200078	CANYON CREEK	1.0 MI N. OF WESTWORTH S RD	1. Bridge not eligible for NHP	1940

by local staff



Structure Maintenance & Investigations

Historical Significance - Local Agency Bridges



District 03				
ID Darake County				
Bridge Number	Bridge Name	Location	Historical Significance	Year Built
200078	CLEAR CREEK	0.25 MI S OF SLY PARK RD	1. Bridge not eligible for NHP	1957
200080	CLEAR CREEK	1.00 MI S OF SLY PARK RD	1. Bridge not eligible for NHP	1940
200081	EL D. CREEK	CARSON ROAD	1. Bridge not eligible for NHP	1940
200082	ELLEN ALPINE CREEK	0.07 MI S OF ELLEN ALPINE RD	1. Bridge not eligible for NHP	1940
200083	FRENCH CREEK	0.1 MI S OF WETHER LODGE D	1. Bridge not eligible for NHP	1910
200084	IRISH CREEK	10.5 MI N OF S.R. 100	1. Bridge not eligible for NHP	1987
200085	JOHNSON CREEK	0.1 MI N OF S.R. 100	1. Bridge not eligible for NHP	1928
200087	SLATE CREEK	0.2 MI N OF WETHER LODGE N	1. Bridge not eligible for NHP	1923
200088	GEORGETOWN CREEK	0.1 MI S OF S.R. 100	1. Bridge not eligible for NHP	1901
200089	STEEL TYPON COLUMBIAN RIVER	11.0 MI S OF MT ALPINE RD	1. Bridge not eligible for NHP	1986
200090	NORTH FORK COLUMBIAN RIVER	11.0 MI S OF MT ALPINE RD	1. Bridge not eligible for NHP	1986
200092	EL D. CREEK	0.1 MI S OF S.R. 100	4. Historical Significance not determined	1940
200093	SOUTH FORK KUBCON RIVER	20.0 MI FROM US 30	1. Bridge not eligible for NHP	1984
200095	NEW YORK CREEK	0.1 MI S OF SLY PARK RD	1. Bridge not eligible for NHP	1922
200096	SCARF HOLLOW CREEK	0.1 MI S OF PLACER VALLEY RD	1. Bridge not eligible for NHP	1940
200097	HEBER CREEK	0.1 MI S OF MT ALPINE RD	1. Bridge not eligible for NHP	1980
200098	ROCK CREEK	0.1 MI S OF S.R. 100	2. Bridge is eligible for NHP	1926
200100	NORTH FORK COLUMBIAN RIVER	0.1 MI S OF S.R. 100	1. Bridge not eligible for NHP	1980
200101	SOUTH FORK AMERICAN RIVER	0.1 MI S OF U.S. 30	1. Bridge not eligible for NHP	1988
200102	NORTH FORK COLUMBIAN RIVER	4.0 MI S OF GRESSLY RD	1. Bridge not eligible for NHP	1958
200103	NORTH FORK COLUMBIAN RIVER	0.1 MI S OF HAPPY VALLEY	1. Bridge not eligible for NHP	1957
200104	SOUTH FORK AMERICAN RIVER	0.1 MI S OF S.R. 100	1. Bridge not eligible for NHP	1980
200106	DRY CREEK	0.1 MI S OF S.R. 100	1. Bridge not eligible for NHP	1980
200107	LOWER THUNDERBOLT CREEK	2.0 MI S OF S.R. 100	1. Bridge not eligible for NHP	1980
200111	CARSON CREEK TRIBUTARY	0.1 MI S OF LATHROP ROAD	1. Bridge not eligible for NHP	2000
200112	CARSON CREEK	0.1 MI S OF LATHROP RD	1. Bridge not eligible for NHP	1918
200113	SOUTH FORK AMERICAN RIVER	0.1 MI S OF U.S. 30	1. Bridge not eligible for NHP	1921
200116	HEBER CREEK	0.1 MI S OF MISSOURI PLAT	2. Bridge is eligible for NHP	1914
200117	HANSTOWN CREEK	100 FEET NORTH OF MAIN ST	1. Bridge not eligible for NHP	1940
200118	HANSTOWN CREEK	0.1 MI S OF PLACER VALLEY RD	1. Bridge not eligible for NHP	1920
200119	JOHNSON LAKE SPILLWAY	0.1 MI S OF SLY PARK RD	1. Bridge not eligible for NHP	1954
200120	VENICE BRIDGE ROAD	0.1 MI S OF CHRISTIAN RD	1. Bridge not eligible for NHP	1987
200122	DEEP CREEK	0.1 MI S OF CAMBRIDGE	1. Bridge not eligible for NHP	1918
200123	ALLEGHENY CREEK	0.07 OF RED HILLS BLVD	1. Bridge not eligible for NHP	1988
200124	ALLEGHENY CREEK	0.07 OF RED HILLS BLVD	1. Bridge not eligible for NHP	1988
200125	TROUT CREEK	0.1 MI S OF BLACK BART	1. Bridge not eligible for NHP	1988
200126	HANSTOWN CREEK	20 MI SOUTH OF HAYES	1. Bridge not eligible for NHP	2007
200127	CARSON CREEK	1/4 OF CARSON CRY RIVERFLOO	1. Bridge not eligible for NHP	2008
200128	HANSTOWN CREEK	100' SOUTH OF US 30	1. Bridge not eligible for NHP	2008
200130	BLISS CREEK	1/4 OF LOCKLAND GROUND	1. Bridge not eligible for NHP	2013
200131	GERULE CREEK	1/4 OF LOCKLAND GROUND	1. Bridge not eligible for NHP	2013
200136	THUNDERBOLT CREEK	1/4 OF PEACEFUL GARDEN HAY	1. Bridge not eligible for NHP	2010
200141	HEBER CREEK	0.1 MI S OF PLACER VALLEY RD	1. Bridge not eligible for NHP	2016

by local staff



Structure Maintenance & Investigations

Historical Significance - State Agency Bridges



District 03					
B Durado County					
Bridge Number	Bridge Name	Location	Historical Significance	Year Built	Year Modified
21-0051	WEBER CREEK	09-03-059-11-42	1. Bridge not eligible for NHP	1963	2010
21-0059	WEBER CREEK	09-03-059-11-42	1. Bridge not eligible for NHP	1963	2010
21-0067	EL DORADO DITCH	09-03-059-09-09	1. Bridge not eligible for NHP	1946	1999
21-0068	SOUTH FORK AMERICAN RIVER	09-03-059-09-09	1. Bridge not eligible for NHP	1967	
21-0069	PIRANHA CREEK	09-03-059-09-17	1. Bridge not eligible for NHP	1960	
21-0070	UPPER TRUCKEE RIVER	09-03-059-70-41 & 72	1. Bridge not eligible for NHP	1965	
21-0072	UPPER TRUCKEE RIVER	09-03-059-70-31	1. Bridge not eligible for NHP	1947	1999
21-0073	TRIBUT CREEK	09-03-059-71-00 & 72	1. Bridge not eligible for NHP	1965	
21-0075	UPPER TRUCKEE RIVER	09-03-059-71-00	1. Bridge not eligible for NHP	1965	
21-0076	TAYLOR CREEK	09-03-059-71-00	1. Bridge not eligible for NHP	1965	
21-0077	CHICAGO CREEK	09-03-059-14-01	1. Bridge not eligible for NHP	1965	
21-0079	WEBER CREEK	09-03-059-14-02	1. Bridge not eligible for NHP	1929	
21-0081	SOUTH FORK AMERICAN RIVER	09-03-059-23-08	1. Bridge not eligible for NHP	1971	
21-0082	GREENWOOD CREEK	09-03-059-25-02	1. Bridge not eligible for NHP	1962	
21-0083	WEBER CREEK	09-03-059-29-19	1. Bridge not eligible for NHP	1962	
21-0084	WEBER CREEK	09-03-059-12-01	1. Bridge not eligible for NHP	1967	
21-0085	SOUTH FORK AMERICAN RIVER	09-03-059-20-02	1. Bridge not eligible for NHP	1964	
21-0086	GOLDEN CANYON	09-03-059-07-30	4. Historical Significance not determined	1934	1980
21-0090	EAST CANYON LC	09-03-059-02-05	1. Bridge not eligible for NHP	1964	
21-0091	SAVING LC	09-03-059-02-06	1. Bridge not eligible for NHP	1964	
21-0094	BEHO SUMMIT SIDEHILL VIADUCT	09-03-059-07-30	2. Bridge is eligible for NHP	1939	
21-0095	SAVING LC	09-03-059-11-10	4. Historical Significance not determined	1939	
21-0096	COLUMA STREET POC	09-03-059-11-79-PLDR	1. Bridge not eligible for NHP	1955	
21-0097	LOCUST STREET LC	09-03-059-18-01-PLDR	1. Bridge not eligible for NHP	1954	
21-0098	WINDMILL ROAD LC	09-03-059-18-02-PLDR	1. Bridge not eligible for NHP	1954	
21-0099	CLAY STREET LC	09-03-059-18-10-PLDR	1. Bridge not eligible for NHP	1955	
21-0100	BROWN ROAD LC	09-03-059-21-28	1. Bridge not eligible for NHP	1957	2002
21-0101	DEEP CREEK	09-03-059-01-31	1. Bridge not eligible for NHP	1955	1970
21-0102	HAUSTON CREEK	09-03-059-14-04-PLDR	1. Bridge not eligible for NHP	1955	2010
21-0103	BIG MEADOWS CREEK	09-03-059-04-20	1. Bridge not eligible for NHP	1959	
21-0104	POINT VIEW DRIVE LC	09-03-059-20-03-PLDR	1. Bridge not eligible for NHP	1961	
21-0105	RENNELL SCHOOL ROAD LC	09-03-059-18-11-PLDR	1. Bridge not eligible for NHP	1961	
21-0106	BATH FLAT ROAD LC	09-03-059-19-01-PLDR	1. Bridge not eligible for NHP	1961	
21-0107	NEWTON ROAD LC	09-03-059-02-79	1. Bridge not eligible for NHP	1961	
21-0108	CARSON ROAD LC	09-03-059-18-79-PLDR	1. Bridge not eligible for NHP	1961	
21-0109	FORNIE LC	09-03-059-11-03-PLDR	1. Bridge not eligible for NHP	1962	
21-0110	CLARKVILLE LC	09-03-059-01-08	1. Bridge not eligible for NHP	1965	2009
21-0111	CLARKVILLE LC (WEST ON RAMP)	09-03-059-01-08	1. Bridge not eligible for NHP	2010	
21-0112	CLARKVILLE LC (EAST ON RAMP)	09-03-059-01-08	1. Bridge not eligible for NHP	2010	
21-0113	BANK LANE ROAD LC	09-03-059-02-79	1. Bridge not eligible for NHP	1960	2010
21-0114	SHANLEY SPRINGS LC	09-03-059-02-79	1. Bridge not eligible for NHP	1960	
21-0115	GREENSTONE ROAD LC	09-03-059-01-12-19	1. Bridge not eligible for NHP	1960	
21-0116	GREENSTONE ROAD LC	09-03-059-01-12-19	1. Bridge not eligible for NHP	1960	

10/1/2018



Structure Maintenance & Investigations

Historical Significance - State Agency Bridges



District 03					
B Durado County					
Bridge Number	Bridge Name	Location	Historical Significance	Year Built	Year Renovated
21-0278	EL DORADO ROAD OC	09-02-0554-PW-01	1. Bridge not eligible for historic	1989	
21-0279	EAST BRIDGE SPRINGS UC	09-02-0554-PW-02	1. Bridge not eligible for historic	1989	
21-0279	EAST BRIDGE SPRINGS UC	09-02-0554-PW-03	1. Bridge not eligible for historic	1989	
21-0279	CARSON CREEK	09-02-0554-PW-04	1. Bridge not eligible for historic	1989	1989
21-0280	CAMBRIDGE ROAD OC	09-02-0554-PW-05	1. Bridge not eligible for historic	1970	
21-0281	CAMBRIDGE PARK DR UC	09-02-0554-PW-06	1. Bridge not eligible for historic	1970	
21-0282	CAMBRIDGE PARK DR UC	09-02-0554-PW-07	1. Bridge not eligible for historic	1970	
21-0283	SOUTH FORK AMERICAN RIVER	09-02-0554-PW-08	1. Bridge not eligible for historic	1980	
21-0284	SOUTH FORK AMERICAN RIVER	09-02-0554-PW-09	1. Bridge not eligible for historic	1980	
21-0285	SAGLE FALLS SIDEHILL VADUCT 3	09-02-0554-PW-10	1. Bridge not eligible for historic	1981	
21-0286	THROUT CREEK SIDEHILL VADUCT 1	09-02-0554-PW-11	1. Bridge not eligible for historic	1981	
21-0287	SAGLE FALLS SIDEHILL VADUCT 1	09-02-0554-PW-12	1. Bridge not eligible for historic	1981	
21-0288	SAGLE FALLS SIDEHILL VADUCT 4	09-02-0554-PW-13	1. Bridge not eligible for historic	1981	
21-0289	SAGLE FALLS SIDEHILL VADUCT 5	09-02-0554-PW-14	1. Bridge not eligible for historic	1981	
21-0290	SAGLE FALLS SIDEHILL VADUCT 2	09-02-0554-PW-15	1. Bridge not eligible for historic	1981	
21-0291	NEW LAMBER DRIVE OC	09-02-0554-PW-16	1. Bridge not eligible for historic	1987	
21-0292	EL DORADO TRAIL POC	09-02-0554-PW-17	1. Bridge not eligible for historic	2000	
21-0293	RED HAWK PARKWAY OFF RAMP 200'	09-02-0554-PW-18	1. Bridge not eligible for historic	2009	
21-0294	RED HAWK PARKWAY UC	09-02-0554-PW-19	1. Bridge not eligible for historic	2009	
21-0295	RED HAWK PARKWAY UC	09-02-0554-PW-20	1. Bridge not eligible for historic	2009	
21-0296	MISSOURI PLAT ROAD OC	09-02-0554-PW-21	1. Bridge not eligible for historic	2009	
21-0297	LATHROP ROAD UC	09-02-0554-PW-22	1. Bridge not eligible for historic	2009	
21-0298	LATHROP ROAD OFF RAMP UC	09-02-0554-PW-23	1. Bridge not eligible for historic	2013	
21-0299	LATHROP ROAD OFF RAMP UC	09-02-0554-PW-24	1. Bridge not eligible for historic	2009	
21-0300	WICKERBOCKER CREEK	09-02-0448-PW-01	1. Bridge not eligible for historic	1989	2014
21-0301	WEDFORD AVE POC	09-02-0554-PW-25	1. Bridge not eligible for historic	2009	
21-0302	WEST PLACERVILLE DRIVE UC	09-02-0554-PW-26	1. Bridge not eligible for historic	2009	
21-0303	BLVA PARKWAY UC	09-02-0554-PW-27	1. Bridge not eligible for historic	2010	
21-0304	CARSON CREEK (SHEETS OFF RAMP)	09-02-0554-PW-28	1. Bridge not eligible for historic	2010	
21-0305	BLVA PARKWAY UC	09-02-0554-PW-29	1. Bridge not eligible for historic	2014	

10/1/2018 10:11

El Dorado County Built Environment Resources Directory (excerpts): South Lake Tahoe

Susan Lindström, Ph.D.
Consulting Archaeologist

Susan Lindström, Ph.D.
Consulting Archaeologist

Susan Lindström, Ph.D.
Consulting Archaeologist

California Historical Resource Status Codes

1	Properties listed in the National Register (NR) or the California Register (CR)
1D	Contributor to a district or multiple resource property listed in NR by the Keeper. Listed in the CR.
1E	Individual property listed in NR by the Keeper. Listed in the CR.
1CD	Listed in the CR as a contributor to a district or multiple resource property by the SHRC.
1CS	Listed in the CR as individual property by the SHRC.
1CL	Automatically listed in the California Register - Includes State Historical Landmarks 779 and above and Points of Historical Interest nominated after December 1997 and recommended for listing by the SHRC.
2	Properties determined eligible for listing in the National Register (NR) or the California Register (CR)
2B	Determined eligible for NR as an individual property and as a contributor to an eligible district in a federal regulatory process. Listed in the CR.
2D	Contributor to a district determined eligible for NR by the Keeper. Listed in the CR.
2DD	Contributor to a district determined eligible for NR by consensus through Section 106 process. Listed in the CR.
2DD	Contributor to a district determined eligible for NR by Part I Tax Certification. Listed in the CR.
2DD	Contributor to a district determined eligible for NR pursuant to Section 106 without review by SHPO. Listed in the CR.
2E	Individual property determined eligible for NR by the Keeper. Listed in the CR.
2E	Individual property determined eligible for NR by a consensus through Section 106 process. Listed in the CR.
2E	Individual property determined eligible for NR by Part I Tax Certification. Listed in the CR.
2E	Individual property determined eligible for NR pursuant to Section 106 without review by SHPO. Listed in the CR.
2CB	Determined eligible for CR as an individual property and as a contributor to an eligible district by the SHRC.
2CD	Contributor to a district determined eligible for listing in the CR by the SHRC.
2CE	Individual property determined eligible for listing in the CR by the SHRC.
3	Appears eligible for National Register (NR) or California Register (CR) through Survey Evaluation
3B	Appears eligible for NR both individually and as a contributor to a NR eligible district through survey evaluation.
3D	Appears eligible for NR as a contributor to a NR eligible district through survey evaluation.
3E	Appears eligible for NR as an individual property through survey evaluation.
3CB	Appears eligible for CR both individually and as a contributor to a CR eligible district through a survey evaluation.
3CD	Appears eligible for CR as a contributor to a CR eligible district through a survey evaluation.
3CE	Appears eligible for CR as an individual property through survey evaluation.
4	Appears eligible for National Register (NR) or California Register (CR) through other evaluation
4CH	Master List - State Owned Properties - PNC (SHRC).
5	Properties Recognized as Historically Significant by Local Government
5D1	Contributor to a district that is listed or designated locally.
5D2	Contributor to a district that is eligible for local listing or designation.
5D3	Appears to be a contributor to a district that appears eligible for local listing or designation through survey evaluation.
5E1	Individual property that is listed or designated locally.
5E2	Individual property that is eligible for local listing or designation.
5E3	Appears to be individually eligible for local listing or designation through survey evaluation.
5D	Locally significant both individually (listed, eligible, or appears eligible) and as a contributor to a district that is locally listed, designated, determined eligible or appears eligible through survey evaluation.
6	Not Eligible for Listing or Designation as specified
6C	Determined ineligible for or removed from California Register by SHRC.
6D	Landmarks or Points of Interest found ineligible for designation by SHRC.
6E	Determined ineligible for local listing or designation through local government review process; may warrant special consideration in local planning.
6F	Determined ineligible for NR through Part I Tax Certification process.
6G	Determined ineligible for NR pursuant to Section 106 without review by SHPO.
6H	Removed from NR by the Keeper.
6I	Determined ineligible for the NR by SHRC or Keeper.
6J	Determined ineligible for NR by consensus through Section 106 process - Not evaluated for CR or Local Listing.
6K	Found ineligible for NR, CR or Local designation through survey evaluation.
7	Not Evaluated for National Register (NR) or California Register (CR) or Needs Reevaluation
7D	Received by OHP for evaluation or action but not yet evaluated.
7E	Resubmitted to OHP for action but not reevaluated.
7F	State Historical Landmarks 1-769 and Points of Historical Interest Designated prior to January 1998 - Needs to be reevaluated using current standards.
7H	Submitted to OHP but not evaluated - referred to NPS.
7I	Needs to be reevaluated (Formerly NR Status Code 4).
7N1	Needs to be reevaluated (Formerly NR Status Code 4) - may become eligible for NR reevaluation or when meets other specific conditions.
7E	Identified in Reconnaissance Level Survey: Not evaluated.
7W	Submitted to OHP for action - withdrawn.

(2/8/08)

Office of Historic Preservation (OHP) Archaeological Determinations of Eligibility (listings within project area highlighted in yellow)

1997, 1998, 1999, 2000, 2001, 2002, 2003, 2004, 2005, 2006, 2007, 2008, 2009, 2010, 2011, 2012, 2013, 2014, 2015, 2016, 2017, 2018, 2019, 2020, 2021, 2022, 2023, 2024, 2025, 2026, 2027, 2028, 2029, 2030, 2031, 2032, 2033, 2034, 2035, 2036, 2037, 2038, 2039, 2040, 2041, 2042, 2043, 2044, 2045, 2046, 2047, 2048, 2049, 2050, 2051, 2052, 2053, 2054, 2055, 2056, 2057, 2058, 2059, 2060, 2061, 2062, 2063, 2064, 2065, 2066, 2067, 2068, 2069, 2070, 2071, 2072, 2073, 2074, 2075, 2076, 2077, 2078, 2079, 2080, 2081, 2082, 2083, 2084, 2085, 2086, 2087, 2088, 2089, 2090, 2091, 2092, 2093, 2094, 2095, 2096, 2097, 2098, 2099, 2100, 2101, 2102, 2103, 2104, 2105, 2106, 2107, 2108, 2109, 2110, 2111, 2112, 2113, 2114, 2115, 2116, 2117, 2118, 2119, 2120, 2121, 2122, 2123, 2124, 2125, 2126, 2127, 2128, 2129, 2130, 2131, 2132, 2133, 2134, 2135, 2136, 2137, 2138, 2139, 2140, 2141, 2142, 2143, 2144, 2145, 2146, 2147, 2148, 2149, 2150, 2151, 2152, 2153, 2154, 2155, 2156, 2157, 2158, 2159, 2160, 2161, 2162, 2163, 2164, 2165, 2166, 2167, 2168, 2169, 2170, 2171, 2172, 2173, 2174, 2175, 2176, 2177, 2178, 2179, 2180, 2181, 2182, 2183, 2184, 2185, 2186, 2187, 2188, 2189, 2190, 2191, 2192, 2193, 2194, 2195, 2196, 2197, 2198, 2199, 2200, 2201, 2202, 2203, 2204, 2205, 2206, 2207, 2208, 2209, 2210, 2211, 2212, 2213, 2214, 2215, 2216, 2217, 2218, 2219, 2220, 2221, 2222, 2223, 2224, 2225, 2226, 2227, 2228, 2229, 2230, 2231, 2232, 2233, 2234, 2235, 2236, 2237, 2238, 2239, 2240, 2241, 2242, 2243, 2244, 2245, 2246, 2247, 2248, 2249, 2250, 2251, 2252, 2253, 2254, 2255, 2256, 2257, 2258, 2259, 2260, 2261, 2262, 2263, 2264, 2265, 2266, 2267, 2268, 2269, 2270, 2271, 2272, 2273, 2274, 2275, 2276, 2277, 2278, 2279, 2280, 2281, 2282, 2283, 2284, 2285, 2286, 2287, 2288, 2289, 2290, 2291, 2292, 2293, 2294, 2295, 2296, 2297, 2298, 2299, 2300, 2301, 2302, 2303, 2304, 2305, 2306, 2307, 2308, 2309, 2310, 2311, 2312, 2313, 2314, 2315, 2316, 2317, 2318, 2319, 2320, 2321, 2322, 2323, 2324, 2325, 2326, 2327, 2328, 2329, 2330, 2331, 2332, 2333, 2334, 2335, 2336, 2337, 2338, 2339, 2340, 2341, 2342, 2343, 2344, 2345, 2346, 2347, 2348, 2349, 2350, 2351, 2352, 2353, 2354, 2355, 2356, 2357, 2358, 2359, 2360, 2361, 2362, 2363, 2364, 2365, 2366, 2367, 2368, 2369, 2370, 2371, 2372, 2373, 2374, 2375, 2376, 2377, 2378, 2379, 2380, 2381, 2382, 2383, 2384, 2385, 2386, 2387, 2388, 2389, 2390, 2391, 2392, 2393, 2394, 2395, 2396, 2397, 2398, 2399, 2400, 2401, 2402, 2403, 2404, 2405, 2406, 2407, 2408, 2409, 2410, 2411, 2412, 2413, 2414, 2415, 2416, 2417, 2418, 2419, 2420, 2421, 2422, 2423, 2424, 2425, 2426, 2427, 2428, 2429, 2430, 2431, 2432, 2433, 2434, 2435, 2436, 2437, 2438, 2439, 2440, 2441, 2442, 2443, 2444, 2445, 2446, 2447, 2448, 2449, 2450, 2451, 2452, 2453, 2454, 2455, 2456, 2457, 2458, 2459, 2460, 2461, 2462, 2463, 2464, 2465, 2466, 2467, 2468, 2469, 2470, 2471, 2472, 2473, 2474, 2475, 2476, 2477, 2478, 2479, 2480, 2481, 2482, 2483, 2484, 2485, 2486, 2487, 2488, 2489, 2490, 2491, 2492, 2493, 2494, 2495, 2496, 2497, 2498, 2499, 2500, 2501, 2502, 2503, 2504, 2505, 2506, 2507, 2508, 2509, 2510, 2511, 2512, 2513, 2514, 2515, 2516, 2517, 2518, 2519, 2520, 2521, 2522, 2523, 2524, 2525, 2526, 2527, 2528, 2529, 2530, 2531, 2532, 2533, 2534, 2535, 2536, 2537, 2538, 2539, 2540, 2541, 2542, 2543, 2544, 2545, 2546, 2547, 2548, 2549, 2550, 2551, 2552, 2553, 2554, 2555, 2556, 2557, 2558, 2559, 2560, 2561, 2562, 2563, 2564, 2565, 2566, 2567, 2568, 2569, 2570, 2571, 2572, 2573, 2574, 2575, 2576, 2577, 2578, 2579, 2580, 2581, 2582, 2583, 2584, 2585, 2586, 2587, 2588, 2589, 2590, 2591, 2592, 2593, 2594, 2595, 2596, 2597, 2598, 2599, 2600, 2601, 2602, 2603, 2604, 2605, 2606, 2607, 2608, 2609, 2610, 2611, 2612, 2613, 2614, 2615, 2616, 2617, 2618, 2619, 2620, 2621, 2622, 2623, 2624, 2625, 2626, 2627, 2628, 2629, 2630, 2631, 2632, 2633, 2634, 2635, 2636, 2637, 2638, 2639, 2640, 2641, 2642, 2643, 2644, 2645, 2646, 2647, 2648, 2649, 2650, 2651, 2652, 2653, 2654, 2655, 2656, 2657, 2658, 2659, 2660, 2661, 2662, 2663, 2664, 2665, 2666, 2667, 2668, 2669, 2670, 2671, 2672, 2673, 2674, 2675, 2676, 2677, 2678, 26

1999

[illegible]

ELD-2001130	67	11/24/05	USF0000010	WERR F00 05-19--1965
ELD-2001130	202	02/21/06	D08-03-06-0005-000	CFFR ROAD-BED SEGMENT
	202	02/21/06	FWMA051117A	CFFR
EL-2001140	202	02/21/06	D08-03-06-0005-000	CFFR ROAD-BED SEGMENT
	202	02/21/06	FWMA051117A	CFFR
ELD-2001150	67	08/13/06	USF0000010	WERR F00 05-19-05-2170, WERR HILL ROAD SITE/WHITE WALL KINTON
ELD-2001150	67	08/13/06	USF0000010	WERR F00 05-19-05-2170, SILVER FORK SCHOOL SITE
ELD-2001170	67	11/13/06	B00041000A	WERR TRAIL FORD
ELD-2001180	67	02/24/06	USF0000010	CFFR 05-03-06-000
ELD-2001180	67	02/24/06	USF0000010	CFFR 05-03-06-000
ELD-2001200	67	02/24/06	USF0000010	CFFR 05-03-06-000
ELD-2001210	67	02/24/06	USF0000010	CFFR 05-03-06-000
ELD-2001220	67	02/24/06	USF0000010	CFFR 05-03-06-000
ELD-2001220	202	02/24/06	USF0000010	CFFR LOCUS 3 OF 05-03-06-000, 05-03-06-000
ELD-2001240	67	04/19/06	FWMA051117A	WERR CR-1
ELD-2001250	67	04/19/06	FWMA051117A	WERR CR-2
ELD-2001260	67	11/24/06	FWMA051117A	WERR F00 05-19-06-000, SEGMENT A-A/ LOWER OULLEY GRADE
ELD-2001270	67	12/28/06	USF0000010	CFFR F00 05-19-06-000, HIGH MEADOWS ROAD
ELD-2001280	202	07/12/07	USF0000010	CFFR LAKE KINWOOD RECREATION RESTORATION TRACT
ELD-2001290	67	01/02/07	USF0000010	CFFR F00 05-19--0604, CORNE TOP CASE
ELD-2001300	67	12/21/06	USF0000010	CFFR F00 05-19--0610, CORNE TOP DITCH
ELD-2001310	67	10/15/07	FWMA070910A	WERR F00 05-19--0704, OLD ALPINE STATE HIGHWAY / SEGMENT 8.1, 200131
ELD-2001320	67	10/15/07	FWMA070910A	WERR F00 05-19--0704, OLD ALPINE STATE HIGHWAY / SEGMENT 8.2, 200132
ELD-2001330	67	10/15/07	FWMA070910A	WERR F00 05-19--0704, OLD ALPINE STATE HIGHWAY / SEGMENT 8.3, 200133
ELD-2001340	67	10/15/07	FWMA070910A	WERR F00 05-19--0704, OLD ALPINE STATE HIGHWAY / SEGMENT 8.4, 200134
ELD-2001350	67	10/15/07	FWMA070910A	WERR F00 05-19--0704, OLD ALPINE STATE HIGHWAY / SEGMENT 8.5, 200135
ELD-2001360	67	10/15/07	FWMA070910A	WERR F00 05-19--0704, OLD ALPINE STATE HIGHWAY / SEGMENT 8, SECTION 8, 200136
ELD-2001370	202	10/15/07	FWMA070910A	WERR F00 05-19--0704, OLD ALPINE STATE HIGHWAY / SEGMENT 8
ELD-2001380	67	01/24/07	USF0000010	CFFR F00 05-19-06-000, LYING SITE 05-19-05
ELD-2001390	67	04/19/06	FWMA051117A	WERR F00-1 REFUGEE PORTER, F00-1
ELD-2001400	672	12/28/06	FWMA051117A	WERR STATE ROUTE 11 PLACERVILLE RD ROAD SEGMENT A, 02-02-00
ELD-2001410	672	12/28/06	FWMA051117A	WERR STATE ROUTE 11 PLACERVILLE RD SEGMENT B, 02-02-00
ELD-2001420	672	10/19/09	B00041000A	WERR 00-C000-000 HISTORIC PROSPECT FILE

California Historical Resource Status Codes

- 1 Properties listed in the National Register (NR) or the California Register (CR)**
 - 10 Contributor to a district or multiple resource property listed in NR by the Keeper. Listed in the CR.
 - 11 Individual property listed in NR by the Keeper. Listed in the CR.
 - 100 Listed in the CR as a contributor to a district or multiple resource property by the SHRC.
 - 101 Listed in the CR as individual property by the SHRC.
 - 102 Automatically listed in the California Register – Includes State Historical Landmarks 770 and above and Points of Historical Interest nominated after December 1957 and recommended for listing by the SHRC.
- 2 Properties determined eligible for listing in the National Register (NR) or the California Register (CR)**
 - 20 Determined eligible for NR as an individual property and as a contributor to an eligible district in a federal regulatory process. Listed in the CR.
 - 201 Contributor to a district determined eligible for NR by the Keeper. Listed in the CR.
 - 202 Contributor to a district determined eligible for NR by consensus through Section 106 process. Listed in the CR.
 - 203 Contributor to a district determined eligible for NR by Part I Tax Certification. Listed in the CR.
 - 204 Contributor to a district determined eligible for NR pursuant to Section 106 without review by SHPO. Listed in the CR.
 - 21 Individual property determined eligible for NR by the Keeper. Listed in the CR.
 - 211 Individual property determined eligible for NR by a consensus through Section 106 process. Listed in the CR.
 - 212 Individual property determined eligible for NR by Part I Tax Certification. Listed in the CR.
 - 213 Individual property determined eligible for NR pursuant to Section 106 without review by SHPO. Listed in the CR.
 - 200 Determined eligible for CR as an individual property and as a contributor to an eligible district by the SHRC.
 - 201 Contributor to a district determined eligible for listing in the CR by the SHRC.
 - 202 Individual property determined eligible for listing in the CR by the SHRC.
- 3 Appears eligible for National Register (NR) or California Register (CR) through Survey Evaluation**
 - 30 Appears eligible for NR both individually and as a contributor to a NR eligible district through survey evaluation.
 - 31 Appears eligible for NR as a contributor to a NR eligible district through survey evaluation.
 - 32 Appears eligible for NR as an individual property through survey evaluation.
 - 300 Appears eligible for CR both individually and as a contributor to a CR eligible district through a survey evaluation.
 - 301 Appears eligible for CR as a contributor to a CR eligible district through a survey evaluation.
 - 302 Appears eligible for CR as an individual property through survey evaluation.
- 4 Appears eligible for National Register (NR) or California Register (CR) through other evaluation**
 - 400 Master List - State Owned Properties – PRC (5024).
- 5 Properties Recognized as Historically Significant by Local Government**
 - 501 Contributor to a district that is listed or designated locally.
 - 502 Contributor to a district that is eligible for local listing or designation.
 - 503 Appears to be a contributor to a district that appears eligible for local listing or designation through survey evaluation.
 - 501 Individual property that is listed or designated locally.
 - 502 Individual property that is eligible for local listing or designation.
 - 503 Appears to be individually eligible for local listing or designation through survey evaluation.
 - 50 Locally significant both individually (listed, eligible, or appears eligible) and as a contributor to a district that is locally listed, designated, determined eligible or appears eligible through survey evaluation.
- 6 Not Eligible for Listing or Designation as specified**
 - 60 Determined ineligible for or removed from California Register by SHRC.
 - 61 Landmarks or Points of Interest found ineligible for designation by SHRC.
 - 62 Determined ineligible for local listing or designation through local government review process; may warrant special consideration in local planning.
 - 63 Determined ineligible for NR through Part I Tax Certification process.
 - 64 Determined ineligible for NR pursuant to Section 106 without review by SHPO.
 - 65 Removed from NR by the Keeper.
 - 66 Determined ineligible for the NR by SHRC or Keeper.
 - 67 Determined ineligible for NR by consensus through Section 106 process – Not evaluated for CR or Local Listing.
 - 68 Found ineligible for NR, CR or Local designation through survey evaluation.
- 7 Not Evaluated for National Register (NR) or California Register (CR) or Needs Reevaluation**
 - 71 Received by OHP for evaluation or action but not yet evaluated.
 - 72 Resubmitted to OHP for action but not reevaluated.
 - 73 State Historical Landmarks 1-769 and Points of Historical Interest designated prior to January 1998 – Needs to be reevaluated using current standards.
 - 74 Submitted to OHP but not evaluated - referred to NPS.
 - 75 Needs to be reevaluated (Formerly NR Status Code 4).
 - 76 Needs to be reevaluated (Formerly NR SC4) – May become eligible for NR reevaluation or when meets other specific conditions.
 - 77 Identified in Reconnaissance Level Survey: Not evaluated.
 - 78 Submitted to OHP for action – withdrawn.

(3/8/2002)

APPENDIX 2

RESUME

RESUME

Susan Lindström, Ph.D.
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smanglindstrom@gmail.com

Education

Ph.D. Archaeology 1992 - University of California Davis
M.A. Anthropology 1978 - University of California Davis
B.A. Anthropology 1972 - University of California Berkeley

Expertise

Cultural Resource Management
Archaeology (prehistoric and historic period)
History and archival records research
Ethnography, ethnohistory, oral history
Native American consultation
Interpretation and public education

Professional Organizations

Register of Professional Archaeologists
(member since 1982)
Society for Historical Archaeology
Society for California Archaeology
Various county and regional historical societies

Lindström's qualifications include archaeological field work and analytical and archival research in the prehistory and history of the western United States including California, the northern and western Great Basin in Nevada and Oregon, and the Cascade Range and the Columbia River Plateau in Oregon and Washington. Her area of expertise is centered in the north-central Sierra where she has over 43 years of experience in historic preservation matters on a local, state and federal level. She has resided in the Tahoe Sierra and accrued full-time professional experience here since 1973.

Heritage Resource Management -- As Forest Archaeologist from 1973 until 1978 for the Tahoe National Forest and "zone" Archaeologist for the El Dorado National Forest and Lake Tahoe Basin Management Unit, and as District Archaeologist for the Bureau of Land Management in 1978 (Burns, Oregon), Lindström initiated and implemented heritage resource programs for the inventory, protection, management and interpretation of prehistoric and historic heritage resources. She conducted training sessions on heritage resource identification and on antiquities legislation.

Contracting and Consulting -- Between 1980 and the present time, as a private consultant, Lindström has conducted and/or supervised fieldwork, data analysis, archival research, and report preparation for hundreds of federal, state, county, and private projects within the north-central Sierra and adjoining regions in California and Nevada. During this time, she has served as an expert witness on historic and prehistoric resources involving California State Lands Commission court cases within the Tahoe Sierra (1984, 2017).

Teaching -- Lindström instructed introductory level courses in cultural and physical anthropology and archaeology at the University of Nevada, Reno and the University of California, Davis and was appointed as an adjunct professor to the University of Nevada, Reno in 2010.

***Research, Publications and Papers** -- Academic and heritage management reports pertain to regional prehistory and history, as well as print and video publications for the popular audience (including research findings on the Donner Party, California gold mining, Washoe Indians, and California ethnobotany).

Secretary of Interior Standards: Archaeology and History (Prehistory, Ethnography, Ethnohistory, Ethnobotany, History, Paleoenvironmental Studies)

Lindström's 43 years of full-time professional experience in archaeological research, administration and management at the supervisory level involves the study of resources of the prehistoric, ethnographic, ethnohistoric, and historic period. In the Lake Tahoe Basin and Truckee Basin alone, Lindström has supervised and/or participated in the cumulative survey of nearly 50,000 acres. Her work in the adjoining sierran foothills and valleys approaches an additional 25,000 acres.

Prehistory. Experience in prehistoric archaeology largely pertains to the study of hunter-gatherer groups in the far west. Her surveys and excavations center upon the prehistoric ancestors of the Washoe and Maidu Indians of the north-central Sierra.

Lindström's Ph.D. dissertation focused on Washoe fishing in the Truckee River Drainage Basin. Her M.A. thesis explored high-elevation prehistoric land use in the Truckee-Tahoe Sierra.

During the 1990s she participated in the development of a research design for the Framework for Archaeological Resource Management (FARM), a heritage resource management document used by all north-central sierran forests.

She is presently a reviewer for the *Journal of California Archaeology*.

Ethnography, Ethnohistory, Ethnobotany. Lindström has developed an extensive knowledge of Washoe and Maidu territory and has maintained a good working relationship with these groups beginning in 1973. Since 2000 she has collaborated with prominent Washoe ethnographers such as Warren D'Azevedo and Merideth (Penny) Racks. Lindström conducted and coordinated ethnographic research to develop a management plan for Cave Rock, a high-profile Washoe Traditional Cultural Property within the Lake Tahoe Basin. She authored a chapter on Native Californian ethnobotany that appears in a standard source book on California vegetation.

History. Experience in historic sites archaeology has focused on resources associated with the study of mining, logging, ranching, transportation, and water management resources. Since 1991 Lindström has conducted excavations at several rural work camps and industrial sites, many involving Chinese wood cutters and colliers. In 1987 and 1990 she field-directed excavations at two Donner Party camps (Murphy's Cabin and Alder Creek) and co-authored a book detailing the archival research, archaeology, architecture, dendrochronology, and zooarchaeology surrounding the tragedy.

Paleoenvironmental Studies. Lindström is a contributor to the 1997 congressionally funded, multi-disciplinary study assessing the environmental health and ecosystem management of the Sierra Nevada (*Sierra Nevada Ecosystem Project* [SNEP]) and the pilot case study focusing on the Lake Tahoe Basin.

She is also a contributor to the *Lake Tahoe Watershed Assessment* study, published in 2000 by the Pacific Southwest Research Station, USDA Forest Service, in collaboration with the Pacific Southwest Region of the USDA Forest Service, the Tahoe Regional Planning Agency, the University of California at Davis, the University of Nevada at Reno, and the Desert Research Institute, Reno, Nevada. The study was mandated as part of former President Clinton's actions to protect Lake Tahoe.

Through a series of snorkel and SCUBA surveys during the 1980s and 1990s in Lake Tahoe and its tributary lakes, Lindström investigated lake level changes and explored submerged remnant forests and prehistoric milling features as paleoenvironmental indicators over the past 6000 years. She presented her findings in scientific journals as a co-author with geologists, hydrologists and limnologists. Her work was also featured in *National Geographic* magazine (March 1992).

Secretary of Interior Standards: Closely Related Fields

Lindström's 43 years of full-time experience also entails research, writing, inventory, evaluation, data recovery, and management in closely related fields pertaining to the "built environment." Her work falls within the historical context of mining, logging, water supply engineering, and ranching landscapes, as well as transportation and communications networks, and town sites. Evaluation and data recovery have been directed to 19th and 20th century structural remains for the following resource types: Chinese/Basque/miner cabins; bake ovens/hearths; sawmills; railroad grades and camps; flumes; ditches; pipelines; dams; reservoirs; water tanks; ice works; ranch complexes; charcoal kilns; mine features; trails/roads/highways; utility lines; and fences.

For her projects involving more complex structural properties such as intact standing buildings, bridges and other architectural features, Lindström has had the opportunity to collaborate and learn from prominent architectural historians, beginning in the early 1980s with the Town of Truckee National Register District nomination process up until the present time.

Lindström also has experience with several historic preservation projects. She authored the heritage resource components for local community plans (from 1989 through 2005) and for county general plans (beginning in 1991). During the 1980s she served as a charter member of the Truckee Historical Preservation Advisory Council. She assisted in the preparation of the Truckee Historic Preservation Plan in 2009, followed by the formal National Register District nomination and subsequent Truckee Streetscape project. She served as a member of the "Placer County Department of Museums Collections Management Task Force" in 2009 was an advisor to the California Department of Parks and Recreation (Sierra District) for their new museum at Donner Memorial State Historic Park.

*available upon request