Tahoe City Public Utility District
West Lake Tahoe
Regional Water Treatment Plant
Final Initial Study

Prepared for:

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OCTOBER 2015

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ACRONYMS AND ABBREVIATIONS

Acronym/Abbreviation	Definition
ADT	Average Daily Trips
APCD	Air Pollution Control District
APE	area of potential effect
BMP	best management practice
CARB	California Air Resources Board
CAL FIRE	California Department of Forestry and Fire Protection
CalEEMod	California Emissions Estimator Model
Caltrans	California Department of Transportation
CDFW	California Department of Fish and Wildlife
CEQA	California Environmental Quality Act
CNEL	Community Noise Equivalent Level
CO	carbon monoxide
CRHR	California Register of Historical Resources
CTC	California Tahoe Conservancy
Dbh	diameter at breast height
Db	Decibels
FHWA	Federal Highway Administration
DDW	Division of Drinking Water
GHG	greenhouse gas
Gpm	gallons per minute
HMR	Homewood Mountain Resort
IS	initial study
ISWTP	Interim Surface Water Treatment Plant
kw-hours	kilowatt-hours
LTAB	Lake Tahoe air basin
MF	microfiltration
mg/L	milligram per liter
Mgd	million gallons per day
MQWSA	McKinney-Quail Water Service area
MT CO_{2e}	metric tons of carbon dioxide equivalent
NAHC	Native American Heritage Commission
NO_x	nitrous oxide
NPDES	National Pollutant Discharge Elimination System
PM_{10}	particulate matter less than or equal to 10 microns in diameter
$PM_{2.5}$	particulate matter less than or equal to 2.5 microns in diameter
ROG	reactive organic gases
RWQCB	Regional Water Quality Control Board
SO_x	sulfur oxide
SR	State Route
TCPUD	Tahoe City Public Utility District

TRPA	Tahoe Regional Planning Agency
UV	ultra-violet
WLTRWTP	West Lake Tahoe Regional Water Treatment Plant
WTP	water treatment plant

1 INTRODUCTION

1.1 Project Overview

The Tahoe City Public Utility District (TCPUD) proposes to construct a new domestic drinking water treatment plant (WTP) using Lake Tahoe surface water as its source. The proposed West Lake Tahoe Regional Water Treatment Plant (WLTRWTP) would provide increased potable water service reliability and quality for the TCPUD McKinney-Quail Water Service Area (MQWSA) and other water systems in the West Lake Tahoe region by replacing the existing Interim Surface WTP (ISWTP).

1.2 California Environmental Quality Act Compliance

This initial study (IS) has been prepared in accordance with the requirements of the California Environmental Quality Act (CEQA) of 1970 (Public Resources Code, Section 21000 et seq.), and the CEQA Guidelines (14 CCR 15000 et seq.).

1.3 Project Planning Setting

The WLTRWTP Project (project or proposed project) is proposed to be located within the TCPUD MQWSA, near the community of Tahoma on the west shore of Lake Tahoe, in Placer County, California. The project site is located within the Lake Tahoe Basin and the jurisdiction of the Tahoe Regional Planning Agency (TRPA).

1.4 Public Review Process

The proposed mitigated negative declaration (MND) and IS are being circulated for public review for a period of 30 days, pursuant to CEQA Guidelines, Section 15073(a).

2 SUMMARY OF FINDINGS

2.1 Environmental Factors Potentially Affected

This IS considers the environmental issues identified in Appendix G of the CEQA Guidelines.

2.2 Environmental Determination

As lead agency, TCPUD finds that the IS identifies potentially significant effects that would result from implementation of the proposed project, but that revisions to the project (including revisions required by mitigation measures included in this IS) would avoid the effects or mitigate the effects to a point where clearly no significant impacts would occur. The mitigation measures

identified in this IS are listed in Table 2-1 below. There is no substantial evidence that the project, as revised, would have a significant effect on the environment.

Table 2-1
Mitigation Summary

Number	Measure
Mitigation Measure AES-1	All exterior lighting installed at the project site shall be placed at a maximum height of 14 feet, directed downward and shielded. The maximum light level at the property line for general night lighting of the building perimeter and entrance shall be 1 foot candle. The maximum light level at the property line for motion-sensing security lighting shall be 4 foot candles. Lighting necessary for any temporary emergency lighting shall not be subject to these maximum light levels, but shall be directed towards the work area and temporary shielding of adjacent residential properties shall be provided where feasible. All lighting shall comply with the following design standards: • Lighting shall be directed away from adjacent roadways and shall not interfere with traffic or create a safety hazard. • Landscaping shall be used to screen views of on-site lighting from adjacent and proximate residences. • Exterior lights shall not blink or flash. • String lights, building or roofline tube lighting, and reflective or luminescent wall surfaces are prohibited. • Exterior lighting shall not be attached to trees. • Outdoor lighting shall be used for purposes of illumination only and shall not be designed for, or used as, an advertising display. Illumination for aesthetic or dramatic purposes of any building or surrounding landscape utilizing exterior light fixtures projected above the horizontal is prohibited.
Mitigation Measure BIO-1	To avoid take of any nesting birds, including raptors, tree removal within the study area shall be conducted between September 1 and May 1, which is outside of the typical breeding season, where feasible. For any construction activities, including tree removal, initiated during the typical breeding season (generally May 1 to through August 31) a pre-construction nesting bird survey shall be conducted by a qualified biologist within 15 days prior to project-related activities. The nesting survey shall be repeated every two

	weeks throughout any construction activities that occur during the breeding season. If any active nests are found on or within 100 feet of the proposed area of disturbance, consultation shall be initiated with CDFW to determine appropriate avoidance measures and responsibilities. Avoidance measures typically include limited operating periods and / or a 100 to 500-foot buffer from the nest until it is determined to be inactive. To avoid impacts to habitat for cavity-nesting wildlife species, standing snags shall not be disturbed to the extent possible.
Mitigation Measure BIO-2:	A pre-construction Tahoe yellow cress survey shall be conducted to identify existing populations and confirm there are no additional populations in the project area. The construction contractor shall install high visibility avoidance fencing around Tahoe yellow cress populations where construction would occur within 25 feet of identified populations. A qualified biologist shall inspect the avoidance fencing prior to initiation of construction and periodically during construction that occurs within 25 feet of identified populations.
Mitigation Measure BIO-3:	Any impacts to wetlands, waters of the U.S., and waters of the state shall be compensated for or reduced through the establishment of replacement habitat at a minimum ratio of 1:1 and in accordance with the terms of the resource agency permits obtained to authorize such impacts. Where riparian habitat or other sensitive natural communities are to be avoided during construction, the construction contractor shall erect exclusion fencing around these areas to ensure protection. These areas shall be inspected by a qualified biologist prior to and routinely during construction. The qualified biologist shall also routinely inspect construction activities within 25 feet of Lake Tahoe and McKinney Creek to ensure that all equipment remains outside of any protected zone.
Mitigation Measure BIO-4:	Prior to any ground-disturbing activities or construction within 25 feet of McKinney Creek and the associated Stream Environment Zone, exclusion fencing shall be erected at the boundary of the Stream Environment Zone. The fencing shall be inspected by a qualified biologist prior to construction and routinely throughout construction activities that occur within 25 feet of the Stream Environment Zone.
Mitigation Measure BIO-5:	Prior to initiation of construction, TCPUD shall prepare a Tree Treatment Plan to address tree removal and tree protection provisions, as outlined in the Tahoe Regional Planning Agency (TRPA) Code of Ordinances Section 33.6.4. The construction contractor shall implement vegetation protection measures during construction activities, consistent with Section 33.6 of the TRPA Code of

	Ordinances, to minimize damage to retained trees. Protection measures for retained trees shall include: A. Fencing shall be placed no closer than the dripline of the tree(s) unless an alternative placement is approved by TRPA. B. The location and type of the protective fencing shall be shown on approved plans. C. No material or equipment shall enter or be placed in the areas protected by fencing or outside the construction areas without prior approval from TRPA. D. Protective fencing for trees shall be constructed with metal posts and industry-standard mesh fencing that is at least four feet tall, unless an alternative method is approved by TRPA. All protective fencing shall be adequately maintained to provide a functional barrier during construction. E. An alternative method of tree protection may be required if conditions warrant due to location of tree or the importance of the tree for visual screening. Prior to initiation of construction, TCPUD shall also prepare a Revegetation Plan to establish vegetative cover on disturbed areas that will not be otherwise developed (expected to include new pipeline alignments, graded slopes, etc.), as identified in TRPA Code of Ordinances, Section 61.4. Revegetation efforts shall consider post-construction stand density, stand health, and fire safety/defensible space requirements.
Mitigation Measure NOI-1:	Routine periodic testing of proposed generators, including monthly and quarterly operation of the generator units, shall only occur between 8 AM and 6 PM.
Mitigation Measure NOI-2:	The proposed generator for Phase 1 of the WTP shall be enclosed within minimum 6-foot high perimeter solid walls, in addition to incorporating the Level 2 sound attenuating cabinet from the manufacturer. Any opening in the perimeter wall shall be equipped with a solid door or gates.

Mitigation Measure NOI-3:	The following measures shall be implemented to minimize nuisance effects during construction: • Construction activities shall be limited to 8 AM to 6 PM Mondays-Sundays. • All internal combustion engine driven equipment shall be equipped with intake and exhaust mufflers that are in good condition and appropriate for the equipment. • Stationary noise-generating equipment shall be located as far away as possible from sensitive receptors that adjoin or are near the active construction site. • "Quiet" air compressors and other stationary noise generating equipment shall be used where appropriate technology exists. • The project sponsor shall designate a "disturbance coordinator" responsible for responding to any local complaints about construction noise. The disturbance coordinator shall determine the cause of the noise complaint (e.g., starting too early, bad muffler, etc.) and require that reasonable measures warranted to correct the problem be implemented. The project sponsor shall also post a telephone number for excessive noise complaints in conspicuous locations in the vicinity of the project site. Additionally, the project sponsor shall send a notice to neighbors in the project vicinity with information on the construction schedule and the telephone number for noise complaints.

3 INITIAL STUDY CHECKLIST

Project Title

West Lake Tahoe Regional Water Treatment Plant (WLTRWTP)

Lead Agency Name and Address

Tahoe City Public Utility District
P.O. Box 5249
Tahoe City, California 96145

Contact Person and Phone Number

Matt Homolka, District Engineer/Assistant General Manager
530.580.6042

Project Location

The proposed WLTRWTP building would be constructed on a vacant parcel west of State Route (SR) 89 adjacent to Lodge Drive on the northern portion of an approximately 6.5-acre parcel, which is currently owned by the California Tahoe Conservancy (CTC). The building site is adjacent to residences and immediately west of SR 89. The Tahoe City to Sugar Pine bike trail (West Shore bike trail) runs between SR 89 and the building site. The proposed project would use a reconstructed lake intake at the Chambers Landing Beach, which is located across SR 89, approximately 0.2 mile from the WTP building site. The project would also include reconstruction of an existing water intake pump station and pipeline at Chambers Landing Beach and installation of a new water transmission pipeline between the intake station and the treatment plant building. A regional map is provided in Figure 1, a vicinity map is provided in Figure 2, and an aerial map is provided in Figure 3.

Project Sponsor's Name and Address

Tahoe City Public Utility District
P.O. Box 5249
Tahoe City, California 96145

General Plan and Zoning

The project site is within the *West Shore General Plan*, adopted October 1998, and is currently within the planning area of the *Placer County Tahoe Basin Area Plan Update*. Existing land use classification is Residential. The pertinent zoning district is 156

Chamberlands. This zoning allows for local public health and safety facilities and public utility centers as Special Uses within the district.

The proposed WLTRWTP would serve primarily residential land uses and limited commercial and recreational land uses. The primary service area would be the TCPUD's MQWSA. The Tahoe Meadows System is a neighborhood served by the MQWSA. The project may also serve the service areas of five other water systems, specifically the Madden Creek Water Company, Tahoe Cedars Water Company, Tahoe Pines/Tahoe Swiss Village Water Company, Skyland/Nielsen Water Company, and Timberland Water Company. The service areas for all six water systems are shown in Figure 4.

Project Background and Need

Background

Water service along the West Shore of Lake Tahoe suffers from an inefficient, disjointed delivery system. There are 14 separate water systems under different ownerships between Sunnyside and Emerald Bay. These 14 systems serve approximately 4,700 water service connections. Each system uses different groundwater sources, creating inefficient redundancies in delivery. Most are more than 40 years old. Many of these water systems lack permitted backup water supplies and/or have primary drinking water quality compliance issues as regulated by the State Water Resources Control Board, Division of Drinking Water (DDW). Most systems are significantly undercapitalized, which creates a challenge in making the investments necessary to meet all of today's drinking water standards.

The TCPUD's MQWSA is one of these water systems. The MQWSA is an isolated subsystem of the TCPUD, located between the communities of Homewood and Tahoma. The system extends roughly from Moana Circle in the south to Tahoe Ski Bowl Way in the north and includes the Tahoma Meadows neighborhood. The MQWSA serves 559 water service connections and has historically experienced a number of water supply and water quality deficiencies or concerns. The MQWSA is currently in compliance with DDW primary and secondary source of supply and drinking water quality standards. However, TCPUD's ability to maintain this compliance within the MQWSA is of concern, as described in the following text, given the age, condition, and configuration of the water supply sources.

The MQWSA currently has three different water supply sources:

- Crystal Way groundwater well (McKinney Well No. 3) – This well was constructed in 1994 with an estimated maximum capacity of 500 gallons per

minute (gpm). Until 2004, this was the only water source for the MQWSA, and the system was not compliant with DDW secondary (backup) source requirements. From the time the well was activated, it began showing a steady decline in static and dynamic groundwater levels due to over-withdrawal. The groundwater level decline has stabilized at about 70% of their original levels with the construction of the additional interim sources described in the following text. This stabilization has occurred because the well is no longer being used to satisfy the year-round system demand. Based on this, the sustainable capacity of this well is far less than 500 gpm. It is closer to the wintertime maximum demand in the MQWSA, which is generally 70 to 100 gpm. Furthermore, this well has corrosive water quality issues and has exhibited Lead and Copper Rule non-compliance issues.

- Interim Surface Water Treatment Plant (ISWTP) at Chambers Landing – The ISWTP was constructed in the spring of 2004 and is supplied with Lake Tahoe water through a lake intake on Chambers Landing Beach. The plant has a permitted capacity of 300 gpm. It was constructed using repurposed filtration equipment and was permitted on an interim and emergency basis (not permanent). It is not enclosed in a building and, therefore, cannot be operated during the winter months (November to April), and must be shut down and winterized each year.
- Emergency Interconnection with McKinney Water District – This two-way emergency interconnection with the McKinney Water District (an adjacent public water system) was constructed in 2010. The interconnection is available to provide emergency water supply (up to 175 gpm) to either system and is governed by a memorandum of understanding between the two agencies. The primary water supply in the McKinney Water District complies with DDW water quality standards. However, it is not under the control of the TCPUD. The interconnection currently serves as the MQWSA secondary (backup) water source during the times the ISWTP is shut down.

Three other potential water sources exist in the MQWSA, but are not used. McKinney Well No. 1 has been shut down due to high iron and manganese content. A test well (McKinney Well No. 2) was drilled at the top of Grouse Drive. However, it was not completed for production due to also exhibiting high iron and manganese content. To use either of these wells for water supply would require groundwater treatment to comply with DDW drinking water quality standards. Such a treatment plant would be similar in magnitude and process as that proposed for the WLTRWTP. The third potential source is the McKinney Shores Lake Intake, which consists of a lake intake with a single lake

pump. This intake is not connected to the MQWSA. The existing McKinney Shores intake has a limited capacity (approximately 175 gpm) and does not include a surface WTP. Planning for the proposed project included consideration of an alternative location for construction of the WTP. This alternative would have included reconstructing the McKinney Shores intake to provide the WTP water supply. As discussed following the proposed project description, this alternative was ultimately rejected based on the analysis of potential environmental effects and public input.

The MQWSA is adjacent or nearby to a number of other private and public water systems that face similar or more significant water source/supply issues. In many cases, the systems do not have adequate or reliable secondary (backup) water sources. A WTP sized to provide regional water supply capacity to some or all of these systems would provide a far more cost-effective solution than each system resolving their supply issues independently.

Project Purpose and Need

TCPUD is proposing to construct the new WLTRWTP to address water supply issues identified previously for the MQWSA, and to provide the foundation for a coordinated and regional drinking water supply solution for a portion of the west shore area of Lake Tahoe. The WLTRWTP would provide a permanent, all-season, reliable, and drought-resistant drinking water supply to the MQWSA and, potentially, other water systems within the region. Specifically, it would:

- Replace the water supply to the MQWSA currently provided by the ISWTP. The ISWTP has reached the end of its service life, is expensive to operate with annual shutdowns and startups, and is not permitted for long-term use. It must be replaced with a permanent, all-season water supply source.
- Serve as the primary water source for the MQWSA paired with the McKinney Well No. 3 as the permitted secondary (backup) source in full compliance with DDW source of supply regulations. Placing McKinney Well No. 3 in the secondary source position would preserve its sustainable capacity and maintain an acceptable static water level. The stabilization of Well No. 3 groundwater levels after the construction of the ISWTP clearly indicates that this well is better utilized in a backup position.
- Remove the reliance upon the emergency interconnection to McKinney Water District as the MQWSA's wintertime-permitted secondary source. Interconnections should not be relied upon as secondary sources of supply.

They are intended for short-term, extreme emergencies, governed by a memorandum of understanding, and outside the control of the TCPUD.

- Reduce TCPUD's and other area water suppliers' reliance upon groundwater, which has historically shown water quality issues and capacity limitations. Adding to capacity reliability concerns of groundwater is the impacts caused by climate change. A decreased snowpack and increased rainfall would likely negatively affect the resiliency of groundwater sources, as groundwater recharge from increased rainfall is not as favorable as recharge from a melting snowpack.
- Potentially provide regional source water to adjacent or nearby water systems, either through wholesale agreements or by consolidation. In particular, the following water systems are within the potential service area of the WLTRWTP and represent approximately 2,480 service connections:
  - Madden Creek Water Company
  - Tahoe Cedars Water Company
  - Tahoe Pines/Tahoe Swiss Village Water Company
  - Skyland/Nielsen Water Company
  - Timberland Water Company
- Improve various environmental factors (scenic, noise, water quality) associated with the current ISWTP and lake intake facilities. The new WLTRWTP would be constructed inside a building on high-capability lands, whereas the ISWTP is located outdoors and in an environmentally sensitive area. Furthermore, the large aboveground concrete and steel lake intake vault would be removed from the public beach at Chambers Landing as part of the project.

TCPUD proposes to use Lake Tahoe surface water because it provides a:

- predictable and reliable quantity and flow rate of water supply
- drought-resistant and year round water source
- consistent source of water quality allowing for predictable and proven treatment processes and flow rate
- diversified source when paired with groundwater, giving TCPUD the most flexibility to operate the water system efficiently.

While groundwater has historically been an adequate source of water supply, it is subject to the following concerns:

- It provides an unpredictable long-term yield because the wells in the area are located in hard-rock formations. Until a well is completed, tested, and operated for a number of years, under actual demand, the true capacity of the well cannot reliably be predicted.
- Due to the hard-rock formations of the aquifers in the area, groundwater is subject to static level declines from overproduction, further limiting a well's future reliable capacity.
- It is subject to unpredictable water quality issues. In particular, TCPUD has encountered iron and manganese in the other two inactive wells. Additionally, the McKinney Well No. 3 has begun to show corrosive water quality leading to lead and copper water quality issues. The two inactive wells would require iron and manganese removal water treatment, similar to that proposed for the WLTRWTP project, to meet water quality standards.
- It is subject to future regulations requiring additional treatment, which may become equivalent to that necessary for surface water. In particular, lowered arsenic and manganese maximum contaminant limits are under discussion by the U.S. Environmental Protection Agency, and the State of California recently adopted a new Hexavalent Chromium maximum contaminant limit for groundwater supplies.
- Climate change will adversely affect the recharge of groundwater sources; especially hard rock wells such as those found on the West Shore of Lake Tahoe and continue to diminish the long-term reliability and resiliency of these wells.

Project Description

The proposed project would include the following components, which are described in more detail in the following text and shown on Figure 3:

- Installation of two submersible intake pumps within Lake Tahoe
- Installation of a powerline between the intake pumps and the electrical and chemical feed room
- Replacement of the existing lake intake pipeline (required in Phase 2 only)

- Installation of a raw water pipeline from the lake intake facilities to the proposed WLTRWTP
- Construction of an intake pump station electrical and chemical feed room
- Construction of a WTP facility
- Installation of treated water distribution pipelines to distribute treated water from the WLTRWTP to the existing water MQWSA distribution system
- Decommissioning and removal of the existing ISWTP
- Decommissioning and removal of the existing lake intake pump station and associated concrete vault
- Land exchange between the TCPUD and CTC

Existing Interim Surface Water Treatment Plant

As described previously, TCPUD constructed the existing ISWTP in the spring of 2004. It has a permitted capacity of 300 gallons per minute. The existing ISWTP pumps water from Lake Tahoe via a lake intake pump station located on the Chambers Landing Beach. An existing 650-foot long 6-inch and 8-inch raw water suction pipeline runs from the vault into the lake. The pump station controls are located in the vault and inside the Chambers Landing swimming pool maintenance room. The treatment process uses a roughing filter and polishing filter before disinfection using sodium hypochlorite addition. The ISWTP produces water that is compliant with current DDW drinking water standards. Filter backwash water is ultimately discharged to on-site holding tanks. TCPUD periodically pumps out the solids from the backwash holding tanks for off-site disposal.

Service Area

Figure 4 shows the water systems with potential to receive service from the proposed project. Table 3-1 lists the water systems considered in this evaluation and their current number of water service connections.

Table 3-1
Potential Water Service Area and Existing Water Service Connections

Water System	Existing Number of Water Service Connections			
	Residential	*Commercial*	*Other*	*Total*
MQWSA (TCPUD)[1]	550	9	0	559
Madden Creek Water Co.	160	16	0	176
Tahoe Cedars Water Co.	1,149	7	0	1,156
Tahoe Pines/Tahoe Swiss Village Water Co.	377	0	0	377
Skyland/Nielsen Water Co.	80	0	0	80
Timberland Water Co.	133	1	0	134

Note:
[1] Includes the Tahoma Meadows Water Co. service connections as that system is now owned and operated by the TCPUD and is considered a part of the MQWSA.

Treated domestic drinking water would be supplied to the TCPUD's MQWSA through the existing water distribution system. If other water companies request services through the MQWSA, water would be supplied to the other water companies through future interconnections to their distribution systems. Water would be supplied to these other water companies under wholesale purchase agreements, memoranda of understanding, or consolidations. It is not known at this time which other water companies would request services through the MQWSA, where interconnections would be located, and what MQWSA distribution system improvements would be required to serve those interconnection. It would be speculative to predict the location and design of such interconnections at this time. However, under the proposed Phase 2 of the WLTRWTP, the facility would have sufficient capacity to serve the identified water companies with no additional onsite improvements required. Thus, this IS considers the full range of potential environmental impacts from the proposed project.

The Homewood Mountain Resort (HMR) has proposed a redevelopment project within their resort properties. The proposed development is located partially in the TCPUD's MQWSA, partially in the Madden Creek Water Company service area, and partially outside the boundaries of any water provider. The water demands for the portions of the HMR redevelopment within the potential service area of the WLTRWTP have been considered in the proposed project capacity and design.

Water System Demands

Water system demands were projected for the water systems within the potential service area of the WLTRWTP. Table 3-2 summarizes the existing and projected year 2030 demands for each system. Demand projections included consideration of metering and

other system improvements that would enhance water use efficiency and reduce unit demands if the water systems are served by the proposed project.

Table 3-2
Existing and Projected Regional Demands Summary

No.	Water System or Subsystem Component	Existing		Projected 2030	
		Average Day (gpm)	*Max Day (gpm)*	*Average Day (gpm)*	*Max Day (gpm)*
1	MQWSA (TCPUD)	90	304	93	313
2	Tahoma Meadows Water Co. (TCPUD)[a]	6	19	6	20
	HMR Development[b]				
3	South Base + Mid-Mountain	–	–	12	41
4	North Base	–	–	26	89
	Subtotal HMR Domestic	*0*	*0*	*38*	*130*
5	Madden Creek Water Co.	64	222	37	129
6	Tahoe Cedars Water Co.	151	521	162	558
7	Tahoe Pines/Tahoe Swiss Village Water Co.	81	278	86	298
8	Skyland/Nielsen Water Co.	8	28	9	30
9	Timberland Water Co.	41	141	29	99

Source: Kennedy/Jenks 2014.
Notes:
[a] Tahoma Meadows Water Co. demands are presented separately from the rest of the MQWSA demands, as they are calculated using different unit demand factors.
[b] HMR development demands are presented separately as they are based on different unit demand factors. Water supply to the HMR development will be supplied by either or a combination of the TCPUD's MQWSA and the Madden Creek Water Co.

Treatment Capacity and Phasing Approach

The WLTRWTP is proposed to be constructed in two phases. Phase 1, proposed to be built in 2016 and 2017, would have a maximum design capacity of 650 gpm or 1.0 million gallons per day (mgd). Phase 1 would provide for the maximum capacity needed to serve the TCPUD's MQWSA, the Madden Creek Water Co., and the Tahoe Cedars Water Co., including the proposed HMR development that would be supplied by those water systems. Phase 2, if necessary, would provide for an expansion of the maximum design capacity to no more than 1,100 gpm or 1.5 mgd to allow for service to the remainder of the water companies within the proposed service area. Phase 2 would only be constructed if conditions warranted and is intended to represent the maximum capacity that would be needed if all systems were consolidated into the regional system. Changes in institutional arrangements and water supply conditions may result in a reduced Phase 2 capacity. Table 3-3 summarizes the treatment capacity calculations and phasing approach.

Table 3-3
2030 Incremental Water Treatment Capacity Needed

Water System/ Service Area	2030 MDD (gpm)	Cumulative Demand	Assumed Available as Lead Supply (gpm)	System Demand – Supply	Cumulative Supply Capacity Needed (gpm)	WLTRWTP Recommendation
MQWSA	313	313	0	313	313	
Tahoma Meadows	20	333	0	20	333	
HMR South	41	374		41	374	Min. WTP Capacity
HMR North	89	463		89	463	
Madden Creek	129	592	0	129	592	
Tahoe Cedars	558	1,150	500[a]	58	650	Phase 1 Capacity
Tahoe Swiss Village	298	1,448	0	298	948	
Skyland Nielsen	30	1,478	0	30	978	
Timberland	99	1,577	0	99	1,077	Potential Phase 2

Source: Kennedy/Jenks 2014.
Notes:
[a] Tahoe Cedars could be connected to the regional water system in a way that its water source could also supply the regional system. For that reason, its existing well supply capacity can offset the overall demand on the WLTRWTP.

Proposed WLTRWTP

The WLTRWTP would receive raw water from Lake Tahoe through an intake pump station and lake intake pipeline. Under Phase 1, the existing lake intake pipeline would be used. It would be replaced with a larger pipeline during Phase 2 of the project. The pump station and pipeline would be fully submerged within the lake and connected to an underground raw water pipeline at the shoreline. The lake intake submersible pumps would pump the water from the lake through the lake intake pipeline to the Electrical/Chemical Feed Room. At this location, the raw water would be pre-chlorinated by sodium hypochlorite injection and would continue to be conveyed to the WLTRWTP through the raw water pipeline. At the WLTRWTP, the water would be conveyed through the treatment processes into the chlorine contactor and operational storage clearwell. This approach avoids the need to re-pump the water at various stages of the treatment process. The treated water would then be pumped from the storage clearwell to the existing distribution system by a pump station inside the WLTRWTP building.

The WLTRWTP features would likely include a skid mounted membrane filtration process; ultra-violet (UV) disinfection; post-chlorination disinfection for water distribution disinfection residual maintenance; partially buried clearwell for treated water storage; treated water booster pump station; backwash recovery treatment process and underground storage tanks; recycled water pump station; off-site solids disposal; and permanent standby generator. The individual components of the proposed project are described below.

Intake Pump Station

The intake pump station at Chambers Landing Beach would be converted from the existing land-based pump station to a submersible pump station. The submersible pump station would be installed below the surface of the lake and would consist of two submersible pumps anchored to the bottom of the lake with an intake screen for each pump. A submerged electrical power cable for each pump would be installed and connected to the intake pipeline. The intake pump station would be located approximately 650 feet from the shoreline, at the same location as the current pump station intake screen. The existing vault that contains the current intake pump station would be demolished once it has been replaced by the new submersible pump station. The existing site would be restored to the current beach recreational area that surrounds it.

A new electrical cable to operate the submersible pumps would be constructed between the new Lake Intake Electrical/Chemical Feed Room and the submersible pumps. This cable would be buried underground between the room and shoreline and strapped to the outside of the lake intake pipeline underwater.

Intake Pipeline

An intake pipeline is necessary to convey lake water from the new intake pump station to the shoreline. For Phase 1, no improvements to the existing Chambers Landing intake pipeline are needed. The existing pipeline consists of approximately 650 linear feet of 8-inch and 6-inch diameter pipes from the inlet screen in the lake to the existing pump station in the beach. For Phase 2, the existing pipeline would be replaced with a 10-inch diameter line in order to attain the Phase 2 capacity.

Intake Electrical/Chemical Feed Room

A new Electrical/Chemical Feed Room would be constructed to replace the existing electrical service/control and chemical feed facilities that currently exist at the lake intake site. The room would contain all electrical service, electrical control, and communication

facilities necessary to operate the lake intake pump station. It would also contain chemical storage as well as feed and injection facilities necessary to pre-chlorinate the raw water pumped from the lake. Finally, a standby electrical generator would be included to operate the pump station and chemical feed facilities in case of a power outage. The new Electrical/Chemical Feed Room would be located on TCPUD property at the existing ISWTP site. TCPUD's existing McKinney Sewer Lift Station building at this site would be expanded to provide the new separate Electrical/Chemical Feed Room.

The standby electrical generator would be a permanent diesel generator sized to operate the lake intake submersible pumps, chemical feed facilities, and all other Electrical/Chemical Feed Room facilities. Final sizing would be determined during final design. The generator would be located inside the new Electrical/Chemical Feed Room. As this site is located within a floodplain, the Electrical/Chemical Feed Room addition would be designed to be flood resistant with a flood protection door.

Raw Water Pipeline

A raw water pipeline would be constructed from the shoreline (end of lake intake pipeline) and past the Electrical/Chemical Feed Room to the new WLTRWTP location. The new raw water pipeline would be approximately 1,700 linear feet of 10-inch diameter underground water pipe. See Figure 3 for the potential pipeline alignment.

Water Treatment Plant

The WLTRWTP would require approximately 3,500 square feet of building space for Phase 1 and would be expanded by approximately 1,000 square feet for Phase 2. A conceptual floor plan is shown in Figure 5. Site improvements associated with the building would include a paved driveway, parking areas for maintenance vehicles, walkways, stormwater conveyance and treatment facilities, and typical utility services (water, sewer, power, and communications). The preliminary site plan is provided in Figure 6. Construction activities would include site grading and paving, excavation for the building foundation and partially buried contactor/clearwell tank, and site revegetation and restoration.

Filtration and Disinfection Processes: Water treatment and disinfection would be provided by a multi-barrier approach to comply with the State of California's Surface Water Treatment Rule drinking water standards. Filtration would be provided using a packaged microfiltration (MF) or ultrafiltration system. Disinfection would be provided with a combination of UV reactors and free chlorine. Packaged MF or ultrafiltration (collectively described as MF) would

provide reliable, low-turbidity filtered water independent of pretreatment chemical coagulation and variations in the source water quality, and would ensure that applicable State Water Resource Control Board DDW standards are met.

Two packaged MF units would be provided to meet the production for Phase 1 capacity. A third MF unit would be required for Phase 2 capacity. It is expected that the MF units would include a strainer; direct pumping through the membrane unit and backwash supply pipeline from the discharge side of the treated water pump station; membrane elements; and associated piping, valves, instrumentation and controls for the unit. A single separate clean-in-place system, neutralization tank, and compressed air system would be required for the two (Phase 1) to three (Phase 2) MF systems.

Disinfection would be provided with a combination of pressurized UV disinfection reactors and free chlorine (using liquid sodium hypochlorite). The Phase 1 WLTRWTP capacity would require one duty and one standby UV reactor, with a third UV reactor installed for Phase 2.

Because chlorine does not kill pathogens instantaneously on contact, disinfection with chlorine requires the appropriate chlorine concentration and sufficient contact time with the water. A portion of the required disinfection would be achieved with the presence of residual chlorine in the raw water pipeline (injected at the Electrical/Chemical Feed Room). The remaining disinfection would be achieved in a contactor partition tank, which is currently estimated to be an approximately 16,000-gallon constructed of serpentine reinforced concrete. The contactor tank would be partially buried on site and partially within the WLTRWTP building. The contactor tank would need to be expanded by approximately 12,000 gallons for Phase 2.

Backwash Handling and Disposal: The MF units must be regularly backwashed to remove the filtrate and maintain their performance. The proposed backwash handling and disposal approach has been developed to maximize recovery and recycling of spent backwash water through the WLTRWTP, thereby minimizing the need to discharge to the sewer and/or pump and haul-off backwash solids. The packaged MF units would backwash approximately every 60 minutes as solids build up on the surface of the membrane fibers. Coagulant may be added to the spent backwash water, which would then be sent to an equalization tank to dissipate energy, and the spent backwash water would settle in an underground fiberglass backwash settling tank. The settled spent backwash water would be decanted off from inside the backwash settling tank and be pumped at a low rate

through a bag or cartridge filter solids treatment process. The treated backwash water would be pre-disinfected and returned to just upstream of the MF system. Periodically, the settled solids in the backwash-settling tank would be pumped out and disposed off-site.

Treated Water Storage, Pumping and Distribution: The WLTRWTP would include a partially buried, reinforced concrete clearwell for equalization/operational storage to provide for intermittent operations of the membrane plant and some limited backwash water supply for the membrane filters. The clearwell would be attached to the contactor partition tank, but would provide separate storage of the treated water. The size of the clearwell for Phase 1 is currently estimated to be 7,000 gallons, which would provide 10 minutes of operational volume. The clearwell would be expanded with the addition of another 7,000 gallons to approximately 14,000 gallons total (current estimate) for Phase 2. Combined with the contactor partition tank, the underground vault would have a capacity of 23,000 gallons under Phase 1 and 42,000 gallons under Phase 2.

A treated water pump station would be constructed to pump the treated water from the clearwell into the existing water distribution system. The pump station would include vertical turbine pumps within the treatment plant building. It is currently estimated that two 650 gpm, 100 horsepower pumps would be provided for Phase 1, and a third pump (same size) would be added for Phase 2. The motors would be equipped with variable frequency drives to allow the pump station to meet multiple demand conditions. Approximately 100 to 300 feet of a new 12-inch underground water main would be constructed between the WLTRWTP building and the existing distribution system to make the connection. As shown in Figure 6, the connection would be made on the north side of Lodge Drive.

In addition, treated water distribution pipelines would be installed to supply the treated water from the treated water pump station to the existing MQWSA water distribution system. As shown in Figure 3, these pipelines would consist of approximately 150 linear feet of new 12-inch water main located within the WTP driveway and the replacement of approximately 875 linear feet of existing 6-inch water main with new 12-inch water main within Lodge Drive and Flicker Avenue. All of this treated water pipeline work would occur within paved areas and existing public rights-of-way.

Land Exchange

As a part of the WLTRWTP project, TCPUD would acquire the CTC-owned parcel where the WLTRWTP building is proposed. The CTC property ("Acquisition Property") would be exchanged for a portion of TCPUD's nearby Foothill Properties ("Exchange Property"). The Acquisition Property consists of the entire CTC parcel (APN 098-330-004) of approximately 6.4 acres. The Exchange Parcel consists of a portion of the TCPUD parcels (APN 097-050-018 and APN 097-050-027) totaling approximately 6.5 acres. Figure 7 shows both the Acquisition and the Exchange Parcels. The Exchange Property is bordered by Meadow Road on the west, residences that front on McKinney Drive on the north, residences that front on Ellis Road on the east, and vacant land that is part of TCPUD's Foothill Properties to the south. The property is a gently sloped site that is fairly wet for the majority of the year and is bisected by Quail Creek. The site includes both open areas that support shrubby vegetation and forested areas.

The land exchange would be completed through an inter-governmental land exchange and would be subject to the final approval of both the CTC and TCPUD Boards of Directors.

The CTC would acquire the Exchange Property for management efficiencies and conservation purposes. The TCPUD would acquire the Acquisition Property for purposes of constructing the WLTRWTP project as described above. No additional projects are planned for either property.

The proposed WLTRWTP site is located over 300 feet north of the existing access through the property from the Chamberlands neighborhood to SR 89. The existing access would remain open to the public and be unaffected by the project.

Operations and Maintenance

The Operations and Maintenance requirements for the WLTRWTP facilities would increase TCPUD staff duties from the current winter, well-only operation, but they would be relatively similar to the current summer, ISWTP operation. A summary of the significant changes in the Operations and Maintenance with the new WLTRWTP system from current operations are the following:

- Adequate, continuous monitoring and controls would be in place to allow TCPUD to operate the intake pump station and WLTRWTP site remotely or on site.
- The backwash operation would require more management and attention, increasing TCPUD staff time by about 100 hours per year.

- Typical TCPUD staff operations would include checking the operation of the lake intake pump station and the WLTRWTP 5 days per week for about 1 hour per day, with an additional 5 hours per week to conduct maintenance on pumps, valves, and equipment by running tests to confirm treatment process performances and replacing spent backwash bags.
- About twice per year, TCPUD staff would need to pump out the backwash holding tank and transport the solids off site for disposal. This would require the use of TCPUD's Vactor truck.
- Once every 60 to 120 days, TCPUD would receive a delivery of chemicals (sodium hypochlorite), clean in-place chemicals, and coagulant via a flatbed truck, delivering the chemicals to the intake Electrical/Chemical Room and the WLTRWTP building sites.
- Once per month, TCPUD staff would need to operate the standby generator to confirm it is operational.
- The WLTRWTP electricity use with MF and UV would increase significantly. The electrical use of the pump intake and WLTRWTP is estimated at 369,000 kilowatt-hours (kw-hours) per year at the Phase 1 WTP capacity of 650 gpm and 462,000 kw-hours per year at the Phase 2 WTP capacity of 1,100 gpm. This is compared to the current electrical use of the existing lake intake, ISWTP and well of 114,000 kw-hours per year for a WTP capacity of 300 gpm.
- The lake intake submersible pumps would be inspected annually.

Summary of Project Alternatives Considered but Rejected

The following sites and project elements were considered as additional options or alternative locations for the project, but were ultimately rejected based on the analysis of potential environmental effects and public input.

- Option 1: Chamberland Site. At this location, the WLTRWTP would be constructed in the central portion of the Chamberland/Lodge parcel, with access from the intersection of Chamberland Drive and Flicker Avenue. The Chamberland site is also adjacent to residences and immediately west of SR 89. The West Shore bike trail runs between SR 89 and the Chamberland/Lodge parcel. There is a Stream Environment Zone (SEZ) as designated by TRPA located along the southern boundary of the Chamberland site; the proposed site improvements would be located outside of the SEZ. As would occur under the proposed project, construction of the WLTRWTP at this site would require use of

a reconstructed lake intake at Chambers Landing beach. This option would include installation of approximately 1,400 linear feet of raw water pipeline.

- Option 2: Lagoon site. At this location, the WLTRWTP would be constructed adjacent to Lagoon Road on an approximately 23-acre vacant parcel owned by TCPUD. The Lagoon site is adjacent to residences and the Homewood Mountain Resort ski area. Relative to the proposed project site, the Lagoon site is set farther back into the residential neighborhood and is approximately 0.25 mile east of SR 89. This site would utilize a reconstructed lake intake at the McKinney Shores beach, which is located across SR 89, approximately 0.2 mile from the Lagoon site. This option would include approximately 2,700 linear feet of raw water pipeline.

  This option would include reconstructing a new Electrical/Chemical Feed Room at the McKinney Shores Beach location. At this location, the electrical/chemical feed room would be reconstructed at the site of the existing electrical room, with a minimum footprint of 180 square feet, to accommodate both electrical service and controls and the chemical storage/feed. Depending upon final design and subject to landowner agreement, the building could be expanded beyond the existing footprint (to a maximum of 450 square feet) to accommodate a restroom and/or a permanent standby generator, similar to what is described under the proposed project at the Chambers Landing Beach Intake location.

Surrounding Land Uses and Setting

The project site is adjacent to single-family residences located along Flicker Avenue, Chamberland Drive, and Lodge Drive, and is adjacent to the West Shore bike trail and SR 89. Four options for the proposed building design are shown in Figure 8 to demonstrate how the proposed WLTRWTP building appearance would relate to the surrounding residences.

The Chambers Landing Beach lake intake site is located in a public recreation access corridor and beach and is adjacent to multifamily residences to the north and a stream to the south. The Chambers Landing Bar and Grill is also located northeast of the lake intake site. The Electrical/Chemical Feed Building site is located at the ISWTP site, adjacent to McKinney Creek. Residences are located to the east of the creek.

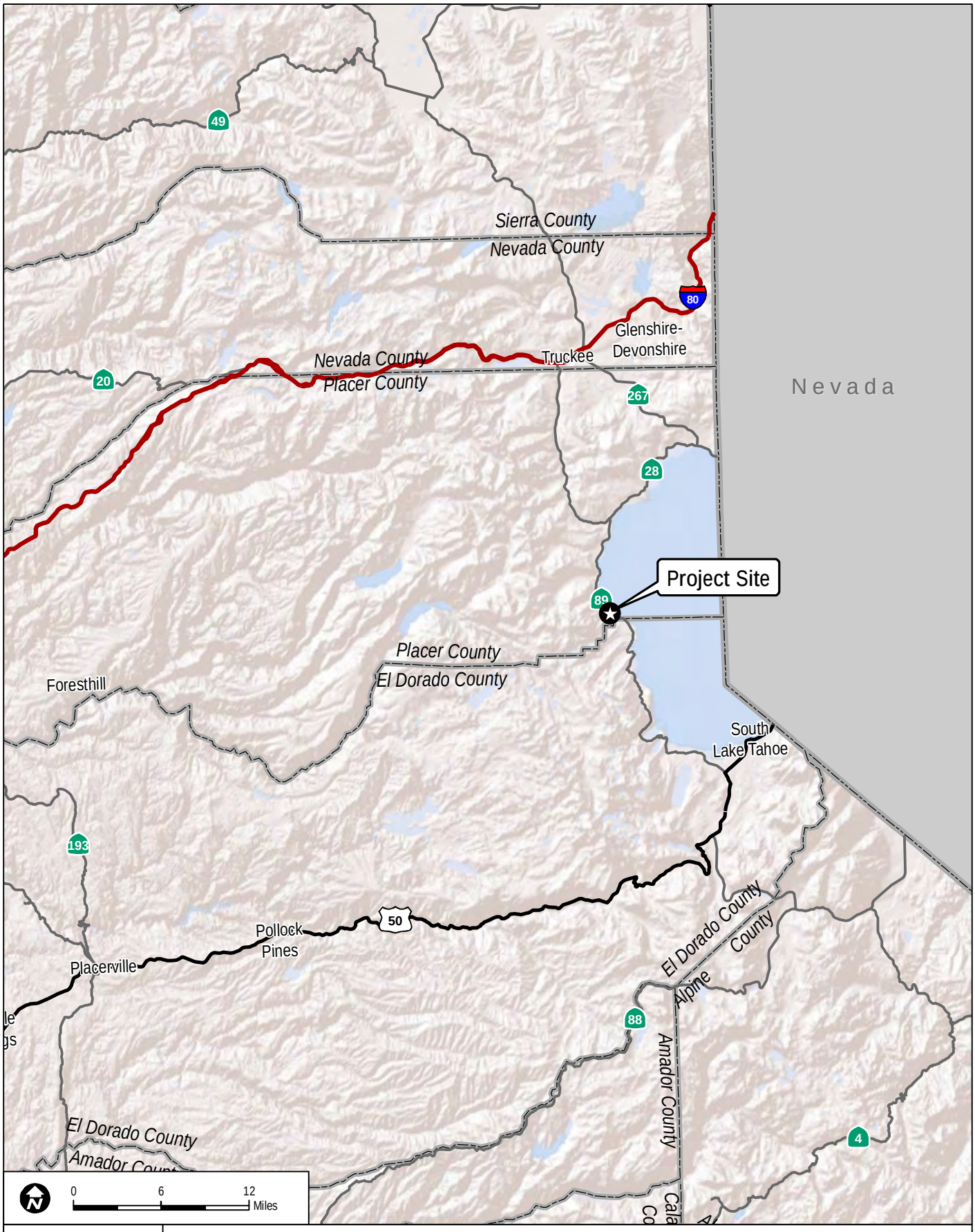
The WLTRWTP would serve several communities in the West Shore area of Lake Tahoe, as shown on Figure 4. The service area, if all six water systems are included in the WLTRWTP service boundary, would include 1,400 acres. The land uses within these communities are primarily residential, with some commercial and recreational uses,

including the HMR ski area. This potential regional service area includes approximately 2,500 water service connections.

Other Public Agencies Whose Approval is Required

The proposed project would require the following approvals:

- U.S. Army Corps of Engineers – Clean Water Act Section 404 Permit for expansion/reconstruction of the lake intake
- Tahoe Regional Planning Authority – Public Service Application requiring a Governing Board approval, Scenic Assessment, Shorezone Permit, and Tree Removal Permit
- California Department of Fish and Wildlife (CDFW) - Streambed Alteration Agreement for alteration of Lake Tahoe lakebed
- California Department of Forestry and Fire Protection - Timberland Conversion Exemption
- California Department of Transportation (Caltrans) – Encroachment Permit (for work within the SR 89 right-of-way)
- California State Lands Commission – Amendment to existing lease for lake intake facilities.
- California Tahoe Conservancy – Approval of property exchange or other property rights approval such as special use permit, easement, license, or lease
- Lahontan Regional Water Quality Control Board (RWQCB) – Clean Water Act Section 401 Water Quality Certification
- State Water Resource Control Board, DDW (formerly California Department of Public Health) – Amendment to TCPUD's current Water Supply Permit
- State Water Resource Control Board, Division of Water Rights – Amendment to TCPUD's existing water rights permits
- Placer County – Minor Use Permit, Tree Removal Permit, and Encroachment Permit (for work or staging areas within Placer County rights-of-way)
- Tahoe-Truckee Sanitation Agency – Discharge Permit



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SOURCE: ESRI 2015

FIGURE 1

Regional Map

TCPUD West Lake Tahoe Regional Water Treatment Plant

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SOURCE: USGS 7.5-Minute Series Homewood Quadrangle.

FIGURE 2

Vicinity Map

TCPUD West Lake Tahoe Regional Water Treatment Plant

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SOURCE: Kennedy/Jenks Consultants 2014; Placer County 2011; Bing Maps 2015

FIGURE 3

Aerial Map - Lodge WTP Site

TCPUD West Lake Tahoe Regional Water Treatment Plant

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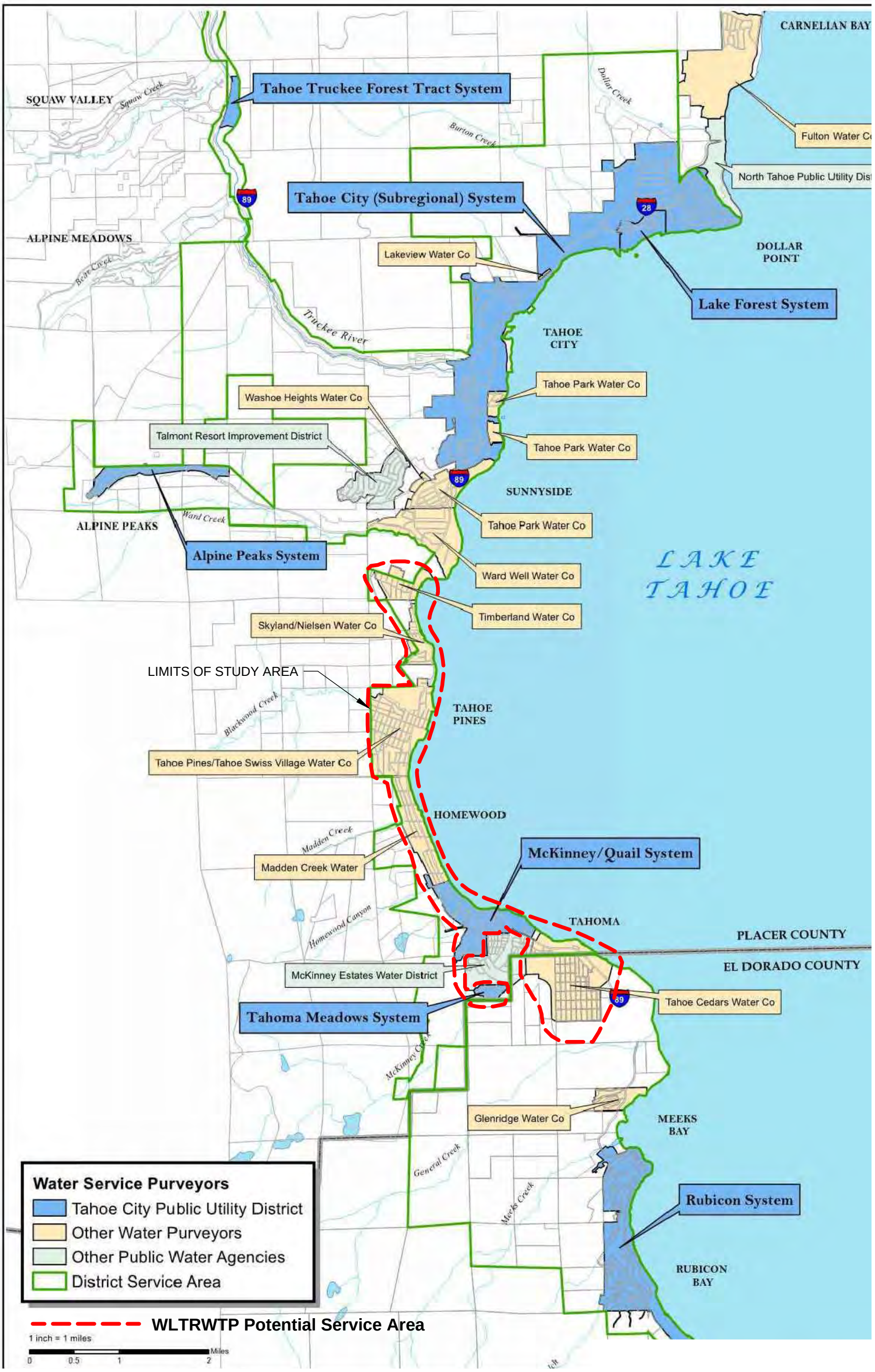

SOURCE: Preliminary Design Report - Kennedy/Jenks Consultants 2014

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FIGURE 4
Service Areas for Water Systems

TCPUD West Lake Tahoe Regional Water Treatment Plant

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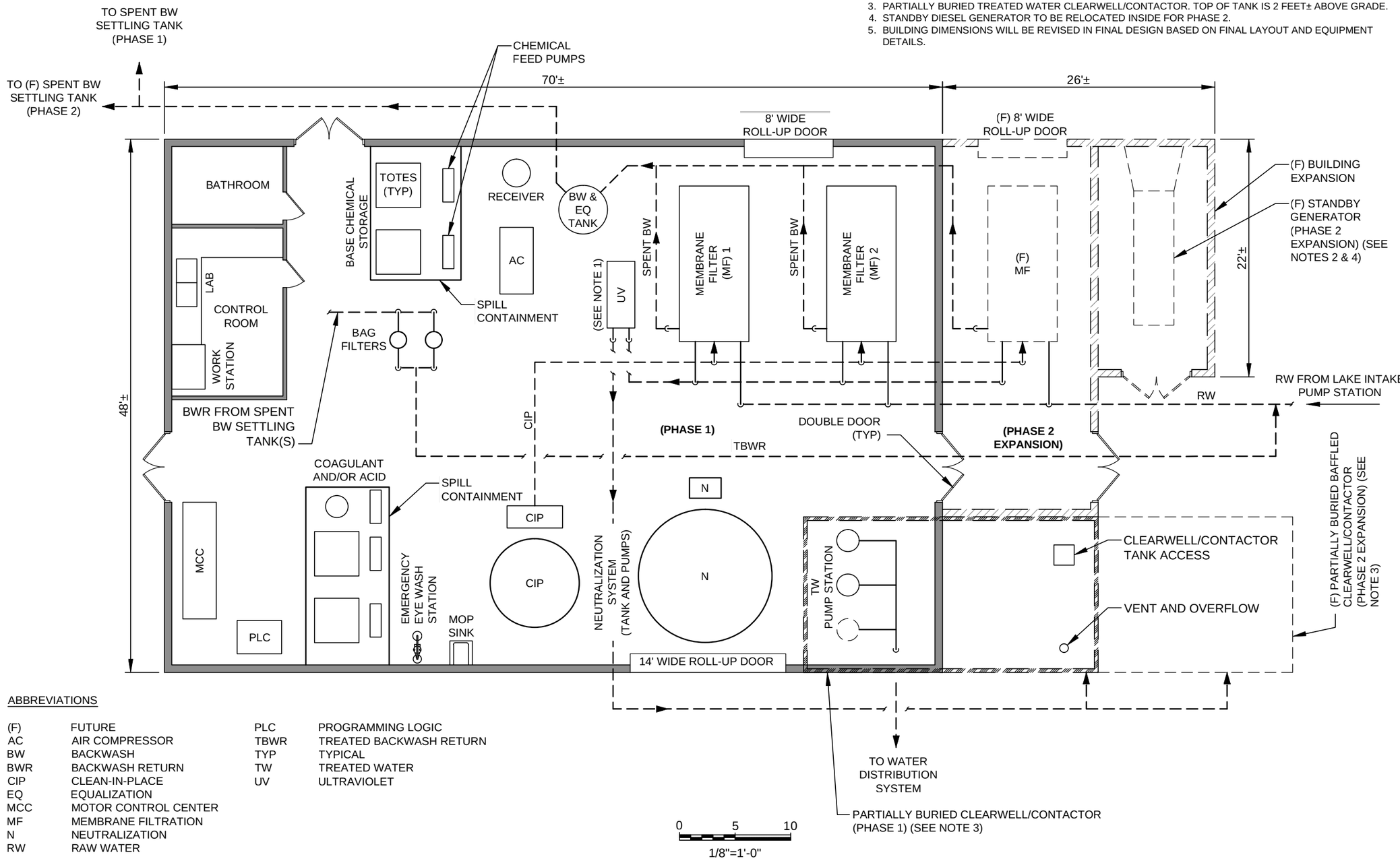
NOTES:

1. STACKABLE UV (MIN / PH1 - 2 UV UNITS AND PH 2 - 3RD UV UNIT).
2. STANDBY GENERATOR LOCATED OUTSIDE BUILDING AT (F) MF SPACE IN PHASE 1.
3. PARTIALLY BURIED TREATED WATER CLEARWELL/CONTACTOR. TOP OF TANK IS 2 FEET± ABOVE GRADE.
4. STANDBY DIESEL GENERATOR TO BE RELOCATED INSIDE FOR PHASE 2.
5. BUILDING DIMENSIONS WILL BE REVISED IN FINAL DESIGN BASED ON FINAL LAYOUT AND EQUIPMENT DETAILS.



ABBREVIATIONS

(F)	FUTURE	PLC	PROGRAMMING LOGIC
AC	AIR COMPRESSOR	TBWR	TREATED BACKWASH RETURN
BW	BACKWASH	TYP	TYPICAL
BWR	BACKWASH RETURN	TW	TREATED WATER
CIP	CLEAN-IN-PLACE	UV	ULTRAVIOLET
EQ	EQUALIZATION		
MCC	MOTOR CONTROL CENTER		
MF	MEMBRANE FILTRATION		
N	NEUTRALIZATION		
RW	RAW WATER		

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SOURCE: Preliminary Design Report - Kennedy/Jenks Consultants 2015

FIGURE 5
Conceptual Floor Plan

TCPUD West Lake Tahoe Regional Water Treatment Plant

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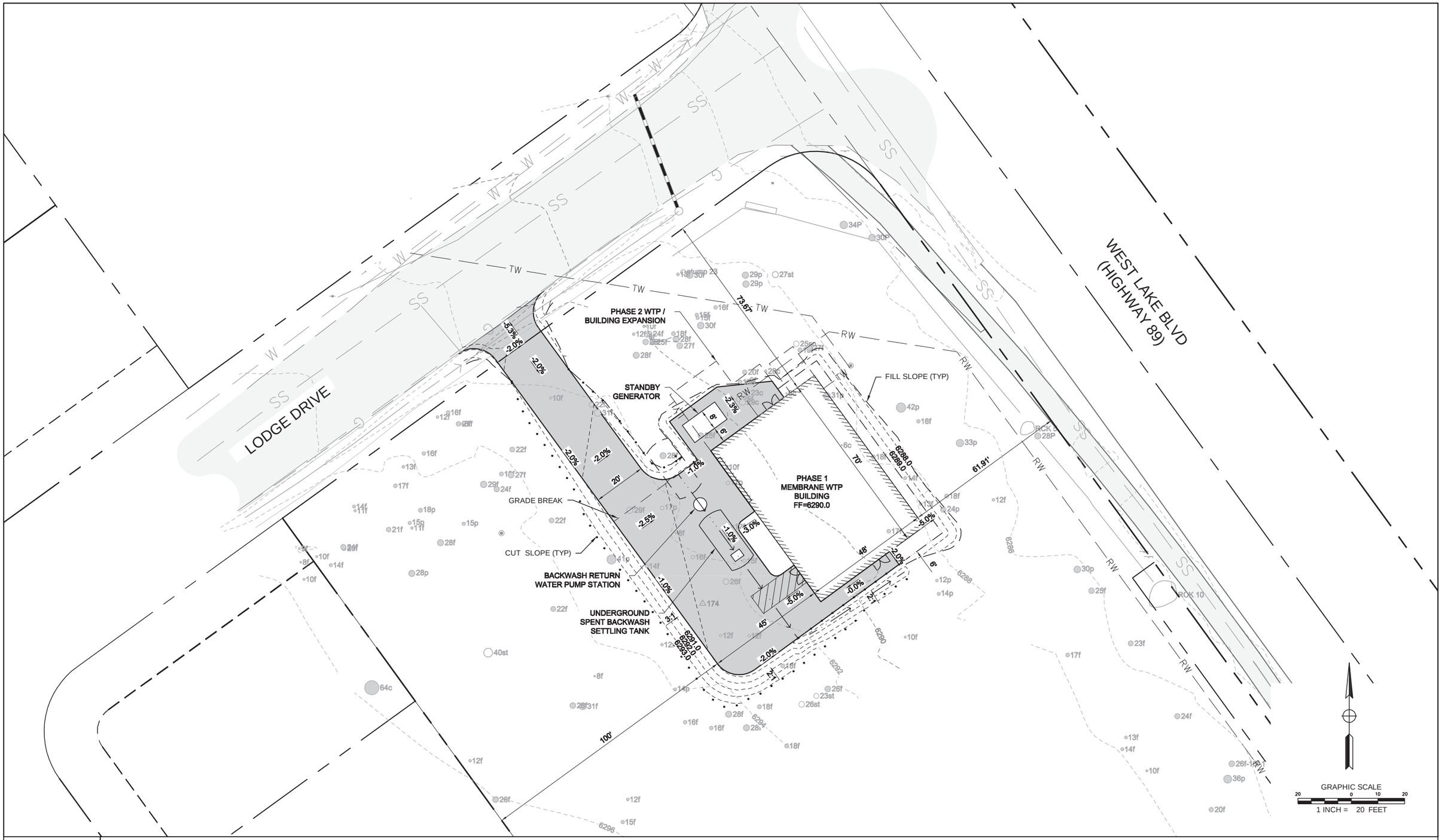

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SOURCE: Preliminary Design Report - Kennedy/Jenks Consultants 2014

FIGURE 6
Lodge Site without Parking Lot Layout

TCPUD West Lake Tahoe Regional Water Treatment Plant

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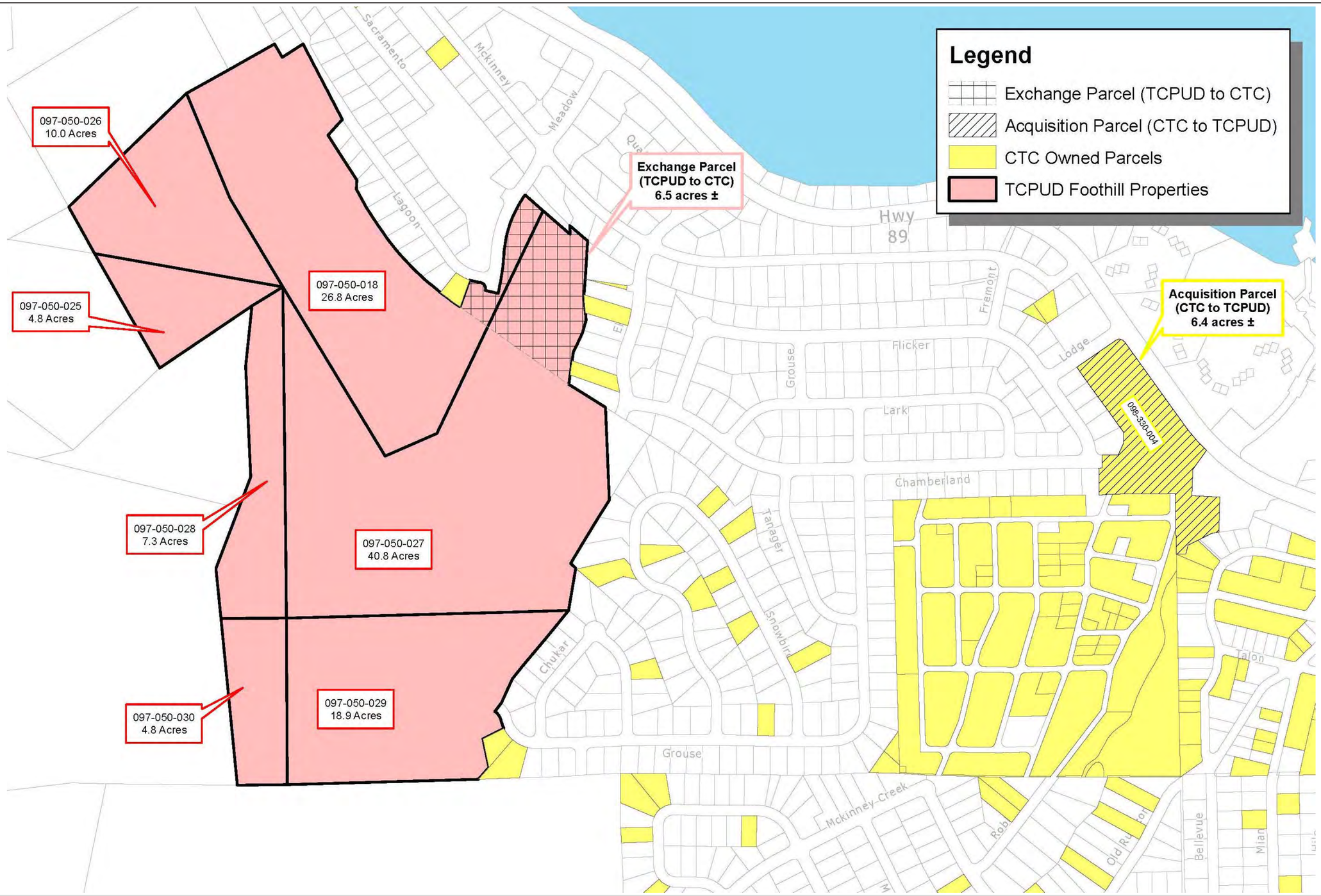

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SOURCE: Tahoe City Public Utility District 2015

FIGURE 7
Proposed Land Exchange

TCPUD West Lake Tahoe Regional Water Treatment Plant

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SOURCE: Ward Young Architecture and Planning 2014

FIGURE 8
WTP Facility Renderings

TCPUD West Lake Tahoe Regional Water Treatment Plant

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ENVIRONMENTAL FACTORS POTENTIALLY AFFECTED

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

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

DETERMINATION: (To be completed by the Lead Agency)

On the basis of this initial evaluation:

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

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

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

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

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

Signature

August 6, 2015,
revised October 2015
Date

Matthew Homolka, P.E., TCPUD Assistant General Manager
Name and Title

How to Read This Initial Study

As described in Section 3, the proposed project would construct the WLTRWTP, which involves several components at three separate locations (the lake intake at Chambers Landing Beach, the Electrical/Chemical Feed room at the existing ISWTP site, and the WTP building at the Lodge Drive site). The checkboxes at the beginning of each section identify the highest level of significance for all project components. Where impacts would be unique to one or more of the project components, separate analyses, identified with headers, are provided so it is clear what impacts would occur at each location under the proposed project. If the impacts would be generally the same, a single discussion for each impact is presented.

3.1 Aesthetics

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

a) and c) Would the project have a substantial adverse effect on a scenic vista? Would the project substantially degrade the existing visual character or quality of the site and its surroundings?

The *West Shore General Plan* (Placer County 1998) and the *Lake Tahoe Regional Plan* (TRPA 2012) provide guidelines for analyzing impacts on scenic resources in the Lake Tahoe area. The *Lake Tahoe Regional Plan* defines sensitive viewpoints as those that offer views from roadways, bike paths, public recreation areas, and Lake Tahoe. *Lake Tahoe Regional Plan,* Policy SR 1.1, requires impacts to these views be evaluated "against specific management directions provided for each identified landscape view in the Lake Tahoe Basin Scenic Resource Evaluation." The policy also recommends that the Scenic Quality Improvement Program and *Design Review Guidelines for Scenic Quality* provide design recommendations for projects visible from identified roadways, bike

paths, public recreation areas, and Lake Tahoe. The *Design Review Guidelines for Scenic Quality* (TRPA 1989) state that when a project is built in compliance with the TRPA Design Review Guidelines, the project will not degrade scenic resources. Additionally, TRPA Resolution 82-11 establishes TRPA policy to ensure the height, bulk, texture, form, materials, colors, lighting, signing, and other design elements of new, remodeled, and redeveloped buildings are compatible with the natural, scenic, and recreational values of the region.

TRPA has established attainment goals to restore the scenic resource quality of the Tahoe Basin. For roadway travel units (roadway segments), the scenic threshold standard is 15.5, meaning that a roadway travel unit must have a scenic composite score of at least 15.5 to be considered in attainment with TRPA standards. Additionally, a resource should be equal to or greater in scenic quality than its designation in the 1982 Lake Tahoe Basin Scenic Resource Inventory to be in attainment. Finally, TRPA seeks to maintain or improve the numerical rating assigned to each unit, including the scenic quality rating of the individual resources within each unit, and to restore scenic quality in roadway units rated 15 or below and shoreline units rated 7 or below.

Shoreline travel unit ratings provide a measurement of the scenic conditions looking toward the shore from the surface of Lake Tahoe. The ratings are based on consideration of the following aspects:

- Man-made features along shoreline
- General landscape views within the shoreline unit
- Variety of scenery within the shoreline unit

The composite rating for an individual shoreline travel unit can range from 3 to 15. TRPA requires that the current composite rating of any shoreline travel unit must be at least 7.5 for the unit to be in attainment of the threshold standard, and must also be at least equal to the rating originally assigned in 1982.

Proposed WLTRWTP Project

The Lodge Drive site is located within TRPA Roadway Unit 10 (Quail Creek), a rural transition visual environment. In the Study Report for the Environmental Threshold Carrying Capacities (TRPA 1982), Roadway Unit 10 was assigned a roadway travel route scenic rating of 14 and was described as having a moderate scenic quality rating with a moderate sensitivity to change. In 2006, the scenic threshold rating was increased to 15.5 as a result of improvements to existing residential units, introduction of extensive

landscaping along SR 89, and reconsideration of the views from the lake. Currently, the composite scenic value of the Quail Creek Unit is 14, which is below the threshold score of 15.5, and therefore, the unit is considered in nonattainment.

The Lodge Drive site is visible from SR 89 and the TCPUD West Shore bike trail. The WLTRWTP would be constructed on the west side of SR 89 and the West Shore bike trail and would not interfere with views of the lake from these facilities. As shown in Figure 6, the site improvements would be constructed approximately 125 feet from the nearest residential property line and approximately 75 feet from SR 89. Dense tree cover that would be retained throughout the site would provide screening to soften views of the WLTRWTP from the West Shore bike trail, SR 89, and adjacent neighbors. The design of the WLTRWTP would meet the Visual Magnitude/Contrast Ratings for Natural Scenic Highway Corridors, as established in the TRPA Design Review Guidelines. These ratings pertain to building colors and the amount of the structure that is visible from the applicable scenic roadway unit in order to minimize contrast with the natural environment. With compliance with the TRPA Design Review Guidelines, construction of the WLTRWTP would result in **less-than-significant** impacts from the proposed project on scenic vistas and the visual character of the site.

Chambers Landing Beach Intake Pump Station, Intake Pipeline, Raw Water Pipeline, and Electrical/Chemical Feed Room

The existing intake pump station is located on Chambers Landing Beach and presents a break in the aesthetic landscape, which otherwise consists of natural shoreline features and recreational amenities. The shoreline travel route scenic rating for McKinney Bay, which includes Chambers Landing, was 9 in 1982, below the threshold value of 15.

The project proposes to remove the existing partially above ground/partially buried intake pump station and replace it with submerged pumps, which would not be visible to observers of the lake or shoreline. This would remove a man-made structure from the beach and restoration of the beach to natural conditions. This would improve the scenic quality of the Chambers Landing Beach intake pump station site.

The proposed intake Electrical/Chemical Feed Room would be located in the shoreland. The Electrical/Chemical Feed Room would be constructed on the site of the existing ISWTP as an expansion to the existing sewer lift station. Dense trees block views of this site from the lake and SR 89. Because the Electrical/Chemical Feed Room would not be visible from the lake and would not substantially increase the developed area (footprint) within the project site, construction and operation of the Electrical/Chemical Feed Room

would be considered within Level 1 for Scenic Mitigation within the shoreland (TRPA 2011). Level 1 projects do not require mitigation; therefore, construction of the Electrical/Chemical Feed Room would have **less than significant** impacts on scenic vistas and the visual character of the site.

Land Exchange

No development is proposed on the Exchange Property that would be acquired by CTC as part of the proposed land exchange. There would be **no impact** to the visual resources at the Exchange Property.

Mitigation Measures

No mitigation measures are required.

b) Would the project substantially damage scenic resources including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?

SR 89 is currently under consideration for designation as a state scenic highway (Caltrans 2013).

Proposed WLTRWTP Project

The WLTRWTP facility would be constructed on the uphill side of SR 89. The proposed project would not interfere with the public view corridor from SR 89 to Lake Tahoe. Retention of trees between the WLTRWTP and SR 89 would shield the WLTRWTP from view from SR 89 and limit the visual effects of the on-site tree removal necessary to facilitate construction. The project would have **less than significant** impacts related to loss of or damage to scenic resources that are visible from SR 89.

Chambers Landing Beach Intake Pump Station, Intake Pipeline, Raw Water Pipeline, and Electrical/Chemical Feed Room

The intake pump station, which would be installed below the lake surface, and the pipeline, which would be installed underground, would not be visible from SR 89. The Electrical/Chemical Feed Room would be added to the existing sewer lift station, which is located in an area of existing development that is shielded from SR 89 by existing trees and other developed uses. This component of the project would result in **no impacts** to scenic resources that are visible from SR 89.

Land Exchange

The Exchange Property that would be acquired by CTC as part of the proposed land exchange is not visible from SR 89.

Mitigation Measures

No mitigation measures are required.

d) Would the project create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?

Rural and rural transition areas in the Lake Tahoe Basin have dark skies with little light pollution from urban areas, making them ideal locations for astronomical viewing. Views from lakeside beaches and from watercraft on the lake are especially expansive and free of nighttime light interference. Lighting associated with urban development and human presence can result in light pollution and spillover light when the lighting is too bright for the setting or not directed downward and/or shielded. This can adversely affect the dark night skies that contribute to the natural scenic character of the Basin, resulting in a significant impact.

The proposed project would require the installation of lighting at the WLTRWTP facility. The lighting design would be subject to the policies set forth in TRPA's *Lake Tahoe Regional Plan* and Code of Ordinances and the *Placer County General Plan* and County Code that require exterior building lights be downward directed and shielded.

Proposed WLTRWTP Project

The WLTRWTP facility would be constructed on the uphill side of SR 89. The WLTRWTP would be located approximately 125 feet from the nearest residential property line. Lighting would be installed at the WLTRWTP building entrance and along the building perimeter. The lighting mounted on the building would include motion-sensing security lighting.

A lighting plan has not yet been prepared; therefore, it is not known what types and the wattage of outdoor lighting. It is possible that the proposed project could result in a significant impact related to creating a new source of light in the area. However, Mitigation Measure AES-1 defines design standards that the proposed project must achieve, based on the TRPA Design Review Guidelines and Placer County standards for outdoor lighting. Specifically, Mitigation Measure AES-1 requires that that lighting at the

site be designed such that the building entrance and perimeter lighting generate no more than 1 footcandle of light (the amount of light given off by 1 candle at a distance of one-foot) at any point along the property line. As the proposed WLTRWTP would be a critical public service facility, motion-sensing lighting would be required for facility security. Mitigation Measure AES-1 requires that security lighting generate no more than 4 footcandles of light at the property line. No lighting is proposed within the WLTRWTP driveway and maintenance parking areas. Implementation of Mitigation Measure AES-1 would ensure that the potential impacts associated with lighting under the proposed project would remain **less than significant**.

Chambers Landing Beach Intake Pump Station, Intake Pipeline, Raw Water Pipeline, and Electrical/Chemical Feed Room

The intake pump station, which would be installed below the lake surface, and the pipeline, which would be installed underground, would not require lighting. The Electrical/Chemical Feed Room would be added to the existing sewer lift station. The building would be lit with motion-sensing security lighting mounted on the exterior building facade. Any new lighting installed at this site would be subject to the requirements of Mitigation Measure AES-1. This would ensure that impacts remain **less than significant.**

Land Exchange

No development is proposed on the Exchange Property that would be acquired by CTC as part of the proposed land exchange. There would be **no impact** to lighting and glare as a result of the land exchange.

Mitigation Measures

Mitigation Measure AES-1: All exterior lighting installed at the project site shall be placed at a maximum height of 14 feet, directed downward and shielded. The maximum light level at the property line for general night lighting of the building perimeter and entrance shall be 1 foot-candle. The maximum light level at the property line for motion-sensing security lighting shall be 4 foot-candles. Lighting necessary for any temporary emergency lighting shall not be subject to these maximum light levels but shall be directed towards the work area and temporary shielding of adjacent residential properties shall be provided where feasible. All lighting shall comply with the following design standards:

- Lighting shall be directed away from adjacent roadways and shall not interfere with traffic or create a safety hazard.
- Landscaping shall be used to screen views of on-site lighting from adjacent and proximate residences.
- Exterior lights shall not blink or flash.
- String lights, building or roofline tube lighting, and reflective or luminescent wall surfaces are prohibited.
- Exterior lighting shall not be attached to trees.
- Outdoor lighting shall be used for purposes of illumination only and shall not be designed for, or used as, an advertising display. Illumination for aesthetic or dramatic purposes of any building or surrounding landscape utilizing exterior light fixtures projected above the horizontal is prohibited.

3.2 Agriculture and Forestry Resources

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
II. AGRICULTURE AND FORESTRY RESOURCES – In determining whether impacts to agricultural resources are significant environmental effects, lead agencies may refer to the California Agricultural Land Evaluation and Site Assessment Model (1997) prepared by the California Department of Conservation as an optional model to use in assessing impacts on agriculture and farmland. In determining whether impacts to forest resources, including timberland, are significant environmental effects, lead agencies may refer to information compiled by the California Department of Forestry and Fire Protection regarding the state's inventory of forest land, including the Forest and Range Assessment Project and the Forest Legacy Assessment project; and forest carbon measurement methodology provided in Forest Protocols adopted by the California Air Resources Board. Would the project:				
a) Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?	☐	☐	☐	☒
b) Conflict with existing zoning for agricultural use, or a Williamson Act contract?	☐	☐	☐	☒
c) Conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code section 12220(g)), timberland (as defined by Public Resources Code section 4526), or timberland zoned Timberland Production (as defined by Government Code section 51104(g))?	☐	☐	☐	☒

		Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
II.	AGRICULTURE AND FORESTRY RESOURCES – In determining whether impacts to agricultural resources are significant environmental effects, lead agencies may refer to the California Agricultural Land Evaluation and Site Assessment Model (1997) prepared by the California Department of Conservation as an optional model to use in assessing impacts on agriculture and farmland. In determining whether impacts to forest resources, including timberland, are significant environmental effects, lead agencies may refer to information compiled by the California Department of Forestry and Fire Protection regarding the state's inventory of forest land, including the Forest and Range Assessment Project and the Forest Legacy Assessment project; and forest carbon measurement methodology provided in Forest Protocols adopted by the California Air Resources Board. Would the project:				
d)	Result in the loss of forest land or conversion of forest land to non-forest use?	☐	☐	☒	☐
e)	Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland, to non-agricultural use or conversion of forest land to non-forest use?	☐	☐	☒	☐

a) Would the project 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?

The Farmland Mapping and Monitoring Program has not mapped the project area (California Department of Conservation 2013). However, there are no agricultural activities or resources in the project area. None of the project components, including the Exchange Property that would be acquired by CTC, would be located on or near important farmland. The project would have **no impact** related to the conversion of farmland.

Mitigation Measures

No mitigation measures are required.

b) Would the project conflict with existing zoning for agricultural use, or a Williamson Act contract?

The project area is considered Non-Enrolled Land, which is land not enrolled in a Williamson Act contract and there are no agricultural activities or Williamson Act contract lands in the project vicinity. Therefore, none of the project components would conflict with a Williamson Act contract and the project would have **no impacts** related to Williamson Act contracts.

The land use designation for the project site is 156 Chambers Landing Chamberlands, Residential. For more information on the land use designation, please refer to Section 3.10, Land Use and Planning.

This land use designation does not allow agricultural activities. Construction of the proposed project would have **no impacts** related to conflicts with agricultural zoning.

Mitigation Measures

No mitigation measures are required.

c) Would the project 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))?

The *West Shore General Plan* designates a Timberland Preserve Zone special zone district, which serves to protect lands suited for timber production and other general forestry purposes. Lands zoned Timberland Preserve Zone contain the most substantial, economically viable timberland and forest resources. Proposed changes to this zone district would be considered significant. None of the project components is located within the Timberland Preserve Zone and the project would have **no impact** related to conflicts with or changes in forest or timberland zoning.

Mitigation Measures

No mitigation measures are required.

d) Would the project result in the loss of forest land or conversion of forest land to non-forest use?

Projects that would convert 3 or more acres of timberland to non-timber-growing use are subject to a timberland conversion permit from the California Department of Forestry and Fire Protection (CAL FIRE) (CAL FIRE 2012). As discussed in the following text, the proposed project would convert less than 1 acre of forest land to a non-forest use at each of the potential project locations, and would not require a timberland conversion permit.

Proposed WLTRWTP Project

The Lodge Drive site is designated 156 Chambers Landing Chamberlands Residential. Forest management practices are a permitted use within this land use designation.

However, limited forest resources are present on the site. Because the site is adjacent to residential uses, the forest resources would not be likely to support substantial timber production operations. Under the proposed WLTRWTP project, approximately 0.4 acre of the forest would be disturbed. The installation of the treated water pipelines would occur within existing paved areas and public road rights of way and would not result in any loss of forest resources. The disturbance of approximately 0.4 acre of forest within a site surrounded by existing development would be a **less-than-significant** impact related to the loss of potential forest management and timber production opportunities.

Chambers Landing Beach Intake Pump Station, Intake Pipeline, Raw Water Pipeline, and Electrical/Chemical Feed Room

The intake pump station and intake pipeline would be installed in Lake Tahoe and the raw water pipeline would be installed underground under previously paved areas and public right-of-way. Construction of these components of the project would have **no impact** on forestland.

The proposed raw water pipeline and Electrical/Chemical Feed Room would be located in the 156 Chambers Landing Chamberlands Residential designation, which, as discussed previously, does not permit timber harvesting activities. The Electrical/Chemical Feed Room would be constructed as an addition to TCPUD's existing sewer lift station. Construction of this addition would have a **less-than-significant** impact on forestland.

Land Exchange

No development would occur on the Exchange Property and there would be **no impact** to forest land and forest resources at that site.

Mitigation Measures

No mitigation measures are required.

e) Would the project 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?

There is no farmland in the project area, and as such, the proposed project would have **no impact** on farmland. The project would improve the reliability and quality of the potable water supply for the project area to meet existing and projected demands for water supply, as discussed in more detail under Section 3.13, Population and Housing. Other

than the loss of forestland within the project site, as evaluated in item (d), the project does not include construction of other development and would have **no impact** related to additional conversion of forestland to non-forest use.

Mitigation Measures

No mitigation measures are required.

3.3 Air Quality

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
III. AIR QUALITY – 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. Would the project:				
a) Conflict with or obstruct implementation of the applicable air quality plan?	☐	☐	☒	☐
b) Violate any air quality standard or contribute substantially to an existing or projected air quality violation?	☐	☐	☒	☐
c) Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors)?	☐	☐	☒	☐
d) Expose sensitive receptors to substantial pollutant concentrations?	☐	☐	☒	☐
e) Create objectionable odors affecting a substantial number of people?	☐	☐	☒	☐

The project site is located within the Placer County portion of the Lake Tahoe Air Basin (LTAB). Air quality within the Lake Tahoe Air Basin is regulated by TRPA, U.S. Environmental Protection Agency (EPA), California Air Resources Board (CARB), Nevada Division of Environmental Protection Bureau of Air Pollution Control and Bureau of Air Quality Planning, Placer County Air Pollution Control District (PCAPCD), and El Dorado County Air Quality Management District. Each of these agencies develops rules, regulations, policies, and/or goals to comply with applicable legislation. Although EPA regulations may not be superseded, state and local regulations may be more stringent.

The LTAB is comprised of the surface of Lake Tahoe (roughly 20 miles long by 10 miles wide) and land up to the rim of the surrounding mountain ridges. The southwest portion of the air basin is in El Dorado County and the northwest portion is in Placer County.

Typical winter weather patterns in the LTAB include large amounts of precipitation from Pacific storms that fall mainly as snow and temperatures below freezing accompanied by winds, clouds, and lake and valley fog. Winter days can also bring cool, brilliantly clear days between storms. In the summer, the LTAB experiences sunny, mild days, with daytime peaks in the upper 70s and low 80s F, with an occasional thunderstorm.

The principal impact of these conditions in terms of air quality is excess wintertime concentrations of carbon monoxide (CO) in the more congested/populated areas of the basin, primarily at South Lake Tahoe, from vehicles and residential wood stoves and fireplaces. Some summer transport of ozone from the west is also known to occur.

The federal and state Clean Air Acts define allowable concentrations of several air pollutants. When monitoring indicates that a region regularly experiences air pollutant concentrations that exceed those limits, the region is designated as nonattainment and is required to develop an air quality plan that describes air pollution control strategies to be implemented to reduce air pollutant emissions and concentrations.

The LTAB is designated as nonattainment/transitional for the state 8-hour ozone standard and nonattainment for the state particulate matter (PM_{10}) standard. The area is in attainment or unclassified for all other state and federal standards (EPA 2012).

The analysis presented in the following text is based on the California Emissions Estimator Model (CalEEMod, version 2013.2.2) modeling completed for the proposed project. The modeling results are included in Appendix A. The modeling reflects construction of the WLTRWTP, installation of pipeline, and demolition of the existing intake structure on the beach.

a) Would the project conflict with or obstruct implementation of the applicable air quality plan?

For the California portion of the LTAB, the applicable federal air quality maintenance plan for Lake Tahoe is the Carbon Monoxide Maintenance Plan (CO Maintenance Plan) originally adopted in 1996 and revised in 2004 (CARB 2004). Part of the maintenance strategy involves allocation of transportation emissions budgets to the maintenance areas.

The project would not be a substantial source of CO emissions or entrained dust during operation of the WLTRWTP because it would generate fewer than 100 daily vehicle

trips. The project would implement minimum Dust Control Requirements, described in the following list during all construction, as required by Placer County APCD Rule 228. These requirements include keeping inactive areas and storage areas wet, covered, or treated with a dust suppressant; establishing 15 miles per hour as the maximum speed on unpaved areas, cleaning construction vehicles before they leave the site, suspending activities during periods of high wind, and other best management practices. Based on the CalEEMod modeling prepared for this project, the maximum daily CO emissions during construction would be 17.2 pounds per day. No construction or operational emissions would result from the proposed land exchange.

Because the proposed project would not violate air quality standards or exceed emissions thresholds as discussed in item (b) in the following text, is consistent with the TRPA *Lake Tahoe Regional Plan* and Placer County General Plan, and is generally consistent with current air quality management policies, the project is not anticipated to conflict with the *CO Maintenance Plan*. Therefore, impacts related to the project's potential to result in conflicts with applicable air quality plans would be **less than significant**.

Mitigation Measures

No mitigation measures are required.

b) Would the project violate any air quality standard or contribute substantially to an existing or projected air quality violation?

Section 65.1.6, "Environmental Assessment," of the TRPA Code of Ordinances states that any new stationary source of air pollution that produces emissions for the peak 24-hour period beyond any of the limits in Table II, reproduced here as Table 3-4, shall be considered to have a significant adverse environmental impact. Emergency generators are exempt from this requirement. The TRPA *Lake Tahoe Regional Plan* prohibits new stationary sources that have a significant adverse environmental impact.

Table 3-4
TRPA Significant Emission Limits for Peak 24-hour Period (pounds per day)

Air Contaminant	Kilograms	Pounds
Nitrogen oxides (NO_X)	11.0	24.2
Particulate matter less than 10 microns in diameter (PM_{10})	10.0	22.0
Volatile organic gases (ROG)	57.0	125.6
Sulfur dioxide	6.0	13.2
Carbon monoxide (CO)	100.0	220.5

In addition to the emission limits identified in Table 3-4, construction equipment used for projects in Placer County may not exceed limitations regarding visible emissions set in PCAPCD Rule 202. Operators of vehicles and equipment that exceed opacity limits would be immediately notified and the equipment must be repaired within 72 hours. Construction activities would also be required to comply with all other applicable PCAPCD rules, as appropriate, including Rule 228 regarding fugitive dust, Rule 218 regarding the application of architectural coatings, and Rule 217 regarding cutback and emulsified asphalt paving materials.

Construction Emissions

Construction of the proposed project would result in a temporary addition of pollutants to the local airshed caused by soil disturbance, dust emissions, and combustion pollutants from on-site construction equipment, as well as from off-site personal vehicles used by construction workers and trucks hauling construction materials. Nitrogen oxides and CO emissions would result primarily from the use of construction equipment and motor vehicles. Fugitive dust (PM_{10} and $PM_{2.5}$) emissions would primarily result from grading and site preparation activities as well as construction of the disinfection contactor tank and clearwell, a partially buried structure. Construction emissions can vary substantially from day to day, depending on the level of activity, the specific type of operation, and, for dust, the prevailing weather conditions.

The proposed project would involve construction of three primary components – (1) new electrical building construction/pump station replacement, (2) pipeline trenching, and (3) construction of the WTP. Further, construction of the WTP would occur in two phases. However for the purposes of the air quality modeling, it was assumed that full buildout of the project would occur in a single phase, to ensure that air pollutant emissions are not underestimated. There would be no development at the Exchange Property that would be acquired by CTC and therefore no potential to create air pollutants at that site.

The construction phases were broken into several subphases in the air quality modeling to estimate the air pollutant emissions throughout project construction.

Construction of new pipelines was assumed to consist of trenching and excavation, followed by pipe installation, and then covering the pipe, compacting the soil, and repaving affected portions of existing roadway. Pipe installation would involve partially filling the trench, placing the pipe into the trench using a crane or backhoe excavator, and then adding more fill material. Pipeline diameters vary from 10-inch to 12-inch. To the extent possible, excavated material would be used to fill the trench or would be spread on site. However, some trench

material may be hauled offsite and the project would require import of sand or crushed rock to place in the trenches. A roller would be used to compact the soil after pipeline construction and limited paving may occur. It was assumed that construction would require five construction workers daily (a total of 10 worker trips per day). One round-trip vendor truck trip was assumed each day to represent potential delivery of construction materials or watering of the site for fugitive dust control. This construction scenario and equipment mix is based on typical construction practices for pipeline activities. The equipment mix represents a reasonably conservative estimate of construction activity. For the analysis, it is assumed that heavy construction equipment would be operating at the site for 5 days per week (22 days per month).

Table 3-5 displays the estimated maximum unmitigated daily emissions generated during construction of the proposed new lake intake pump station, pipeline, electrical/chemical feed room, and WTP. The daily emissions are compared to the TRPA significance thresholds to determine whether a significant impact would occur.

Table 3-5
Air Pollutant Emissions During Construction
(pounds per day unmitigated)

Construction Phase	Maximum Daily Emissions					
	ROG	NO_x	CO	SO_x	PM_{10}	$PM_{2.5}$
Site Preparation	1.24	12.16	7.06	0.009	0.86	0.70
Grading	0.49	4.43	4.11	0.005	1.22	0.70
Pipeline Installation	1.36	9.67	10.92	0.016	0.85	0.78
Building Construction	1.38	13.71	8.21	0.011	0.94	0.86
Architectural Coating	0.33	2.19	1.87	0.009	0.17	0.17
Demolition	1.25	10.52	9.19	0.013	0.84	0.72
Final Site Work	1.32	12.89	7.81	0.01	0.92	0.74
TRPA Threshold	125.6	24.2	220.5	13.2	22.0	N/A
Threshold Exceeded?	No	No	No	No	No	N/A

Source: Environ 2015.
Notes: ROG = reactive organic gases; NO_x = nitrous oxides; CO = carbon monoxide; SO_x = sulfur oxide; PM_{10} = particulate matter less than or equal to 10 microns in diameter; $PM_{2.5}$ = particulate matter less than or equal to 2.5 microns in diameter

As shown in Table 3-5, air pollutant emissions during project construction would remain below the TRPA thresholds and construction impacts for any of the project components, would be **less than significant.**

Operational Emissions

The proposed project would construct a WTP and associated facilities. The proposed project would not include any stationary equipment that emits pollution (such as boilers), other than the two emergency generators which are not subject to the TRPA prohibition on new stationary sources. Furthermore, the proposed project would not increase permanent employment at TCPUD and would result in fewer than 100 new daily vehicle trips associated with operations and maintenance of the new treatment plant. Therefore, it is anticipated that the proposed project would not generate substantial criteria air pollutant emissions during operation, and operational impacts would be **less than significant**.

Mitigation Measures

No mitigation measures are required.

c) Would the project 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)?

As discussed previously, the TRPA Thresholds are used to evaluate the potential for the project to contribute to cumulative air quality impacts. The TRPA Thresholds pollutant emissions limits are listed in Table 3-4. As discussed previously, the construction and operational emissions from the proposed project would not exceed the TRPA thresholds. The proposed project, including the Land Exchange, would also not conflict with the applicable air quality plans, which address cumulative air pollution in the Lake Tahoe Air Basin. Accordingly, the proposed project would not result in a cumulatively considerable increase in emissions of nonattainment pollutants. Impacts would be **less than significant**.

Mitigation Measures

No mitigation measures are required.

d) Would the project expose sensitive receptors to substantial pollutant concentrations?

The greatest potential for exposing sensitive receptors to substantial pollutant concentrations would occur during construction, due to diesel particulate emissions from heavy equipment operations and heavy-duty trucks. Residents are considered

sensitive receptors that could be exposed to substantial diesel particulate concentrations during construction. The nearest residential property lines are located 125 feet to the west of the proposed WTP building site under the proposed project, as shown on Figure 6. There would be no development at the Exchange Property that would be acquired by CTC and therefore no potential to create substantial pollutant concentrations at that site.

Construction of the proposed project would be intermittent and temporary, and would generate a maximum of 1.22 pounds per day of PM_{10} emissions, which is substantially less than the TRPA threshold of 22 pounds per day. At this maximum emissions level, project construction would not generate a substantial concentration of PM_{10}. Therefore, impacts to sensitive receptors in the vicinity of project construction activities would be **less than significant**.

Mitigation Measures

No mitigation measures are required.

e) Would the project create objectionable odors affecting a substantial number of people?

Odors are a form of air pollution that is most obvious to the public. Odors can present significant problems for both the source and surrounding community. Although offensive odors seldom cause physical harm, they can be annoying and cause concern.

Placer County APCD Rule 205 prohibits discharge of "such quantities of air contaminants or other material which cause injury, detriment, nuisance or annoyance to any considerable number of persons, or to the public, or which endanger the comfort, repose, health or safety of any such persons, or the public, or which cause to have a natural tendency to cause injury or damage to business or property."

There would be no development at the Exchange Property that would be acquired by CTC and therefore no potential to create odors at that site.

Potential sources that may emit odors during WLTRWTP construction activities include diesel equipment and gasoline-powered engines. Odors from these sources would be localized and generally confined to the area close to the WLTRWTP construction site. Additionally, odors associated with construction equipment would be temporary. Therefore, proposed project construction would not cause a permanent odor nuisance.

Operation of the proposed project would include the operation of a WTP. The WTP operations would include pumping, disinfecting, filtering, and distributing drinking

water. These processes would not emit objectionable odors. Chemicals used in the treatment process would be stored in closed containers within buildings, and would be injected into the water treatment process. These chemicals would not be released into the air where they could create an observable odor. Similarly, solids collected through the filtering process would not generate observable odors. They would be contained in tanks within the WTP building and removed from the site by a Vactor truck (which also keeps the solids contained in a tank). Therefore, impacts from creating objectionable odors that affect a substantial number of people would be **less than significant**.

Mitigation Measures

No mitigation measures are required.

3.4 Biological Resources

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
IV. BIOLOGICAL RESOURCES – Would the project:				
a) Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?	☐	☒	☐	☐
b) Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the California Department of Fish and Wildlife or US Fish and Wildlife Service?	☐	☒	☐	☐
c) Have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?	☐	☒	☐	☐
d) Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?	☐	☐	☐	☒
e) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?	☐	☒	☐	☐

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
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?	☐	☐	☐	☒

Information to prepare this section is based on the Biological Resources Report prepared for the project, which is provided in Appendix B. The study area for the Biological Resources Report includes the Chambers Landing Beach intake site, the Electrical/Chemical Feed Room site, the WTP building site on the Lodge Drive parcel, and the raw water pipeline alignment. No development is proposed on the Exchange Property that would be acquired by CTC as part of the proposed land exchange. As the project would result in no effects to the biological resources at the Exchange Property, the site was not included in the study area.

Mixed conifer forest is the dominant vegetation type in the project area, and mature conifers, including incense cedar (*Calocedrus decurrens*), white fir (*Abies concolor*), Jeffrey pine (*Pinus jeffreyi*), and sugar pine (*Pinus lambertiana*), grow within the Lake Tahoe Basin Management Unit, and private subdivision lands within the study area and on adjacent developed residential lots. Past forest and fuels management activities have thinned both the forest and understory shrubs within the study area. The understory includes common native shrubs including manzanita, thimbleberry (*Rubus parviflorus*), wild rose, and a sparse herbaceous cover. Some ornamental species occur within individual residential lots adjacent to the study area.

No drainages or other hydrologic features occur within the study area. Drainage from the study area is generally by sheet flow downslope toward the east. The nearest perennial stream is McKinney Creek, 850 feet southwest of the proposed WTP building site and adjacent to the existing ISWTP and Chambers Landing intake site. Quail Creek crosses the Exchange Property. However, no development is proposed for the Exchange Property, and therefore, the land exchange would have no impact on Quail Creek.

The California Department of Fish and Wildlife (CDFW) maintains a database containing the locations of special-status species and sensitive biological communities. This database is known as the California Natural Diversity Database (CNDDB) and can be searched for those species and habitats occurring on specific U.S. Geological Survey quadrangles. Using this database, a nine quad search area was input that included the following U.S. Geological Survey quads: Tahoe City, Granite Chief, Wentworth Springs, Emerald Bay, Rockbound Valley, Loon Lake, Kings Beach, Homewood, and Meeks Bay (a total of approximately 500 square miles). A U.S.

Fish and Wildlife Service (USFWS) database of special-status species and the California Native Plant Society (CNPS) Electronic Inventory were also queried for occurrences of special-status plant and animal species within the 9-quad area. The resulting lists of special-status species, and corresponding habitat requirements, as presented in the Biological Resources Report provided in Appendix B, were used to evaluate the potential for special-status species to occur within the study area.

A field survey of the study area was conducted on October 10, 2014, by Dudek Senior Biologist Kevin Derby and Dudek Natural Resources Specialist, Markus Lang. A walking survey of the study area was conducted to identify habitat types present, record observed plant and animal species, and to evaluate the potential for the study area to provide suitable habitat for special-status species.

The Lodge Drive parcel can be characterized as a well-managed stand of coniferous trees at the edge of a residential subdivision. The proposed raw water pipeline also crosses developed land (roads), the front yard of a large residence, and a portion of the Lake Tahoe shoreline. Four biological communities occur on the ±6.19-acre study area: Jeffrey pine/fir forest (Holland (1986) code #85210), Beach, Open Water (Lake Tahoe), and Developed. Jeffrey pine / fir forest can also be described as *Pinus jeffreyi-Abies concolor-Abies magnifica Association* (California Department of Fish and Game 2010; #87.205.03). Table 3-6 provides an acreage summary of habitat types occurring within the study area.

Table 3-6
Biological Communities/Land Cover Present Within the Study Area

Biological Community	Estimated Acreage
Jeffrey pine/fir forest	±3.82
Beach (Lake Tahoe)	±0.16
Open Water (Lake Tahoe)	±0.07
Developed	±2.14
Total Area	±6.19

Source: Dudek 2015

a) Would the project 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?

No active or inactive raptor nest sites were observed during the field survey conducted in October 2014. However, trees within the study area provide suitable nesting habitat for

raptors known to be present in the region, including northern goshawk, osprey, and bald eagle. The "take" of any active raptor nest is prohibited under California Department of Fish and Game Code Section 3503.5.

The search of the CNDDB, USFWS, and CNPS databases indicated that 26 special-status species are known to occur in the region. Based on the 2014 field survey, two of these species were determined to have potential to exist within the study area: Tahoe yellow cress and Davy's sedge.

Tahoe yellow cress *(Rorippa subumbellata)* is a perennial herb that spreads from deeply buried rhizomes. This member of the mustard family occurs in coarse sand and sandy soils (often among cobbles or boulders) of beaches, stream inlets, beach dunes, and backshore depressions, generally within a few feet of the local water table, and only in the shore zone of Lake Tahoe at elevations of 6,223 and 6,230 feet (Pavlik et. al. 2002 as cited in Dudek 2015a). Suitable habitat exists at the Chambers Landing water intake station on the shore of Lake Tahoe. The beach does receive heavy use seasonally, but records updated in 2013 indicate an occurrence on the north side of the mouth of McKinney Creek. There is no suitable habitat for this species at the proposed WLTRWTP location at the Lodge site.

Davy's sedge *(Carex davyi)* Davy's sedge is designated as a CNPS List 1B.3 species. This species is a perennial herb commonly associated with subalpine coniferous forests and upper montane coniferous forests at elevations between 4,950 and 10,560 feet. The blooming period is between May and August. This species is known from fewer than 20 occurrences and is threatened by grazing and logging. There are no occurrences of this species within 5 miles of the study area.

Davy's sedge is known from ten specific sites in the region, but all are more than five miles from the study area. Past understory removal on the project site makes the presence of this species unlikely.

Proposed WLTRWTP Project

There are no special-status plant species with potential to occur at the WTP building site or the treated water pipeline alignments on Lodge Drive and Flicker Avenue. These components of the project would have **no impacts** on special-status plant species.

The WTP building site and the area surrounding the treated water pipelines could support nesting birds and project construction could remove trees and/or disturb nesting birds. Implementation of the nesting bird surveys required prior to and during construction and

implementation of nest protection measures identified in Mitigation Measure BIO-1 would ensure that potential impacts to nesting birds during the nesting season would remain **less than significant.**

Chambers Landing Beach Intake Pump Station, Intake Pipeline, Raw Water Pipeline, and Electrical/Chemical Feed Room

Construction of the Chambers Landing Electrical/Chemical Feed Room and installation of the powerline in Phase 1 and the raw water pipeline in Phase 2 could result in removal of trees that could support nesting raptors and native migratory birds. Mitigation Measure BIO-1 requires nesting bird surveys and avoidance of impacts to any nesting raptors or other birds protected under the Migratory Bird Treaty Act if trees are removed during the nesting season.

As stated previously, Tahoe yellow cress habitat is documented near the Chambers Landing water intake station on the shore of Lake Tahoe. To ensure that impacts to Tahoe yellow cress are avoided, Mitigation Measure BIO-2 requires that a pre-construction Tahoe yellow cress survey be conducted to identify existing populations and confirm there are no additional populations in the project area, and to install high visibility avoidance fencing where construction would occur within 25 feet of identified populations. With implementation Mitigation Measures BIO-1 and BIO-2, impacts to special-status species would be **less than significant**.

Land Exchange

No development is proposed on the Exchange Property, which would be acquired by the CTC for conservation and management purposes. The project would have **no impact** on special-status plant and wildlife species that could be supported by natural habitats at the Exchange Property.

Mitigation Measures

Mitigation Measure BIO-1: To avoid take of any nesting birds, including raptors, tree removal within the study area shall be conducted between September 1 and May 1, which is outside of the typical raptor breeding season, where feasible.

For any construction activities, including tree removal, initiated during the typical breeding season (generally May 1 to through August 31) a pre-construction nesting bird survey shall be conducted by a qualified biologist within 15 days prior to project-related activities. The nesting survey shall be repeated every two

weeks throughout any construction activities that occur during the breeding season. If any active nests are found on or within 100 feet of the proposed area of disturbance, consultation shall be initiated with CDFW to determine appropriate avoidance measures and responsibilities. Avoidance measures typically include limited operating periods and / or a 100 to 500-foot buffer from the nest until it is determined to be inactive.

To avoid impacts to habitat for cavity-nesting wildlife species standing snags shall not be disturbed to the extent possible.

Mitigation Measure BIO-2: A pre-construction Tahoe yellow cress survey shall be conducted to identify existing populations and confirm there are no additional populations in the project area. The construction contractor shall install high visibility avoidance fencing around Tahoe yellow cress populations where construction would occur within 25 feet of identified populations. A qualified biologist shall inspect the avoidance fencing prior to initiation of construction and periodically during construction that occurs within 25 feet of identified populations.

b) and c) Would the project have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service? Would the project 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?

Proposed WLTRWTP Project

No natural hydrologic features were identified within the Lodge Drive site during the field visit and review of historic aerial maps. A small unvegetated ditch has been constructed at the southeast end of Chamberland Drive to dissipate sheet flow and minimize erosion caused by runoff from the paved roadway. No hydrophytic vegetation is associated with this ditch. Precipitation falling on the site either percolates into the soil or moves via overland flow downslope generally to the east toward Lake Tahoe. The nearest named stream is McKinney Creek, south of the site, which flows adjacent to the ISWTP along the driveway to Chambers Landing Beach. The creek flows to the northeast and enters Lake Tahoe near the Chambers Landing intake pipe area. This area is designated as an SEZ by TRPA.

There are no sensitive natural communities within the project site and construction of the WLTRWTP at this site would have **no impacts** on riparian habitat or other sensitive natural communities.

Chambers Landing Beach Intake Pump Station, Intake Pipeline, Raw Water Pipeline, and Electrical/Chemical Feed Room

Construction of the new water intake pump station and pipeline would include some work below the ordinary high water mark of Lake Tahoe, considered a jurisdictional navigable water of the U.S. Additionally, some of this work would occur within the Backshore SEZ. In Phase 1 of the proposed project, this work would include anchoring the submersible pumps to the lake bed and installing the electrical cable along the existing intake water pipeline. Anchoring the pumps would require disturbance to approximately 150 square feet of the lakebed to prepare the ground for placement of anchoring blocks. Installing the electrical cable would require digging a 6-inch to 9-inch-wide trench on the beach and for a distance of approximately 20 feet into the lake to expose the existing intake pipeline. The electrical cable would be attached to the pipeline and the trench would be filled in. This would not increase land coverage within the SEZ. In Phase 2, work below the ordinary high water mark of Lake Tahoe would be required in order to replace and upsize the intake water pipeline. This would require trenching on the beach and for a distance of approximately 20 feet into the lake to expose the existing intake pipeline, remove the pipe, and replace it with a 10-inch line. The total area of impact from both phases would be less than 2,000 square feet (and area of disturbance on the beach and within the first 20 feet of lakebed is the same for both phases). All work below the ordinary high water mark of Lake Tahoe would require a formal jurisdictional determination and resource agency permits pursuant to Section 10 of the Rivers and Harbors Act, Sections 401 and 404 of the Clean Water Act and Section 1600 of the California Fish and Game Code. These permits would also trigger a Section 7 Consultation pursuant to the Federal Endangered Species Act. Local permitting/clearances with TRPA is also anticipated for impacts to riparian/wetland habitat. To ensure that the permitting procedures result in impacts being mitigated to less-than-significant levels, Mitigation Measure BIO-3 defines the minimum required mitigation ratios for impacts to wetlands and waters of the U.S., requires that exclusion fencing be installed at the limits of construction and be inspected by a qualified biologist prior to and during construction, and requires monitoring of the area by a qualified biologist during project construction.

As stated previously, McKinney Creek flows adjacent to the ISWTP along the driveway to Chambers Landing Beach. The creek flows to the northeast and enters Lake Tahoe near the Chambers Landing intake pipe area. As reflected in the preliminary site plans, impacts to McKinney Creek would be avoided during construction because all improvements necessary

in this area would occur within areas that are currently paved. The Biological Resources Assessment found that "disturbance within the footprint of the [ISWTP] will result in no discharge of fill to waters of the U.S.". To ensure that no construction activities encroach upon the sensitive habitat associated with McKinney Creek, Mitigation Measure BIO-4 requires installation of exclusion fencing at the boundary of the SEZ. With implementation of Mitigation Measures BIO-3 and BIO-4, the project would have a **less-than-significant** impact on wetlands and waters of the U.S.

Land Exchange

The Exchange Property is bisected by Quail Creek and is a gently sloped area that is fairly wet for the majority of the year. The site includes both open areas that support shrubby vegetation and forested areas. It likely contains riparian habitats and sensitive natural communities. No development is proposed at the Exchange Property and the proposed land exchange would have **no impacts** on sensitive natural communities within that site.

Mitigation Measures

Mitigation Measure BIO-3: Any impacts to wetlands, waters of the U.S., and waters of the state shall be compensated for or reduced through the establishment of replacement habitat at a minimum ratio of 1:1 and in accordance with the terms of the resource agency permits obtained to authorize such impacts. Where riparian habitat or other sensitive natural communities are to be avoided during construction, the construction contractor shall erect exclusion fencing, which shall be inspected by a qualified biologist prior to and routinely during construction. The qualified biologist shall also periodically inspect construction activities within 25 feet of Lake Tahoe and McKinney Creek to ensure that all equipment remains outside of any protected zone.

Mitigation Measure BIO-4: Prior to any ground-disturbing activities or construction within 25 feet of McKinney Creek and the associated Stream Environment Zone, exclusion fencing shall be erected at the boundary of the Stream Environment Zone. The fencing shall be inspected by a qualified biologist prior to construction and routinely throughout construction activities that occur within 25 feet of the Stream Environment Zone.

d) Would the project interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?

Each of the project components is located in an area characterized by existing development of residential, commercial, and recreational land uses. There are no important migratory corridors in the project site or features that support important wildlife movement. No development is proposed on the Exchange Property. The project would have **no impact** related to wildlife and fish movement and nursery sites.

Mitigation Measures

No mitigation measures are required.

e) Would the project conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?

Tree removal in the project area is regulated by Sections 61.1.4, 61.1.5, and 33.6 of the TRPA Code of Ordinances and Article 12.20 of the Placer County Code of Ordinances.

Section 61.1.4 (Old Growth Enhancement and Protection) of the TRPA Code of Ordinances prohibits cutting any live, dead, or dying tree larger than 30 inches diameter at breast height (dbh) in west side forest types and in conservation or recreation land use areas except as provided in specific exemptions. For urban lands, trees larger than 30 inches dbh shall be retained unless no reasonable alternatives exist for retention of trees on site. Exemptions for removal of trees larger than 30 inches dbh (west side forest types) are provided in Section 61.1.4. In some cases, large public utility projects may qualify for an exemption from large tree removal restrictions if TRPA finds that there is no reasonable alternative to removal.

As outlined in Section 61.1.5 of the TRPA Code of Ordinances, removal of trees 14 inches dbh or less is exempt from TRPA approval and removal of trees greater than 14 inches dbh (but less than 30 inches) requires a tree removal permit from TRPA.

Finally, Section 33.6 of the TRPA Code of Ordinances identifies standards for tree protection during construction activities and outlines the provisions for revegetation of disturbed areas and potential requirements for preparation of a Tree Treatment Plan, which includes provisions for treatment of diseased/infected trees, potentially hazardous trees, and tree stocking levels.

Article 12.20 of the Placer County Code of Ordinances addresses tree preservation requirements east of the Sierra summit. This Article states that no person shall cut down, move, remove, kill, or materially damage any live tree six inches or more in trunk diameter (dbh) without first having obtained a tree cutting permit from the permit-issuing authority, unless such tree is located on lands devoted to the growing and harvesting of timber for commercial purposes, for which permits have been granted allowing timber harvesting to occur.

A site evaluation was conducted to document tree location and attribute information within the tree survey area (Dudek 2015b). The tree survey encompassed the area within approximately 100 feet of the proposed WTP site plus the area within approximately 20 feet of the pipeline alignment. Tree attribute data collected during the site evaluation included trunk diameter, tree height, and presence of observable pests or other tree maladies.

Based on the tree survey data and site plan, potential tree impacts were identified. For this analysis, it was conservatively assumed that any tree located within six feet of proposed disturbance areas (grading, excavation, fill, buildings, roads) would require removal. Any tree that would be subject to construction activity within its canopy dripline area (the area of ground directly beneath a tree's crown) was considered to be subject to encroachment. For the new water pipeline alignment, it was assumed that a 15-foot wide excavation and work area (7.5 feet on either side of the pipeline centerline) would be necessary. For the portion of the pipeline within roadway rights-of-way, it was assumed that a 6-foot wide excavation and work area (3 feet on either side of the pipeline centerline) would be necessary. No trees in this area are expected to require removal, but the potential for encroachment has been evaluated for individual trees.

Proposed WLTRWTP Project

Impacts associated with the proposed project include those for the WTP, new water pipeline alignments, and the existing pipeline alignment between the ISWTP and the Chambers Landing Beach Intake Site. Table 3-7 summarizes tree impacts associated with the project. As shown, the proposed project would result in the loss of 53 trees that are greater than 14 inches dbh. To obtain TRPA approval for tree removal, TCPUD must prepare a Tree Treatment Plan documenting impacts to trees that measure greater than 14 inches dbh, as indicated in Mitigation Measure BIO-5. This mitigation measure also identifies requirements to implement tree protection measures during construction and to revegetate disturbed areas of the site following construction. With mitigation, impacts related to loss of trees would be reduced to a **less-than-significant** level.

Table 3-7
Tree Impact Summary for the Proposed Project

Tree Species (Common Name)	Tree Quantities					
	Tree Removal, by Trunk Diameter			Tree Encroachment, by Trunk Diameter		
	6 to 13.9"	14 to 29.9"	30"+	6 to 13.9"	14 to 29.9"	30"+
White fir	19	26	5	1	12	1
Red fir	0	2	0	0	0	0
Incense cedar	2	0	0	0	0	0
Jeffrey pine	2	10	8	2	2	5
Sugar pine	0	0	1	0	0	0
Black cottonwood	0	0	0	0	1	2
Quaking aspen	1	1	0	2	0	0
Total proposed project:	24	39	14	5	15	8

Source: Dudek 2015
Note: One standing dead tree (28.5" white fir) would also require removal, but is not included in the tree totals presented in Table 3--7.

Chambers Landing Beach Intake Pump Station, Intake Pipeline, Raw Water Pipeline, and Electrical/Chemical Feed Room

Impacts to trees associated with these components of the project are included in the analysis above. Impacts related to tree loss would be reduced to a **less-than-significant** level with implementation of Mitigation Measure BIO-5.

Land Exchange

No development is proposed on the Exchange Property and no tree removal would occur on that site.

Mitigation Measures

Mitigation Measure BIO-5: Prior to initiation of construction, TCPUD shall prepare a Tree Treatment Plan to address tree removal and tree protection provisions, as outlined in the Tahoe Regional Planning Agency Code of Ordinances Section 33.6.4. The construction contractor shall implement vegetation protection measures during construction activity, consistent with Section 33.6 of the TRPA Code of Ordinances, to minimize damage to retained trees. Protection measures for retained trees shall include:

A. Fencing shall be placed no closer than the dripline of the tree(s) unless an alternative placement is approved by TRPA.

B. The location and type of the protective fencing shall be shown on approved plans.

C. No material or equipment shall enter or be placed in the areas protected by fencing or outside the construction areas without prior approval from TRPA.

D. Protective fencing for trees shall be constructed with metal posts and industry-standard mesh fencing that is at least four feet tall, unless an alternative method is approved by TRPA. All protective fencing shall be adequately maintained and provide a functional barrier during construction.

E. An alternative method of tree protection may be required if conditions warrant due to location of tree or the importance of the tree for visual screening.

Prior to initiation of construction, TCPUD shall also prepare a Revegetation Plan to establish vegetative cover on disturbed areas that will not be otherwise developed (expected to include new pipeline alignments, graded slopes, etc.), as identified in TRPA Code of Ordinances, Section 61.4. Revegetation efforts shall consider post-construction stand density, stand health, and fire safety/defensible space requirements.

f) Would the project conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?

There are no adopted habitat conservation plans, natural community conservation plans, or other conservation plans within the project area. The project would have **no impact** with respect to conflicts with adopted conservation plans.

Mitigation Measures

No mitigation measures are required.

3.5 Cultural Resources

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
V. CULTURAL RESOURCES – Would the project:				
a) Cause a substantial adverse change in the significance of a historical resource as defined in Section 15064.5?	☐	☐	☐	☒
b) Cause a substantial adverse change in the significance of an archaeological resource pursuant to Section15064.5?	☐	☐	☒	☐
c) Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?	☐	☐	☒	☐
d) Disturb any human remains, including those interred outside of formal cemeteries?	☐	☐	☒	☐

This section was prepared based on the Cultural Resources Assessment prepared by Peak & Associates in April 2015, and included as Appendix C to this IS. A detailed discussion of applicable regulations and policies is presented in the Cultural Resources Assessment and summarized in the following text.

A "historical resource" includes any object, building, structure, site, area, place, record or manuscript that is historically or archaeologically significant (California Public Resources Code, Section 5020.1). Additionally, the National Historic Preservation Act of 1966 requires consideration of cultural resources that have been listed in the National Register of Historic Places (NRHP), or have been determined eligible for listing. Districts, sites, buildings, structures, and objects are eligible for listing in the NRHP if they are significant in American history, architecture, archeology, engineering, and/or culture. Under Section 106 of the act and its implementing regulations, federal agencies are required to consider the effects of their actions, or those they fund or permit, on properties that may be eligible for listing or that are listed in the NRHP.

Advice on procedures to identify such resources, evaluate their importance, and estimate potential effects is given in several agency publications such as the series produced by the Governor's Office of Planning and Research, *CEQA and Archaeological Resources* (1994). The technical advice series produced by the Governor's Office of Planning and Research strongly recommends that Native American concerns and the concerns of other interested persons and corporate entities, including museums, historical commissions, associations, and societies, be solicited as part of the process of inventorying cultural resources. In addition, federal and state law protects Native

American burials, skeletal remains, and associated grave goods regardless of the antiquity and provides for the sensitive treatment and disposition of those remains (California Health and Safety Code, Section 7050.5, California Public Resources Codes, Sections 5097.94 et al).

National Register of Historical Places

The NRHP is administered by the National Park Service. To be eligible, a property must be significant under the following criterion A through D; and ordinarily be 50 years of age or more.

A. Are associated with events that have made a significant contribution to the broad patterns of our history; or

B. Are associated with the lives of persons significant in our past; or

C. Embody the distinctive characteristics of a type, period, or method of installation, or that represent the work of a master, or that possess high artistic values, or that represent a significant and distinguishable entity whose components may lack individual distinction; or

D. Have yielded, or may be likely to yield, information important in prehistory or history.

Listing in the NRHP does not entail specific protection or assistance for a property, but it does guarantee recognition in planning for federal or federally-assisted projects, eligibility for federal tax benefits, and qualification for federal historic preservation assistance. Additionally, project effects on properties listed in the NRHP must be evaluated under CEQA.

California Register of Historical Resources

The State Historic Preservation Office maintains the California Register of Historical Resources (CRHR). Properties listed, or formally designated as eligible for listing, on the National Register of Historic Places are automatically listed on the CRHR, as are state landmarks and points of interest. The CRHR also includes properties designated under local ordinances or identified through local historical resource surveys.

For the purposes of CEQA, a historical resource is a resource listed in, or determined eligible for listing in, the CRHR. When a project has the potential to impact a historical resource site, it first must be determined whether the site is or contains a historical resource. The criteria are set forth in Section 15064.5(a) (3) of the CEQA Guidelines and are defined as any resource that does any of the following:

- Is associated with events that have made a significant contribution to the broad patterns of California's history and cultural heritage
- Is associated with the lives of persons important in our past
- Embodies the distinctive characteristics of a type, period, region, or method of construction, or represents the work of an important creative individual, or possesses high artistic values
- Has yielded, or may be likely to yield, information important in prehistory or history

California Health and Safety Code, Sections 7050.5, 7051, And 7054

These sections collectively address the illegality of interference with human burial remains as well as the disposition of Native American burials in archaeological sites. The law protects such remains from disturbance, vandalism, or inadvertent destruction and establishes procedures to be implemented if Native American skeletal remains are discovered during construction of a project, including the treatment of remains prior to, during, and after evaluation, and reburial procedures. These provisions of the California Health and Safety Code are also expressed in CEQA Guidelines, Section 15064.5(e).

Cultural History

Prior to and at the time of American penetration into the area, the Lake Tahoe region was part of the territory of the Washoe Indians. Although the Washoe intensively occupied some 2,000 square miles and altogether used 4,000 square miles, it is estimated that their maximum population did not exceed 1,500 (Kroeber 1925, as cited in Peak & Associates 2015). Until the 1820s, the Washoe followed a nomadic life pattern. Their winter homes were the low elevation areas in the eastern valleys.

The west shore of Lake Tahoe, including the Homewood area, was sparsely settled during most of the 19th century. During the 1880s, Chambers Lodge, located along the lake at the mouth of McKinney Creek, about 1.5 miles south of the area of potential effect (APE), was constructed. The resort community of Idlewild, about a mile north of the APE, was also established during this period (Scott 1957:73, as cited in Peak & Associates 2015). Homewood was established as a resort community in 1889.

More detailed information on the cultural history of the project area can be found in the Cultural Resources Assessment attached to this IS as Appendix C.

Research

The North Central Information Center (NCIC), California Historical Resources Information System, conducted a record search for the project study area on April 24, 2013. The North Central Information Center examined their files for information concerning previous cultural resource investigations and recorded cultural resources for the sites proposed for each project component and areas within 0.25 mile of the sites.

No development is proposed on the Exchange Property that would be acquired by CTC as part of the proposed land exchange. There would be no effect on any cultural or historic resources at the Exchange Property and this site was not included in the record search or field study.

Project Site Study Area

Two resources were determined by the NCIC to be adjacent to the project site study area: (1) P-31-3594, an unpaved logging road, and (2) P-31-003743, the site of an old steamer landing. Two other resources, P-31-002762, a logging feature, and, P-31-003742, a Washoe medicinal plant collection area/campsite are recorded within a 0.25-mile radius of the project site study area.

Portions of the project site study area have been subjected to an archaeological inspection (McMorrow 2010 as cited in Peak 2015) and archival and literature review dating back to 1994 (Gerike et al. 1994 as cited in Peak 2015).

Native American Consultation

Peak & Associates requested that the Native American Heritage Commission (NAHC) perform a Sacred Lands File search for the project site. The NAHC responded on May 14, 2013, stating that there was no record of Native American cultural resources in the immediate project vicinity. The NAHC also provided a list of Native American individuals and organizations that may have knowledge of cultural resources in the project area. Additionally, a second search of the Sacred Lands Files was completed by the NAHC in July 2015 and a refreshed list of Native American contacts was obtained.

A letter with attached topographic quadrangle map and figures showing the project location was sent on May 20, 2013 and on July 2, 2015 to five individuals/organizations from the lists provided by the NAHC. The individuals/organizations contacted in May 2013 were Stacy Dixon, Chairperson, Susanville Indian Rancheria; Wanda Batchelor, Chairperson, Washoe Tribe of Nevada and California; Darrel Cruz, Cultural Resources Coordinator, Washoe Tribe of Nevada and California; Rose Enos; and April Wallace Moore. The project information letters sent in July 2015 provided updated project planning information and invited Native American representatives to

request consultation with TCPUD, particularly in regards to traditional cultural properties, as required under the CEQA amendments adopted under Assembly Bill 52. As of publication of this IS on August 6, 2015, no replies have been received.

Field Investigation

A complete, intensive archeological examination of the project site study area was undertaken on October 2, 2014. Transect spacing was less than 10 meters in width, and numerous surface scrapes were conducted throughout the study area to expose sediment beneath the duff layer. The study area is characterized by vegetation consisting of a mixed coniferous forest overstory and scattered brush understory that were spaced at intervals that allowed access for the inspection.

a) Would the project cause a substantial adverse change in the significance of a historical resource as defined in Section 15064.5?

Proposed WLTRWTP Project

The previously identified resource P-31-003594, an unpaved logging road, shown terminating at the edge of the study area, was found to extend into the study area but not within the project site. A supplemental site record was prepared for this extension, presented in confidential Appendix C of the Cultural Resource Assessment. No evidence of P-31-003743, the old steamer landing was observed. Because resource P-31-003594 does not extend into the APE for the project site, construction of the WTP would have **no impact** to historical resources.

The installation of the treated water pipelines would occur within existing the paved areas of existing road rights of way. The installation of water pipelines would require trenching within the existing roadway, replacing the existing pipeline, and backfilling the trench. All work would occur within areas that have been previously disturbed and would result in **no impacts** to historical resources.

Chambers Landing Beach Intake Pump Station, Intake Pipeline, Raw Water Pipeline, and Electrical/Chemical Feed Room

The intake pump station and intake pipeline would be installed in Lake Tahoe and the raw water pipeline would be installed underground under previously paved areas and a public right-of-way. There are no historic resources within these areas and construction of these components of the project would have **no impact** on historic resources.

The Electrical/Chemical Feed Room would be constructed as an addition to TCPUD's existing sewer lift station at the site of the ISWTP. The site has been previously disturbed due to construction of the ISWTP and existing sewer lift station. There are no known historic resources at the site and construction of this addition would have **no impact** on historic resources.

Land Exchange

As no development is proposed on the Exchange Property, there would be **no impact** to any historic resources at that site.

Mitigation Measures

No mitigation measures are required.

b), c), and d) Would the project cause a substantial adverse change in the significance of an archaeological resource pursuant to Section 15064.5? Would the project directly or indirectly destroy a unique paleontological resource or site or unique geologic feature? Would the project disturb any human remains, including those interred outside of formal cemeteries?

While no significant archaeological resources were identified within the project site, no unique paleontological resources or unique geologic features are known to occur in the area, and no human remains or burial areas are known to exist in the area, buried or concealed resources could potentially be present and could be unearthed during construction or ground disturbance activities. As required under state law, the following standard construction condition would apply to this project and would be included as a note on construction plans. This would ensure that any buried or concealed resources unearthed during construction would be appropriately handled to avoid significant impacts. Specifically, state law requires the following:

> Should any buried archaeological materials be uncovered during project activities, such activities shall cease within 100 feet of the find. Prehistoric archaeological indicators include obsidian and chert flakes and chipped stone tools; bedrock outcrops and boulders with mortar cups; ground stone implements (grinding slabs, mortars and pestles); and locally darkened midden soils containing some of the previously listed items plus fragments of bone and fire affected stones. Historic period site indicators generally include fragments of glass, ceramic and metal objects; milled and split lumber; and structure and feature remains such as building foundations, privy pits, wells and dumps; and old trails. A professional

archaeologist shall be retained by the Permittee to evaluate the find and recommend appropriate mitigation measures (Health and Safety Code, Section 7050.5).

As a matter of law, if human remains are encountered, TCPUD must comply with Section 15064.5(e)(1) of the CEQA Guidelines and the Health and Safety Code, Section 7050.5, which requires that all project-related ground disturbance within 100 feet of the find be halted until the Placer County coroner has been notified. If the coroner determines that the remains are Native American, the coroner will notify NAHC to identify the most-likely descendants of the deceased Native Americans. Project-related ground disturbance, in the vicinity of the find, shall not resume until the process detailed under Section 15064.5(e) has been completed. Compliance with applicable regulations would ensure the project would have a **less-than-significant** impact related to the potential disturbance of human remains.

No development is proposed on the Exchange Property and there would be **no impact** to any archaeological or paleontological resources, unique geologic features, or human remains at the Exchange Property.

Mitigation Measures

No mitigation measures are required.

3.6 Geology and Soils

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
VI. GEOLOGY AND SOILS – Would the project:				
a) Expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving:				
i) Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? Refer to Division of Mines and Geology Special Publication 42.	☐	☐	☐	☒
ii) Strong seismic ground shaking?	☐	☐	☒	☐
iii) Seismic-related ground failure, including liquefaction?	☐	☐	☒	☐

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
VI. GEOLOGY AND SOILS – Would the project:				
iv) Landslides?	☐	☐	☐	☒
b) Result in substantial soil erosion or the loss of topsoil?	☐	☐	☒	☐
c) Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction or collapse?	☐	☐	☒	☐
d) Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial risks to life or property?	☐	☐	☐	☒
e) Have soils incapable of adequately supporting the use of septic tanks or alternative waste water disposal systems where sewers are not available for the disposal of waste water?	☐	☐	☐	☒

a) Would the project 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.

None of the project components would be located on or near a known fault (California Geological Survey 2007). There would be **no impact.**

ii) Strong seismic ground shaking?

The *West Shore General Plan* describes the project vicinity as being located on alluvium, lakebeds, or glacial outwash near lake level. Such areas are generally more vulnerable to seismic impacts than those located on hard rock or glacial moraine. All of the project components would be required to comply with Uniform Building Code requirements governing seismic safety, which would ensure that impacts associated with seismic ground shaking remain **less than significant**.

iii) Seismic-related ground failure, including liquefaction?

Proposed WLTRWTP Project

The WTP building site is located on dense to very dense granular soils and bedrock, which are not susceptible to liquefaction (Black Eagle Consulting 2015). There would be **no impacts** related to liquefaction at this site.

Chambers Landing Beach Intake Pump Station, Intake Pipeline, Raw Water Pipeline, and Electrical/Chemical Feed Room

The intake pump station and intake pipeline would be constructed under the water and would be anchored to the bottom of the lake.

The areas proposed for the raw water pipeline and Electrical/Chemical Feed Room are not located within a Landslide or Liquefaction Zone, as shown on the California Department of Conservation's regulatory maps. There would be **no impact** related to liquefaction.

Land Exchange

There would be no development on the Exchange Property and **no impacts** related to liquefaction at that site.

iv) Landslides?

Proposed WLTRWTP Project

The WTP building site is not susceptible to landslides, due to its relatively flat ground elevation and the density of the native materials present on the site (Black Eagle Consulting 2015). There would be **no impact** related to landslides.

Chambers Landing Beach Intake Pump Station, Intake Pipeline, Raw Water Pipeline, and Electrical/Chemical Feed Room

The intake pump station and intake pipeline would be anchored to the bottom of Lake Tahoe and the raw water pipeline would be installed underground. These project components would not be susceptible to landslides.

The proposed site for the Electrical/Chemical Feed Room is not located within a Landslide or Liquefaction Zone, as shown on the California Department of

Conservation's regulatory maps. The Electrical/Chemical Feed Room site has a relatively flat ground elevation. There would be **no impact** related to landslides.

Land Exchange

There would be no development on the Exchange Property and **no impacts** related to landslides at that site.

Mitigation Measures

No mitigation measures are required.

b) Would the project result in substantial soil erosion or the loss of topsoil?

Proposed WLTRWTP Project

TRPA's Land Capability Classification system classifies the WTP building site as capability level 5, which is considered to have slight erosion potential, moderately high to high runoff potential, and an overall low disturbance hazard.

There are no major cut or fill slopes planned for the construction of the WLTRWTP on the project site. Dust potential at this site would be moderate to severe during project construction. Under Placer County APCD Rule 228, temporary (during construction) and permanent (after construction) erosion control would be required for all disturbed areas. The contractor shall prevent dust from being generated during construction in compliance with all applicable city, county, state, and federal regulations. The contractor shall submit an acceptable dust control plan to the Placer County APCD prior to staring site preparation or earthwork. Project specifications should include an indemnification by the contractor of the owner and engineer for any dust generation during the construction period. The project site would be revegetated after completion of construction. Compliance with applicable rules and regulations would ensure the project would have a **less-than-significant** impact related to loss of topsoil or erosion.

Chambers Landing Beach Intake Pump Station, Intake Pipeline, Raw Water Pipeline, and Electrical/Chemical Feed Room

The intake pump station and intake pipeline would be installed under the surface of the lake, and as such, would not result in erosion or the loss of topsoil. Installation activities would comply with standard engineering practices for subsurface utilities placement.

A portion of the Raw Water Pipeline and Electrical/Chemical Feed Room is located in TRPA Land Capability Class 1B. The Class 1B areas occur at the existing intake pump station at Chambers Landing Beach and to the north of the ISWTP site near McKinney Creek. All of the construction activities in the Class 1B area near McKinney Creek would occur within the area that is currently paved. Construction within this area would not substantially increase the potential for erosion and loss of topsoil. The construction activities within the Class 1B area at the lakeshore include installing the electrical cable and removing the existing pump station from Chambers Landing Beach (Phase 1) and replacing/upsizing the intake pipe and raw water line (Phase 2). The erosion control practices that would be drafted and implemented for WLTRWTP construction would also apply to these activities. With compliance with applicable rules and regulations as described previously, the project would have a **less-than-significant** impact related to loss of topsoil.

Land Exchange

There would be no development on the Exchange Property and **no impacts** related to soil erosion or loss of topsoil at that site.

Mitigation Measures

No mitigation measures are required.

c) Would the project 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?

Proposed WLTRWTP Project

The granular soil deposits located on a majority of the WTP building site are relatively stable and would provide good foundational support for the WLTRWTP. The subsurface, fine-grained sandy silt soils identified in portions of the site are unstable. If these soils were encountered during construction of the WLTRWTP, they would be over-excavated and replaced with structural fill (Black Eagle Consulting 2015). This would ensure the project would not be subject to geological hazards and impacts would remain **less than significant**.

Chambers Landing Beach Intake Pump Station, Intake Pipeline, Raw Water Pipeline, and Electrical/Chemical Feed Room

The Electrical/Chemical Feed Room would be constructed as an addition to the existing sewer lift station at the existing ISWTP site. This site is previously developed and further soil disturbance for construction of the Electrical/Chemical Feed Room would not substantially alter the stability of the soil. Impacts would remain **less than significant.**

Land Exchange

There would be no development on the Exchange Property and **no impacts** related to soil stability.

Mitigation Measures

No mitigation measures are required.

d) Would the project 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?

None of the project components would be located on expansive soils (Olive et al. 1989 as cited in Black Eagle 2015). Therefore, **no impacts** would occur.

Mitigation Measures

No mitigation measures are required.

e) Would the project have soils incapable of adequately supporting the use of septic tanks or alternative waste water disposal systems where sewers are not available for the disposal of waste water?

The WLTRWTP would connect to the existing sewer infrastructure at or adjacent to the selected location. There would be no development at the Exchange Property that would require wastewater disposal. The project would not require the use of alternative wastewater disposal systems and would have **no impacts** related to the use of such systems.

Mitigation Measures

No mitigation measures are required.

3.7 Greenhouse Gas Emissions

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

a) and b) Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment? Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?

Global climate change is a cumulative impact, which is one that results from the combined effects of the incremental contributions from all existing and future sources of greenhouse gas (GHGs). Thus, GHG impacts are recognized as exclusively cumulative impacts; there are no noncumulative GHG emission impacts from a climate change perspective (CAPCOA 2008).

The *Climate Change Scoping Plan*, approved by the CARB on December 12, 2008, provides an outline for actions to reduce California's GHG emissions. The Scoping Plan provides a framework for actions to reduce California's GHG emissions and requires the CARB and other state agencies to adopt regulations and other initiatives to reduce GHGs. As such, the Scoping Plan is not directly applicable to specific projects. Moreover, the Final Statement of Reasons for the amendments to the CEQA Guidelines states that "[t]he Scoping Plan may not be appropriate for use in determining the significance of individual projects … because it is conceptual at this stage and relies on the future development of regulations to implement the strategies identified in the Scoping Plan" (CNRA 2009). There are several federal and state regulatory measures aimed at the identification and reduction of GHG emissions; most of these measures focus on area source emissions (i.e., energy usage and energy sources) and changes to the vehicle fleet (increased use of hybrid, electric and more fuel-efficient vehicles). While federal and state legislation would ultimately reduce GHG emissions associated with the project, primarily through requirements that would reduce GHG emissions associated with energy

generation, no specific plan, policy, or regulation is directly applicable to the proposed project.

The Lake Tahoe Sustainable Communities Program has developed a series of documents to assist in the implementation of sustainable strategies throughout the Lake Tahoe region. The *Sustainability Action Plan* presents a GHG reduction target for the Lake Tahoe region of 15% below baseline emissions, which equates to 1,188,77 metric tons of carbon dioxide equivalent (MT CO_2e) in 2020. To meet this target, the Lake Tahoe region would need to reduce GHG emissions by 74,552 MT CO_{2e} by 2020. The actions presented within the *Sustainability Action Plan* are ranked low, medium, and high. "Low" corresponds to a regional GHG reduction potential of approximately 10 to 100 metric tons per year associated with completion of the action. A "medium" action would reduce regional GHG emissions by approximately 100 to 1,000 metric tons per year. A "high" action would reduce regional GHG emissions by greater than 1,000 metric tons per year. Actions include adhering to energy efficiency standards in building codes, water usage and production, and transportation networks, among others.

Proposed WLTRWTP Project

The proposed project would increase water quality and the efficiency of water treatment in the region, which are identified as sustainable community strategies in the *Sustainability Action Plan*. The project would not be a substantial source of GHGs during operation of the WLTRWTP because it would generate few motor vehicle trips and would not require the use of gas burning equipment (the project would include two diesel backup generators – one at the WTP and one at the Electrical/Chemical Feed Room that would only be used in an emergency). While the project would contribute to GHG emission through its increase in energy demand, the *Sustainability Action Plan* presents the protection and improvement of water quality in the Lake Tahoe region as one of the region's primary sustainability goals. As the proposed project would help meet that goal, it would not conflict with the *Sustainability Action Plan* and the impact is **less than significant.**

Project Construction

PCAPCD recommends use of a significance threshold for GHG emissions of 1,100 MT CO_2e. Based on the CalEEMod modeling prepared for the project, project construction would generate approximately 122 MT CO_2e. These emissions, which would occur over a 2-year period, would not be sufficient to make a significant contribution to global climate change and its associated effects and the impact is **less than significant**.

Project Operation

The WTP would require a permanent standby diesel generator that would be operated once a month to ensure continued function. This infrequent operation would not consume a substantial amount of energy and would have a **less-than-significant** impact related to GHG emissions. The proposed project would result in up to three new daily vehicle trips compared to operation of the ISWTP, and would increase energy demands for water treatment by 255,000 kw-hours annually in Phase 1 and by 348,000 kw-hours annually in Phase 2. Based on the CalEEMod modeling prepared for the project, it is expected that project operation would generate 767 metric tons of CO2e annually under the Phase 1 capacity and 804 metric tons of CO2e annually under the Phase 2 capacity. At the time that Phase 2 is constructed, the average CO2e emissions per kw-hour would be less than it is currently, as a result of the Renewable Portfolio Standard, which requires that increasing amounts of energy generated in California come from renewable sources. The CO2e emissions associated with the project under both phases would remain below the recommended threshold of 1,100 MT CO2e and therefore would not be sufficient to make a significant contribution to global climate change and its associated effects. The impact of project operation on GHG emissions would be **less than significant.**

Chambers Landing Beach Intake Pump Station, Intake Pipeline, Raw Water Pipeline, and Electrical/Chemical Feed Room

The Electrical/Chemical Feed Room would require a permanent standby diesel generator that would have to be operated once a month to ensure continued function. This infrequent operation would not consume a substantial amount of energy and would have a **less-than-significant** impact on GHG emissions. The daily energy demands of the Electrical/Chemical Feed Room are included in the estimates for project operation provided previously.

Land Exchange

There would be no development at the Exchange Property and the proposed land exchange would not contribute to GHG emissions.

Mitigation Measures

No mitigation measures are required.

3.8 Hazards and Hazardous Materials

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

a) and b) Would the project create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials? Would the project create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?

The project would require the routine transport, use, and disposal of hazardous materials, which are subject to federal, state, and local regulations. These regulations ensure the safety of those handling hazardous materials as well as the safety of the public and the environment. The project would comply with these regulations, which include vehicle specifications for hazardous material transport and disposal, procedures for safe storage, and training requirements for those handling hazardous materials. TCPUD personnel are trained in proper hazardous material handling and disposal procedure, which would minimize the risk of hazardous material incidents.

The *Lake Tahoe Geographic Response Plan* (Response Plan) establishes hazardous material response policy for the Lake Tahoe watershed. The Response Plan outlines procedures for responding to hazardous material spills, including who to contact in case of an emergency and how to prevent such spills from impacting the water quality of Lake Tahoe and its watershed. The project would comply with the Response Plan.

The WLTRWTP would require the use of chemicals as part of the membrane filtration system. TCPUD would need to transport the solids that accumulate in the backwash-holding tank for off-site disposal twice per year. TCPUD possesses the facilities to transport this waste in a sealed, contained vehicle. The WLTRWTP and the Electrical/Chemical Feed Room would each receive deliveries of treatment chemicals once every 60 to 120 days. These disposal and delivery trips would be subject to standard federal, state, and local hazardous materials handling regulations.

Hazardous chemicals used for pre-chlorination treatment would be stored in the Electrical/Chemical Feed Room, which would be constructed as an extension of the existing sewer lift station. As the sewer lift station site is located within a floodplain, the addition would be designed to be flood resistant with a flood protection door to ensure the containment of hazardous chemicals within the Electrical/Chemical Feed Room if a flood were to occur.

The California Surface Water Treatment Regulations, Section 64658, includes design criteria and construction requirements for all new filtration treatment and disinfection facilities. These criteria state that new WTP facilities must be free of structural and

sanitary hazards. The project proposes to meet these criteria by designing the WLTRWTP in accordance with the most current structural and building codes. Impacts related to hazards and hazardous materials from operation of the WLTRWTP and Electrical/Chemical Feed Room would be **less than significant**.

There would be no development at the Exchange Property and no use, transport or disposal of hazardous materials would be associated with the proposed land exchange. The project's impacts related to the use, transport, and disposal of hazardous materials would remain **less than significant.**

Mitigation Measures

No mitigation measures are required.

c) Would the project emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?

There are no existing or proposed schools located within 0.25 mile of any of the project components (Tahoe Truckee Unified School District 2014). Thus, there would be **no impact**.

Mitigation Measures

No mitigation measures are required.

d) Would the project 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?

None of the project components is proposed to be located on or near properties on the list of hazardous materials sites (also known as the Cortese List) (California Department of Toxic Substances Control 2007). Thus, there would be **no impacts**.

Mitigation Measures

No mitigation measures are required.

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?

The project area is not located within an adopted airport land use plan or within 2 miles of a public airport. The nearest public use airports are Lake Tahoe Airport, Truckee Tahoe Airport, Minden-Tahoe Airport, and Reno-Tahoe International Airport. None of the project components are proposed to be located within the area of influence for any of these four airports (Truckee Tahoe Airport Land Use Commission 2010; Douglas County 2012; City of Reno 2007; City of South Lake Tahoe 2007) and there would be **no impacts**.

Mitigation Measures

No mitigation measures are required.

f) For a project within the vicinity of a private airstrip, would the project result in a safety hazard for people residing or working in the project area?

The project area is not within the vicinity of a private airstrip. There would be **no impacts**.

Mitigation Measures

No mitigation measures are required.

g) Would the project impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?

The *Lake Tahoe Geographic Response Plan* establishes hazardous material response policy for the Lake Tahoe watershed. Compliance with hazardous material response is discussed previously under items (a) and (b).

None of the project components is proposed to be located on a site that would interfere with any adopted emergency response plans. The project would not block or alter any of the primary entrance or exit points from the project vicinity. The pipeline replacements may require short-term closures of public streets. These closures would be coordinated with Placer County Sheriff's Department, California Highway Patrol, CAL FIRE, and North Tahoe Fire Protection District dispatch to ensure there would be no interruptions in emergency response. The impact would be **less than significant.**

Mitigation Measures

No mitigation measures are required.

h) Would the project 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?

None of the project components is proposed to be located in an area of high or extreme fire hazard classification (Placer County 1998). The North Tahoe Fire Protection District, CAL FIRE, and the U.S. Forest Service provide fire protection and prevention services in the project area. In the event of a major fire, these entities cooperate through a Mutual Aid Pact.

The California Surface Water Treatment Regulations, Section 64658, which identifies design criteria and construction requirements for all new filtration treatment and disinfection facilities, indicates that design of new WTP facilities must take into consideration the effects of fires. The project proposes to meet these criteria by designing the WLTRWTP and affiliated structures in accordance with the most current structural and building codes. The impact would be **less than significant.**

Mitigation Measures

No mitigation measures are required.

3.9 Hydrology and Water Quality

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
IX. HYDROLOGY AND WATER QUALITY – Would the project:				
a) Violate any water quality standards or waste discharge requirements?	☐	☐	☒	☐
b) Substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g., the production rate of pre-existing nearby wells would drop to a level which would not support existing land uses or planned uses for which permits have been granted)?	☐	☐	☒	☐

		Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
IX.	HYDROLOGY AND WATER QUALITY – Would the project:				
c)	Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner which would result in substantial erosion or siltation on- or off-site?	☐	☐	☒	☐
d)	Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site?	☐	☐	☒	☐
e)	Create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff?	☐	☐	☒	☐
f)	Otherwise substantially degrade water quality?	☐	☐	☒	☐
g)	Place housing within a 100-year flood hazard area as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map?	☐	☐	☐	☒
h)	Place within a 100-year flood hazard area structures which would impede or redirect flood flows?	☐	☐	☐	☒
i)	Expose people or structures to a significant risk of loss, injury or death involving flooding, including flooding as a result of the failure of a levee or dam?	☐	☐	☐	☒
j)	Inundation by seiche, tsunami, or mudflow?	☐	☐	☒	☐

a) and f) Would the project violate any water quality standards or waste discharge requirements? Would the project otherwise substantially degrade water quality?

Through construction and project operation, water quality standards could be violated, resulting in a significant impact. This could occur if erosion and stormwater drainage from the site introduce sedimentation and pollution to Lake Tahoe or its tributaries. TRPA and Lahontan RWQCB oversee implementation of water quality regulations in the Lake Tahoe Basin, including compliance with the Lake Tahoe Municipal National Pollutant Discharge Elimination System (NPDES) permit. Compliance with the NPDES Permit is mandated by state and federal statutes. The proposed project would be required to comply with all regional, state, and federal standards pertaining to stormwater runoff and water quality.

The TRPA *Lake Tahoe Regional Plan* and the Code of Ordinances present policies and regulations related to the disposal of wastewater from facilities that could discharge into the lake, its tributaries, or regional groundwater. TRPA has also developed the *Lake Tahoe Water Quality Management Plan* to set forth a water quality management system in the Lake Tahoe region, as well as a stormwater best management practices (BMP) handbook to guide low-impact development practices in the Lake Tahoe Basin. Additionally, the Placer County Grading Ordinance requires implementation of BMPs to prevent stormwater pollution and control erosion. Implementation of these measures, in addition to standard construction water quality and erosion BMPs, would ensure that the project complies with water quality and waste discharge requirements.

Temporary BMPs would be implemented during and immediately after the construction period. The extent of disturbance to soils and vegetative cover would be minimized by establishing limits of disturbance and by allowing only limited access to the construction area. As discussed in Section 3.6, Geology and Soils, dust control procedures would be implemented throughout the project area. Cut and fill slopes would be stabilized as soon as possible.

Other temporary BMPs would ensure "good housekeeping" at the project site during construction. These would include cleaning construction equipment and preventing the leakage of fluids, storing materials away from surface water, protecting sensitive areas with sediment barriers or other containment methods, controlling laying of concrete and washing of related equipment, and collecting debris and gravel associated with paving operations. Adequate temporary storm drainage controls would be provided, including on-site drainage containment, the placement of silt fences around construction areas, and constructing temporary sediment basins (as necessary).

Permanent BMPs would minimize any water quality concerns during operation of the project. These BMPs, which would ensure nutrient, sediment, and contaminant control, would be incorporated into the proposed site plans and would be addressed through management procedures applicable to each project component. These measures would be consistent with the TRPA *Lake Tahoe Water Quality Management Plan*, *Lake Tahoe Basin Plan* (Lahontan RWQCB), and the TRPA Code of Ordinances. The location and specifications of structural BMPs would be refined as site and construction plans are further developed.

Permanent BMPs would include infiltration facilities in addition to pipe inlet and outlet protection, rock energy dissipaters, rock-lined ditches, and stabilization of disturbed areas with vegetation or other measures. Sand-oil separation for all pavement runoff would be

provided in the form of drainage inlets modified for sand-oil separation, infiltration pits or basins for all impervious surfaces at the end all drainage pipe or ditches, and drip-line trenches for any roof line draining direct to ground. The project site would be revegetated after completion of construction. The water quality BMPs and stormwater facilities would be sized for the Lahontan RWQCB design storm, which is a 20-year, 1-hour storm event.

The project proposes to minimize the wastewater generated by the facility by incorporating efficient water treatment techniques, such as pre-chlorination and backwash recovery treatment, and by hauling solid wastes off site for disposal.

Operation of the intake pump station would not adversely impact Lake Tahoe's water quality. Installation of the intake pump station under the lake would require a Nationwide Permit from the U.S. Army Corps of Engineers and a Streambed Alteration Agreement from CDFW. The BMPs implemented as part of compliance with U.S. Army Corps of Engineers and CDFW requirements would ensure that the pump installation would not degrade the water quality of the lake or result in impacts to its wetland resources.

Implementation of BMPs during project construction and operation would ensure the project's compliance with federal, state, and local water quality standards and waste discharge requirements and impacts would be **less than significant**.

There would be no development at the Exchange Property and therefore **no impacts** related to water quality and waste discharge requirements at that site.

Mitigation Measures

No mitigation measures are required.

b) Would the project substantially deplete ground water 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 (i.e., 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)?

Proposed WLTRWTP Project

The WLTRWTP is proposed, in part, to supplement declining groundwater capacity in the project vicinity. The proposed project would rely on the extraction of surface water from the lake as opposed to groundwater sources.

Construction of the WLTRWTP would decrease the permeable surface available for groundwater recharge by approximately 0.4 acre. This increase would not substantially deplete or interfere with local groundwater supplies and impacts would remain **less than significant**.

Chambers Landing Beach Intake Pump Station, Intake Pipeline, Raw Water Pipeline, and Electrical/Chemical Feed Room

The intake pump station and intake pipeline would be installed under the lake's surface and would not impact groundwater. In most locations, the raw water pipeline would be installed below existing paved areas. In other locations, the raw water pipeline would be installed underground, which would allow permeation of rainwater into the soils around the pipeline.

The Electrical/Chemical Feed Room would be constructed on a previously developed site and would not alter pervious ground surface available for groundwater recharge. Impacts would be **less than significant.**

Land Exchange

There would be no development at the Exchange Property that would affect groundwater recharge or extraction and the proposed land exchange would have **no impacts** related to groundwater supplies.

Mitigation Measures

No mitigation measures are required.

c) Would the project substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner which would result in substantial erosion or siltation on- or off-site?

Proposed WLTRWTP Project

There is an SEZ designated by TRPA along the southern boundary of the Lodge Drive site; the proposed site improvements would be located outside of the SEZ.

As discussed under item (a), TRPA has prepared a BMP handbook to provide guidance in selecting and implementing BMPs that reduce or prevent pollutants from entering surface and ground waters within the Lake Tahoe Basin. These BMPs promote infiltration, reduce stormwater runoff, treat stormwater, collect and convey stormwater, and prevent erosion and sediment transfer from construction sites.

TRPA's Grading and Construction Ordinance and Placer County's Grading Ordinance establish requirements for grading, erosion, and other discharge associated with both project construction and operation. The project would comply with the policies set forth in these ordinances by incorporating temporary and permanent BMPs to minimize erosion and protect water quality. Dust control measures are discussed in Section 3.6, Geology and Soils.

During construction and operation of the WLTRWTP, including construction associated with the treated water pipelines, BMPs would be implemented as described above and as recommended in the BMP Handbook prepared by TRPA. These BMPs would ensure **less-than-significant** impacts associated with erosion or siltation.

Chambers Landing Beach Intake Pump Station, Intake Pipeline, Raw Water Pipeline, and Electrical/Chemical Feed Room

There is a SEZ in the area of these facilities associated with McKinney Creek and the intake pipeline would be located within the Backshore SEZ. All construction activities within the SEZ and associated with these project components are expected to occur within areas that are currently paved or otherwise disturbed. No new land coverage would be created within the SEZ. Impacts to drainage and siltation associated with construction activities for the intake pump station, intake pipeline (in Phase 2), raw water pipeline, and Electrical/Chemical Feed Room would remain **less than significant**.

Land Exchange

There is a creek passing through the Exchange Property, but no development is proposed on that site and there would be **no impacts** within the SEZ.

Mitigation Measures

No mitigation measures are required.

d) and e) Would the project 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? Would the project create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff?

Stormwater runoff water quality is regulated by the NPDES Program, which seeks to control and reduce pollutants to water bodies from surface water discharge. Locally, the NPDES project is administered by the Lahontan RWQCB. The RWQCB has prepared and adopted a Lake Tahoe Municipal NPDES Permit. This Permit identifies minimum standards and provisions that TRPA and Placer County, as Permittees, must require of new development and redevelopment projects within the West Tahoe Basin. TRPA's Stormwater Management Program publishes the BMP handbook (described under item c). Placer County has prepared a *Stormwater Management Plan* for the Lake Tahoe Basin, which proposes activities and goals to manage stormwater, reduce pollutant loads in Lake Tahoe, and establish procedures for monitoring and reporting to the Lahontan RWQCB. Compliance with the NPDES Permit is mandated by state and federal statutes. The proposed project would be required to comply with all regional, state, and federal standards pertaining to stormwater runoff and water quality.

For all of the project components, calculations for peak flow and drainage facility sizing are in accordance with the *Placer County Flood Control and Water Conservation District Stormwater Management Manual* criteria. In accordance with the Stormwater Management Manual, the project would reduce stormwater flow to 90% or less of predevelopment levels to ensure no construction of new facilities or expansion of existing facilities is needed. This reduction of stormwater flow would also minimize the risk of flooding on or off the project site.

Stormwater quality for all project components would be addressed through a series of permanent and temporary BMPs. Permanent BMPs would include infiltration facilities in addition to pipe inlet and outlet protection, rock energy dissipaters, rock-lined ditches, and stabilization of disturbed areas with vegetation or other measures. The onsite stormwater drainage facilities would be sized for the Lahontan Water Quality Control Board design storm, which is the 20-year, 1-hour storm event. Development of the WLTRWTP on the project site would result in the conversion of approximately 0.4 acre of undeveloped land to impervious surfaces. This increase in impervious surface could result in an increase in surface runoff from the site. However, the project would be designed to include stormwater management practices and BMPs to collect, convey, and

treat runoff such that the stormwater flows during the 20-year 1-hour storm event are treated in accordance with Lahontan RWQCB standards and the peak runoff from the 100-year storm event would be less than the existing condition, This would ensure that stormwater flows from the project site would not exceed the capacity of the existing storm drain system and would not increase runoff discharge to the SR 89 right-of-way. Therefore, impacts related to surface runoff would remain **less-than-significant**.

The treated water pipeline installations would occur within existing paved roadways and would not increase impervious surfaces. The project would slightly expand the footprint at the ISWTP, but would remove the existing vault on the Chambers Landing Beach. The extent of impervious surface in the area would not change substantially as a result of this project, and would not substantially increase stormwater runoff. Therefore, the project would have a **less-than-significant** impact on surface runoff.

No development would occur at the Exchange Property and there would be **no impacts** related to surface water runoff, flooding conditions, or water quality associated with the proposed land exchange.

Mitigation Measures

No mitigation measures are required.

g) Would the project 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?

The proposed project would not include construction of housing. There would be **no impacts.**

Mitigation Measures

No mitigation measures are required.

h) and i) Would the project place within a 100-year flood hazard area structures which would impede or redirect flood flows? Would the project 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?

The project area is not at risk of damage due to flooding as a result of levee or dam failure.

The WTP building site and the treated water pipelines are located outside the 500-year floodplain limits (FEMA 2012). There would be **no impacts** associated with flooding.

The Electrical/Chemical Feed Room is located within the 100-year floodplain, Zone A (no base flood elevations were determined) (FEMA 2012). The existing sewer lift station would be expanded to accommodate the Electrical/Chemical Feed Room, which would replace the ISWTP. As the site is located within a floodplain, the addition would be designed to be flood resistant with a flood protection door. The *Lake Tahoe Regional Plan*, Policy NH-1.2, permits the development of public service facilities within the 100-year flood plain and in the area of wave run-up. Project design would ensure there would be **no impact**.

No development is proposed on the Exchange Property and there would be **no impacts** related to flooding at that site.

Mitigation Measures

No mitigation measures are required.

j) Inundation by seiche, tsunami, or mudflow?

Seiches are standing waves on a closed body of water initiated by severe windstorms across the surface of the water, large landslides entering the water, or seismic activity passing through the area. While it is possible for seiches to form on Lake Tahoe, the U.S. Forest Service documents the risk of seiche as "rare to possible" (U.S. Forest Service 2008). The size of seiche possible at Lake Tahoe varies, with smaller waves being both more likely and less damaging than larger waves (U.S. Forest Service 2008). The *Lake Tahoe Regional Plan* allows the development of public service facilities within the 100-year floodplain and in the area of wave run-up. Local emergency response protocol would be implemented if a seiche were to occur.

The project area is not located in an area that would be significantly affected by a tsunami or mudflow. Impacts would be **less than significant**.

Mitigation Measures

No mitigation measures are required.

3.10 Land Use and Planning

		Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
X.	LAND USE AND PLANNING – Would the project:				
a)	Physically divide an established community?	☐	☐	☒	☐
b)	Conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project (including, but not limited to the general plan, specific plan, local coastal program, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect?	☐	☐	☒	☐
c)	Conflict with any applicable habitat conservation plan or natural community conservation plan?	☐	☐	☐	☒

a) Would the project physically divide an established community?

The proposed project would place the WLTRWTP on a vacant site at the eastern edge of a residential neighborhood, construct the Electrical/Chemical Feed Room at the ISWTP site, replace the intake pump station vault on Chambers Landing Beach with submerged pumps, and install various pipelines within existing easements. The project would not divide a community and would not interfere with the right-of-way through the neighborhood. Impacts would be **less than significant**.

Mitigation Measures

No mitigation measures are required.

b) Would the project 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?

Proposed WLTRWTP Project

The WTP building site is designated 156 Chambers Landing Chamberlands Residential. Public services are allowed under this designation subject to issuance of a Minor Use Permit from Placer County. The project would not conflict with land use plans and policies and impacts associated with plan and policy consistency would be **less than significant**.

Chambers Landing Beach Intake Pump Station, Intake Pipeline, Raw Water Pipeline, and Electrical/Chemical Feed Room

The existing intake pump station would be removed from the Chambers Landing Beach location, which would reduce potential conflicts between recreational uses and facilities maintenance. The raw water pipeline would be installed below an existing paved right-of-way. This project component would maintain existing service and would not conflict with local plans or policies. The Electrical/Chemical Feed Room would be installed at the site of the existing ISWTP and would not conflict with local plans or policies. The impact would be **less than significant**.

Land Exchange

No development is proposed for the Exchange Property and the proposed land exchange would have **no impact** related to conflicts with land use plans and policies.

Mitigation Measures

No mitigation measures are required.

c) Would the project conflict with any applicable habitat conservation plan or natural community conservation plan?

There are no adopted habitat conservation plans, natural community conservation plans, or other conservation plans applicable to the potential project area. The project would have **no impact** with respect to conflicts with adopted conservation plans.

Mitigation Measures

No mitigation measures are required.

3.11 Mineral Resources

		Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
XI.	MINERAL RESOURCES – Would the project:				
a)	Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state?	☐	☐	☐	☒
b)	Result in the loss of availability of a locally-important mineral resource recovery site delineated on a local general plan, specific plan, or other land use plan?	☐	☐	☐	☒

a) and b) Would the project 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? Would the project 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?

There are no mineral resources of state or local importance identified in the project vicinity (TRPA 2012; Placer County 1998; California Geological Survey 2012) or within the project site locations. The project would be constructed on or adjacent to previously developed areas that have limited potential to support mineral resource recovery activities. The project would have **no impact** from loss of availability of known mineral resources or locally important mineral resource recovery sites.

Mitigation Measures

No mitigation measures are required.

3.12 Noise

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
XII. NOISE – Would the project result in:				
a) Exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?	☐	☒	☐	☐
b) Exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels?	☐	☐	☐	☒
c) A substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project?	☐	☒	☐	☐
d) A substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project?	☐	☒	☐	☐
e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?	☐	☐	☐	☒
f) For a project within the vicinity of a private airstrip, would the project expose people residing or working in the project area to excessive noise levels?	☐	☐	☐	☒

The analysis in this section was prepared based on the Noise Assessment provided in Appendix D to this IS.

Background and Terminology

An individual's noise exposure occurs over a period of time; however, noise level is a measure of noise at a given instant in time. The equivalent noise level (L_{eq}), also referred to as the average sound level, is a single-number representing the fluctuating sound level in decibels (dB) over a specified period of time. It is a sound-energy average of the fluctuating level and is equal to a constant unchanging sound of that dB level. Community noise sources vary continuously, being the product of many noise sources at various distances, all of which constitute a relatively stable background or ambient noise environment.

Noise levels are generally higher during the daytime and early evening when traffic (including airplanes), commercial, and industrial activity is the greatest. However, noise sources experienced during nighttime hours when background levels are generally lower can be potentially more conspicuous and irritating to the receiver. In order to evaluate noise in a way that considers periodic fluctuations experienced throughout the day and night, a concept termed "community noise equivalent level" (CNEL) was developed, The CNEL scale represents a time-weighted 24-hour average noise level based on the A-weighted sound level. CNEL accounts for the increased noise sensitivity during the evening hours (7 p.m. to 10 p.m.) and nighttime hours (10 p.m. to 7 a.m.) by adding five dB to the average sound levels occurring during the evening hours and 10 dB to the sound levels occurring during nighttime hours.

Existing Conditions

The ambient sound level in the project vicinity is primarily dictated by noise generated from traffic along SR 89. The proposed WTP would be located approximately 40 feet from SR 89.

In order to determine current ambient noise levels associated with SR 89, Dudek modeled the traffic noise based upon data for existing traffic trips on the roadways. According to Caltrans (2013), the segment of SR 89 in the project area currently carries 6,600 average daily trips (ADTs), combined for both directions of travel. The percentage of medium trucks and heavy trucks out of the total vehicles along this segment in 2013 was 2% apiece (Caltrans 2013).

Traffic noise is generally assessed using software provided by the Federal Highway Administration (FHWA), the current version of which is titled Transportation Noise Model 2.5 (TNM 2.5). Table 3-8 presents the results of the noise modelling of existing traffic levels at various receptor sites of concern. Because SR 89 is substantially lower in elevation than the project site, a 24-hour sound level measurement was performed at the residential property line adjacent to the site to characterize the existing noise levels.

Table 3-8
Existing Ambient Noise Levels
Selected Receptor Locations (dBA)

Receptor / Location	Noise Source	L_{EQ} Daytime	L_{DN}
Chambers Landing Control Room	SR-89	50	51
Lodge WTP Site[1]	SR-89	50	51

Notes: 1. 24-hour sound level measurement results
Source: Dudek 2015

As illustrated in Table 3-8, the existing hourly average noise levels at each project site during the day range from 50 to 51 dBA L_{EQ}. For the noise-sensitive land uses adjacent to the project sites, the existing L_{DN} values range from 45 to 51 dBA. Current noise levels at the residential properties adjacent to the project sites are essentially in compliance with the Placer County noise exposure guidelines for residential properties (50 L_{DN} dBA). The baseline condition is that noise exposure levels for residences adjacent to the project site are considered to be acceptable. It is also noted the Placer County guideline is for noise exposure from non-transportation noise sources. The State of California, Office of Planning and Research, uses an exterior noise exposure limit of 65 dBA L_{DN} for residences, which accounts for contributions from all noise sources.

a) and c) Would the project result in 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? Would the project result in a substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project?

The proposed project is located in the unincorporated community of Tahoma, in Placer County. The Placer County General Plan Noise Element (Placer County, 2013) specifies the following noise compatibility guidelines applicable to the project.

Placer County General Plan Noise Element (Table 9-1)	
Land Use	Allowable LDN Noise Levels (Non-Transportation Noise Sources)
Residential	50
Recreation & Forestry	70

The Noise Ordinance (Placer Code Article 9.36) establishes the following limits for sound generation affecting noise sensitive receptors, which include residences.

9.36.060 Sound limits for sensitive receptors

A. It is unlawful for any person at any location to create any sound, or to allow the creation of any sound, on property owned, leased, occupied or otherwise controlled by such person that:

1. Causes the exterior sound level when measured at the property line of any affected sensitive receptor to exceed the ambient sound level by five dBA; or

2. Exceeds the sound level standards as set forth in Table 1, whichever is the greater.

Sound Level Standards On-Site (Noise Ordinance Table 1)		
Land Use	Daytime (7 am to 10 pm)	Nighttime (10 pm to 7 am)
Hourly Leq, dB	55	45
Maximum level (Lmax), dB	70	65

9.36.030 Exemptions

A. Sound or noise emanating from the following sources and activities are exempt from the provisions of this title:

6. Emergencies, involving the execution of the duties of duly authorized governmental personnel and others providing emergency response to the general public, including but not limited to sworn peace officers, emergency personnel, utility personnel, and the operation of emergency response vehicles and equipment;

7. Construction (e.g., construction, alteration or repair activities) between the hours of six a.m. and eight p.m. Monday through Friday, and between the hours of eight a.m. and eight p. m. Saturday and Sunday Provided, however, that all construction equipment shall be fitted with factory installed muffling devices and that all construction equipment shall be maintained in good working order;

Based on these requirements, a significant impact would occur if the project resulted in exterior noise exposure levels for nearby residences that are greater than 50 dB L_{DN}, or if the project would increase noise levels by more than 3 dB. A significant project impact would also result if the project would generate sound levels at nearby residences greater than 55 dB (hourly Leq) during the daytime or 45 dB (hourly Leq) during the nighttime. Recreation facilities exist in the project vicinity as well, consisting primarily of bike paths and hiking trails. A significant impact could occur if the project resulted in noise exposure levels within recreational areas greater than 70 dB L_{DN}.

Proposed WLTRWTP

Normal Operations – Noise Element

In October 2014, Dudek measured the noise from the Sewer Lift Station and ISWTP at Chambers Landing. The measurement was taken 10 feet from the fence-line of the facility. The measured sound level was 52 dBA L_{EQ}. This sound level is assumed to be representative of routine water treatment plant operations that are not enclosed in a building. Dudek did not obtain measurements of the existing intake pump control room; however, the sound level measured for the ISWTP is considered conservative for evaluation of the expanded control room at Chambers Landing. In order to calculate the L_{DN} value, the recorded average noise level was assumed for each hour of the day (i.e., 24-hour operation). In addition, noise measurements were taken of the Cave Rock WTP in Douglas County, Nevada in May 2015. The Cave Rock WTP operates with a treatment capacity, process, and equipment similar to that proposed for the WLTRWTP. The measured sound level for the normal plant operation, with all doors closed, is 52 dBA (average noise level, or L_{EQ}) at a distance of six feet from the exterior wall. The sound level Dudek recorded for the ISWTP indicated that the ISWTP generates 52 dBA L_{EQ} at a distance of ten feet from the perimeter fence. Based on the Cave Rock measurements, a fully operational plant inside an enclosed structure would generate lower sound levels. However, to ensure a conservative analysis, the following impact evaluation uses the higher noise levels measured at the ISWTP.

Using a standard formula for exterior noise attenuation with distance, Dudek calculated the noise level at noise-sensitive land uses in the vicinity from operation of the lake intake pump control room and separate WTP. The L_{DN} is identified in Table 3-9 and compared against applicable criterion to determine significance. As shown in Table 3-9, normal operations for the WTP would generate approximately 35 dBA L_{DN} at the nearest sensitive receptor. This would not result in noise exposure levels at adjacent residential property lines that exceed the Placer County Noise Element exterior noise exposure criterion of 50 L_{DN} dBA for residences. Normal operations would also not increase the existing L_{DN} level by more than 3 dBA above ambient conditions. Consequently, normal operations of the WTP would comply with the Noise Element criterion, and would remain at **less-than-significant** levels.

Table 3-9
Project Generated Noise Levels Adjacent Receptor Locations (L_{DN} dBA)

Receptor / Location	Existing L_{DN}	Criterion	Project Generated L_{DN}	Impact?
Lodge WTP Site	51	50	35	No

Source: Dudek 2015

Notes: 1. Significance criteria based upon an increase not greater than 3 dBA over ambient.

Normal Operations – Noise Ordinance

In addition to consideration of the Noise Element, this analysis considers the noise limits established in the Placer County Noise Ordinance. The Noise Ordinance restricts noise generation levels for sensitive receptors, including residences, as calculated at the property line for the residential use and expressed as a daytime hourly average ($L_{EQ\ HOUR}$) and nighttime hourly average. Using a standard formula for exterior noise attenuation with distance, Dudek calculated the hourly L_{EQ} noise level at the property line of vicinity noise-sensitive land uses from operation of the lake intake pump control room and separate WTP.

As shown in Table 3-10, calculated noise levels for normal operations of the WTP and compared against the daytime and nighttime criterion from the Noise Ordinance. The WTP would generate an L_{EQ} of 29 dBA at the nearest residence. The calculated noise levels for normal operations of the WTP would be well below the allowable noise levels as contained in the Noise Ordinance. This would comply with the Noise Ordinance criterion, and the impact would remain **less than significant**.

Table 3-10
Project Generated Noise Levels Adjacent Receptor Locations (L_{EQ} Hour dBA)

Receptor / Location	Calculated Operations Noise Level	Daytime Limit	Nighttime Limit	Impact ?
Lodge WTP Site	29	55	45	No

Source: Dudek 2015

Standby Generator Operations - Noise Ordinance

Maintenance of the stand-by generators includes periodic testing and a slightly longer run period each quarter to ensure the battery is properly charged for successful starting when the generator is needed. It is anticipated each generator would be run-tested one time each month for 30 minutes (8 months out of the year), and run once per quarter to charge the battery for 3 hours (4 months out of the year). Documentation from Caterpillar indicates the D-60 has a sound level of 91 dBA L_{EQ} at 3 feet; the D-100 has a sound level of 98 dBA L_{EQ} at 3 feet. For outdoor placement, a weatherproof and sound attenuating enclosure is available that reduces the sound level by approximately 9 dBA. For location within an industrial grade structure such as the control room or WTP, sound attenuation from the structure is anticipated to be approximately 20 dBA, assuming baffled louvers for air circulation and a high-performance acoustic kit for the system exhaust.

For the proposed WTP facility, it is anticipated the generator would be placed outside in a sound attenuating enclosure for Phase 1, but contained inside the building with Phase 2 expansion. The generator proposed for the WTP would be a 100 kW model from Caterpillar (D-100).

Using a standard formula for exterior noise attenuation with distance, Dudek calculated the noise level at noise-sensitive land uses in the vicinity from operation of the proposed generator at the lake intake pump control room and from operation of the separate generator proposed for the WTP. For comparison with the Noise Ordinance exterior noise exposure criterion, Dudek calculated the hourly average noise level ($L_{EQ\ HOUR}$) resulting from the monthly 30 minute testing and the quarterly 3-hour operation of the proposed generator.

Table 3-11 indicates that monthly and quarterly generator testing would result in noise levels of 52 dBA during Phase 1. Noise levels at the nearest sensitive receptor associated with the generator during Phase 2 would be less, 44 dBA, because the generator would be housed within the building.

Table 3-11
Generator Testing Activity Noise Levels Adjacent Receptor Locations ($L_{EQ\ Hour}$ dBA)

Receptor / Location	Calculated Generator Noise Level (Monthly)	Calculated Generator Noise Level (Quarterly)	Daytime Limit	Daytime Impact ?	Nighttime Limit	Nighttime Impact ?
Lodge WTP Site (Phase 1)	52	55	55	No	45	YES
Lodge WTP Site (Phase 2)	44	44		No		No

Source: Dudek 2015

The Phase 1 noise level exceeds the daytime and nighttime Noise Ordinance allowance, which is considered a **potentially significant impact**. The Phase 2 noise level complies with the Noise Ordinance allowance, thus that impact is **less than significant**. Mitigation Measure NOI-1 stipulates allowable hours for generator testing to ensure that such testing results in **less-than-significant** impacts related to noise exposure for residential neighbors, particularly during nighttime hours. This mitigation measure is applicable to Phase 1 only because in Phase 2, the generator would be housed within the expanded WTP building, which would ensure that external noise levels would be below the Noise Ordinance allowance and impacts would remain **less than significant.**

The County's Noise Ordinance exempts certain activities from the limitations generally imposed for noise exposure of sensitive receptors. Specifically, Section 9.36.030(A)6 provides for an exemption from noise level limits for emergency operation of public facilities. Therefore, operation of the proposed generators during a power failure to provide electricity for emergency operations of the intake pump and WTP facilities would result in **no impact** related to noise.

Chambers Landing Beach Intake Pump Station, Intake Pipeline, Raw Water Pipeline, and Electrical/Chemical Feed Room

Normal Operations – Noise Element

Table 3-12 provides the noise levels expected to be generated by the Electrical/Chemical Feed Room at the nearest sensitive receptor.

Table 3-12
Project Generated Noise Levels at
Adjacent Receptor Locations (L_{DN} dBA)

Receptor / Location	Existing L_{DN}	Criterion	Project Generated L_{DN}	Impact ?
Chambers Landing Control Room	51	50	46	No

Source: Dudek 2015

The analysis demonstrates that operation of the Electrical/Chemical Feed Room at the Chambers Landing Beach site would generate a noise level of 46 dBA L_{DN}. This project component would not result in noise exposure levels at adjacent residential property lines that exceed the Placer County Noise Element exterior noise exposure criterion of 50 L_{DN} dBA for residences and would not result in an increase in the existing L_{DN} level by more than 3 dBA. Consequently, normal operations of the Chambers Landing Electrical/Chemical Feed Room would result in a **less-than-significant** impact.

Normal Operations – Noise Element

Table 3-13 identifies the noise levels expected to be generated by the Electrical/Chemical Feed Room at the nearest sensitive receptor. As shown, the noise generated by the Chambers Landing Electrical/Chemical Feed Room at the nearest sensitive receptor would result in an L_{EQ} of 40 dBA. This would comply with the Noise Ordinance criterion, and the impact would remain **less than significant.**

Table 3-13
Project Generated Noise Levels - Control Room Site
Adjacent Receptor Location ($L_{EQ\ Hour}$ dBA)

Receptor / Location	Calculated Operations Noise Level	Daytime Limit	Nighttime Limit	Impact ?
Chambers Landing Control Room	40	55	45	No

Source: Dudek 2015

Standby Generator Operations

The generator proposed for the Electrical/Chemical Feed Room would be a 60 kW model from Caterpillar (D-60) and would be placed inside the structure. Table 3-14 identifies

the noise levels associated with operation of the standby generator at the Chambers Landing Intake site.

Table 3-14
Generator Testing Activity Noise Levels - Control Room Site
Adjacent Receptor Location ($L_{EQ\ Hour}$ dBA)

Receptor / Location	Calculated Generator Noise Level (Monthly)	Calculated Generator Noise Level (Quarterly)	Daytime Limit	Daytime Impact ?	Nighttime Limit	Nighttime Impact ?
Chambers Landing Control Room	47	49	55	No	45	YES

Source: Dudek 2015

As shown in Table 3-14, monthly and quarterly generator testing would result in noise levels of 47 and 49 dBA at the Chambers Landing Electrical/Chemical Feed Room. These noise levels exceed the nighttime Noise Ordinance allowance, which is considered a **potentially significant** impact. Mitigation Measure NOI-1 stipulates allowable hours for generator testing to ensure that such testing results in **less-than-significant** impacts related to noise exposure for residential neighbors, particularly during nighttime hours.

As discussed previously, the County's Noise Ordinance exempts emergency operations of public facilities, such as the proposed WTP, from noise ordinance requirements. Thus, there would be **no impact** related to use emergency use of the generator.

Land Exchange

No development is proposed for the Exchange Property and the proposed land exchange would result in **no impacts** related to generating substantial noise levels.

Mitigation Measures

Mitigation Measure NOI-1: Routine periodic testing of proposed generators, including monthly and quarterly operation of the generator units, shall only occur between 8 AM and 6 PM.

Mitigation Measure NOI-2: The proposed generator for Phase 1 of the WTP shall be enclosed with minimum 6-foot high perimeter solid walls, in addition to

incorporating the Level 2 sound attenuating cabinet from the manufacturer. Any opening in the perimeter wall shall be equipped with a solid door or gate.

b) Would the project result in exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels?

The project would not have the potential to generate long-term ground-borne vibration or ground-borne noise. Over the short-term, the construction process largely involves excavation for pipeline, trench backfill and paving, limited foundation work for proposed structures, and construction of two structures with modest floor area. During construction if rock were encountered during the excavation for new pipelines, and the treated water clearwell/contractor tank and backwash holding tanks at the WTP site the rock would be removed using a pneumatic splitter on the end of an excavator. Even with potential use of a vibratory roller for compaction of structural foundation area and pipeline backfill, none of the construction activities is a source for substantial temporary groundborne vibration. Project construction would not involve the principal sources for vibration generation and complaints, which are pile driving and blasting. No development is proposed for the Exchange Property and no groundborne vibration or noise would be generated. The project would have **no impact** related to groundborne vibration or groundborne noise levels.

Mitigation Measures

No mitigation measures are required.

d) Would the project result in a substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project?

Construction activities would generate noise that could expose nearby receptors to elevated noise levels that may disrupt communication and routine activities. The magnitude of the impact would depend on the type of construction activity, equipment, duration of the construction, distance between the noise source and receiver, and intervening structures. Construction is the most common source of temporary increases in the ambient noise levels caused by a proposed project. The Placer County Noise Ordinance establishes schedule limits for construction to Monday to Friday 6 AM to 8 PM and Sat/Sun 8 AM to 8 PM. TRPA Code of Ordinances Section 68.9 limits construction to between the hours of 8 AM and 6:30 PM. These limits are intended to avoid creating a nuisance to neighbors from elevated noise during construction.

Construction activities for the proposed project would vary by component and location. For instance, the installation of the raw water pipeline would include jackhammer, backhoe, dump truck, pneumatic splitters, compactor and roller; control room construction would include most of these as well, substituting a concrete truck for the roller, a flatbed truck for the compactor, and adding several pick-up trucks. The WTP construction would require the largest inventory of construction equipment, including a crane and additional compressors. Use of equipment would be spread across the entire project area, with varying distances to sensitive receptors. However, for a conservative analysis of off-site construction levels, the evaluation used the distance from the construction area or activity located closest to each identified sensitive receptor.

Table 3-15 identifies the noise levels at the nearest sensitive receptor associated with construction of each project component.

Table 3-15
Construction Noise Levels
Summary of Results (dBA L_{EQ})

Receptor / Location	Use	Construction Noise Level
Raw Water Pipeline		
Residences along roadways	Residential	90
Pump Intake Control Room Structure		
Chambers Landing	Residential	83
WTP		
Project Site	Residential	77

Source: Dudek 2015

Proposed WLTRWTP

Construction of the WTP could generate construction noise levels of 77 dBA at the nearest residence while water pipeline installations could generate noise levels of 90 dB at the nearest residence. As discussed previously, while construction would occur in daytime hours as required by the Noise Ordinance, some annoyance may occur. Therefore, while construction operations would comply with the Noise Ordinance, the noise level is considered **potentially significant** and Mitigation Measure NOI-3 is recommended for the proposed project in order to minimize nuisance effects during construction and ensure the impact remains **less than significant**.

Chambers Landing Beach Intake Pump Station, Intake Pipeline, Raw Water Pipeline, and Electrical/Chemical Feed Room

Construction of the Electrical/Chemical Feed Room at the Chambers Landing site and associated installation of the water pipeline could generate construction noise levels of 83 dBA and 90 dBA at the nearest residence. As discussed previously, while construction would occur in daytime hours as required by the Noise Ordinance, some annoyance may occur. Therefore, while construction operations would comply with the Noise Ordinance, the noise level is considered **potentially significant** and Mitigation Measure NOI-3 is recommended in order to minimize nuisance effects during construction and ensure the impact remains **less than significant**.

Land Exchange

No development is proposed for the Exchange Property and the land exchange would result in **no impacts** related to temporary noise levels.

Mitigation Measures

Mitigation Measure NOI-3: The following measures shall be implemented to minimize nuisance effects during construction:

- Construction activities shall be limited to 8 AM to 6 PM Mondays through Sundays.
- All internal combustion engines and equipment shall be equipped with intake and exhaust mufflers that are in good condition and appropriate for the equipment.
- Stationary noise-generating equipment shall be located as far as possible away from sensitive receptors that adjoin or are near the active construction site.
- "Quiet" air compressors and other stationary noise generating equipment shall be used where appropriate technology exists.
- The project sponsor shall designate a "disturbance coordinator" responsible for responding to any local complaints about construction noise. The disturbance coordinator shall determine the cause of the noise complaint (e.g., starting too early, bad muffler, etc.) and shall require reasonable measures warranted to correct the problem be implemented. The project sponsor shall also post a telephone number for excessive noise complaints in conspicuous locations in the vicinity of the project site. Additionally, the project sponsor shall send a notice to

neighbors in the project vicinity with information on the construction schedule and the telephone number for noise complaints.

e) and f) Would the project be located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels? Would the project be within the vicinity of a private airstrip, would the project expose people residing or working in the project area to excessive noise levels?

None of the project components is located within an airport land use plan or within 2 miles of a public or private airport and would not expose people residing or working in the project area to excessive noise levels. The project would have **no impact** related to exposure to airport related noise.

Mitigation Measures

No mitigation measures are required.

3.13 Population and Housing

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

a) Would the project induce substantial population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)?

As discussed previously in the Project Description subsection, the proposed project would provide an adequate and reliable water source in the potential service area of the

WLTRWTP. The capacity of the project is based on existing and projected development in the region, consistent with the growth forecasts in the *Lake Tahoe Regional Plan* and the current updates to the *West Shore General Plan* (Placer County 1998), which would ensure that any population growth supported by the increase in potable water would be adequately planned. The project would have a **less-than-significant** impact related to inducing population growth.

Mitigation Measures

No mitigation measures are required.

b) and c) Would the project displace substantial numbers of existing housing, necessitating the construction of replacement housing elsewhere? Would the project displace substantial numbers of people, necessitating the construction of replacement housing elsewhere?

There are no residential land uses at the proposed location of any of the project components. The project would result in **no impacts** related to displacement of housing or people and construction of replacement housing.

Mitigation Measures

No mitigation measures are required.

3.14 Public Services

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
XIV. PUBLIC SERVICES				
a) 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:				
Fire protection?	☐	☐	☐	☒
Police protection?	☐	☐	☐	☒
Schools?	☐	☐	☐	☒
Parks?	☐	☐	☐	☒
Other public facilities?	☐	☐	☐	☒

a) 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:

Fire and police protection?

The proposed project would not construct housing and would not generate an increase in population that would increase the need for fire or police protection. The proposed project would be adequately served by the North Tahoe Fire Protection District and the Placer County Sheriff's Department and there would be **no impacts** related to demands for fire and police protection.

Schools? Parks?

The proposed project would not construct housing and would not generate an increase in population that would require school or park facilities. The project would have **no impact** related to schools and parks.

Other public facilities?

The proposed project would not generate an increase in population that would result in increased demand for public services or require expansion of any public facilities. The project would have **no impact** on any public facilities, with the exception of TCPUD, described in Section 3.17, Utilities and Service Systems.

Mitigation Measures

No mitigation measures are required.

3.15 Recreation

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
XV. RECREATION				
a) Would the project increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?	☐	☐	☐	☒

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
XV. RECREATION				
b) Does the project include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment?	☐	☐	☐	☒

a) Would the project increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?

The project would not construct housing and would not generate any increase in population that would require new park and recreation facilities. Therefore, the project would have **no impact** related to deterioration of recreational facilities.

Mitigation Measures

No mitigation measures are required.

b) Does the project include recreational facilities or require the construction or expansion of recreational facilities, which might have an adverse physical effect on the environment?

The project does not include construction or expansion of recreational facilities, and the project would have **no impact** related to construction of recreational facilities.

Mitigation Measures

No mitigation measures are required.

3.16 Transportation and Traffic

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

a) Would the project 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?

Proposed WLTRWTP Project

The proposed project would not create any long-term change in transportation. Due to the increased operational demands of the proposed WLTRWTP, the project would generate a

small increase in vehicle trips to the facility, but these trips would generally consist of periodic delivery trucks and worker trips that already exist along the roadways serving the project. The impact would be **less than significant**.

Chambers Landing Beach Intake Pump Station, Intake Pipeline, Raw Water Pipeline, and Electrical/Chemical Feed Room

These impacts would generally be the same as those discussed above, though these project components would require less staff operation than the WLTRWTP and would draw fewer operational trips. The impact would be **less than significant.**

Land Exchange

No development is proposed at the Exchange Property and no traffic would be generated by the proposed land exchange.

Mitigation Measures

No mitigation measures are required.

b) Would the project 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?

The proposed project would not have a long-term effect on the transportation goals and standards set forth in TRPA *Regional Transportation Plan*. Some minor traffic increases may occur as a result of construction and operational activities at the WLTRWTP. Access to the project site is in the existing right-of-way and is adequate for daily operations and construction. The project would result in **less-than-significant** impacts to transportation and circulation.

Mitigation Measures

No mitigation measures are required.

c) Would the project 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?

The proposed project would not result in changes to air traffic and would have **no impacts** related to air traffic safety.

Mitigation Measures

No mitigation measures are required.

d) Would the project substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?

The proposed project would not include construction of new roadways or substantial changes to existing roadways. Placer County's issuance of a Minor Use Permit to TCPUD would ensure that land use compatibility would be maintained and impacts would remain **less than significant**.

Chemical delivery trucks would arrive at the WLTRWTP and Electrical/Chemical Feed Room approximately once every 60 to 120 days. TCPUD's Vactor truck would transport the solid waste from the disinfection process offsite about twice annually. These delivery and disposal trips would be subject to standard federal, state, and local hazardous materials handling regulations. Impacts would be **less than significant**.

No development is proposed for the Exchange Property and the proposed land exchange would have **no impact** related to hazards.

Mitigation Measures

No mitigation measures are required.

e) Would the project result in inadequate emergency access?

The installation of a pipeline between the intake pump and the WLTRWTP and the installation of the treated water pipelines in Lodge Drive and Flicker Avenue may require short-term closure of local streets. These closures would be coordinated with local police and fire department dispatches to ensure adequate emergency access is maintained. The project would have **less-than-significant** impacts related to emergency access.

Mitigation Measures

No mitigation measures are required.

f) Would the project conflict with adopted policies, plans, or programs regarding public transit, bicycle, or pedestrian facilities, or otherwise decrease the performance or safety of such facilities?

The proposed project would not affect policies, plans, or programs regarding transit, bicycle, or pedestrian facilities. Installation of the raw water pipeline and the installation of the treated water pipelines may result in temporary closures of bicycle lanes or sidewalks but would not permanently affect these facilities. Construction and operation of the WLTRWTP would not increase pedestrian and bicycle activity or demand for transit in the area. No development is proposed for the Exchange Property and the proposed land exchange would not generate demand for pedestrian or bicycle facilities and would not adversely affect any pedestrian or bicycle facilities. The project would have **less than significant** impacts related to public transit, bicycle, or pedestrian facilities.

Mitigation Measures

No mitigation measures are required.

3.17 Utilities and Service Systems

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
XVII. UTILITIES AND SERVICE SYSTEMS – Would the project:				
a) Exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board?	☐	☐	☒	☒
b) Require or result in the construction of new water or wastewater treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?	☐	☐	☒	☐
c) Require or result in the construction of new storm water drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?	☐	☐	☒	☐
d) Have sufficient water supplies available to serve the project from existing entitlements and resources, or are new or expanded entitlements needed?	☐	☐	☐	☒
e) Result in a determination by the wastewater treatment provider which serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments?	☐	☐	☒	☒

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
XVII.UTILITIES AND SERVICE SYSTEMS – Would the project:				
f) Be served by a landfill with sufficient permitted capacity to accommodate the project's solid waste disposal needs?	☐	☐	☐	☒
g) Comply with federal, state, and local statutes and regulations related to solid waste?	☐	☐	☐	☒

a) and e) Would the project exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board? Would the project result in a determination by the wastewater treatment provider, which serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments?

The Tahoe-Truckee Sanitation Agency (T-TSA) is responsible for the treatment and disposal of sewage from its member districts, including the applicant, TCPUD. T-TSA operates the Truckee River Interceptor, which has a projected capacity of 14.8 mgd once capital improvements have been completed (currently scheduled for completion in 2019) (T-TSA 2009). Neither T-TSA nor TCPUD anticipate any deficits in wastewater conveyance or treatment capacity.

Proposed WLTRWTP Project

The project proposes to minimize the wastewater generated by the facility by incorporating efficient water treatment techniques, such as pre-chlorination and backwash recovery treatment, and by hauling and disposing of solid wastes off site. The project's minimization of wastewater generation would ensure the project would have a **less-than-significant** impact on the existing wastewater infrastructure. The wastewater from on-site restrooms would be processed in the local sewage system and would not exceed that system's capacity resulting in a **less-than-significant** impact.

Chambers Landing Beach Intake Pump Station, Intake Pipeline, Raw Water Pipeline, and Electrical/Chemical Feed Room

The wastewater from onsite restrooms would be processed in the local sewage system and would not exceed that system's capacity resulting in a **less-than-significant impact**.

Land Exchange

No development is proposed for the Exchange Property and no demand for wastewater treatment would be created. The proposed land exchange would have **no impact** related to wastewater conveyance and treatment.

Mitigation Measures

No mitigation measures are required.

b) Would the project 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?

The proposed project would include the replacement of the Lake Tahoe intake pump station as well as construction of a new raw water pipeline to the WLTRWTP, a new intake pump station electrical and Chemical Feed Room, and a new WLTRWTP facility. The project also proposes various water distribution system improvements to allow for distribution of the WLTRWTP capacity from the treated water pump station. The effects of these activities are analyzed in this IS.

No development is proposed for the Exchange Property and no demand for water or wastewater treatment would be created by the land exchange. As discussed under item (a), the wastewater generated by the project would be within the capacity of the existing wastewater treatment system and there would be a **less-than-significant impact**.

Mitigation Measures

No mitigation measures are required.

c) Would the project 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?

The WLTRWTP project would increase the amount of impervious surface area by approximately 0.4 acre. The project would implement standard BMPs for treatment and detention of stormwater. As discussed in Section 3.9, the increase in surface runoff generated by this addition of impervious surface area under the proposed project would be within the capacity of the existing stormwater facilities and there would be a **less than significant** impact.

Neither the intake pump station nor the pipeline would result in surface runoff. Any stormwater from the Electrical/Chemical Feed Room site would drain into the existing stormwater system associated with the sewer lift station, ISWTP, and public rights-of-way. The addition of this stormwater to the existing system would be within its capacity and would not result in the need for expansion. Impacts would be **less than significant.**

No development is proposed for the Exchange Property and no demand for stormwater drainage facilities would be created. The proposed land exchange would have **no impacts** related to stormwater drainage.

Mitigation Measures

No mitigation measures are required.

d) Would the project have sufficient water supplies available to serve the project from existing entitlements and resources, or are new or expanded entitlements needed?

The proposed WLTRWTP project would replace the ISWTP to improve the reliability and quality of potable water supply in the MQWSA. The project would serve existing land uses and projected growth in the area. While replacement of the ISWTP with the proposed WLTRWTP would facilitate extending service outside of the MQWSA, it would not serve areas that currently do not have access to potable water, and would not increase demand for water in the West Lake Tahoe region. Tables 3-1 and 3-2 identify the number of water service connections in each of the water systems that could be served by the proposed WLTRWTP and the existing and projected 2030 demands for each system. The projected 2030 demands were determined based on the land use development anticipated under the *Lake Tahoe Regional Plan*, the *Placer County General Plan,* and applicable community planning documents. TCPUD currently has water rights to divert water from Lake Tahoe, which total in excess of the capacity needed to operate the proposed WLTRWTP at the proposed Phase 2 capacity. The proposed project would have **no impacts** related to water demand and water supply entitlements**.**

No development is proposed for the Exchange Property and no demand for water would be created. The proposed land exchange would have **no impacts** related to water demand and water supply entitlements.

No changes to water service areas and water system boundaries are proposed as part of the project. If other water companies request services through the MQWSA, water would be supplied to the other water companies through future interconnections to their

distribution systems. Future actions to establish interconnections would be subject to environmental review at the time such actions are proposed. The water demands of the water companies that could be served by the proposed WLTRWTP have been included in the proposed WTP capacity and design; no additional improvements to the WLTRWTP would be needed to serve any and all of the water companies identified in the Project Description.

Mitigation Measures

No mitigation measures are required.

f) and g) Would the project be served by a landfill with sufficient permitted capacity to accommodate the project's solid waste disposal needs? Would the project comply with federal, state, and local statutes and regulations related to solid waste?

The proposed project would generate some solid waste as part of the water treatment process. This solid waste would be transported off site and out of the Lake Tahoe region to comply with federal and state hazardous waste disposal regulations and regional waste disposal regulations. Construction debris would be minimal, but any produced would be transported out of the region, in compliance with the *Lake Tahoe Regional Plan*, Policy Public Services-3.2. Therefore, there would be **no impact** related to landfill capacity and solid waste disposal.

Mitigation Measures

No mitigation measures are required.

3.18 Mandatory Findings of Significance

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

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
XVIII. MANDATORY FINDINGS OF SIGNIFICANCE				
b) Does the project have the potential to achieve short-term environmental goals to the disadvantage of long-term environmental goals?	☐	☐	☒	☐
c) Does the project have impacts that are individually limited, but cumulatively considerable? ("Cumulatively considerable" means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects)?	☐	☐	☒	☐
d) Does the project have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly?	☐	☐	☒	☐

a) Does the project have the potential to degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, reduce the number or restrict the range of a rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory?

As discussed previously, the project site is not expected to support habitat for special-status plant and wildlife species. Mitigation Measures are identified in this IS to ensure that impacts to such resources would be reduced to **less-than-significant** levels with mitigation. There are no important examples of the major period of California history or prehistory within the project site.

b) Does the project have the potential to achieve short-term environmental goals to the disadvantage of long-term environmental goals?

The project would increase the efficiency of water treatment and supplement groundwater levels, providing both short-term and long-term environmental benefits.

c) Does the project have impacts that are individually limited, but cumulatively considerable? ("Cumulatively considerable" means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects)?

No other major utility project would interact with the proposed project, and neither Placer County nor TRPA anticipate substantial new residential and commercial land development in the region. HMR has proposed redevelopment of a portion of the Homewood property. The project's impacts on air quality would be less than significant under both the project and cumulative scenarios. Operation of the proposed project would generate very little traffic, and the project would implement BMPs to ensure that the project does not make a cumulatively considerable contribution to water quality impacts in the region.

As discussed in Section 3.13, Population and Housing, the proposed increase in capacity of the WTP would support population growth in the West Shore area. However, as the capacity of the proposed WTP is designed to match the growth estimates planned for in the *Lake Tahoe Regional Plan* and the updates to the *West Shore General Plan*, the growth would be accommodated for in current evaluations of the environmental capacity of the area.

d) Does the project have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly?

The project would not have an adverse effect on human beings, as documented throughout this IS.

4 REFERENCES AND PREPARERS

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4.2 List of Preparers

Report Preparation

This Draft Initial Study was prepared for the Tahoe City Public Utility District (TCPUD) by Dudek, 853 Lincoln Way, Suite 208 Auburn, California 95603. The following professionals participated in its preparation.

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APPENDIX A

Air Quality

Annual Emissions

TCPUD WLTRWTP

Lake Tahoe Air Basin, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Unrefrigerated Warehouse-No Rail	4.50	1000sqft	1.00	4,500.00	0
Parking Lot	25.00	Space	0.22	10,000.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.7	**Precipitation Freq (Days)**	72
Climate Zone	14			**Operational Year**	2019
Utility Company	Pacific Gas & Electric Company				
CO2 Intensity (lb/MWhr)	641.35	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - project site size

Construction Phase - project schedule

Off-road Equipment - project equipment

Off-road Equipment - project grading

Off-road Equipment - trenching, pipeline installation, re-paving roadway where applicable

Off-road Equipment -

Off-road Equipment -

Off-road Equipment -

Off-road Equipment -

Off-road Equipment -

Grading - project site size

Demolition -

Trips and VMT - water trucks added as vendors

Architectural Coating - paint voc limit per APCD rule

Table Name	Column Name	Default Value	New Value
tblArchitecturalCoating	EF_Nonresidential_Exterior	250.00	150.00
tblArchitecturalCoating	EF_Nonresidential_Interior	250.00	150.00
tblConstructionPhase	NumDays	0.00	4.00
tblConstructionPhase	NumDays	0.00	165.00
tblConstructionPhase	NumDays	0.00	5.00
tblConstructionPhase	NumDays	0.00	11.00
tblConstructionPhase	NumDays	0.00	5.00
tblConstructionPhase	NumDays	0.00	11.00
tblConstructionPhase	NumDays	0.00	11.00
tblConstructionPhase	PhaseEndDate	6/9/2017	5/5/2017
tblConstructionPhase	PhaseStartDate	5/6/2017	5/8/2017
tblConstructionPhase	PhaseStartDate	10/15/2016	10/17/2016
tblConstructionPhase	PhaseStartDate	6/3/2017	5/1/2017
tblGrading	AcresOfGrading	5.50	0.75
tblGrading	AcresOfGrading	0.00	1.00
tblGrading	AcresOfGrading	5.50	1.00
tblLandUse	LotAcreage	0.10	1.00
tblOffRoadEquipment	HorsePower	81.00	9.00
tblOffRoadEquipment	LoadFactor	0.73	0.56
tblOffRoadEquipment	OffRoadEquipmentType		Concrete/Industrial Saws
tblOffRoadEquipment	OffRoadEquipmentType		Excavators
tblOffRoadEquipment	OffRoadEquipmentType		Paving Equipment
tblOffRoadEquipment	OffRoadEquipmentType		Rollers
tblOffRoadEquipment	OffRoadEquipmentType		Tractors/Loaders/Backhoes

tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	PhaseName	Paving	Paving (parking lot)
tblOffRoadEquipment	PhaseName		pipeline installation
tblOffRoadEquipment	PhaseName	Paving	Paving (parking lot)
tblOffRoadEquipment	PhaseName	Paving	Paving (parking lot)
tblOffRoadEquipment	PhaseName	Paving	Paving (parking lot)
tblOffRoadEquipment	PhaseName		pipeline installation
tblOffRoadEquipment	PhaseName		pipeline installation
tblOffRoadEquipment	PhaseName		pipeline installation
tblOffRoadEquipment	PhaseName		pipeline installation
tblOffRoadEquipment	UsageHours	8.00	7.00
tblOffRoadEquipment	UsageHours	8.00	7.00
tblOnRoadDust	PhaseName	Paving	Paving (parking lot)
tblOnRoadDust	PhaseName	trenching	pipeline installation
tblProjectCharacteristics	OperationalYear	2014	2019
tblTripsAndVMT	VendorTripNumber	0.00	2.00
tblTripsAndVMT	VendorTripNumber	0.00	2.00
tblTripsAndVMT	VendorTripNumber	0.00	2.00

2.0 Emissions Summary

2.1 Overall Construction

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2016	0.0622	0.6248	0.4070	5.6000e-004	5.8600e-003	0.0405	0.0463	2.5900e-003	0.0372	0.0398	0.0000	52.7493	52.7493	0.0156	0.0000	53.0776
2017	0.0840	0.8233	0.5311	7.5000e-004	1.0900e-003	0.0550	0.0561	2.0000e-004	0.0507	0.0509	0.0000	68.8460	68.8460	0.0205	0.0000	69.2759

Total	**0.1463**	**1.4481**	**0.9381**	**1.3100e-003**	**6.9500e-003**	**0.0954**	**0.1024**	**2.7900e-003**	**0.0879**	**0.0907**	**0.0000**	**121.5953**	**121.5953**	**0.0361**	**0.0000**	**122.3535**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2016	0.0622	0.5196	0.4070	5.6000e-004	5.8600e-003	0.0405	0.0463	2.5900e-003	0.0372	0.0398	0.0000	52.7492	52.7492	0.0156	0.0000	53.0775
2017	0.0840	0.8233	0.5311	7.5000e-004	1.0900e-003	0.0550	0.0561	2.0000e-004	0.0507	0.0509	0.0000	68.8460	68.8460	0.0205	0.0000	69.2758
Total	**0.1463**	**1.3429**	**0.9381**	**1.3100e-003**	**6.9500e-003**	**0.0954**	**0.1024**	**2.7900e-003**	**0.0879**	**0.0907**	**0.0000**	**121.5952**	**121.5952**	**0.0361**	**0.0000**	**122.3533**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**7.26**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.0567	0.0000	2.7000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	5.3000e-004	5.3000e-004	0.0000	0.0000	5.6000e-004
Total	**0.0567**	**0.0000**	**2.7000e-004**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**5.3000e-004**	**5.3000e-004**	**0.0000**	**0.0000**	**5.6000e-004**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.0567	0.0000	2.7000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	5.3000e-004	5.3000e-004	0.0000	0.0000	5.6000e-004
Total	**0.0567**	**0.0000**	**2.7000e-004**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**5.3000e-004**	**5.3000e-004**	**0.0000**	**0.0000**	**5.6000e-004**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Site Preparation	Site Preparation	7/18/2016	8/1/2016	5	11	
2	Grading	Grading	8/2/2016	8/16/2016	5	11	
3	pipeline installation	Trenching	8/17/2016	10/14/2016	5	43	
4	Building Construction	Building Construction	10/17/2016	6/2/2017	5	165	
5	Paving (parking lot)	Paving	5/1/2017	5/5/2017	5	5	
6	Architectural Coating	Architectural Coating	5/8/2017	5/11/2017	5	4	
7	Demolition	Demolition	5/12/2017	5/18/2017	5	5	
8	final site work	Site Preparation	5/19/2017	6/2/2017	5	11	

Acres of Grading (Site Preparation Phase): 0.75

Acres of Grading (Grading Phase): 1

Acres of Paving: 0

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Architectural Coating	Air Compressors	1	6.00	78	0.48
Paving (parking lot)	Cement and Mortar Mixers	4	6.00	9	0.56
Demolition	Concrete/Industrial Saws	1	8.00	81	0.73
pipeline installation	Concrete/Industrial Saws	1	1.00	9	0.56
Building Construction	Cranes	1	4.00	226	0.29
Building Construction	Forklifts	2	6.00	89	0.20
Site Preparation	Graders	1	7.00	174	0.41
Paving (parking lot)	Pavers	1	7.00	125	0.42
Paving (parking lot)	Rollers	1	7.00	80	0.38
Demolition	Rubber Tired Dozers	1	1.00	255	0.40
Grading	Rubber Tired Dozers	1	1.00	255	0.40
Building Construction	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Demolition	Tractors/Loaders/Backhoes	2	6.00	97	0.37
Grading	Tractors/Loaders/Backhoes	1	6.00	97	0.37
Paving (parking lot)	Tractors/Loaders/Backhoes	1	7.00	97	0.37
Site Preparation	Tractors/Loaders/Backhoes	1	7.00	97	0.37
final site work	Graders	1	8.00	174	0.41
final site work	Tractors/Loaders/Backhoes	1	8.00	97	0.37
pipeline installation	Excavators	1	8.00	162	0.38
pipeline installation	Paving Equipment	1	1.00	130	0.36
pipeline installation	Rollers	1	2.00	80	0.38
pipeline installation	Tractors/Loaders/Backhoes	1	4.00	97	0.37

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Demolition	4	10.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation	2	5.00	2.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Grading	4	10.00	2.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	5	0.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	0.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
final site work	2	5.00	2.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
	0		0.00		10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					

Hauling					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

3.2 Site Preparation - 2016

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					4.0000e-004	0.0000	4.0000e-004	4.0000e-005	0.0000	4.0000e-005	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	6.5400e-003	0.0656	0.0353	5.0000e-005		4.0100e-003	4.0100e-003		3.6900e-003	3.6900e-003	0.0000	4.2483	4.2483	1.2800e-003	0.0000	4.2752
Total	**6.5400e-003**	**0.0656**	**0.0353**	**5.0000e-005**	**4.0000e-004**	**4.0100e-003**	**4.4100e-003**	**4.0000e-005**	**3.6900e-003**	**3.7300e-003**	**0.0000**	**4.2483**	**4.2483**	**1.2800e-003**	**0.0000**	**4.2752**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	1.7000e-004	1.1100e-003	2.3500e-003	0.0000	7.0000e-005	1.0000e-005	8.0000e-005	2.0000e-005	1.0000e-005	3.0000e-005	0.0000	0.2323	0.2323	0.0000	0.0000	0.2323
Worker	1.5000e-004	1.7000e-004	2.2000e-003	0.0000	2.2000e-004	0.0000	2.2000e-004	6.0000e-005	0.0000	6.0000e-005	0.0000	0.2033	0.2033	1.0000e-005	0.0000	0.2036
Total	**3.2000e-004**	**1.2800e-003**	**4.5500e-003**	**0.0000**	**2.9000e-004**	**1.0000e-005**	**3.0000e-004**	**8.0000e-005**	**1.0000e-005**	**9.0000e-005**	**0.0000**	**0.4356**	**0.4356**	**1.0000e-005**	**0.0000**	**0.4359**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					4.0000e-004	0.0000	4.0000e-004	4.0000e-005	0.0000	4.0000e-005	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	6.5400e-003	0.0656	0.0353	5.0000e-005		4.0100e-003	4.0100e-003		3.6900e-003	3.6900e-003	0.0000	4.2483	4.2483	1.2800e-003	0.0000	4.2752
Total	**6.5400e-003**	**0.0656**	**0.0353**	**5.0000e-005**	**4.0000e-004**	**4.0100e-003**	**4.4100e-003**	**4.0000e-005**	**3.6900e-003**	**3.7300e-003**	**0.0000**	**4.2483**	**4.2483**	**1.2800e-003**	**0.0000**	**4.2752**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	1.7000e-004	1.1100e-003	2.3500e-003	0.0000	7.0000e-005	1.0000e-005	8.0000e-005	2.0000e-005	1.0000e-005	3.0000e-005	0.0000	0.2323	0.2323	0.0000	0.0000	0.2323
Worker	1.5000e-004	1.7000e-004	2.2000e-003	0.0000	2.2000e-004	0.0000	2.2000e-004	6.0000e-005	0.0000	6.0000e-005	0.0000	0.2033	0.2033	1.0000e-005	0.0000	0.2036
Total	**3.2000e-004**	**1.2800e-003**	**4.5500e-003**	**0.0000**	**2.9000e-004**	**1.0000e-005**	**3.0000e-004**	**8.0000e-005**	**1.0000e-005**	**9.0000e-005**	**0.0000**	**0.4356**	**0.4356**	**1.0000e-005**	**0.0000**	**0.4359**

3.3 Grading - 2016

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					4.6700e-003	0.0000	4.6700e-003	2.3300e-003	0.0000	2.3300e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	2.2600e-003	0.0230	0.0172	2.0000e-005		1.4800e-003	1.4800e-003		1.3600e-003	1.3600e-003	0.0000	1.7872	1.7872	5.4000e-004	0.0000	1.7985
Total	**2.2600e-003**	**0.0230**	**0.0172**	**2.0000e-005**	**4.6700e-003**	**1.4800e-003**	**6.1500e-003**	**2.3300e-003**	**1.3600e-003**	**3.6900e-003**	**0.0000**	**1.7872**	**1.7872**	**5.4000e-004**	**0.0000**	**1.7985**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	1.7000e-004	1.1100e-003	2.3500e-003	0.0000	7.0000e-005	1.0000e-005	8.0000e-005	2.0000e-005	1.0000e-005	3.0000e-005	0.0000	0.2323	0.2323	0.0000	0.0000	0.2323
Worker	3.0000e-004	3.3000e-004	4.4100e-003	1.0000e-005	4.3000e-004	1.0000e-005	4.4000e-004	1.2000e-004	0.0000	1.2000e-004	0.0000	0.4066	0.4066	3.0000e-005	0.0000	0.4072
Total	**4.7000e-004**	**1.4400e-003**	**6.7600e-003**	**1.0000e-005**	**5.0000e-004**	**2.0000e-005**	**5.2000e-004**	**1.4000e-004**	**1.0000e-005**	**1.5000e-004**	**0.0000**	**0.6389**	**0.6389**	**3.0000e-005**	**0.0000**	**0.6395**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					4.6700e-003	0.0000	4.6700e-003	2.3300e-003	0.0000	2.3300e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

Off-Road	2.2600e-003	0.0230	0.0172	2.0000e-005		1.4800e-003	1.4800e-003		1.3600e-003	1.3600e-003	0.0000	1.7872	1.7872	5.4000e-004	0.0000	1.7985
Total	**2.2600e-003**	**0.0230**	**0.0172**	**2.0000e-005**	**4.6700e-003**	**1.4800e-003**	**6.1500e-003**	**2.3300e-003**	**1.3600e-003**	**3.6900e-003**	**0.0000**	**1.7872**	**1.7872**	**5.4000e-004**	**0.0000**	**1.7985**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	1.7000e-004	1.1100e-003	2.3500e-003	0.0000	7.0000e-005	1.0000e-005	8.0000e-005	2.0000e-005	1.0000e-005	3.0000e-005	0.0000	0.2323	0.2323	0.0000	0.0000	0.2323
Worker	3.0000e-004	3.3000e-004	4.4100e-003	1.0000e-005	4.3000e-004	1.0000e-005	4.4000e-004	1.2000e-004	0.0000	1.2000e-004	0.0000	0.4066	0.4066	3.0000e-005	0.0000	0.4072
Total	**4.7000e-004**	**1.4400e-003**	**6.7600e-003**	**1.0000e-005**	**5.0000e-004**	**2.0000e-005**	**5.2000e-004**	**1.4000e-004**	**1.0000e-005**	**1.5000e-004**	**0.0000**	**0.6389**	**0.6389**	**3.0000e-005**	**0.0000**	**0.6395**

3.4 pipeline installation - 2016

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0146	0.1566	0.1173	1.7000e-004		9.0800e-003	9.0800e-003		8.3500e-003	8.3500e-003	0.0000	16.2372	16.2372	4.9000e-003	0.0000	16.3401
Total	**0.0146**	**0.1566**	**0.1173**	**1.7000e-004**		**9.0800e-003**	**9.0800e-003**		**8.3500e-003**	**8.3500e-003**	**0.0000**	**16.2372**	**16.2372**	**4.9000e-003**	**0.0000**	**16.3401**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0146	0.0514	0.1173	1.7000e-004		9.0800e-003	9.0800e-003		8.3500e-003	8.3500e-003	0.0000	16.2372	16.2372	4.9000e-003	0.0000	16.3400
Total	**0.0146**	**0.0514**	**0.1173**	**1.7000e-004**		**9.0800e-003**	**9.0800e-003**		**8.3500e-003**	**8.3500e-003**	**0.0000**	**16.2372**	**16.2372**	**4.9000e-003**	**0.0000**	**16.3400**

3.5 Building Construction - 2016

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0380	0.3769	0.2258	3.1000e-004		0.0258	0.0258		0.0238	0.0238	0.0000	29.4021	29.4021	8.8700e-003	0.0000	29.5883
Total	**0.0380**	**0.3769**	**0.2258**	**3.1000e-004**		**0.0258**	**0.0258**		**0.0238**	**0.0238**	**0.0000**	**29.4021**	**29.4021**	**8.8700e-003**	**0.0000**	**29.5883**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0380	0.3769	0.2258	3.1000e-004		0.0258	0.0258		0.0238	0.0238	0.0000	29.4021	29.4021	8.8700e-003	0.0000	29.5883
Total	**0.0380**	**0.3769**	**0.2258**	**3.1000e-004**		**0.0258**	**0.0258**		**0.0238**	**0.0238**	**0.0000**	**29.4021**	**29.4021**	**8.8700e-003**	**0.0000**	**29.5883**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.5 Building Construction - 2017

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0701	0.6971	0.4422	6.2000e-004		0.0470	0.0470		0.0433	0.0433	0.0000	57.8550	57.8550	0.0177	0.0000	58.2273
Total	**0.0701**	**0.6971**	**0.4422**	**6.2000e-004**		**0.0470**	**0.0470**		**0.0433**	**0.0433**	**0.0000**	**57.8550**	**57.8550**	**0.0177**	**0.0000**	**58.2273**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e

Category	tons/yr										MT/yr					
Off-Road	0.0701	0.6971	0.4422	6.2000e-004		0.0470	0.0470		0.0433	0.0433	0.0000	57.8549	57.8549	0.0177	0.0000	58.2272
Total	**0.0701**	**0.6971**	**0.4422**	**6.2000e-004**		**0.0470**	**0.0470**		**0.0433**	**0.0433**	**0.0000**	**57.8549**	**57.8549**	**0.0177**	**0.0000**	**58.2272**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.6 Paving (parking lot) - 2017

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	2.6000e-003	0.0246	0.0181	3.0000e-005		1.5000e-003	1.5000e-003		1.3900e-003	1.3900e-003	0.0000	2.4243	2.4243	6.7000e-004	0.0000	2.4384
Paving	2.9000e-004					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

Total	**2.8900e-003**	**0.0246**	**0.0181**	**3.0000e-005**		**1.5000e-003**	**1.5000e-003**		**1.3900e-003**	**1.3900e-003**	**0.0000**	**2.4243**	**2.4243**	**6.7000e-004**	**0.0000**	**2.4384**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	2.6000e-003	0.0246	0.0181	3.0000e-005		1.5000e-003	1.5000e-003		1.3900e-003	1.3900e-003	0.0000	2.4243	2.4243	6.7000e-004	0.0000	2.4384
Paving	2.9000e-004					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**2.8900e-003**	**0.0246**	**0.0181**	**3.0000e-005**		**1.5000e-003**	**1.5000e-003**		**1.3900e-003**	**1.3900e-003**	**0.0000**	**2.4243**	**2.4243**	**6.7000e-004**	**0.0000**	**2.4384**

3.7 Architectural Coating - 2017

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	6.6000e-004	4.3700e-003	3.7400e-003	1.0000e-005		3.5000e-004	3.5000e-004		3.5000e-004	3.5000e-004	0.0000	0.5107	0.5107	5.0000e-005	0.0000	0.5118
Total	**6.6000e-004**	**4.3700e-003**	**3.7400e-003**	**1.0000e-005**		**3.5000e-004**	**3.5000e-004**		**3.5000e-004**	**3.5000e-004**	**0.0000**	**0.5107**	**0.5107**	**5.0000e-005**	**0.0000**	**0.5118**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	6.6000e-004	4.3700e-003	3.7400e-003	1.0000e-005		3.5000e-004	3.5000e-004		3.5000e-004	3.5000e-004	0.0000	0.5107	0.5107	5.0000e-005	0.0000	0.5118
Total	**6.6000e-004**	**4.3700e-003**	**3.7400e-003**	**1.0000e-005**		**3.5000e-004**	**3.5000e-004**		**3.5000e-004**	**3.5000e-004**	**0.0000**	**0.5107**	**0.5107**	**5.0000e-005**	**0.0000**	**0.5118**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.8 Demolition - 2017

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					7.0000e-005	0.0000	7.0000e-005	1.0000e-005	0.0000	1.0000e-005	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	3.0100e-003	0.0262	0.0215	3.0000e-005		1.8200e-003	1.8200e-003		1.7300e-003	1.7300e-003	0.0000	2.6848	2.6848	5.3000e-004	0.0000	2.6960
Total	**3.0100e-003**	**0.0262**	**0.0215**	**3.0000e-005**	**7.0000e-005**	**1.8200e-003**	**1.8900e-003**	**1.0000e-005**	**1.7300e-003**	**1.7400e-003**	**0.0000**	**2.6848**	**2.6848**	**5.3000e-004**	**0.0000**	**2.6960**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.2000e-004	1.3000e-004	1.7300e-003	0.0000	2.0000e-004	0.0000	2.0000e-004	5.0000e-005	0.0000	5.0000e-005	0.0000	0.1776	0.1776	1.0000e-005	0.0000	0.1778
Total	**1.2000e-004**	**1.3000e-004**	**1.7300e-003**	**0.0000**	**2.0000e-004**	**0.0000**	**2.0000e-004**	**5.0000e-005**	**0.0000**	**5.0000e-005**	**0.0000**	**0.1776**	**0.1776**	**1.0000e-005**	**0.0000**	**0.1778**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					7.0000e-005	0.0000	7.0000e-005	1.0000e-005	0.0000	1.0000e-005	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	3.0100e-003	0.0262	0.0215	3.0000e-005		1.8200e-003	1.8200e-003		1.7300e-003	1.7300e-003	0.0000	2.6848	2.6848	5.3000e-004	0.0000	2.6960
Total	**3.0100e-003**	**0.0262**	**0.0215**	**3.0000e-005**	**7.0000e-005**	**1.8200e-003**	**1.8900e-003**	**1.0000e-005**	**1.7300e-003**	**1.7400e-003**	**0.0000**	**2.6848**	**2.6848**	**5.3000e-004**	**0.0000**	**2.6960**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.2000e-004	1.3000e-004	1.7300e-003	0.0000	2.0000e-004	0.0000	2.0000e-004	5.0000e-005	0.0000	5.0000e-005	0.0000	0.1776	0.1776	1.0000e-005	0.0000	0.1778
Total	**1.2000e-004**	**1.3000e-004**	**1.7300e-003**	**0.0000**	**2.0000e-004**	**0.0000**	**2.0000e-004**	**5.0000e-005**	**0.0000**	**5.0000e-005**	**0.0000**	**0.1776**	**0.1776**	**1.0000e-005**	**0.0000**	**0.1778**

3.9 final site work - 2017

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e

Category	tons/yr										MT/yr					
Fugitive Dust					5.3000e-004	0.0000	5.3000e-004	6.0000e-005	0.0000	6.0000e-005	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	6.9800e-003	0.0698	0.0398	5.0000e-005		4.2400e-003	4.2400e-003		3.9000e-003	3.9000e-003	0.0000	4.7693	4.7693	1.4600e-003	0.0000	4.8000
Total	**6.9800e-003**	**0.0698**	**0.0398**	**5.0000e-005**	**5.3000e-004**	**4.2400e-003**	**4.7700e-003**	**6.0000e-005**	**3.9000e-003**	**3.9600e-003**	**0.0000**	**4.7693**	**4.7693**	**1.4600e-003**	**0.0000**	**4.8000**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	1.6000e-004	1.0200e-003	2.2600e-003	0.0000	7.0000e-005	1.0000e-005	8.0000e-005	2.0000e-005	1.0000e-005	3.0000e-005	0.0000	0.2291	0.2291	0.0000	0.0000	0.2291
Worker	1.3000e-004	1.5000e-004	1.9000e-003	0.0000	2.2000e-004	0.0000	2.2000e-004	6.0000e-005	0.0000	6.0000e-005	0.0000	0.1953	0.1953	1.0000e-005	0.0000	0.1956
Total	**2.9000e-004**	**1.1700e-003**	**4.1600e-003**	**0.0000**	**2.9000e-004**	**1.0000e-005**	**3.0000e-004**	**8.0000e-005**	**1.0000e-005**	**9.0000e-005**	**0.0000**	**0.4244**	**0.4244**	**1.0000e-005**	**0.0000**	**0.4247**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					5.3000e-004	0.0000	5.3000e-004	6.0000e-005	0.0000	6.0000e-005	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	6.9800e-003	0.0698	0.0398	5.0000e-005		4.2400e-003	4.2400e-003		3.9000e-003	3.9000e-003	0.0000	4.7693	4.7693	1.4600e-003	0.0000	4.8000

Total	**6.9800e-003**	**0.0698**	**0.0398**	**5.0000e-005**	**5.3000e-004**	**4.2400e-003**	**4.7700e-003**	**6.0000e-005**	**3.9000e-003**	**3.9600e-003**	**0.0000**	**4.7693**	**4.7693**	**1.4600e-003**	**0.0000**	**4.8000**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	1.6000e-004	1.0200e-003	2.2600e-003	0.0000	7.0000e-005	1.0000e-005	8.0000e-005	2.0000e-005	1.0000e-005	3.0000e-005	0.0000	0.2291	0.2291	0.0000	0.0000	0.2291
Worker	1.3000e-004	1.5000e-004	1.9000e-003	0.0000	2.2000e-004	0.0000	2.2000e-004	6.0000e-005	0.0000	6.0000e-005	0.0000	0.1953	0.1953	1.0000e-005	0.0000	0.1956
Total	**2.9000e-004**	**1.1700e-003**	**4.1600e-003**	**0.0000**	**2.9000e-004**	**1.0000e-005**	**3.0000e-004**	**8.0000e-005**	**1.0000e-005**	**9.0000e-005**	**0.0000**	**0.4244**	**0.4244**	**1.0000e-005**	**0.0000**	**0.4247**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Total					

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by

LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH

0.319496	0.094816	0.237785	0.204865	0.074872	0.008559	0.018814	0.020531	0.005095	0.001323	0.008872	0.000668	0.004303	

5.0 Energy Detail

4.4 Fleet Mix

Historical Energy Use: N

5.1 Mitigation Measures Energy

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.0567	0.0000	2.7000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	5.3000e-004	5.3000e-004	0.0000	0.0000	5.6000e-004
Unmitigated	0.0567	0.0000	2.7000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	5.3000e-004	5.3000e-004	0.0000	0.0000	5.6000e-004

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					

Architectural Coating	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.0566					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	3.0000e-005	0.0000	2.7000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	5.3000e-004	5.3000e-004	0.0000	0.0000	5.6000e-004
Total	**0.0567**	**0.0000**	**2.7000e-004**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**5.3000e-004**	**5.3000e-004**	**0.0000**	**0.0000**	**5.6000e-004**

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Consumer Products	0.0566					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	3.0000e-005	0.0000	2.7000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	5.3000e-004	5.3000e-004	0.0000	0.0000	5.6000e-004
Architectural Coating	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0567**	**0.0000**	**2.7000e-004**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**5.3000e-004**	**5.3000e-004**	**0.0000**	**0.0000**	**5.6000e-004**

7.0 Water Detail

7.1 Mitigation Measures Water

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Vegetation

Summer Emissions

TCPUD WLTRWTP

Lake Tahoe Air Basin, Summer

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Unrefrigerated Warehouse-No Rail	4.50	1000sqft	1.00	4,500.00	0
Parking Lot	25.00	Space	0.22	10,000.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.7	**Precipitation Freq (Days)**	72
Climate Zone	14			**Operational Year**	2019
Utility Company	Pacific Gas & Electric Company				
CO2 Intensity (lb/MWhr)	641.35	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - project site size

Construction Phase - project schedule

Off-road Equipment - project equipment

Off-road Equipment - project grading

Off-road Equipment - trenching, pipeline installation, re-paving roadway where applicable

Off-road Equipment -

Off-road Equipment -

Off-road Equipment -

Off-road Equipment -

Off-road Equipment -

Grading - project site size

Demolition -

Trips and VMT - water trucks added as vendors

Architectural Coating - paint voc limit per APCD rule

Table Name	Column Name	Default Value	New Value
tblArchitecturalCoating	EF_Nonresidential_Exterior	250.00	150.00
tblArchitecturalCoating	EF_Nonresidential_Interior	250.00	150.00
tblConstructionPhase	NumDays	0.00	4.00
tblConstructionPhase	NumDays	0.00	165.00
tblConstructionPhase	NumDays	0.00	5.00
tblConstructionPhase	NumDays	0.00	11.00
tblConstructionPhase	NumDays	0.00	5.00
tblConstructionPhase	NumDays	0.00	11.00
tblConstructionPhase	NumDays	0.00	11.00
tblConstructionPhase	PhaseEndDate	6/9/2017	5/5/2017
tblConstructionPhase	PhaseStartDate	5/6/2017	5/8/2017
tblConstructionPhase	PhaseStartDate	10/15/2016	10/17/2016
tblConstructionPhase	PhaseStartDate	6/3/2017	5/1/2017
tblGrading	AcresOfGrading	5.50	0.75
tblGrading	AcresOfGrading	0.00	1.00
tblGrading	AcresOfGrading	5.50	1.00
tblLandUse	LotAcreage	0.10	1.00
tblOffRoadEquipment	HorsePower	81.00	9.00
tblOffRoadEquipment	LoadFactor	0.73	0.56
tblOffRoadEquipment	OffRoadEquipmentType		Concrete/Industrial Saws
tblOffRoadEquipment	OffRoadEquipmentType		Excavators
tblOffRoadEquipment	OffRoadEquipmentType		Paving Equipment
tblOffRoadEquipment	OffRoadEquipmentType		Rollers
tblOffRoadEquipment	OffRoadEquipmentType		Tractors/Loaders/Backhoes

tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	PhaseName	Paving	Paving (parking lot)
tblOffRoadEquipment	PhaseName		pipeline installation
tblOffRoadEquipment	PhaseName	Paving	Paving (parking lot)
tblOffRoadEquipment	PhaseName	Paving	Paving (parking lot)
tblOffRoadEquipment	PhaseName	Paving	Paving (parking lot)
tblOffRoadEquipment	PhaseName		pipeline installation
tblOffRoadEquipment	PhaseName		pipeline installation
tblOffRoadEquipment	PhaseName		pipeline installation
tblOffRoadEquipment	PhaseName		pipeline installation
tblOffRoadEquipment	UsageHours	8.00	7.00
tblOffRoadEquipment	UsageHours	8.00	7.00
tblOnRoadDust	PhaseName	Paving	Paving (parking lot)
tblOnRoadDust	PhaseName	trenching	pipeline installation
tblProjectCharacteristics	OperationalYear	2014	2019
tblTripsAndVMT	VendorTripNumber	0.00	2.00
tblTripsAndVMT	VendorTripNumber	0.00	2.00
tblTripsAndVMT	VendorTripNumber	0.00	2.00

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2016	1.3816	13.7058	8.2122	0.0113	0.9445	0.9398	1.2167	0.4497	0.8646	0.8646	0.0000	1,178.5549	1,178.5549	0.3555	0.0000	1,186.0202
2017	2.5902	25.5639	17.2321	0.0244	0.1507	1.6286	1.7793	0.0263	1.4983	1.5234	0.0000	2,421.4451	2,421.4451	0.6521	0.0000	2,435.1392

Total	**3.9717**	**39.2698**	**25.4442**	**0.0357**	**1.0952**	**2.5684**	**2.9960**	**0.4761**	**2.3629**	**2.3880**	**0.0000**	**3,600.0000**	**3,600.0000**	**1.0076**	**0.0000**	**3,621.1594**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2016	1.3816	13.7058	8.2122	0.0113	0.9445	0.9398	1.2167	0.4497	0.8646	0.8646	0.0000	1,178.5549	1,178.5549	0.3555	0.0000	1,186.0202
2017	2.5902	25.5639	17.2321	0.0244	0.1507	1.6286	1.7793	0.0263	1.4983	1.5234	0.0000	2,421.4451	2,421.4451	0.6521	0.0000	2,435.1392
Total	**3.9717**	**39.2698**	**25.4442**	**0.0357**	**1.0952**	**2.5684**	**2.9960**	**0.4761**	**2.3629**	**2.3880**	**0.0000**	**3,600.0000**	**3,600.0000**	**1.0076**	**0.0000**	**3,621.1594**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	0.3106	3.0000e-005	3.0400e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005		6.4600e-003	6.4600e-003	2.0000e-005		6.8200e-003
Total	**0.3106**	**3.0000e-005**	**3.0400e-003**	**0.0000**		**1.0000e-005**	**1.0000e-005**		**1.0000e-005**	**1.0000e-005**		**6.4600e-003**	**6.4600e-003**	**2.0000e-005**		**6.8200e-003**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	0.3106	3.0000e-005	3.0400e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005		6.4600e-003	6.4600e-003	2.0000e-005		6.8200e-003
Total	**0.3106**	**3.0000e-005**	**3.0400e-003**	**0.0000**		**1.0000e-005**	**1.0000e-005**		**1.0000e-005**	**1.0000e-005**		**6.4600e-003**	**6.4600e-003**	**2.0000e-005**		**6.8200e-003**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Site Preparation	Site Preparation	7/18/2016	8/1/2016	5	11	
2	Grading	Grading	8/2/2016	8/16/2016	5	11	
3	pipeline installation	Trenching	8/17/2016	10/14/2016	5	43	
4	Building Construction	Building Construction	10/17/2016	6/2/2017	5	165	
5	Paving (parking lot)	Paving	5/1/2017	5/5/2017	5	5	
6	Architectural Coating	Architectural Coating	5/8/2017	5/11/2017	5	4	
7	Demolition	Demolition	5/12/2017	5/18/2017	5	5	
8	final site work	Site Preparation	5/19/2017	6/2/2017	5	11	

Acres of Grading (Site Preparation Phase): 0.75

Acres of Grading (Grading Phase): 1

Acres of Paving: 0

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Architectural Coating	Air Compressors	1	6.00	78	0.48
Paving (parking lot)	Cement and Mortar Mixers	4	6.00	9	0.56
Demolition	Concrete/Industrial Saws	1	8.00	81	0.73
pipeline installation	Concrete/Industrial Saws	1	1.00	9	0.56
Building Construction	Cranes	1	4.00	226	0.29
Building Construction	Forklifts	2	6.00	89	0.20
Site Preparation	Graders	1	7.00	174	0.41
Paving (parking lot)	Pavers	1	7.00	125	0.42
Paving (parking lot)	Rollers	1	7.00	80	0.38
Demolition	Rubber Tired Dozers	1	1.00	255	0.40
Grading	Rubber Tired Dozers	1	1.00	255	0.40
Building Construction	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Demolition	Tractors/Loaders/Backhoes	2	6.00	97	0.37
Grading	Tractors/Loaders/Backhoes	1	6.00	97	0.37
Paving (parking lot)	Tractors/Loaders/Backhoes	1	7.00	97	0.37
Site Preparation	Tractors/Loaders/Backhoes	1	7.00	97	0.37
final site work	Graders	1	8.00	174	0.41
final site work	Tractors/Loaders/Backhoes	1	8.00	97	0.37
pipeline installation	Excavators	1	8.00	162	0.38
pipeline installation	Paving Equipment	1	1.00	130	0.36
pipeline installation	Rollers	1	2.00	80	0.38
pipeline installation	Tractors/Loaders/Backhoes	1	4.00	97	0.37

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Demolition	4	10.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation	2	5.00	2.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Grading	4	10.00	2.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	5	0.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	0.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
final site work	2	5.00	2.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
	0		0.00		10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000			0.0000
Vendor					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000			0.0000
Worker					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000			0.0000

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					

Hauling					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000			0.0000
Vendor					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000			0.0000
Worker					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000			0.0000

3.2 Site Preparation - 2016

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.0723	0.0000	0.0723	7.8100e-003	0.0000	7.8100e-003			0.0000			0.0000
Off-Road	1.1894	11.9306	6.4226	8.1800e-003		0.7295	0.7295		0.6712	0.6712		851.4487	851.4487	0.2568		856.8420
Total	**1.1894**	**11.9306**	**6.4226**	**8.1800e-003**	**0.0723**	**0.7295**	**0.8018**	**7.8100e-003**	**0.6712**	**0.6790**		**851.4487**	**851.4487**	**0.2568**		**856.8420**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0265	0.1983	0.2853	4.7000e-004	0.0132	2.6500e-003	0.0158	3.7500e-003	2.4400e-003	6.1900e-003		46.7100	46.7100	3.4000e-004		46.7171
Worker	0.0250	0.0265	0.3520	5.0000e-004	0.0411	4.7000e-004	0.0415	0.0109	4.3000e-004	0.0113		40.6486	40.6486	2.8200e-003		40.7079

Total	**0.0516**	**0.2248**	**0.6372**	**9.7000e-004**	**0.0543**	**3.1200e-003**	**0.0574**	**0.0146**	**2.8700e-003**	**0.0175**		**87.3586**	**87.3586**	**3.1600e-003**		**87.4250**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.0723	0.0000	0.0723	7.8100e-003	0.0000	7.8100e-003			0.0000			0.0000
Off-Road	1.1894	11.9306	6.4226	8.1800e-003		0.7295	0.7295		0.6712	0.6712	0.0000	851.4487	851.4487	0.2568		856.8420
Total	**1.1894**	**11.9306**	**6.4226**	**8.1800e-003**	**0.0723**	**0.7295**	**0.8018**	**7.8100e-003**	**0.6712**	**0.6790**	**0.0000**	**851.4487**	**851.4487**	**0.2568**		**856.8420**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0265	0.1983	0.2853	4.7000e-004	0.0132	2.6500e-003	0.0158	3.7500e-003	2.4400e-003	6.1900e-003		46.7100	46.7100	3.4000e-004		46.7171
Worker	0.0250	0.0265	0.3520	5.0000e-004	0.0411	4.7000e-004	0.0415	0.0109	4.3000e-004	0.0113		40.6486	40.6486	2.8200e-003		40.7079
Total	**0.0516**	**0.2248**	**0.6372**	**9.7000e-004**	**0.0543**	**3.1200e-003**	**0.0574**	**0.0146**	**2.8700e-003**	**0.0175**		**87.3586**	**87.3586**	**3.1600e-003**		**87.4250**

3.3 Grading - 2016

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.8492	0.0000	0.8492	0.4242	0.0000	0.4242			0.0000			0.0000
Off-Road	0.4102	4.1751	3.1201	3.4400e-003		0.2686	0.2686		0.2472	0.2472		358.1870	358.1870	0.1080		360.4558
Total	**0.4102**	**4.1751**	**3.1201**	**3.4400e-003**	**0.8492**	**0.2686**	**1.1178**	**0.4242**	**0.2472**	**0.6713**		**358.1870**	**358.1870**	**0.1080**		**360.4558**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0265	0.1983	0.2853	4.7000e-004	0.0132	2.6500e-003	0.0158	3.7500e-003	2.4400e-003	6.1900e-003		46.7100	46.7100	3.4000e-004		46.7171
Worker	0.0501	0.0529	0.7040	1.0000e-003	0.0822	9.3000e-004	0.0831	0.0218	8.5000e-004	0.0226		81.2972	81.2972	5.6500e-003		81.4157
Total	**0.0766**	**0.2512**	**0.9892**	**1.4700e-003**	**0.0953**	**3.5800e-003**	**0.0989**	**0.0255**	**3.2900e-003**	**0.0288**		**128.0072**	**128.0072**	**5.9900e-003**		**128.1329**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					

Fugitive Dust					0.8492	0.0000	0.8492	0.4242	0.0000	0.4242			0.0000			0.0000
Off-Road	0.4102	4.1751	3.1201	3.4400e-003		0.2686	0.2686		0.2472	0.2472	0.0000	358.1870	358.1870	0.1080		360.4558
Total	**0.4102**	**4.1751**	**3.1201**	**3.4400e-003**	**0.8492**	**0.2686**	**1.1178**	**0.4242**	**0.2472**	**0.6713**	**0.0000**	**358.1870**	**358.1870**	**0.1080**		**360.4558**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0265	0.1983	0.2853	4.7000e-004	0.0132	2.6500e-003	0.0158	3.7500e-003	2.4400e-003	6.1900e-003		46.7100	46.7100	3.4000e-004		46.7171
Worker	0.0501	0.0529	0.7040	1.0000e-003	0.0822	9.3000e-004	0.0831	0.0218	8.5000e-004	0.0226		81.2972	81.2972	5.6500e-003		81.4157
Total	**0.0766**	**0.2512**	**0.9892**	**1.4700e-003**	**0.0953**	**3.5800e-003**	**0.0989**	**0.0255**	**3.2900e-003**	**0.0288**		**128.0072**	**128.0072**	**5.9900e-003**		**128.1329**

3.4 pipeline installation - 2016

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.6807	7.2821	5.4576	8.0100e-003		0.4223	0.4223		0.3885	0.3885		832.4858	832.4858	0.2511		837.7591
Total	**0.6807**	**7.2821**	**5.4576**	**8.0100e-003**		**0.4223**	**0.4223**		**0.3885**	**0.3885**		**832.4858**	**832.4858**	**0.2511**		**837.7591**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.6807	2.3893	5.4576	8.0100e-003		0.4223	0.4223		0.3885	0.3885	0.0000	832.4858	832.4858	0.2511		837.7591
Total	**0.6807**	**2.3893**	**5.4576**	**8.0100e-003**		**0.4223**	**0.4223**		**0.3885**	**0.3885**	**0.0000**	**832.4858**	**832.4858**	**0.2511**		**837.7591**

3.5 Building Construction - 2016

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.3816	13.7058	8.2122	0.0113		0.9398	0.9398		0.8646	0.8646		1,178.5549	1,178.5549	0.3555		1,186.0202
Total	**1.3816**	**13.7058**	**8.2122**	**0.0113**		**0.9398**	**0.9398**		**0.8646**	**0.8646**		**1,178.5549**	**1,178.5549**	**0.3555**		**1,186.0202**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e

Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**		**0.0000**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.3816	13.7058	8.2122	0.0113		0.9398	0.9398		0.8646	0.8646	0.0000	1,178.5549	1,178.5549	0.3555		1,186.0202
Total	**1.3816**	**13.7058**	**8.2122**	**0.0113**		**0.9398**	**0.9398**		**0.8646**	**0.8646**	**0.0000**	**1,178.5549**	**1,178.5549**	**0.3555**		**1,186.0202**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000

Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**		**0.0000**

3.5 Building Construction - 2017

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.2740	12.6738	8.0395	0.0113		0.8553	0.8553		0.7869	0.7869		1,159.5310	1,159.5310	0.3553		1,166.9919
Total	**1.2740**	**12.6738**	**8.0395**	**0.0113**		**0.8553**	**0.8553**		**0.7869**	**0.7869**		**1,159.5310**	**1,159.5310**	**0.3553**		**1,166.9919**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**		**0.0000**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.2740	12.6738	8.0395	0.0113		0.8553	0.8553		0.7869	0.7869	0.0000	1,159.5310	1,159.5310	0.3553		1,166.9919
Total	**1.2740**	**12.6738**	**8.0395**	**0.0113**		**0.8553**	**0.8553**		**0.7869**	**0.7869**	**0.0000**	**1,159.5310**	**1,159.5310**	**0.3553**		**1,166.9919**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**		**0.0000**

3.6 Paving (parking lot) - 2017

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e

Category	lb/day										lb/day					
Off-Road	1.0406	9.8344	7.2432	0.0111		0.6018	0.6018		0.5572	0.5572		1,068.9366	1,068.9366	0.2968		1,075.1698
Paving	0.1153					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**1.1559**	**9.8344**	**7.2432**	**0.0111**		**0.6018**	**0.6018**		**0.5572**	**0.5572**		**1,068.9366**	**1,068.9366**	**0.2968**		**1,075.1698**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.0406	9.8344	7.2432	0.0111		0.6018	0.6018		0.5572	0.5572	0.0000	1,068.9366	1,068.9366	0.2968		1,075.1698
Paving	0.1153					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**1.1559**	**9.8344**	**7.2432**	**0.0111**		**0.6018**	**0.6018**		**0.5572**	**0.5572**	**0.0000**	**1,068.9366**	**1,068.9366**	**0.2968**		**1,075.1698**

3.7 Architectural Coating - 2017

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.3323	2.1850	1.8681	2.9700e-003		0.1733	0.1733		0.1733	0.1733		281.4481	281.4481	0.0297		282.0721
Total	**0.3323**	**2.1850**	**1.8681**	**2.9700e-003**		**0.1733**	**0.1733**		**0.1733**	**0.1733**		**281.4481**	**281.4481**	**0.0297**		**282.0721**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**		**0.0000**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.3323	2.1850	1.8681	2.9700e-003		0.1733	0.1733		0.1733	0.1733	0.0000	281.4481	281.4481	0.0297		282.0721
Total	**0.3323**	**2.1850**	**1.8681**	**2.9700e-003**		**0.1733**	**0.1733**		**0.1733**	**0.1733**	**0.0000**	**281.4481**	**281.4481**	**0.0297**		**282.0721**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**		**0.0000**

3.8 Demolition - 2017

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.0300	0.0000	0.0300	4.5400e-003	0.0000	4.5400e-003			0.0000			0.0000
Off-Road	1.2049	10.4761	8.5825	0.0120		0.7266	0.7266		0.6930	0.6930		1,183.8131	1,183.8131	0.2333		1,188.7118
Total	**1.2049**	**10.4761**	**8.5825**	**0.0120**	**0.0300**	**0.7266**	**0.7566**	**4.5400e-003**	**0.6930**	**0.6975**		**1,183.8131**	**1,183.8131**	**0.2333**		**1,188.7118**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000

Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0435	0.0474	0.6101	9.9000e-004	0.0822	8.8000e-004	0.0830	0.0218	8.1000e-004	0.0226		78.1010	78.1010	5.0700e-003		78.2075
Total	**0.0435**	**0.0474**	**0.6101**	**9.9000e-004**	**0.0822**	**8.8000e-004**	**0.0830**	**0.0218**	**8.1000e-004**	**0.0226**		**78.1010**	**78.1010**	**5.0700e-003**		**78.2075**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.0300	0.0000	0.0300	4.5400e-003	0.0000	4.5400e-003			0.0000			0.0000
Off-Road	1.2049	10.4761	8.5825	0.0120		0.7266	0.7266		0.6930	0.6930	0.0000	1,183.8131	1,183.8131	0.2333		1,188.7118
Total	**1.2049**	**10.4761**	**8.5825**	**0.0120**	**0.0300**	**0.7266**	**0.7566**	**4.5400e-003**	**0.6930**	**0.6975**	**0.0000**	**1,183.8131**	**1,183.8131**	**0.2333**		**1,188.7118**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0435	0.0474	0.6101	9.9000e-004	0.0822	8.8000e-004	0.0830	0.0218	8.1000e-004	0.0226		78.1010	78.1010	5.0700e-003		78.2075
Total	**0.0435**	**0.0474**	**0.6101**	**9.9000e-004**	**0.0822**	**8.8000e-004**	**0.0830**	**0.0218**	**8.1000e-004**	**0.0226**		**78.1010**	**78.1010**	**5.0700e-003**		**78.2075**

3.9 final site work - 2017

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.0964	0.0000	0.0964	0.0104	0.0000	0.0104			0.0000			0.0000
Off-Road	1.2694	12.6852	7.2319	9.3300e-003		0.7705	0.7705		0.7089	0.7089		955.8663	955.8663	0.2929		962.0167
Total	**1.2694**	**12.6852**	**7.2319**	**9.3300e-003**	**0.0964**	**0.7705**	**0.8669**	**0.0104**	**0.7089**	**0.7193**		**955.8663**	**955.8663**	**0.2929**		**962.0167**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0250	0.1812	0.2716	4.7000e-004	0.0132	2.3300e-003	0.0155	3.7500e-003	2.1500e-003	5.9000e-003		46.0639	46.0639	3.2000e-004		46.0707
Worker	0.0218	0.0237	0.3050	5.0000e-004	0.0411	4.4000e-004	0.0415	0.0109	4.0000e-004	0.0113		39.0505	39.0505	2.5400e-003		39.1037
Total	**0.0468**	**0.2049**	**0.5766**	**9.7000e-004**	**0.0543**	**2.7700e-003**	**0.0570**	**0.0146**	**2.5500e-003**	**0.0172**		**85.1144**	**85.1144**	**2.8600e-003**		**85.1744**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.0964	0.0000	0.0964	0.0104	0.0000	0.0104			0.0000			0.0000
Off-Road	1.2694	12.6852	7.2319	9.3300e-003		0.7705	0.7705		0.7089	0.7089	0.0000	955.8663	955.8663	0.2929		962.0167
Total	**1.2694**	**12.6852**	**7.2319**	**9.3300e-003**	**0.0964**	**0.7705**	**0.8669**	**0.0104**	**0.7089**	**0.7193**	**0.0000**	**955.8663**	**955.8663**	**0.2929**		**962.0167**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0250	0.1812	0.2716	4.7000e-004	0.0132	2.3300e-003	0.0155	3.7500e-003	2.1500e-003	5.9000e-003		46.0639	46.0639	3.2000e-004		46.0707
Worker	0.0218	0.0237	0.3050	5.0000e-004	0.0411	4.4000e-004	0.0415	0.0109	4.0000e-004	0.0113		39.0505	39.0505	2.5400e-003		39.1037
Total	**0.0468**	**0.2049**	**0.5766**	**9.7000e-004**	**0.0543**	**2.7700e-003**	**0.0570**	**0.0146**	**2.5500e-003**	**0.0172**		**85.1144**	**85.1144**	**2.8600e-003**		**85.1744**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Total					

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by

LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
0.319496	0.094816	0.237785	0.204865	0.074872	0.008559	0.018814	0.020531	0.005095	0.001323	0.008872	0.000668	0.004303

5.0 Energy Detail

4.4 Fleet Mix

Historical Energy Use: N

5.1 Mitigation Measures Energy

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.3106	3.0000e-005	3.0400e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005		6.4600e-003	6.4600e-003	2.0000e-005		6.8200e-003
Unmitigated	0.3106	3.0000e-005	3.0400e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005		6.4600e-003	6.4600e-003	2.0000e-005		6.8200e-003

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Consumer Products	0.3103					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	2.9000e-004	3.0000e-005	3.0400e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005		6.4600e-003	6.4600e-003	2.0000e-005		6.8200e-003
Architectural Coating	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**0.3106**	**3.0000e-005**	**3.0400e-003**	**0.0000**		**1.0000e-005**	**1.0000e-005**		**1.0000e-005**	**1.0000e-005**		**6.4600e-003**	**6.4600e-003**	**2.0000e-005**		**6.8200e-003**

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Consumer Products	0.3103					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	2.9000e-004	3.0000e-005	3.0400e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005		6.4600e-003	6.4600e-003	2.0000e-005		6.8200e-003
Architectural Coating	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**0.3106**	**3.0000e-005**	**3.0400e-003**	**0.0000**		**1.0000e-005**	**1.0000e-005**		**1.0000e-005**	**1.0000e-005**		**6.4600e-003**	**6.4600e-003**	**2.0000e-005**		**6.8200e-003**

7.0 Water Detail

7.1 Mitigation Measures Water

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Vegetation

APPENDIX B

B1: Biological Resources Assessment

B2: Tree Survey

BIOLOGICAL RESOURCE ASSESSMENT
FOR THE
WEST LAKE TAHOE REGIONAL
WATER TREATMENT PLANT PROJECT

PLACER COUNTY, CALIFORNIA

Prepared for:

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May 15, 2015

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WEST LAKE TAHOE REGIONAL WATER TREATMENT PLANT

ALTERNATIVE PROJECT SITES

Placer County, California

INTRODUCTION

Background

The Tahoe City Public Utility District (TCPUD) proposes to construct a new water treatment plant (WTP), which would replace an existing interim WTP to improve the reliability and quality of water service in the West Lake Tahoe region.

Project Location

When this report was prepared TCPUD was considering a number of different site options that are all evaluated in this report (Lodge Road WTP site, Chamberland Drive WTP site, Lagoon Road WTP site, McKinney Shores Beach lake intake location and Chambers Landing Beach lake intake location). Based on a review of the technical reports and taking into account other considerations, TCPUD ultimately decided to propose to construct the proposed improvements at the Lodge Road WTP site and Chambers Landing Beach lake intake location with an option to develop a parking lot and/or restroom facilities. A regional map is provided in Figure 1 and a vicinity map is provided in Figure 2. The three potential WLTRWTP sites evaluated in this report are:

Lodge Drive: At this location, the WLTRWTP would be constructed adjacent to Lodge Drive on the northern portion of an approximately 6.5-acre vacant parcel. This parcel contains two of the proposed sites and is referred to herein as the "Chamberland/Lodge" parcel. This Chamberland/Lodge parcel is owned by the California Tahoe Conservancy (CTC). The Lodge site is adjacent to residences and immediately west of SR 89. The Chambers Landing beach is located across SR 89, approximately 0.2 miles from the Lodge site.

Chamberland Drive: At this location, the WLTRWTP would be constructed in the southern portion of the Chamberland/Lodge parcel and access from the intersection of Chamberland Drive and Flicker Avenue. The Chamberland site is also adjacent to residences, immediately west of SR 89, and directly east of Chambers Landing. The Tahoe City to Sugar Pine bike trail runs between SR 89 and the Chamberland/Lodge parcel. There is a Stream Environment Zone (SEZ) as designated by the Tahoe Regional Planning Agency (TRPA) located along the southern boundary of the Chamberland site; the proposed site improvements would be located outside of the SEZ.

Lagoon Road: At this location, the WLTRWTP would be constructed adjacent to Lagoon Road on an approximately 1-acre vacant parcel owned by TCPUD. The Lagoon site is adjacent to residences and the Homewood Mountain Resort ski area. Relative to the

Lodge and Chamberland sites, the Lagoon site is set farther back into the residential neighborhood and is approximately 0.25 miles east of SR 89. The proposed pipeline to the Lake Tahoe shoreline would be installed in Lagoon Road north of the site, then Sacramento Avenue and west along Tahoe Ski Bowl Way until it reaches West Lake Boulevard and heads southeast to McKinney landing on the Lake Tahoe shoreline.

Land use west, east and south of the Chamberland/Lodge WTP project area is characterized by single-family residential development and resort development (Chambers Lodge) near the lake shore in the community of Tahoma (Figure 1). The study area covers ± 6.19 acres. The approximate coordinates for the Chamberland and Lodge WTP project area are 39°04'19" north latitude, 120° 08'40" west longitude.

Land use west, north and south of the Chamberland/Lodge WTP project area is characterized by single-family residential development, and ski resort development (Homewood) to the east (Figure 1). The study area covers ± 4.53 acres. The approximate coordinates for the Lagooon WTP project area are 39°04'34" north latitude, 120° 09'27" west longitude.

Setting

The proposed project is located in the TCPUD McKinney Quail Service Area, near the community of Tahoma on the west shore of Lake Tahoe in California, in Placer County, California.

The study area is located in the Tahoe Basin at elevations ranging from ±6,240 at lake level to ±6,310 feet above sea level. Topography slopes generally to the east toward SR 89 and Lake Tahoe.

Chamberland/Lodge Site

The Chamberland/Lodge site is adjacent to the single-family residences located along Flicker Avenue, Chamberland Drive, and Lodge Drive, and is adjacent to SR 89. Tennis courts are present to the south of the project site. Multi-family residences and recreational land uses are present on the east side of SR 89 in the vicinity of the interim WTP site (and the proposed lake intake pump station). The Chambers Landing Bar and Grill is also located on the east side of SR 89, northeast of the project site. The Homewood Mountain Resort is located to the west of the project site.

Mixed conifer forest is the dominant vegetation type in the project area, and mature conifers, including incense cedar, white fir, Jeffrey pine, and sugar pine, grow within LTBMU and private subdivision lands within the study area and on adjacent developed residential lots. Past forest and fuels-management activities have thinned both the forest stand and understory shrubs within the project site. The understory includes common native shrubs including manzanita, thimbleberry, wild rose, and a sparse herbaceous cover. Some ornamental species occur within individual residential lots adjacent to the study area.

No drainages or other hydrologic features occur within the study area. Drainage from the site is generally by sheetflow downslope toward the east. The nearest perennial stream is McKinney Creek, 750 feet to the southwest of the proposed Chamberland WTP and adjacent to the existing temporary WTP and Chambers Landing intake pipe.

Lagoon Site

The Lagoon site is adjacent to Homewood Mountain Resort and single-family residences located along Lagoon Drive. The land use is primarily vacant open space to the west of the project site. The Lagoon site is approximately 0.25 miles east of SR 89.

Interim WTP

TCPUD constructed an interim WTP in 2004 to provide a surface water supply from Lake Tahoe to the McKinney-Quail Water System. The interim WTP requires replacement. It was not permitted or designed for permanent use and it has reached the end of its useful life. The interim WTP was constructed with temporary permits under an emergency water supply condition to supplement declining groundwater capacity, utilized re-purposed filtration equipment, and is located outdoors, meaning that the plant is not able to operate during the winter months due to snow accumulation and freezing conditions.

Proposed WLTRWTP

The proposed WLTRWTP would be constructed in two phases, with an ultimate buildout capacity of 1,100 gpm and 1.0 million gallons per day (MGD). While the minimum capacity needed is 375 gpm, Phase 1 has been designed for a capacity of 650 gpm. It is expected that Phase I would be constructed in 2016 and 2017 while Phase II would be constructed in the future when necessary to meet service demands.

The WTP would receive raw water taken from Lake Tahoe through an intake pump station. Water would be pumped directly from the lake to the WTP and through the treatment processes into the chlorine contactor and operational storage clearwell. This approach saves a need to "repump" the water at various stages of the treatment process. The WTP features would include a skid mounted membrane filtration process; UV disinfection; post-chlorination disinfection for water distribution disinfection residual maintenance; partially buried clearwell for treated water storage; treated water booster pump station; backwash recovery treatment process and underground storage tank; recycled water pump station; off-site solids disposal; and permanent standby generator in a sound attenuating enclosure.

Objectives of Biological Resource Assessment

- Identify and describe the biological communities present in the study area.
- Record plant and animal species observed in the study area.
- Evaluate and identify sensitive resources and special-status plant and animal species that could be affected by project activities.
- Provide conclusions and recommendations.

METHODS

Literature Review

A variety of resources were used in this assessment. For the preparation of this report, Dudek staff reviewed topographic maps, aerial photographs, soil surveys, geology maps, and other resources available from agencies with jurisdiction over resources in the project area, including TRPA, the California Department of Fish and Wildlife (CDFW), and the U.S. Fish and Wildlife Service (USFWS). Plant names follow *The Jepson Manual* (Baldwin et al. 2012). Standard field guides were used to identify wildlife.

Special-Status Species Reports

The CDFW maintains a database containing the locations of special-status species and sensitive biological communities. This database is known as the California Natural Diversity Data Base (CNDDB) and it can be searched for those species and habitats occurring on specific USGS quadrangles. Using this database, a nine quad search area was used that incorporates both alternative sites and included the following USGS quads: Tahoe City, Granite Chief, Wentworth Springs, Emerald Bay, Rockbound Valley, Loon Lake, Kings Beach, Homewood, and Meeks Bay (approximately 500 square miles). A USFWS database of special-status species and the California Native Plant Society (CNPS) Electronic Inventory were also queried for occurrences of special-status plant and animal species within the 9-quad area. The resulting lists of special-status species, and corresponding habitat requirements, were used to evaluate the potential for special-status species to occur within the study area (Appendix A).

Field Assessment

A field survey of the study area was conducted on October 10, 2014 by Dudek Senior Biologist, Kevin Derby, and Natural Resources Specialist, Markus Lang. A walking survey of the study areas was conducted to identify habitat types present, record observed plant and animal species, and to evaluate the potential for the study area to provide suitable habitat for special-status species.

Plants observed were recorded, but special status plant surveys were not conducted because the survey was conducted outside the typical blooming period for special status plants species in the area. Common names are used in this report. Appendix B includes a list of plant species observed on the project site, organized by family and genus. Habitat types are mapped on a color aerial photo in Figures 3a and 3b. Representative photographs of the sites are provided in Appendix C.

RESULTS

Geology and Soils

Chamberland/Lodge Site

The study area is underlain by soil units 7525 – Tallac gravelly course sandy loam, moderately well drained, 5 to 9 percent slopes, and 7526 - Tallac gravelly course sandy loam, moderately well drained, 5 to 9 percent slopes, rubbly (Appendix D).

The Tallac gravelly course sandy loam makes up 80% of its respective map unit. These soils are made up of colluviums/till from a mixed parent material, are moderately well drained, and occur on moraines and side slopes. These units are relatively deep, with an available rooting depth typically between 40 and 71 inches. Species typically occurring on this soil type include white fir, Jeffrey pine, thimbleberry, and snowberry. The *Geologic Map of California* indicates that the underlying rock is Quaternary glacial till and Quaternary lake deposits.

Lagoon Site

The study area is underlain by soil 7526 - Tallac gravelly course sandy loam, moderately well drained, 5 to 9 percent slopes, rubbly (Appendix D).

The Tallac gravelly course sandy loam makes up 80% of its respective map unit. These soils are made up of colluviums/till from a mixed parent material, are moderately well drained, and occur on moraines and side slopes. These units are relatively deep, with an available rooting depth typically between 40 and 71 inches. Species typically occurring on this soil type include white fir, Jeffrey pine, thimbleberry, and snowberry. The *Geologic Map of California* indicates that the underlying rock is Quaternary glacial till and Quaternary lake deposits.

Hydrology

Chamberland/Lodge Site

No natural hydrologic features were identified within the study area. A small unvegetated ditch has been constructed at the southeast end of Chamberland Drive to dissipate sheet flow and minimize erosion caused by runoff from the paved roadway. No hydrophytic vegetation is associated with this ditch. Precipitation falling on the site either percolates into the soil or moves via overland flow downslope generally to the east and toward Lake Tahoe. The nearest blue line named stream is McKinney Creek, south of the site, which flows adjacent to the temporary water treatment plant along the driveway to Chambers Lodge. The creek flows to the west and enters Lake Tahoe near the Chambers Landing intake pipe project area.

Lagoon Site

One natural hydrologic feature was identified within the study area: an historic spring known as Iron Springs. It supports wetland grasses, herbaceous plants, trees and shrubs. A weakly defined drainage also drains the site from the southern corner to the northeast and terminates in

the roadside ditch along Lagoon Drive. The proposed alignment also includes an intake pipeline in Lake Tahoe.

Biological Communities

Chamberland/Lodge Site

The Chamberland WTP study area can be characterized as a combination of well-managed stand of coniferous trees at the edge of a residential subdivision. The proposed pipeline also crosses developed land (roads), the front yard of a large residence, and Lake Tahoe shoreline. Four biological communities occur on the ±6.19-acre study area: Jeffrey pine/fir forest (Holland (1986) code #85210), Beach, Open Water (Lake Tahoe), and Developed. Jeffrey pine / fir forest can also be described as *Pinus jeffreyi-Abies concolor-Abies magnifica Association* (California Department of Fish and Game 2010; #87.205.03). Table 1a is an acreage summary of habitat types occurring onsite. Figure 3a shows the extent of the habitat type onsite.

Table 1a.
Biological Communities/Land Cover Present on the
Chamberland/ Lodge and Chambers Landing Intake Site

Biological Community	Estimated Acreage
Jeffrey pine/fir forest	±3.82
Beach (Lake Tahoe)	±0.16
Open Water (Lake Tahoe)	±0.07
Developed	±2.14
Total Area	±6.19

Jeffrey pine/fir forest: Species of trees within the mixed coniferous upland forest in the study area include white fir, Jeffrey pine, sugar pine, incense cedar, and red fir. The understory in most of the study area has been cleared of vegetation. A complete list of shrubs and herbaceous species recorded onsite is included in Appendix D.

Beach: The Lake Tahoe beach consists of coarse sand and sandy soils (often with cobbles or boulders) and occasional stream inlets, beach dunes, and backshore depressions. Beaches are generally within a few feet of the local water table, and are generally at elevations of 6223-6230 feet. Beach habitat exists in the vicinity of the existing Chamberland water intake station and intake pipeline.

Open Water: This habitat includes the portion of the pipeline within the high water mark of Lake Tahoe. This relatively shallow portion of the Lake includes aquatic habitat and receives heavy seasonal recreational use on the surface.

Developed: Developed land is paved, graded, or covered with existing residential or commercial development. This land cover is devoid of vegetation and does not provide valuable habitat for most wildlife species.

Lagoon Site

The Lagoon WTP study area can be characterized as a combination of coniferous trees with an intact understory and a spring that supports wetland vegetation in a residential subdivision. The proposed pipeline also crosses developed land (roads), beach, and the Lake Tahoe shoreline. Four biological communities occur on the ±4.53-acre study area: Jeffrey pine/fir forest (Holland (1986) code #85210), Beach, Open Water (Lake Tahoe), and Developed. Jeffrey pine / fir forest can also be described as *Pinus jeffreyi-Abies concolor-Abies magnifica Association* (California Department of Fish and Game 2010; #87.205.03). Table 1b is an acreage summary of habitat types occurring onsite. Figure 3b shows the extent of the habitat type onsite.

Table 1b.
Biological Communities/Land Cover Present on the Lagoon Site

Biological Community	Estimated Acreage
Jeffrey pine/fir forest	±1.06
Beach (Lake Tahoe)	±0.09
Wetland / Spring	<0.01
Open Water (Lake Tahoe)	±0.18
Developed	±3.19
Total Area	±4.53

Jeffrey pine/fir forest: Species of trees within the mixed coniferous upland forest in the study area include white fir, Jeffrey pine, sugar pine, incense cedar, and red fir. The understory in most of the study area has been cleared of vegetation. In areas where it has not been cleared, the understory is sparse and characterized by the following species: creeping snowberry, greenleaf manzanita, willows (*Salix* sp.), huckleberry oak, Utah serviceberry, mountain whitethorn, and tobacco brush. Scouler's willow was also observed in several locations. A complete list of shrubs and herbaceous species recorded onsite is included in Appendix D.

Beach: The Lake Tahoe beach consists of coarse sand and sandy soils (often with cobbles or boulders) and occasional stream inlets, beach dunes, and backshore depressions. Beaches are generally within a few feet of the local water table, and are generally at elevations of 6223-6230 feet. Beach habitat exists in the vicinity of the proposed McKinney Shores Beach intake station and intake pipeline.

Wetland/Spring: Freshwater springs are the result of subsurface water flowing to the earth's surface. In the case of Iron Spring on the Lagoon site, the cold freshwater spring supports wetland and riparian habitat and flows at a relatively slow rate.

Open Water: This habitat includes the portion of the pipeline within the high water mark of Lake Tahoe. This relatively shallow portion of the Lake includes aquatic habitat and receives heavy seasonal recreational use on the surface.

Developed: Developed land is paved, graded, or covered with existing residential or commercial development. This land cover is primarily devoid of native vegetation and does not provide valuable habitat for most wildlife species.

Wildlife

Animals observed during site surveys were generally limited to resident and migratory birds including Stellar's jay, mountain chickadee, chipping sparrow, dark-eyed junco, American robin and other small birds that moved too fast to confidently identify. Based on recorded observations of birds, the project area provides habitat for a wide variety of bird species. Other animals observed included western gray squirrel, and chipmunk. Canid sign (i.e., scat) was also noted.

Chamberland/Lodge Site

The study area is near a developed residential area, consists largely of a cleared access road, and has been subject to recent disturbance associated with timber harvesting or forest-fuels management activities and therefore provides marginal habitat for terrestrial species, however this area is contiguous with higher quality habitat to the south associated with McKinney Creek. Shrubs and groundcover are sparse throughout the site, the apparent result of timber harvest and forest fuels management activities. Most down and dead timber and decaying logs have been cleared from the site. The ground surface throughout the site is generally disturbed (Appendix C – Site Photos). Nonetheless, the study area is likely used by common species of wildlife including deer, black bear, coyote, raccoon, skunk, rabbit, and a variety of rodents and other species. No apparent raptor nest sites were observed, and while trees onsite are not large enough to be considered ideal raptor nesting habitat, there is some possibility for nest sites to be established. Potential high quality offsite foraging habitat in the area includes Page Meadows, Lower Blackwood Creek, McKinney Creek, and Lake Tahoe.

Lagoon Site

The study area is near a developed residential area, but the understory is intact and provides habitat for terrestrial species. The onsite habitat includes an historic spring with wetland and riparian vegetation. The area is also contiguous with higher quality habitat to the west as the elevation increases. Shrubs and groundcover are robust throughout the site, with little to no evidence of forest fuels management activities. The ground surface throughout the site is generally undisturbed (Appendix C – Site Photos). The study area is likely used by common species of wildlife including deer, black bear, coyote, raccoon, skunk, rabbit, and a variety of rodents and other species. No apparent raptor nest sites were observed in the larger trees onsite, but there is a possibility for nest sites to be established. Potential high quality offsite raptor foraging habitat in the area includes

Page Meadows, Lower Blackwood Creek, McKinney Creek, and Lake Tahoe. While no nests were observed during the survey, the diverse understory vegetation and riparian area associated with the spring also make native songbird nesting a possibility on this site.

Wetlands and Waters of the United States

Chamberland/Lodge Site

The only potential waters of the U.S. identified within the study area are below the ordinary high water mark of Lake Tahoe. No other hydrophytic vegetation communities or areas of inundated soils were observed during the August survey. A shallow ditch at the end of Chamberland Drive has apparently been excavated into the surface to avoid erosion from runoff from the paved roadway during rain events. This shallow roadside ditch does not meet criteria to be formally delineated.

The portion of the study area from the existing temporary WTP to Lake Tahoe is adjacent to McKinney Creek, a jurisdictional creek that supports wetland and riparian habitat and connects to Lake Tahoe. The potentially jurisdictional riparian and wetland habitat abuts the southern side of the existing temporary WTP.

Lagoon Site

Iron Spring, a small historic freshwater spring, originates on the project site. The spring supports a jurisdictional wetland with marsh and riparian habitat. A weakly defined drainage also drains the site from the southern corner to the northeast and terminates in the roadside ditch along Lagoon Drive. If this site is to be developed a jurisdictional delineation of wetlands and waters of the U.S. would need to be conducted to clearly define areas subject to jurisdictional pursuant to the various regulations protecting wetlands. The other potential waters of the U.S. identified within the study area are below the ordinary high water mark of Lake Tahoe. No other hydrophytic vegetation communities or areas of inundated soils were observed during the August, 2014 survey.

Special-Status Species Assessment

For the purposes of this report, special-status species are those that fall into one or more of the following categories:

- listed as endangered or threatened under the federal Endangered Species Act (or formally proposed for listing),
- listed as endangered or threatened under the California Endangered Species Act (or proposed for listing),
- designated a Species of Concern by the Sacramento District of the U.S. Fish and Wildlife Office,
- designated as rare, protected, or fully protected pursuant to California Fish and Game Code,
- designated a Species of Special Concern by the California Department of Fish and Game,
- defined as rare or endangered under the California Environmental Quality Act (CEQA), or
- species assigned Rank 1 or 2 (1a, 1b, 2a, and 2b) on the California Rare Plant Ranking System (CRPR).

Appendix A is a list of potentially occurring special-status plants, and special-status wildlife compiled from our queries as described in the *Methods* section above. The USFWS list for Placer County includes species occurring from the Central Valley to the east side of the Sierra Nevada. Species requiring habitats not occurring in or around the study area and species occurring far outside the study area are not considered in Table 2 below.

The California Natural Diversity Data Base (CNDDB) search identified 26 special-status plant species and 24 special-status wildlife species with potential to occur within the 9 quadrangle project region. The CRPR search returned four additional special-status plant species. A map of known species occurrences within five miles of the project areas is attached (Figure 5). Field surveys and the best professional judgment of Dudek staff were used to further refine this list of species based on habitat requirements and occurrence location data. 24 of the 26 special-status plant species returned by database searches reside in habitats including wet areas, rocky outcrops, volcanic soils, or areas of high elevation, as identified by the table in Appendix A. These habitats do not occur within the study area. The two remaining species, Tahoe yellow cress (*Rorippa subumbellata*) and Davy's sedge (*Carex davyi*) are known to occur in the area and could not be eliminated from consideration. Davy's sedge is an understory species in subalpine and upper montane coniferous forests. However, occurrence of this species is unlikely in the project area due to regular understory management to reduce fire danger in this populated area. Tahoe yellow cress is known to occur at the mouth of McKinney Creek on the beach near the project alignment. The beach area near the existing water intake pipeline receives heavy recreational use seasonally, which may preclude this plant's growth in that area despite presence of appropriate habitat.

Of the 24 special-status wildlife species returned by database results, thirteen require habitat types, such as riparian or aquatic habitat, that are not present within the study area, and were not included in the potential to occur table. Appendix A, database queries results, identifies each species with potential to occur in the region, their habitat requirements, and potential to occur within the study area. As shown in Table 2, eleven special-status wildlife species are considered to have some potential to occur in the study area. Eight of these eleven wildlife species are considered unlikely to occur within habitat in the study area because of human activities, forest management, the project area is outside the known range of the species, or only marginal habitat exists with no recent records. The site provides potentially suitable habitat for three special-status species of wildlife: bald eagle, yellow warbler and northern goshawk. Complete lists of all special-status plant and wildlife species identified by database queries for the project region are presented in Appendix A.

Table 2
Special-Status Species with Potential to Occur in the Project Area

Species	Status* Federal	State	Other	Habitat	Potential for Occurrence**
Plants					
Davy's sedge *Carex davyi*	-	-	CRPR 1B.3	Subalpine coniferous forest/upper montane coniferous forest	Unlikely on the Chamberland/Lodge Site– understory management may preclude this species on this property. Also unlikely on the Lagoon Site despite the robust unmaintained understory. No records of this species within 5 miles of the study areas.
Tahoe yellow cress *Rorippa subumbellata*	FC	CE	CRPR 1B.1	Endemic to Lake Tahoe granitic beaches; freshwater marsh; lower montane coniferous forest; Marsh and swamp.	Likely in project area; Mouth of McKinney Creek and beach at Chamberland Lodge provide habitat in the study area. There is a CNDDB record in at the north side of the mouth of McKinney Creek updated in 2013.
Fish					
Lahontan cutthroat trout *Oncorhynchus clarkii henshawi*	FT	-	-	Great Basin flowing waters; historically known from the Lake Tahoe basin, but species currently occupies less than 5 percent of historic range. Planning to restore the species in Lake Tahoe and the Truckee River is currently underway.	Unlikely – This species was likely extirpated from Lake Tahoe in the early 20th century, nonnative competition is strong, but habitat does exist.

Table 2
Special-Status Species with Potential to Occur in the Project Area

Species	Status* Federal	State	Other	Habitat	Potential for Occurrence**
Amphibians					
Sierra Nevada yellow-legged frog *Rana sierrae*	FE	CT	-	Aquatic; high mountain lakes, ponds, and streams; rarely found more than three feet from water.	Unlikely – This species is only known to occur in the southern portion of the Lake Tahoe basin.
Birds					
Northern goshawk *Accipiter gentilis*	-	CSC	TRPA	Mature and old-growth stands of conifer and deciduous forests.	Possible. Trees at both locations provide marginal habitat, but heavy human use is in the area, so this species is more likely to occur to the west in less populated areas.
Yellow warbler *Dendroica petechia brewsteri*	-	CSC	-	Breeds in riparian deciduous habitats or open conifer forest with shrub cover.	Unlikely on the Chamberland/Lodge Site. Sparse shrub layer provides marginally suitable nesting habitat. However, habitat is available in adjacent McKinney Creek. Possible on the Lagoon Site, as riparian vegetation and a robust understory provide marginal habitat despite heavily populated area.

Table 2
Special-Status Species with Potential to Occur in the Project Area

Species	Status*			Habitat	Potential for Occurrence**
	Federal	State	Other		
Bald eagle *Haliaeetus leucocephalus*	-	CE	TRPA	Nesting occurs along shorelines, lake margins, and rivers. Nests in large, old-growth or dominant trees with open branches.	Possible. Large trees in both study areas and in adjacent habitat at the mouth of McKinney Creek near the lake. Species may periodically move through sites.
Willow flycatcher *Empidonax traillii*	-	CE	-	Breeds in extensive willow thickets on edge of wet meadows, ponds, or streams.	Unlikely. Breeding habitat includes stands of montane riparian scrub. Habitat not present in study area, but is available in nearby McKinney Creek.
Mammals					
Sierra Nevada snowshoe hare *Lepus americanus tahoensis*	-	CSC	-	Montane riparian habitats, with dense thickets of alder and willow. Early seral stage coniferous forest.	Unlikely. Species prefers thickets of deciduous trees in riparian areas. Cover is sparse and no riparian areas occur in study areas. Potential habitat in McKinney Creek area to the south.
Western white-tailed jackrabbit *Lepus townsendii townsendii*	-	CSC	-	Sagebrush, subalpine conifer, juniper, alpine dwarf-shrub, and perennial grassland habitats. Also found in low sagebrush, wet meadow, and early successional stages of conifer habitats.	Unlikely. Last recorded occurrence near Tahoe City in 1920. Cover is sparse in study area; species prefers dense shrubby understory.

Table 2
Special-Status Species with Potential to Occur in the Project Area

Species	Status*			Habitat	Potential for Occurrence**
	Federal	State	Other		
Sierra Nevada red fox *Vulpes vulpes necator*	-	CT	-	Occurs in conifer forests and rugged alpine landscape of the Sierra Nevada and Cascade ranges between 4,000 feet and 12,000 feet, most often above 7,000 feet.	Unlikely. Nearest recorded occurrence is from 1994 near Truckee. Species prefers dense vegetation and rocky areas for cover and den sites.
Pacific fisher *Martes pennant pacifica*	FC	CSC	-	Occurs in intermediate to large-tree stage coniferous forests and riparian woodlands with a high percent level of canopy closure.	Unlikely. Prefers dense, mid-late seral conifer forest at higher elevations.
California wolverine *Gulo gulo luteus*	FC	CT	-	Remote habitat free of human disturbance with dense cover.	Unlikely. Nearest recorded occurrence is from vicinity of Squaw Valley in 1953. More recent occurrences from Truckee area.

*Status Codes:

Federal

FE Federal Endangered
FT Federal Threatened
FP Federal Proposed Species
FC Federal Candidate Species

State

CE California Endangered
CT California Threatened
CR California Rare (plants only)
CSC California Species of Concern
CFP California Fully Protected

CNPS – California Rare Plant Rank (CRPR)

Rank 1B Rare, Threatened, or Endangered in California
Rank 2 R, T, or E in California, more common elsewhere
1- Seriously threatened in California
2- Fairly threatened in California
3- Not very threatened in California

**Definitions for the Potential to Occur:

- **None.** Habitat does not occur.
- **Unlikely.** Some habitat may occur, but disturbance or other activities may restrict or eliminate the possibility of the species occurring. Habitat may be very marginal, or the study area may be outside the range of the species.
- **Possible.** Marginal to suitable habitat occurs, and the study area occurs within the range of the species.
- **Likely.** Good habitat occurs, but the species was not observed during surveys.
- **Occurs:** Species was observed during surveys.

Plants

Tahoe yellow cress (*Rorippa subumbellata*) is a perennial herb that spreads from deeply buried rhizomes. This member of the mustard family occurs in coarse sand and sandy soils (often among cobbles or boulders) of beaches, stream inlets, beach dunes, and backshore depressions, generally within a few feet of the local water table, and only in the shore zone of Lake Tahoe at elevations of 6223-6230 feet (Pavlik et. al. 2002). Suitable habitat exists at the Chamberland water intake station on the shore of Lake Tahoe. The beach does receive heavy use seasonally, but records updated in 2013 indicate an occurrence on the north side of the mouth of McKinney Creek.

Davy's sedge (*Carex davyi*) Davy's sedge is designated as a CNPS List 1B.3 species. This species is a perennial herb commonly associated with subalpine coniferous forests and upper montane coniferous forests at elevations between 4,950 and 10,560 feet. The blooming period is between May and August. This species is known from fewer than 20 occurrences and is threatened by grazing and logging. There are no occurrences of this species within 5 miles of the project area.

Wildlife

Northern goshawk (*Accipiter gentilis*) occurs in dense, mature conifer and deciduous forest habitats interspersed with meadows or other openings. It typically breeds in mature old-growth stands of conifer and deciduous habitats, at mid to high elevations. Nesting habitat generally includes north-facing slopes located near water. Nests are usually located in the fork of a large, horizontal limb close to the trunk, approximately 19 to 82 feet above the ground. This species often uses old nests, and will maintain alternate sites. Breeding generally begins in mid-June, with eggs being incubated approximately 36 to 41 days. Young usually fledge at about 45 days following hatching and are typically independent by 70 days.

The CNDDB (2014) reports two documented occurrences of northern goshawk in the project region, including occurrences from nearby areas Blackwood Canyon and Sugar Pine Point State Park. The closest documented nesting activity (occurrence No. 118) was reported in 1980 from approximately three miles north of the study area in Blackwood Canyon. Based on the presence of suitable nest trees and proximity to previously documented nesting activity, it is possible the northern goshawk and other protected raptors could nest in the study areas, although nesting habitat value is significantly reduced by the proximity of the study areas to residential development and recreational uses.

Yellow warbler (*Dendroica petechia*) is an uncommon to common, summer resident in the northern Sierra Nevada. It primarily breeds in riparian woodlands up to 8,000 feet, but is also known to breed in montane chaparral, open ponderosa pine and mixed conifer habitats with substantial amounts of shrub cover. During migration, this species is found in a variety of forest and woodland habitats. Nests consist of an open cup placed approximately 2 to 16 feet above the ground in a deciduous tree or shrub. Breeding generally takes place from mid-April to early-August with peak activity occurring in June. Incubation is approximately 11 days. Young fledge at about 9 to 12 days following hatching. Young yellow warblers breed the following year after hatching.

The CNDDB documents three known occurrences of yellow warbler within the project region. The closest documented occurrences relative to the study corridor are from Burton Creek State Park to the northeast and Donner Lake to the north (CNDDB 2012). Marginal nesting habitat for this species occurs within the conifer forest on the Lagoon site because it has wetlands and a robust understory, but the proximity to residential development reduces the value of the site for nesting. Lack of a more developed understory precludes this species from the Chamberland/Lodge Site. The McKinney Creek riparian habitat near the existing temporary water treatment facility provides suitable habitat immediately offsite. Based on the proximity to developed areas, distance to riparian habitat, and documented nesting activity, it is unlikely that yellow warbler would nest within the study area.

Bald eagle (*Haliaeetus leucocephalus*) establishes nest sites in open-branched, large-diameter trees along shorelines, lake margins, or other water bodies or rivers. This species is listed as endangered by the State of California and was de-listed by the U.S. Fish and Wildlife Service in 2007. The study area near Lake Tahoe (intake pipe location) is considered marginally suitable nesting habitat for bald eagle because it has limited large-diameter nest trees and is adjacent to Lake Tahoe. However, nesting is considered unlikely in this area due to heavy human use and proximity to residential development and recreation facilities. There are no known nesting occurrences within five miles of the study area.

Willow flycatcher *(Empidonax trailii),* a state-listed endangered species, is a rare to locally uncommon summer resident in the Sierra Nevada. Willow flycatcher breeds from Tulare County north, along the western front of the Sierra Nevada and Cascade mountain ranges, extending to the coast in northern California. This species resides in wet meadows and montane riparian habitats, up to 8,000 feet in elevation, and most often occurs in broad, open river valleys or large mountain meadows with large areas of shrubby willows (Zeiner et al. 1990). Preferred nesting habitat for willow flycatcher consists of extensive thickets of low, dense willows located along the edges of wet meadows, ponds, or backwater areas. This habitat does not occur on or adjacent to the study area. McKinney Creek has marginal habitat in the area adjacent to the study area, but the neither the Chamberland/Lodge nor the Lagoon Site provide suitable habitat for this species and it is unlikely to occur.

Sierra Nevada snowshoe hare *(Lepus americanus tahoensis)* is an uncommon resident at upper elevations of the Sierra Nevada. This subspecies of snowshoe hare is primarily found in montane riparian habitats with thickets of alders and willows, and in stands of young conifers mixed with chaparral. It prefers the younger stages of a variety of coniferous forest habitats, primarily occurring along the edges, adjacent to meadows. Individuals seek cover in dense tree or shrub thickets, where they create a shallow bowl-like depression. Breeding takes place from mid-February to June or July, with a gestation period of 35 to 37 days. Two to three litters are generally produced. Diet consists of grasses, forbs, sedges, and low shrubs during the summer. In winter, they eat the needles and bark of young conifers, and leaves and twigs of willow and alder (Zeiner et al., 1990).

A few occurrences of the Sierra Nevada snowshoe hare (SNSH) have been documented in the broader region of the study area. The closest documented occurrence was from 1929 near Tahoe City. The most recent occurrence, reported from 1959, was from Rubicon Bay, ±4 miles south of the study area. No riparian habitat occurs within the study area, but McKinney Creek

riparian habitat is adjacent to the existing temporary WTP site. This species is considered highly unlikely to occur in the study area.

Western white-tailed jackrabbit (*Lepus townsendii townsendii)* typically occurs in habitats with a dense shrub layer. Last recorded occurrence of this species is from 1920 near Tahoe City. The study areas are not considered appropriate habitat for this species and it is considered unlikely to occur in the project area.

Sierra Nevada red fox *(Vulpes vulpes necator*) Sierra Nevada red fox inhabit forested areas interspersed with riparian and meadow habitat, and brush fields. Sierra Nevada red fox occur mainly at elevations greater than 7,000 feet, and seldom below 5,000 feet. The study areas are not considered good habitat since they are at the lower elevational range of this species and are in proximity to development. The portion of the project alignment near Chambers Landing is adjacent to riparian habitat and the Lagoon site offers better habitat than the Chamberland/Lodge site. However, given the elevation and proximity to development, this species is unlikely to occur.

Fisher *(Martes pennanti)* prefer late-seral coniferous forests with large diameter snags, closed canopy, and complex ground structure including multi-layered vegetation and downed large woody material. Preferred habitat is typically in close proximity to dense riparian corridors. Geographic distribution of this species is known from populations in the North Coast region and the southern Sierra Nevada. Unconfirmed visual sightings of this species are recorded from Blackwood Canyon and General Creek on the west shore of Lake Tahoe from 1972 and 1984, respectively. Systematic monitoring throughout the Sierra have failed to detect any fisher from the southern cascades (eastern Shasta County) to the central Sierra Nevada (Mariposa County) (Zielinski et al. 2005). Due to the proximity of development and forest disturbance associated with recreation and forest fuels management, the Chamberland/Lodge study area is not considered to provide suitable fisher habitat and this species is unlikely to occur. The Lagoon site has better habitat because of its intact understory, but the lack of recent regional occurrence records, proximity to development, and higher quality habitat to the west, this species is unlikely to occur on the Lagoon project site.

California wolverine *(Gulo gulo luteus)* is typically reported from sub-alpine and alpine habitats at elevations higher than the study areas in locations remote from human disturbance. The nearest reported sightings and a confirmed sighting of this species are from north of Truckee. The Chamberland/Lodge site is not considered to provide suitable foraging or denning habitat for this species, due to proximity to development and sparse physical structure as a result of vegetation management activities. The Lagoon site has much better understory growth, water, and better potential habitat, but proximity to development and low elevation make this species unlikely to occur.

Nesting raptors, including common species such as the red-shouldered hawk, are protected by the Migratory Bird Treaty Acts and by California Department of Fish and Game Codes. There is suitable habitat for nesting raptors in larger conifers on both sites and along the southeastern boundary of the proposed pipeline in the riparian trees of McKinney Creek, although no raptors or potential raptor nests were observed during the field assessments. Nesting raptors are considered possible in the project areas.

CONCLUSIONS AND RECOMMENDATIONS

Dudek conducted a biological resources assessment for the proposed ±6.19-acre Chamberland WTP project site and the 4.53 acre Lagoon WTP project site, including the two pipeline alignments and water intake and pump facility locations. Chamberland project site and pipeline alignment habitat includes mixed coniferous forest within an area adjacent to residential development that is subject to forest fuels reduction treatments. The study area also included areas of residential ornamental plantings, paved roads, and the Lake Tahoe shoreline. The Lagoon project site includes a mixed conifer forest with an intact understory, an historic spring, and riparian habitat. The Lagoon pipeline alignment includes developed roads in residential development areas, a narrow beach, and the Lake Tahoe shoreline. The following paragraphs address sensitive biological resources onsite that typically require permits or other actions by local, State, or federal agencies.

Wetlands and Waters of the United States

The two proposed project alignments include some work below the ordinary high water mark of Lake Tahoe, a jurisdictional navigable water of the United States. This work will require a formal jurisdictional determination and resource agency permits pursuant to Section 10 of the Rivers and Harbors Act, Sections 401 and 404 of the Clean Water Act and Section 1600 of the California Fish and Game Code. These permits would also trigger a Section 7 Consultation pursuant to the Federal Endangered Species Act. Local permitting/clearances with Tahoe Regional Planning Agency (TRPA) is also anticipated for impacts to riparian/wetland habitat. It is recommended that a qualified biologist assist with exclusion fencing and monitoring while work in being conducted in this Lake Tahoe shoreline area.

No other wetlands or other hydrological features that meet criteria as waters of the U.S. occur within the Chamberland/Lodge study area, but the area south/southeast of the access road to Chambers Landing is adjacent to McKinney Creek. Disturbance within the footprint of the existing temporary WTP will result in no discharge of fill to waters of the U.S., but work south of the footprint of the existing temporary WTP would require a formal jurisdictional wetland delineation and potential resource agency permits pursuant to Sections 401 and 404 of the Clean Water Act and Section 1600 of the California Fish and Game Code. Local permitting with TRPA is also anticipated for impacts to riparian/wetland habitat associated with McKinney Creek. It is recommended that a qualified biologist assist with exclusion fencing and monitoring while work in being conducted in this area.

Iron Spring, a small historic freshwater spring, originates on the Lagoon project site. The spring supports a jurisdictional wetland with marsh and riparian habitat. A weakly defined drainage also drains the site from the southern corner to the northeast and terminates in the roadside ditch along Lagoon Drive. If this site is to be developed a jurisdictional delineation of wetlands and waters of the U.S. would need to be conducted to clearly define areas subject to jurisdictional pursuant to the various regulations protecting wetlands. The other potential waters of the U.S. identified within the study area are below the ordinary high water mark of Lake Tahoe.

Chamberland/Lodge Site

- For impacts below the ordinary high water mark of Lake Tahoe: Acquire resource agency permits pursuant to Section 10 of the Rivers and Harbors Act, Sections 401 and 404 of the Clean Water Act and Section 1600 of the California Fish and Game Code.
- Engage in a Section 7 Consultation pursuant to the Federal Endangered Species Act during the wetland permitting process.
- Local permitting/clearances with Tahoe Regional Planning Agency (TRPA) are also necessary for impacts to riparian/wetland habitat.
- It is recommended that a qualified biologist assist with exclusion fencing and monitoring while work is being conducted in this Lake Tahoe shoreline area, especially near wetland and riparian habitat adjacent to the temporary water treatment facility near McKinney Creek.

Lagoon Site

- For potential impacts to wetland and riparian habitat on the Lagoon site and for impacts below the ordinary high water mark of Lake Tahoe: Acquire resource agency permits pursuant to Section 10 of the Rivers and Harbors Act, Sections 401 and 404 of the Clean Water Act and Section 1600 of the California Fish and Game Code.
- Engage in a Section 7 Consultation pursuant to the Federal Endangered Species Act during the wetland permitting process.
- Local permitting/clearances with Tahoe Regional Planning Agency (TRPA) are also necessary for impacts to riparian/wetland habitat.
- It is recommended that a qualified biologist assist with exclusion fencing and monitoring while work is being conducted in the Lake Tahoe shoreline area, Iron Spring, and any other wetland or riparian habitat.

Special-Status Plants

Database searches conducted returned 26 special-status plant species with potential to occur in the region. A special status plant survey was not conducted because the survey has not conducted during the typical blooming time of special status species in the area. Twenty-four of these special-status species require habitat types that are not represented within the study area, including wet areas, rocky outcrops, volcanic soils, or areas of high elevation. The two remaining species, Tahoe yellow cress (*Rorippa subumbellata*) and Davy's sedge (*Carex davyi*) are known to occur in the area. Davy's sedge is known from ten specific sites in the region, but all are more than five miles from the two study areas. Understory removal in the Chamberland/Lodge project area makes presence of this species unlikely, and the lack of records within five miles makes presence also unlikely at the Lagoon Site.

Tahoe yellow cress habitat is documented near the Chamberland water intake station on the shore of Lake Tahoe. The beach does receive heavy use seasonally, but records updated in 2013 indicate an occurrence on the north side of the mouth of McKinney Creek. There is no suitable habitat for this species at the two alternative treatment plant locations.

- It is recommended that a pre-construction Tahoe yellow cress survey be conducted to identify existing populations and to confirm there are no additional populations in the project area. If populations are found, avoidance measures consistent with resource agency guidance are recommended (e.g., high visibility avoidance fencing).

Special-Status Wildlife

Nesting raptors: No active or inactive raptor nest sites were observed during site surveys conducted in October 2014. However, trees within the study area provide suitable nesting habitat for raptors known from the region, including northern goshawk, osprey, and bald eagle. Take of any active raptor nest is prohibited under California Department of Fish and Game Code Section 3503.5.

Chamberland/Lodge Site and Lagoon Sites

- To avoid take of any active raptor nest, tree removal within the study area should be conducted between September 1 and May 1, which is outside of the typical raptor breeding season.
- For any construction activities, including tree removal, initiated during the typical breeding season (generally May 1 to through August 31) a pre-construction native bird nesting survey should be conducted by a qualified biologist within 15 days prior to project-related activities. If the construction site is inactive at any time for more than 15 days, another nesting survey shall be conducted prior to re-initation of work onsite. If any active raptor nests are found on or immediately adjacent to the proposed area of disturbance, consultation should be initiated with CDFW to determine appropriate avoidance measures and mitigation responsibilities. Mitigation measures typically include limited operating periods and / or a 100 to 500-foot buffer from the nest until it is determined to be inactive.
- To avoid impacts to habitat for cavity-nesting wildlife species it is recommended that standing snags be left standing to the extent possible.

Yellow warbler: No yellow warbler nests or individuals were observed onsite during surveys conducted in October and there was no habitat for this species at the Chamberland/Lodge Site, and habitat in the Lagoon survey area is considered marginal for this species. However, yellow warbler could nest in the riparian shrubs within the Lagoon Site and the intake alignment and temporary treatment facility are adjacent habitat associated with McKinney Creek.

- To avoid impacts to this species, vegetation disturbance should be limited in accordance with TRPA requirements and removal of vegetation should be conducted between September 1 and May 1, which corresponds to the non-nesting season. If vegetation removal must be conducted during the breeding season for this species, CDFW should be contacted to determine appropriate measures to ensure impacts to this species are minimized. Measures could include a survey for active nests and impact minimization or avoidance measures if nests are discovered.

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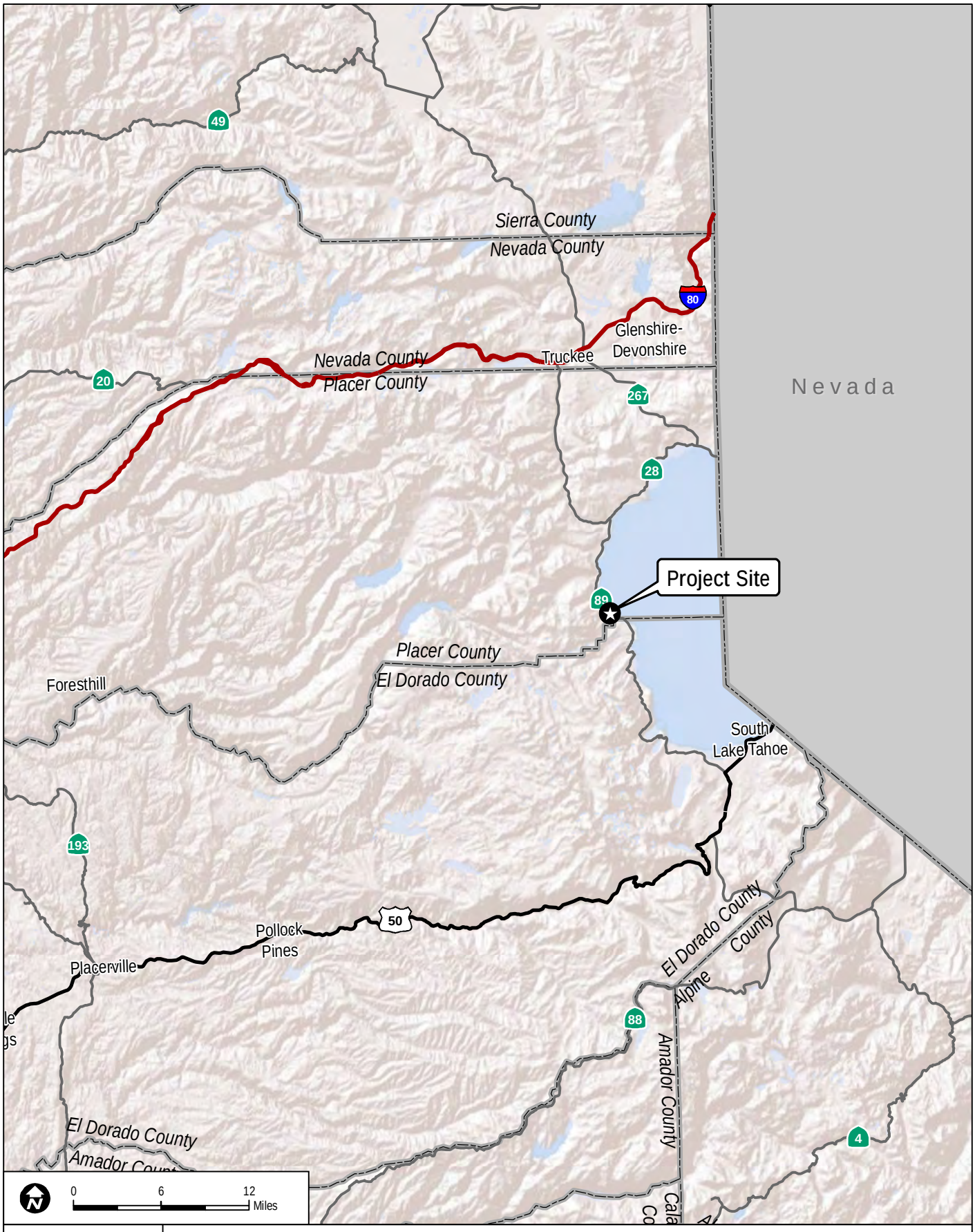

DUDEK

7788

SOURCE: ESRI 2015

FIGURE 1

Regional Map

TCPUD West Lake Tahoe Regional Water Treatment Plant

DUDEK

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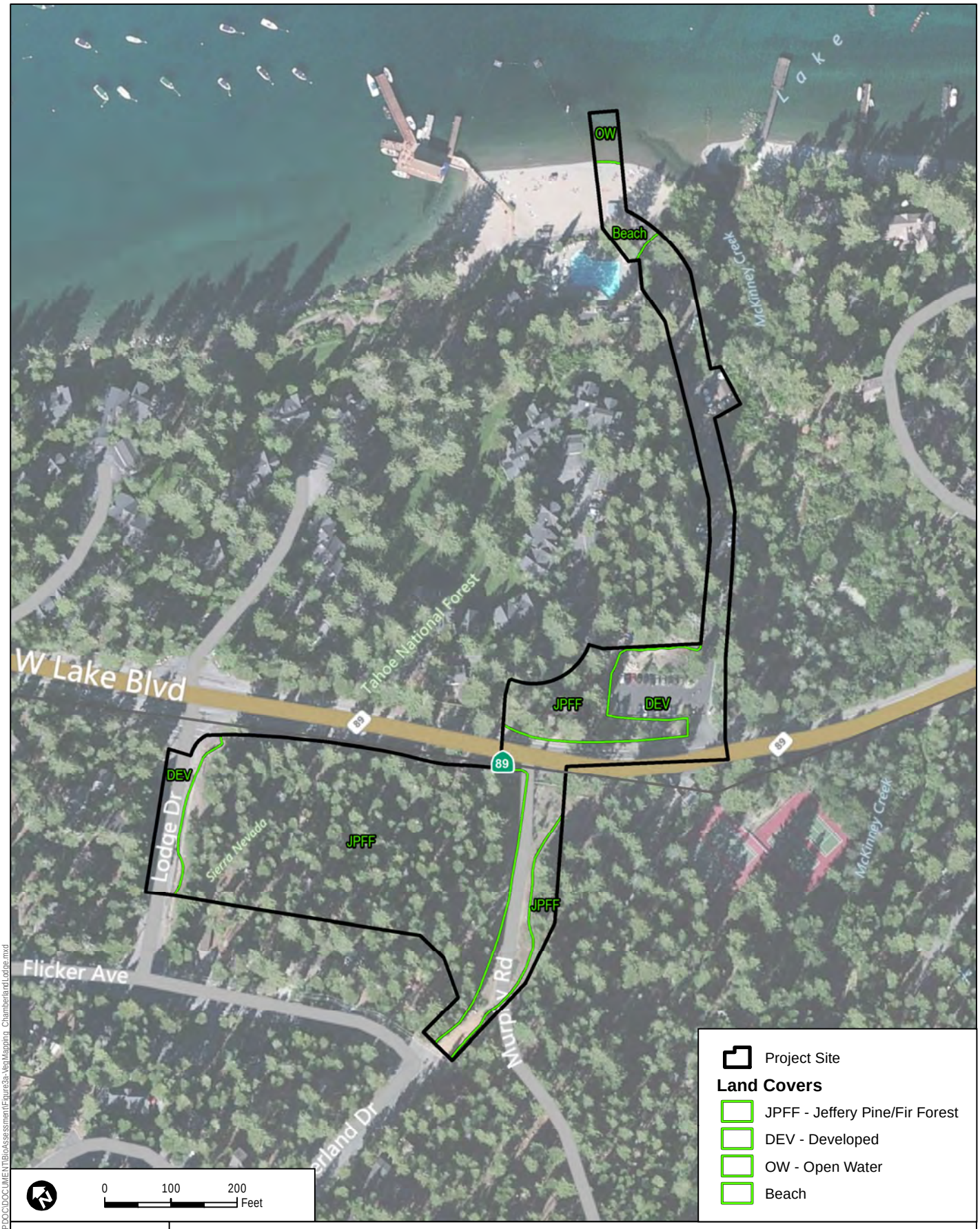
SOURCE: USGS 7.5-Minute Series Homewood Quadrangle.

FIGURE 2

Vicinity Map

TCPUD West Lake Tahoe Regional Water Treatment Plant



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SOURCE: Bing 2014, Auerbach Engineering 2014

FIGURE 3a

Land Cover Mapping - Chamberland/Lodge Site

Biological Resource Assessment for the West Lake Tahoe Regional Treatment Plant Project

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Path: Z:\Projects\7788\01\MAP\DOC\DOCUMENT\BioAssessment\Figure3b-VegMapping_Lagoon.mxd

DUDEK

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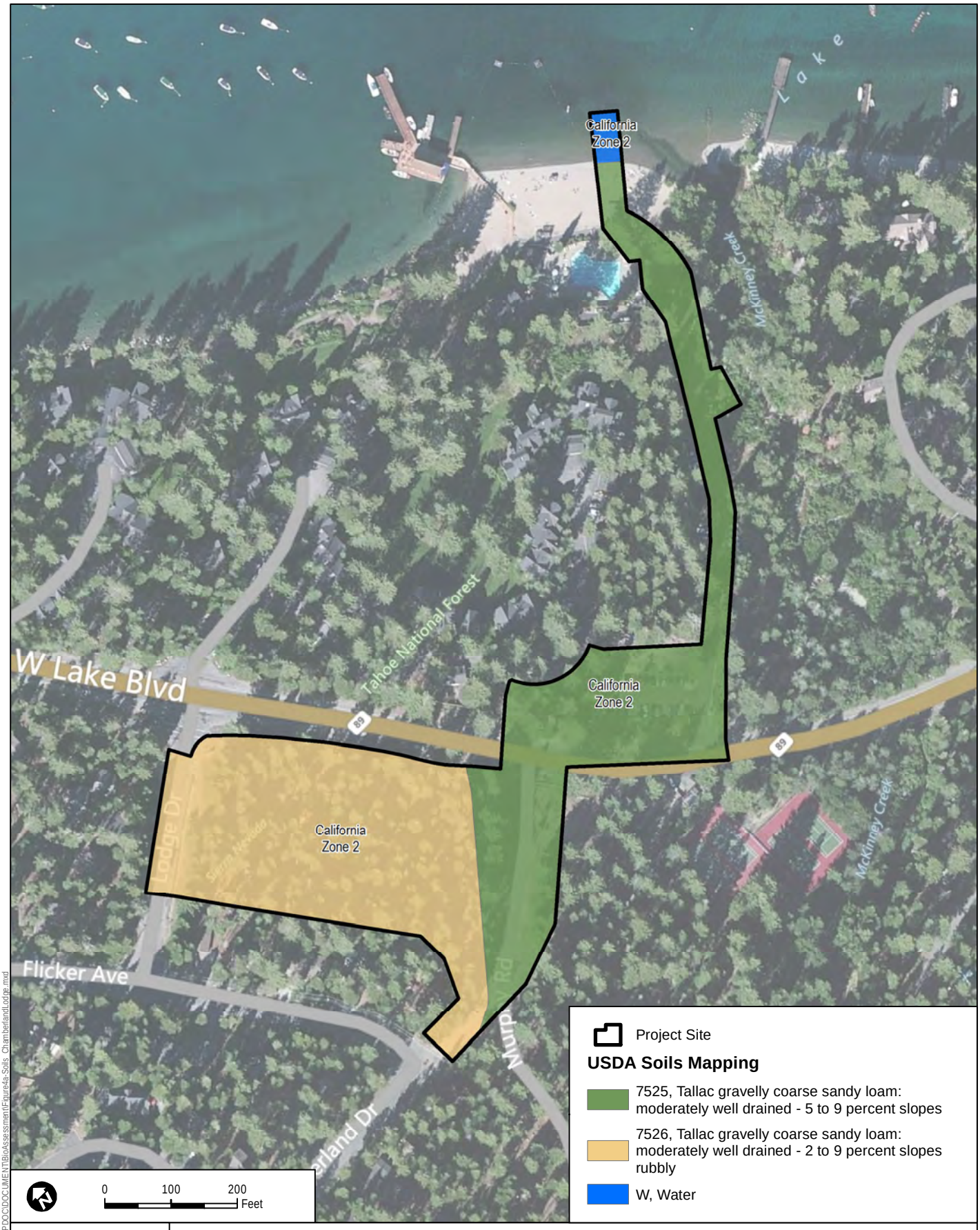
SOURCE: Bing 2014, Auerbach Engineering 2014

FIGURE 3b

Land Cover Mapping - Lagoon Site

Biological Resource Assessment for the West Lake Tahoe Regional Treatment Plant Project



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DUDEK

7788

SOURCE: Bing 2014, Auerbach Engineering 2014, USDA 2009

FIGURE 4a

Soils Mapping - Chamberland/Lodge Site

Biological Resource Assessment for the West Lake Tahoe Regional Treatment Plant Project

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DUDEK

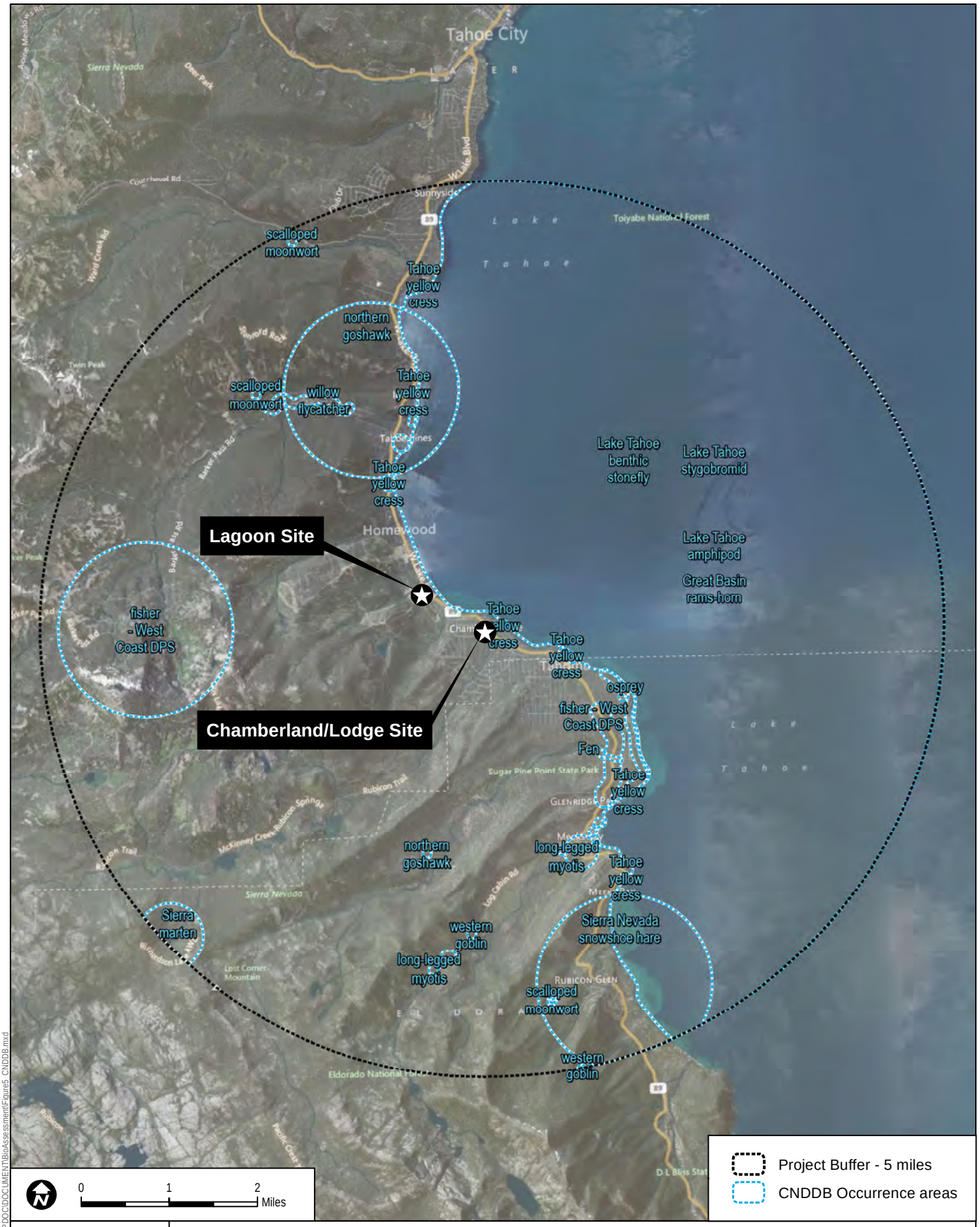
7788

SOURCE: Bing 2014, Auerbach Engineering 2014, USDA 2009

FIGURE 4b

Soils Mapping - Lagoon Site

Biological Resource Assessment for the West Lake Tahoe Regional Treatment Plant Project



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DUDEK

7788

SOURCE: BING 2015, CNDDB 2015

FIGURE 5

CNDDB Occurrences

Biological Resource Assessment for the West Lake Tahoe Regional Treatment Plant Project

Appendix A

Results of Database Queries Conducted

(List of species generated by queries of CNDDB, USFWS, and CNPS databases.)

CALIFORNIA DEPARTMENT OF FISH and WILDLIFE **RareFind**

Query Summary:
Quad IS (Homewood (3912012) OR Meeks Bay (3912011) OR Granite Chief (3912023) OR Wentworth Springs (3912013) OR Tahoe City of (3912022) OR Kings Beach (3912021) OR Emerald Bay (3812081) OR Rockbound Valley (3812082) OR Loon Lake (3812083))

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CNDDB Element Query Results

Scientific Name	Common Name	Taxonomic Group	Element Code	Total Occs	Returned Occs	Federal Status	State Status	Global Rank	State Rank	CA Rare Plant Rank	Other Status	Habitats
Lithobates pipiens	northern leopard frog	Amphibians	AAABH01170	22	4	None	None	G5	S2	null	CDFW_SSC-Species of Special Concern | IUCN_LC-Least Concern	Freshwater marsh | Great Basin flowing waters | Great Basin standing waters | Marsh & swamp | Wetland
Rana sierrae	Sierra Nevada yellow-legged frog	Amphibians	AAABH01340	468	16	Endangered	Threatened	G1	S1	null	CDFW_SSC-Species of Special Concern | IUCN_EN-Endangered | USFS_S-Sensitive	Aquatic
Accipiter gentilis	northern goshawk	Birds	ABNKC12060	427	5	None	None	G5	S3	null	BLM_S-Sensitive | CDF_S-Sensitive | CDFW_SSC-Species of Special Concern | IUCN_LC-Least Concern | USFS_S-Sensitive	North coast coniferous forest | Subalpine coniferous forest | Upper montane coniferous forest
Empidonax traillii	willow flycatcher	Birds	ABPAE33040	87	3	None	Endangered	G5	S1S2	null	ABC_WLBCC-Watch List of Birds of Conservation Concern | IUCN_LC-Least Concern | USFS_S-Sensitive | USFWS_BCC-Birds of Conservation Concern	Meadow & seep | Riparian scrub | Riparian woodland | Wetland
Haliaeetus leucocephalus	bald eagle	Birds	ABNKC10010	316	2	Delisted	Endangered	G5	S2	null	BLM_S-Sensitive | CDF_S-Sensitive | CDFW_FP-Fully Protected | IUCN_LC-Least Concern | USFS_S-Sensitive | USFWS_BCC-Birds of Conservation Concern	Lower montane coniferous forest | Oldgrowth
Pandion haliaetus	osprey	Birds	ABNKC01010	482	21	None	None	G5	S3	null	CDF_S-Sensitive | CDFW_WL-Watch List | IUCN_LC-Least Concern	Riparian forest
Riparia riparia	bank swallow	Birds	ABPAU08010	296	1	None	Threatened	G5	S2S3	null	BLM_S-Sensitive | IUCN_LC-Least Concern	Riparian scrub | Riparian woodland
Setophaga petechia	yellow warbler	Birds	ABPBX03010	50	1	None	None	G5	S3S4	null	CDFW_SSC-Species of Special Concern | USFWS_BCC-Birds of Conservation Concern	Riparian forest | Riparian scrub | Riparian woodland
Xanthocephalus xanthocephalus		Birds	ABPBXB3010	11	1	None	None	G5	S3	null		Marsh & swamp | Wetland

	yellow-headed blackbird										CDFW_SSC-Species of Special Concern | IUCN_LC-Least Concern	
Meesia uliginosa	broad-nerved hump moss	Bryophytes	NBMUS4L030	46	1	None	None	G4	S3	2B.2	USFS_S-Sensitive	Bog & fen | Meadow & seep | Subalpine coniferous forest | Upper montane coniferous forest | Wetland
Stygobromus lacicolus	Lake Tahoe amphipod	Crustaceans	ICMAL05970	1	1	None	None	G1	S1	null	null	Aquatic
Stygobromus tahoensis	Lake Tahoe stygobromid	Crustaceans	ICMAL05A70	1	1	None	None	G1	S1	null	null	Aquatic
Artemisia tripartita ssp. tripartita	threetip sagebrush	Dicots	PDAST0S1S2	4	2	None	None	G5T3T5	S2	2B.3	null	Upper montane coniferous forest
Astragalus austiniae	Austin's astragalus	Dicots	PDFAB0F120	9	4	None	None	G2G3	S2S3	1B.3	null	Alpine boulder & rock field | Subalpine coniferous forest
Boechera tularensis	Tulare rockcress	Dicots	PDBRA40130	28	1	None	None	G2	S2	1B.3	USFS_S-Sensitive	Subalpine coniferous forest | Upper montane coniferous forest
Brasenia schreberi	watershield	Dicots	PDCAB01010	33	1	None	None	G5	S2	2B.3	null	Marsh & swamp | Wetland
Chaenactis douglasii var. alpina	alpine dusty maidens	Dicots	PDAST20065	12	1	None	None	G5T5	S2	2B.3	null	Alpine | Alpine boulder & rock field
Eriogonum umbellatum var. torreyanum	Donner Pass buckwheat	Dicots	PDPGN086U9	21	4	None	None	G5T2	S2	1B.2	USFS_S-Sensitive	Meadow & seep | Upper montane coniferous forest
Lewisia longipetala	long-petaled lewisia	Dicots	PDPOR040K0	14	6	None	None	G3	S3	1B.3	USFS_S-Sensitive	Alpine boulder & rock field | Subalpine coniferous forest
Phacelia stebbinsii	Stebbins' phacelia	Dicots	PDHYD0C4D0	45	4	None	None	G3	S3	1B.2	USFS_S-Sensitive	Cismontane woodland | Lower montane coniferous forest | Meadow & seep | Riparian woodland
Rhamnus alnifolia	alder buckthorn	Dicots	PDRHA0C010	16	3	None	None	G5	S3	2B.2	null	Lower montane coniferous forest | Meadow & seep | Riparian scrub | Upper montane coniferous forest | Wetland
Rorippa subumbellata	Tahoe yellow cress	Dicots	PDBRA270M0	28	23	Candidate	Endangered	G1	S1	1B.1	SB_BerrySB-Berry Seed Bank | SB_RSABG-Rancho Santa Ana Botanic Garden | USFS_S-Sensitive	Freshwater marsh | Lower montane coniferous forest | Marsh & swamp | Meadow & seep | Wetland
Scutellaria galericulata	marsh skullcap	Dicots	PDLAM1U0J0	31	3	None	None	G5	S2	2B.2	null	Lower montane coniferous forest | Marsh & swamp | Meadow & seep | Wetland
Sphaeralcea munroana	Munro's desert mallow	Dicots	PDMAL140F0	1	1	None	None	G4	S1	2B.2	null	Great Basin scrub
Viola tomentosa	felt-leaved violet	Dicots	PDVIO04280	54	9	None	None	G3	S3	4.2	null	Lower montane coniferous forest | Subalpine coniferous

												forest | Upper montane coniferous forest
Botrychium ascendens	upswept moonwort	Ferns	PPOPH010S0	19	1	None	None	G3	S2	2B.3	USFS_S-Sensitive	Lower montane coniferous forest
Botrychium crenulatum	scalloped moonwort	Ferns	PPOPH010L0	74	6	None	None	G3	S2	2B.2	USFS_S-Sensitive	Bog & fen | Lower montane coniferous forest | Marsh & swamp | Meadow & seep | Upper montane coniferous forest | Wetland
Botrychium minganense	mingan moonwort	Ferns	PPOPH010R0	57	1	None	None	G4G5	S2	2B.2	USFS_S-Sensitive	Bog & fen | Lower montane coniferous forest | Upper montane coniferous forest
Botrychium montanum	western goblin	Ferns	PPOPH010K0	43	4	None	None	G3	S2	2B.1	USFS_S-Sensitive	Lower montane coniferous forest | Oldgrowth
Ophioglossum pusillum	northern adder's-tongue	Ferns	PPOPH020F0	4	1	None	None	G5	S1	2B.2	USFS_S-Sensitive	Marsh & swamp | Meadow & seep | Wetland
Oncorhynchus clarkii henshawi	Lahontan cutthroat trout	Fish	AFCHA02081	27	2	Threatened	None	G4T3	S2	null	AFS_TH-Threatened	Aquatic | Great Basin flowing waters
Capnia lacustra	Lake Tahoe benthic stonefly	Insects	IIPLE03200	1	1	None	None	G1	S1	null	null	Aquatic | Great Basin standing waters
Aplodontia rufa californica	Sierra Nevada mountain beaver	Mammals	AMAFA01013	16	4	None	None	G5T3T4	S2S3	null	CDFW_SSC-Species of Special Concern | IUCN_LC-Least Concern	Riparian forest | Riparian scrub | Riparian woodland
Gulo gulo	California wolverine	Mammals	AMAJF03010	173	3	None	Threatened	G4	S1	null	CDFW_FP-Fully Protected | IUCN_NT-Near Threatened | USFS_S-Sensitive	Alpine | Alpine dwarf scrub | Meadow & seep | Montane dwarf scrub | North coast coniferous forest | Riparian forest | Subalpine coniferous forest | Upper montane coniferous forest | Wetland
Lepus americanus tahoensis	Sierra Nevada snowshoe hare	Mammals	AMAEB03012	12	2	None	None	G5T3T4Q	S2?	null	CDFW_SSC-Species of Special Concern	Riparian woodland
Lepus townsendii townsendii	western white-tailed jackrabbit	Mammals	AMAEB03041	24	1	None	None	G5T5	S3?	null	CDFW_SSC-Species of Special Concern	Alpine dwarf scrub | Great Basin grassland | Great Basin scrub | Pinon & juniper woodlands | Subalpine coniferous forest
Martes caurina sierrae	Sierra marten	Mammals	AMAJF01014	111	11	None	None	G5T3	S3	null	USFS_S-Sensitive	null
Myotis volans	long-legged myotis	Mammals	AMACC01110	116	3	None	None	G5	S4?	null	IUCN_LC-Least Concern | WBWG_H-High Priority	Upper montane coniferous forest
Ochotona princeps schisticeps	gray-headed pika	Mammals	AMAEA0102H	328	9	None	None	G5T2T4	S2S4	null	IUCN_NT-Near Threatened	Alpine talus & scree slope | Talus slope
Pekania pennanti	fisher - West Coast DPS	Mammals	AMAJF01021	647	2	Candidate	Candidate Threatened	G5T2T3Q	S2S3	null	BLM_S-Sensitive | CDFW_SSC-Species of Special Concern | USFS_S-Sensitive	North coast coniferous forest | Oldgrowth | Riparian forest

Vulpes vulpes necator	Sierra Nevada red fox	Mammals	AMAJA03012	201	1	None	Threatened	G5T1T2	S1	null	USFS_S-Sensitive	Alpine | Alpine dwarf scrub | Broadleaved upland forest | Meadow & seep | Riparian scrub | Subalpine coniferous forest | Upper montane coniferous forest | Wetland
Fen	Fen	Marsh	CTT51200CA	6	1	None	None	G2	S1.2	null	null	Bog & fen | Wetland
Helisoma newberryi	Great Basin rams-horn	Mollusks	IMGASM6020	9	1	None	None	G1Q	S1	null	USFS_S-Sensitive	Aquatic
Margaritifera falcata	western pearlshell	Mollusks	IMBIV27020	74	1	None	None	G4G5	S1S2	null	null	Aquatic
Carex davyi	Davy's sedge	Monocots	PMCYP033H0	19	2	None	None	G2	S2	1B.3	null	Subalpine coniferous forest | Upper montane coniferous forest
Carex lasiocarpa	woolly-fruited sedge	Monocots	PMCYP03720	15	2	None	None	G5	S2	2B.3	null	Bog & fen | Freshwater marsh | Marsh & swamp | Wetland
Carex limosa	mud sedge	Monocots	PMCYP037K0	34	2	None	None	G5	S3	2B.2	null	Bog & fen | Freshwater marsh | Lower montane coniferous forest | Marsh & swamp | Meadow & seep | Upper montane coniferous forest | Wetland
Carex praticola	northern meadow sedge	Monocots	PMCYP03B20	11	1	None	None	G5	S2S3	2B.2	null	Meadow & seep | Wetland
Glyceria grandis	American manna grass	Monocots	PMPOA2Y080	11	4	None	None	G5	S2	2B.3	null	Bog & fen | Marsh & swamp | Meadow & seep | Wetland
Potamogeton epihydrus	Nuttall's ribbon-leaved pondweed	Monocots	PMPOT03080	25	1	None	None	G5	S2S3	2B.2	null	Marsh & swamp | Wetland
Stuckenia filiformis ssp. alpina	slender-leaved pondweed	Monocots	PMPOT03091	21	2	None	None	G5T5	S3	2B.2	null	Marsh & swamp | Wetland

U.S. Fish & Wildlife Service

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Species By County Report

The following report contains Species that are known to or are believed to occur in this county. Species with range unrefined past the state level are now excluded from this report. If you are looking for the Section 7 range (for Section 7 Consultations), please visit the IPaC application.

County: , CA

Group	Name	Population	Status	Lead Office	Recovery Plan Name	Recovery Plan Action Status	Recovery Plan Stage
Amphibians	California tiger Salamander (Sonoma) (*Ambystoma californiense*)	U.S.A. (CA - Sonoma County)	Endangered	Sacramento Fish And Wildlife Office	-	-	-
	California red-legged frog (*Rana draytonii*)	Entire	Threatened	Sacramento Fish And Wildlife Office	Recovery Plan for the California Red-legged Frog (Rana aurora draytonii)	View Implementation Progress	Final
Crustaceans	Conservancy fairy shrimp (*Branchinecta conservatio*)	Entire	Endangered	Sacramento Fish And Wildlife Office	Recovery Plan for Vernal Pool Ecosystems of California and Southern Oregon	View Implementation Progress	Final
	Vernal pool fairy shrimp (*Branchinecta lynchi*)	Entire	Threatened	Sacramento Fish And Wildlife Office	Recovery Plan for Vernal Pool Ecosystems of California and Southern Oregon	View Implementation Progress	Final
	Vernal pool tadpole shrimp (*Lepidurus packardi*)	Entire	Endangered	Sacramento Fish And Wildlife Office	Recovery Plan for Vernal Pool Ecosystems of California and Southern Oregon	View Implementation Progress	Final
Fishes	Lahontan cutthroat trout (*Oncorhynchus clarkii henshawi*)	Entire	Threatened	Nevada Fish And Wildlife Office	Lahontan Cutthroat Trout (Oncorhynchus clarki henshawi) Recovery Plan	View Implementation Progress	Final
Flowering Plants	Stebbins' morning-glory (*Calystegia stebbinsii*)		Endangered	Sacramento Fish And Wildlife Office	Recovery Plan for Gabbro Soil Plants of the Central Sierra Nevada Foothills	View Implementation Progress	Final
	Pine Hill ceanothus (*Ceanothus roderickii*)		Endangered	Sacramento Fish And Wildlife Office	Recovery Plan for Gabbro Soil Plants of the Central Sierra Nevada Foothills	View Implementation Progress	Final
	Pine Hill flannelbush (*Fremontodendron californicum ssp. decumbens*)		Endangered	Sacramento Fish And Wildlife Office	Recovery Plan for Gabbro Soil Plants of the Central Sierra Nevada Foothills	View Implementation Progress	Final
			Endangered			View Implementation Progress	Final

Group	Name	Population	Status	Lead Office	Recovery Plan Name	Recovery Plan Action Status	Recovery Plan Stage
	El Dorado bedstraw (*Galium californicum ssp. sierrae*)			Sacramento Fish And Wildlife Office	Recovery Plan for Gabbro Soil Plants of the Central Sierra Nevada Foothills		
	Tahoe yellow cress (*Rorippa subumbellata*)		Candidate	Nevada Fish And Wildlife Office	-	-	-
	Layne's butterweed (*Senecio layneae*)		Threatened	Sacramento Fish And Wildlife Office	Recovery Plan for Gabbro Soil Plants of the Central Sierra Nevada Foothills	View Implementation Progress	Final
	Sacramento Orcutt grass (*Orcuttia viscida*)		Endangered	Sacramento Fish And Wildlife Office	Recovery Plan for Vernal Pool Ecosystems of California and Southern Oregon	View Implementation Progress	Final
Insects	Valley elderberry longhorn beetle (*Desmocerus californicus dimorphus*)	Entire	Threatened	Sacramento Fish And Wildlife Office	Valley Elderberry Longhorn Beetle Recovery Plan	View Implementation Progress	Final
Reptiles	Giant garter snake (*Thamnophis gigas*)	Entire	Threatened	Sacramento Fish And Wildlife Office	Draft Recovery Plan for the Giant Garter Snake (Thamnophis gigas)	View Implementation Progress	Draft

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CNPS California Native Plant Soc Rare and Endangered Plant Inventory

Plant List

30 matches found. *Click on scientific name for details*

Search Criteria

Rare Plant Rank is one of [1A, 1B, 2A, 2B, 3], Found in 9 Quads around 39120A2

Scientific Name	Common Name	Family	Lifeform	Rare Plant Rank	State Rank	Global Rank
Arabis rigidissima var. demota	Galena Creek rockcress	Brassicaceae	perennial herb	1B.2	S1	G3T3Q
Artemisia tripartita ssp. tripartita	threetip sagebrush	Asteraceae	perennial shrub	2B.3	S2	G5T3T5
Astragalus austiniae	Austin's astragalus	Fabaceae	perennial herb	1B.3	S2S3	G2G3
Boechera tularensis	Tulare rockcress	Brassicaceae	perennial herb	1B.3	S2	G2
Botrychium ascendens	upswept moonwort	Ophioglossaceae	perennial rhizomatous herb	2B.3	S2	G3
Botrychium crenulatum	scalloped moonwort	Ophioglossaceae	perennial rhizomatous herb	2B.2	S2	G3
Botrychium minganense	Mingan moonwort	Ophioglossaceae	perennial rhizomatous herb	2B.2	S2	G4G5
Botrychium montanum	western goblin	Ophioglossaceae	perennial rhizomatous herb	2B.1	S2	G3
Botrychium paradoxum	paradox moonwort	Ophioglossaceae	perennial rhizomatous herb	2B.1	S1	G3G4
Brasenia schreberi	watershield	Cabombaceae	perennial rhizomatous herb	2B.3	S2	G5
Carex davyi	Davy's sedge	Cyperaceae	perennial herb	1B.3	S2	G2
Carex lasiocarpa	woolly-fruited sedge	Cyperaceae	perennial rhizomatous herb	2B.3	S2	G5
Carex limosa	mud sedge	Cyperaceae	perennial rhizomatous herb	2B.2	S3	G5
Carex praticola	northern meadow sedge	Cyperaceae	perennial herb	2B.2	S2S3	G5
Chaenactis douglasii var. alpina	alpine dusty maidens	Asteraceae	perennial herb	2B.3	S2	G5T5
Claytonia megarhiza	fell-fields claytonia	Montiaceae	perennial herb	2B.3	S2S3	G4G5
Epilobium oreganum	Oregon fireweed	Onagraceae	perennial herb	1B.2	S2	G2
Erigeron eatonii var. nevadincola	Nevada daisy	Asteraceae	perennial herb	2B.3	S3	G5T4
Eriogonum umbellatum var. torreyanum	Donner Pass buckwheat	Polygonaceae	perennial herb	1B.2	S2	G5T2
Glyceria grandis	American manna grass	Poaceae	perennial rhizomatous herb	2B.3	S2	G5

Lewisia longipetala	long-petaled lewisia	Montiaceae	perennial herb	1B.3	S3	G3
Meesia uliginosa	broad-nerved hump moss	Meesiaceae	moss	2B.2	S3	G4
Ophioglossum pusillum	northern adder's-tongue	Ophioglossaceae	perennial rhizomatous herb	2B.2	S1	G5
Phacelia stebbinsii	Stebbins' phacelia	Boraginaceae	annual herb	1B.2	S3	G3
Polystichum lonchitis	northern holly fern	Dryopteridaceae	perennial rhizomatous herb	3	S2?	G5
Rhamnus alnifolia	alder buckthorn	Rhamnaceae	perennial deciduous shrub	2B.2	S3	G5
Rorippa subumbellata	Tahoe yellow cress	Brassicaceae	perennial rhizomatous herb	1B.1	S1	G1
Scutellaria galericulata	marsh skullcap	Lamiaceae	perennial rhizomatous herb	2B.2	S2	G5
Sphaeralcea munroana	Munro's desert mallow	Malvaceae	perennial herb	2B.2	S1	G4
Stuckenia filiformis ssp. alpina	slender-leaved pondweed	Potamogetonaceae	perennial rhizomatous herb	2B.2	S3	G5T5

Suggested Citation

CNPS, Rare Plant Program. 2014. Inventory of Rare and Endangered Plants (online edition, v8-02). California Native Plant Society, Sacramento, CA. Website http://www.rareplants.cnps.org [accessed 13 November 2014].

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Appendix B

Plant Species Observed During Field Surveys of the Project Site

October 10, 2014

Lagoon Site

Lifeform	Family	Scientific name	Common name	Noxious/ Invasive
Dicotyledon	Aceraceae	*Acer glabrum*	mountain maple	
Dicotyledon	Asteraceae	*Achillea millefolium*	yarrow	
Dicotyledon	Asteraceae	*Antennaria sp.*	pussytoes	
Dicotyledon	Asteraceae	*Artemesia ludoviciana*	mugwort	
Dicotyledon	Asteraceae	*Aster sp.*	Aster	
Dicotyledon	Asteraceae	*Cirsium andersonii*	Anderson's thistle	
Dicotyledon	Asteraceae	*Lactuca serriola*	devil's lettuce	
Dicotyledon	Asteraceae	*Solidago canadensis*	Canadian goldenrod	
Dicotyledon	Asteraceae	*Taraxacum officinalis*	common dandelion	Invasive
Dicotyledon	Asteraceae	*Wyethia mollis*	mule's ear	
Dicotyledon	Betulaceae	*Alnus incana ssp. tenuifolia*	thin leaf alder	
Dicotyledon	Boraginaceae	*Cryptantha affins*	side groove cryptantha	
Dicotyledon	Capriofilaceae	*Lonicera conjugialis*	double honeysuckle	
Dicotyledon	Capriofilaceae	*Symphoricarpos rotundifolius*	mountain snowberry	
Dicotyledon	Chenopodaceae	*Chenopodium album*	white goosefoot	
Dicotyledon	Cornaceae	*Cornus sericea*	creek dogwood	
Dicotyledon	Ericaceae	*Arctostaphylos patula*	greenleaf manzanita	
Dicotyledon	Fabaceae	*Lathyrus latifolius*	sweet pea	
Dicotyledon	Fabaceae	*Lotus nevadensis var. nevadensis*	Sierra Nevada lotus	
Dicotyledon	Fabaceae	*Lupinus lepidus*	Pacific lupine	
Dicotyledon	Fabaceae	*Trifolium repens*	white clover	
Dicotyledon	Fabaceae	*Vicia americana ssp. americana*	American vetch	
Dicotyledon	Grossulariaceae	*Ribes nevadense*	Nevada currant	
Dicotyledon	Grossulariaceae	*Ribes roezlii*	Sierra gooseberry	
Dicotyledon	Onagraceae	*Epilobium angustifolium*	fireweed	
Dicotyledon	Onagraceae	*Epilobium ciliatum*	willowherb	
Dicotyledon	Plantaginaceae	*Plantego lanceolata*	English plantain	
Dicotyledon	Plantaginaceae	*Plantego major*	common plantain	
Dicotyledon	Polygonaceae	*Rumex acetosella*	sheep sorrel	
Dicotyledon	Portulaceae	*Calyptridium umbellatum*	pussy paws	
Dicotyledon	Rhamnaceae	*Ceanothus cordulatus*	mountain whitethorn	
Dicotyledon	Rhamnaceae	*Ceanothus prostratus*	pine mat	
Dicotyledon	Rosaceae	*Fragaria virginiana*	mountain strawberry	
Dicotyledon	Rosaceae	*Potentilla fruticosa*	shrubby cinquefoil	
Dicotyledon	Rosaceae	*Rosa woodsii*	Wood's rose	
Dicotyledon	Rosaceae	*Sorbus scopulina*	mountain ash	
Dicotyledon	Salicaceae	*Populus tremuloides*	aspen	
Dicotyledon	Salicaceae	*Salix lasiolepis*	arroyo willow	
Dicotyledon	Salicaceae	*Salix scoulariana*	Scouler's willow	
Monocotyledon	Cyperaceae	*Carex exserta*	short hair sedge	
Monocotyledon	Poaceae	*Agrostis scabra*	rough bentgrass	
Monocotyledon	Poaceae	*Bromus carinatus*	mountain brome	
Monocotyledon	Poaceae	*Bromus inermus*	smooth brome	
Monocotyledon	Poaceae	*Deschampsia danthanoides*	Annual hairgrass	
Monocotyledon	Poaceae	*Elymus elymoides*	squirreltail grass	
Monocotyledon	Poaceae	*Elymus glaucus*	blue wild rye	
Monocotyledon	Poaceae	*Hordeum brachyantherum*	meadow barley	
Gymnosperm	Cupressaceae	*Calocedrus decurrens*	incense cedar	
Gymnosperm	Pinaceae	*Abies concolor*	white fir	

Lifeform	Family	Scientific name	Common name	Noxious/ Invasive
Gymnosperm	Pinaceae	*Pinus lambertiana*	sugar pine	
Pteridophyte	Dennstaedtiaceae	*Pteridium aquilinum*	braken fern	

Chamberland/Lodge Site

Lifeform	Family	Scientific name	Common name	Noxious/ Invasive
Dicotyledon	Asteraceae	*Achillea millefolium*	yarrow	
Dicotyledon	Capriofilaceae	*Lonicera conjugialis*	double honeysuckle	
Dicotyledon	Capriofilaceae	*Symphoricarpos rotundifolius*	mountain snowberry	
Dicotyledon	Ericaceae	*Arctostaphylos patula*	greenleaf manzanita	
Dicotyledon	Rosaceae	*Rosa woodsii*	Wood's rose	
Gymnosperm	Cupressaceae	*Calocedrus decurrens*	incense cedar	
Gymnosperm	Pinaceae	*Abies concolor*	white fir	
Gymnosperm	Pinaceae	*Pinus jefferyi*	Jeffery pine	
Gymnosperm	Pinaceae	*Pinus lambertiana*	sugar pine	

Appendix C

Representative Photographs

Photo 1: Junction of Chamberland Road and Flicker Road – looking east.

Photo 2: Chamberland WTP Site – looking north.

Photo 3: Chamberland WTP Site – looking northeast.

Photo 4: Existing Temporary WTP Site – looking east.

Photo 5: Existing Temporary WTP Site – looking west.

Photo 6: South side of existing Temporary WTP Site adjacent to McKinney Creek riparian habitat– looking west.

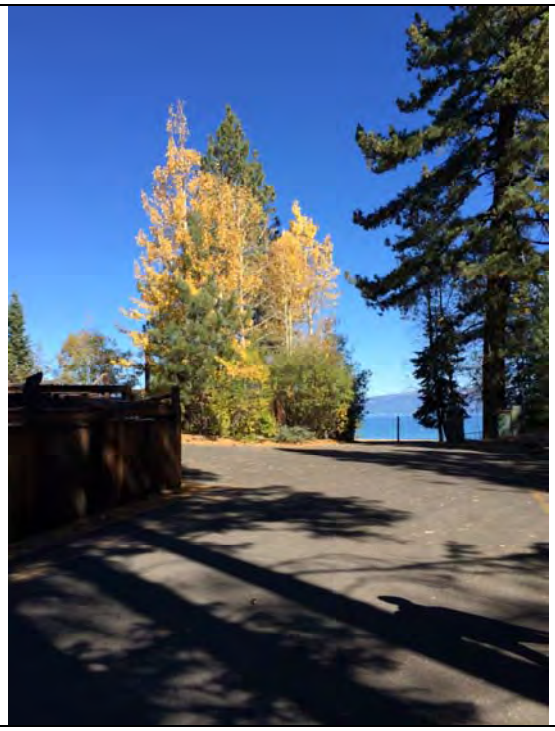

Photo 7: Water pipeline alignment east of temporary WTP – looking east.

Photo 8: Existing Chambers Landing Intake – looking northeast.

Photo 9: Existing Chambers Landing Intake – looking east.

Photo 10: Existing Chambers Landing Intake Pipe – looking east.

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Photo 16: Small man-made drainage at Chamberland Drive at Flicker Avenue – looking southeast.

Photo 17: Lagoon Site – looking northwest.

Photo 18: Lagoon Site – looking southwest.

Photo 19: Lagoon Site – looking west.

Photo 20: Lagoon Site – looking southwest.

Photo 21: Lagoon Site – looking west at spring-fed wetland.

Photo 22: Lagoon Site – sign marking Iron Springs.

DRAFT TREE SURVEY REPORT

West Lake Tahoe
Regional Water Treatment Plant

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MAY 2015

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1.0 INTRODUCTION

This report summarizes Dudek's evaluation of trees on or adjacent to the proposed Tahoe City Public Utility District (TCPUD) West Lake Tahoe Regional Water Treatment Plant (WLTRWTP) project conducted on November 19 and 21, 2014. The project area evaluated for this report includes three alternative water treatment plant (WTP) locations and a pipeline alignment between from two alternative WTP locations and an existing water intake facility. This report includes a discussion of tree evaluation and mapping methods, a summary of findings, identification of anticipated impacts, tree protection recommendations consistent with Tahoe Regional Planning Agency (TRPA) requirements, recommended mitigation measures, and identification of necessary permits for tree removal. The primary focus of our field effort was identification and inventory of all trees which may be affected by proposed development that are regulated under the TRPA Code of Ordinances (Section 61: Vegetation and Forest Health) and an evaluation of general forest conditions within the alternative WTP locations.

1.1 Assignment

A Dudek California Registered Professional Forester (RPF) and International Society of Arboriculture (ISA) Certified Arborist performed the following key tasks:

- Assessed all trees greater than 6 inches in trunk diameter within or adjacent to each of three alternative project sites and one pipeline alignment, for species, size, general health and structural condition, and presence of disease and/or pests.
- Assessed general stand conditions at each project alternative location.
- Mapped individual tree locations utilizing existing site survey data.
- Evaluated tree impact status based on tree locations and conceptual site development plans.
- Developed a letter report documenting site observations and providing tree protection and mitigation recommendations.

1.2 Setting

1.2.1 Location

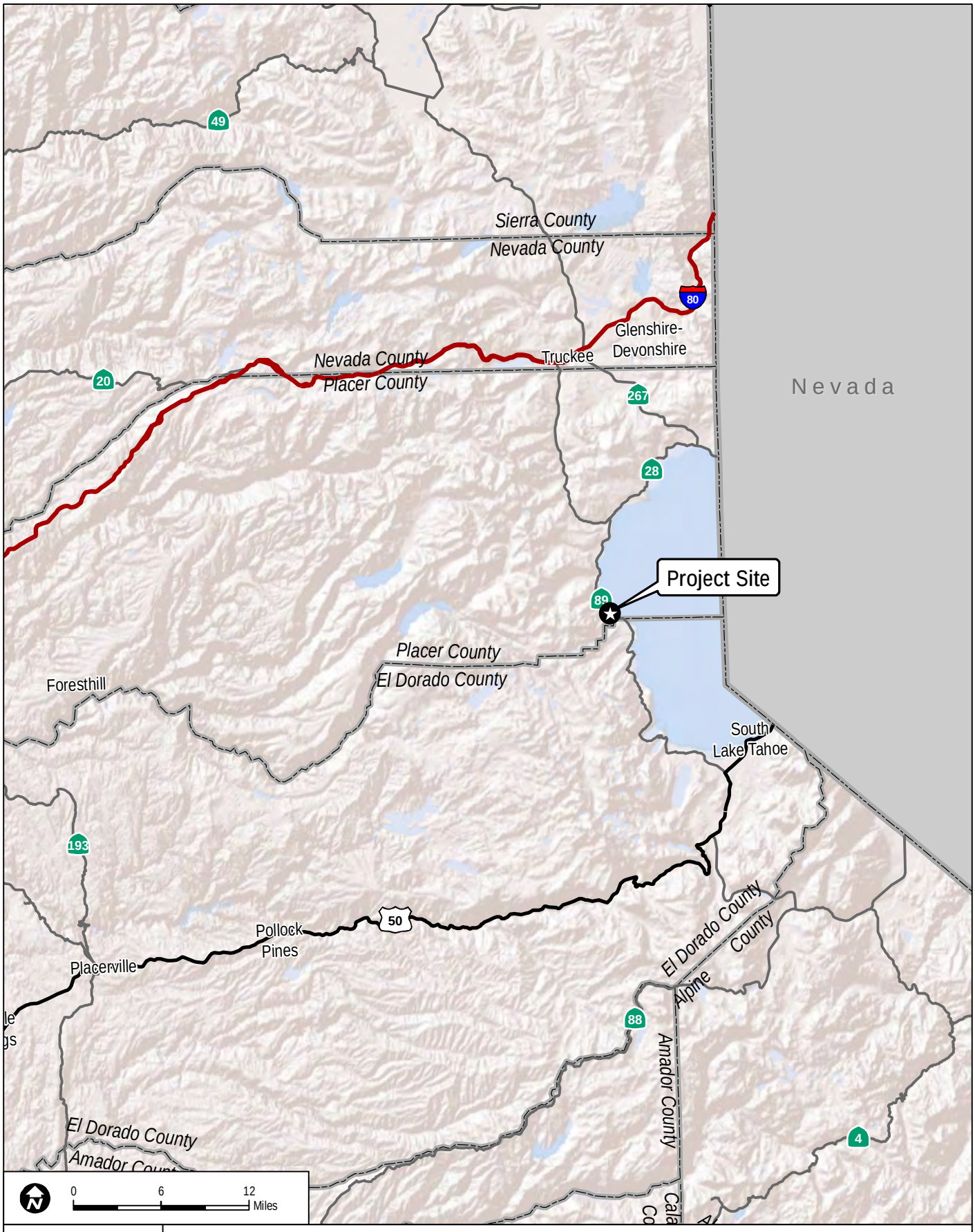
Three potential locations for the WLTRWTP are under consideration. Each is a vacant parcel west of State Route (SR) 89. The project would also include the reconstruction of an existing water intake pump station and pipeline at one of two locations (Chambers Landing Beach or McKinney Shores Beach) and new water transmission pipelines between the intake station and

the treatment plant. A regional map is provided in Figure 1 and a vicinity map is provided in Figure 2. The three potential WLTRWTP sites are:

Lodge Road: At this location, the WLTRWTP would be constructed adjacent to Lodge Road on the northern portion of an approximately 6.5-acre vacant parcel, as shown on Figure 3. This parcel contains two of the proposed sites and is referred to herein as the "Chamberland/Lodge" parcel. This Chamberland/Lodge parcel is owned by the California Tahoe Conservancy (CTC). The Lodge site is adjacent to residences and immediately west of SR 89. The Tahoe City to Sugar Pine bike trail runs between SR 89 and the Chamberland/Lodge parcel. This site would utilize a reconstructed lake intake at the Chambers Landing beach, which is located across SR 89, approximately 0.2 miles from the Lodge site.

Chamberland Drive: At this location, the WLTRWTP would be constructed in the central portion of the Chamberland/Lodge parcel, with access from the intersection of Chamberland Drive and Flicker Avenue, as shown on Figure 4. The Chamberland site is also adjacent to residences and immediately west of SR 89. The Tahoe City to Sugar Pine bike trail runs between SR 89 and the Chamberland/Lodge parcel. There is a Stream Environment Zone (SEZ) as designated by the Tahoe Regional Planning Agency (TRPA) located along the southern boundary of the Chamberland site; the proposed site improvements would be located outside of the SEZ. This site would utilize a reconstructed lake intake at the Chambers Landing beach, which is located across SR 89, approximately 0.2 miles from the Chamberland site.

Lagoon Road: At this location, the WLTRWTP would be constructed adjacent to Lagoon Road on an approximately 23-acre vacant parcel owned by TCPUD, as shown on Figure 5. The Lagoon site is adjacent to residences and the Homewood Mountain Resort ski area. Relative to the Lodge and Chamberland sites, the Lagoon site is set farther back into the residential neighborhood and is approximately 0.25 miles east of SR 89. This site would utilize a reconstructed lake intake at the McKinney Shores beach, which is located across SR 89, approximately 0.2 miles from the Lagoon site.



DUDEK

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SOURCE: ESRI 2015

FIGURE 1

Regional Map

TCPUD West Lake Tahoe Regional Water Treatment Plant - Tree Survey Report

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SOURCE: USGS 7.5-Minute Series Homewood Quadrangle.

FIGURE 2

Vicinity Map

TCPUD West Lake Tahoe Regional Water Treatment Plant - Tree Survey Report

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SOURCE: Kennedy/Jenks Consultants 2014; Placer County 2011; Bing Maps 2015

FIGURE 3

Aerial Map - Lodge WTP Site

TCPUD West Lake Tahoe Regional Water Treatment Plant - Tree Survey Report

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SOURCE: Kennedy/Jenks Consultants 2014; Placer County 2011; Bing Maps 2015

FIGURE 4

Aerial Map - Chamberland WTP Site

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SOURCE: Kennedy/Jenks Consultants 2014; Placer County 2011; Bing Maps 2015

FIGURE 5

Aerial Map - Lagoon WTP Site

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1.2.2 Project Description

The WLTRWTP Project would include the following components (as shown on Figures 3, 4, and 5):

- Lake intake pump station and lake intake pipeline (two potential locations are under consideration);
- Raw water pipeline from lake intake facilities to the proposed water treatment plant (WTP);
- Intake pump station electrical and chemical feed room (two potential locations are under consideration);
- WTP facility (three potential locations are under consideration);
- Various water distribution system improvements (pipelines) to distribute treated water from the WTP to the existing water distribution system;
- Decommission and removal of the existing Interim Surface Water Treatment Plant (ISWTP); and
- Potentially a public parking lot and public restrooms to improve access to recreational facilities in the vicinity.

1.2.3 General Physical Characteristics

The Chamberland/Lodge parcel (6.4 acres) has elevations ranging from approximately 6,280 to 6,300 feet above mean sea level (AMSL) and is gently sloped eastward toward SR 89. The development area for each of the Chamberland and Lodge alternatives encompasses approximately 3,400 ft^2. The dominant vegetation on this parcel is Jeffrey pine/fir forest with a relatively open understory consisting of scattered shrubs, downed woody debris, and duff. Tree cover is distributed fairly evenly across the parcel and is comprised predominantly of Jeffrey pine (*Pinus jeffreyi*) and white fir (*Abies concolor*), although other tree species are present. Stand density on this parcel is approximately 100 trees/acre, with an average basal area[1]/acre of 230 ft^2.

[1] Basal area per tree is the cross-sectional area of a tree at 4.5 feet above ground level (dbh) and basal area per acre is the sum of all the per tree basal area values in an acre. Basal area is important in understanding the amount of area occupied by tree stems and is a useful index for understanding wildlife habitat relationships.

The Lagoon site is situated on the eastern edge of a 26.8-acre parcel, with the development area encompassing approximately 3,400 ft^2. The development area has elevations ranging from approximately 6,290 to 6,305 feet above mean sea level (AMSL) and is moderately sloped northeastward toward Lagoon Road. The dominant vegetation on this parcel is Jeffrey pine/fir forest with a relatively open understory consisting of scattered shrubs, downed woody debris, and duff. Tree cover is distributed fairly evenly across the parcel and is comprised predominantly of Jeffrey pine and white fir, although other tree species are present. Evidence of recent thinning was observed on site. Stand density on this site is approximately 90 trees/acre, with an average basal area/acre of 260 ft^2.

The pipeline alignment along Chambers Lodge Road has elevations ranging from approximately 6,225 to 6,280 feet above mean sea level (AMSL) and is moderately sloped northeastward toward Lake Tahoe. The dominant vegetation on this parcel is Jeffrey pine/fir forest and the understory is primarily developed with an access road, parking lots, and infrastructure associated with the current water intake pump. Tree cover is comprised predominantly of Jeffrey pine and white fir, although black cottonwood (*Populus balsamifera ssp. Trichocarpa*) and quaking aspen (*Populus tremuloides*) are present in high numbers, given the site's location adjacent to McKinney Creek. Stand density in this area is variable, given the linear nature of the alignment and its location along an existing paved road and adjacent to other developed areas (housing, parking lots, etc.).

1.4 Regulations

1.4.1 Tahoe Regional Planning Agency

Section 61.1.4 (Old Growth Enhancement and Protection) of the TRPA Code of Ordinances requires that any live, dead, or dying tree larger than 30 inches diameter at breast height (dbh) in westside forest types and in conservation or recreation land use areas not be cut except as provided by specific exemptions. For urban lands, trees larger than 30 inches dbh shall be retained unless no reasonable alternatives exist for retention of trees on site. Exemptions for removal of trees larger than 30 inches dbh (westside forest types) are provided in Section 61.1.4. In some cases, large public utility projects may qualify for an exemption from large tree removal restrictions if TRPA finds that there is no reasonable alternative to removal.

As outlined in Section 61.1.5 of the TRPA Code of Ordinances, removal of trees 14 inches dbh or less is exempt from TRPA approval and removal of trees greater than 14 inches dbh requires a tree removal permit from TRPA.

Finally, Section 33.6 of the TRPA Code of Ordinances identifies standards for tree protection during construction activities and outlines the provisions for revegetation of disturbed areas and potential requirements for preparation of a Tree Treatment Plan, which includes provisions for treatment of diseased/infected trees and hazard trees and tree stocking levels.

1.4.2 California Department of Forestry and Fire Protection

The Z'Berg-Nejedly Forest Practice Act (Forest Practice Act) and the associated California Public Resource Code (PRC) (Division 4, Chapter 8) establish the authority for the California Department of Forestry and Fire Protection (CAL FIRE) to act as the lead agency for timber harvest activities on non-federal land in the state. The California Forest Practice Rules (Title 14, California Code of Regulations, Chapter 4) provide the explicit requirements by which Registered Professional Foresters prepare Timber Harvest Plans (THP) and by which CAL FIRE serves as the lead agency and reviews their completeness, adequacy, and enforceability. CAL FIRE is responsible for administering THP Regulations conducted throughout California on all non-federal timberland. The removal of commercial timber species from forested areas is included under these regulations and may require a THP, a Timberland Conversion Permit (TCP), or another type of timber harvest plan exemption or emergency document, depending on project type.

Timber operations in the Lake Tahoe region are exempt from the plan preparation and submission requirements (PRC § 4581) and from the completion report and stocking report requirements (PRC §§ 4585 and 4587) of the Forest Practice Act as long as they comply with the requirements of paragraphs (1) to (16), inclusive, of subdivision (f) of Section 1038 of Title 14 of the California Code of Regulations.

Conversion of timberland to a non-timber use also requires a timberland conversion permit issued by CAL FIRE under Section 1103 of Title 14 of the California Code of Regulations. Some timber operations are exempt from conversion permit and timber harvesting plan requirements identified in the Forest Practice Rules, including conversion of less than three acres in one contiguous ownership, which would apply to each project alternative.

1.4.3 Placer County Tree Preservation Ordinance

Article 12.20 of the Placer County Code of Ordinances addresses tree preservation requirements east of the Sierra summit. This Article states that no person shall cut down, move, remove, kill, or materially damage any live tree six inches or more in trunk diameter without first having obtained a tree cutting permit from the permit-issuing authority, unless

such tree is located on lands devoted to the growing and harvesting of timber for commercial purposes for which permits have been granted permitting timber harvesting.

2.0 SUMMARY OF FINDINGS

The following sections describe the methods for inventorying and evaluating trees on each of the alternative project sites and evaluating potential tree impacts.

2.1 Field Tree Inventory and Evaluation

On November 19 and 21, 2014, a site evaluation was conducted by Scott Eckardt (Registered Professional Forester #2835 and ISA Certified Arborist, (#WE-5914A)) to document tree location and attribute information within the tree survey area. For the purposes of this report, the tree survey area encompasses the area within approximately 100 feet of the three proposed water treatment plant location options (Lodge WTP Site, Chamberland WTP Site, and Lagoon WTP Site) plus the area within approximately 20 feet of pipeline alignment along Chambers Lodge Road. Tree attribute data collected during the site evaluation included trunk diameter, tree height, and presences of observable pests or other tree maladies.

Trunk diameter measurements were taken at 4.5 feet above the ground along the trunk axis, with a few common exceptions. In cases where a tree's trunk split into multiple stems at approximately 4.5 feet above ground, the measurement was made at the location that best represented the trunk's diameter. Tree height measurements were made using a clinometer or by estimation based on comparison with adjacent measured trees. Observations of insect, fungal or pathogen damage, mechanical damage, presence of decay, presence of wilted or dead leaves/needles, and wound closure were documented, where applicable.

Concurrent with individual tree attribute measurement and assessment, the location of each individual tree was hand-mapped on a surveyed site base map that included surveyed tree locations for all trees in the tree survey area[2]. Surveyed tree locations were confirmed and tree identification numbers were recorded by hand in the field. Using this base map, Dudek then created one master tree inventory data set, inclusive of all trees in the tree survey area.

Individual tree locations are presented in Appendix A (Tree Location Exhibits) and individual tree data is presented in Appendix B (Tree Information Matrix).

2.2 Tree Impact Analysis

Following data collection, processing, and analysis efforts, Dudek analyzed the digital tree location data set to determine project-related tree impacts, by site alternative. Tree impact determination for each WTP alternative (including the two with parking lot options) was

[2] Auerbach Engineering, 2014

consistent and conservatively assumed that any tree with a trunk located within six feet of project disturbance areas (grading, excavation, fill, buildings, roads) would require removal. This assumption was made based on tree removal provisions included in Section 33.6.5 of the TRPA Code of Ordinances. Any tree that would be subject to construction activity within its canopy dripline area (the area of ground directly beneath a tree's crown) was considered to be subject to encroachment. Tree protection standards for trees subject to encroachment are included in Appendix C.

For new water pipeline alignments, it was assumed that a 15-foot wide excavation and work area (7.5 feet on either side of the pipeline centerline) would be necessary, based on information provided by project engineers. Therefore, it was assumed that any tree located within 6 feet of this identified work area would require removal. For the existing pipeline alignment in Chambers Lodge Road, it was assumed that a 6-foot wide excavation and work area (3 feet on either side of the pipeline centerline) would be necessary, based on information provided by project engineers. No trees in this area are expected to require removal, but encroachment may be necessary and has been identified for individual trees.

2.3 Scope of Work Limitations

This report presents site tree information as observed in the field on November 19 and 21, 2015. No root crown excavations or investigations, internal probing, or aerial canopy inspections were performed during the tree assessments. Therefore, the presence or absence of internal decay or other hidden or inaccessible inferiorities in individual trees could not be confirmed. It is recommended that any large tree proposed for preservation be thoroughly inspected for internal or subterranean decay by a qualified arborist before finalizing preservation plans.

3.0 FINDINGS/RESULTS

3.1 Tree Quantities

There are a total of 436 trees located within the tree survey area, including 9 different species. Table 1 presents a summary of tree quantities within the tree survey area with trunk diameters (dbh) measuring 6 inches and greater, while Table 2 summarizes trees with trunk diameters measuring 14 inches and greater, and Table 3 summarizes trees with trunk diameters measuring 30 inches and greater. Tree locations are presented in Appendix A (Tree Location Exhibits) and collected tree attribute data is presented in Appendix B (Tree Information Matrix).

Table 1
Summary of Trees with Trunk Diameters Measuring 6" and Greater

Scientific Name	Common Name	Tree Quantities				
		Lodge WTP Site	Chamberland WTP Site	Lagoon WTP Site	Chambers Lodge Road	Total
Abies concolor	White fir	91	95	28	52	266
Abies magnifica	Red fir	2	0	0	0	2
Calocedrus decurrens	Incense cedar	3	0	2	0	5
Pinus contorta var. murrayana	Lodgepole pine	1	10	0	0	11
Pinus jeffreyi	Jeffrey pine	21	43	0	46	110
Pinus lambertiana	Sugar pine	1	2	5	0	8
Populus balsamifera ssp. Trichocarpa	Black cottonwood	0	0	0	17	17
Populus tremuloides	Quaking aspen	0	1	0	14	15
Salix spp.	Willow	0	0	2	0	2
		119	151	37	129	436

Note: Two standing dead trees (snags) were also inventoried in the tree survey area but are not included in the tree totals presented herein. Their locations are presented in Appendix A (Tree Location Exhibits) and attribute data is presented in Appendix B (Tree Information Matrix).

Table 2
Summary of Trees with Trunk Diameters Measuring 14" and Greater

Scientific Name	Common Name	Tree Quantities				
		Lodge WTP Site	Chamberland WTP Site	Lagoon WTP Site	Chambers Lodge Road	Total
Abies concolor	White fir	60	64	25	29	178
Abies magnifica	Red fir	2	0	0	0	2
Calocedrus decurrens	Incense cedar	1	0	1	0	2
Pinus contorta var. murrayana	Lodgepole pine	0	4	0	0	4
Pinus jeffreyi	Jeffrey pine	17	38	0	31	86
Pinus lambertiana	Sugar pine	1	1	5	0	7
Populus balsamifera ssp. Trichocarpa	Black cottonwood	0	0	0	10	10
Populus tremuloides	Quaking aspen	0	0	0	5	5
Salix spp.	Willow	0	0	2	0	2
		81	107	33	75	296

Table 3
Summary of Trees with Trunk Diameters Measuring 30" and Greater

Scientific Name	Common Name	Tree Quantities				
		Lodge WTP Site	Chamberland WTP Site	Lagoon WTP Site	Chambers Lodge Road	Total
Abies concolor	White fir	8	6	1	5	20
Calocedrus decurrens	Incense cedar	1	0	0	0	1
Pinus jeffreyi	Jeffrey pine	5	12	0	11	28
Pinus lambertiana	Sugar pine	1	0	2	0	3
Populus balsamifera ssp. Trichocarpa	Black cottonwood	0	0	0	1	1
Populus tremuloides	Quaking aspen	0	0	0	1	1
Salix spp.	Willow	0	0	2	0	2
		15	18	5	18	56

Overall, the surveyed trees are in fair to good condition, typical of trees adjacent to residential development in the Lake Tahoe Basin that have been subject to hazard tree removal and thinning for defensible space purposes. Observed tree health and structural issues for surveyed trees include basal wounds, heart rot, fire damage, forked tops, canopy dieback, co-dominant stems, dead tops, and suppressed positions beneath larger overstory trees, amongst others.

3.2 Project-Related Tree Impacts

Impact totals presented herein are based on an evaluation of tree locations and the schematic site designs available at the time of this report preparation. The following sections identify project-related impacts for each project alternative. For the Chamberland and Lodge WTP sites, two additional alternatives were evaluated to consider impacts associated with potential inclusion of public parking lots and restrooms. Tree Impact Analysis Exhibits are presented in Appendix D.

3.2.1 Lodge WTP Site

Impacts associated with the Lodge WTP site alternative include those for the WTP, new water pipeline alignments, and the existing pipeline alignment from SR 89 to the Chambers Landing Beach Intake Site. Table 4 summarizes tree impacts for this alternative.

Table 4
Tree Impact Summary for the Lodge WTP Site

Tree Species (Common Name)	Tree Quantities					
	Tree Removal, by Trunk Diameter			Tree Encroachment, by Trunk Diameter		
	6 to 13.9”	14 to 29.9”	30”+	6 to 13.9”	14 to 29.9”	30”+
White fir	19	26	5	1	12	1
Red fir	0	2	0	0	0	0
Incense cedar	2	0	0	0	0	0
Jeffrey pine	2	10	8	2	2	5
Sugar pine	0	0	1	0	0	0
Black cottonwood	0	0	0	0	1	2
Quaking aspen	1	1	0	2	0	0
Total:	24	39	14	5	15	8

Note: One standing dead trees (28.5” white fir) will also require removal but is not included in the tree totals presented in Table 4.

3.2.2 Lodge WTP Site with Parking Lot and Restroom

Impacts associated with the Lodge WTP Site with Parking Lot and Restroom alternative include those for the WTP, the parking lot and restroom area, new water pipeline alignments, and the existing pipeline alignment from SR 89 to the Chambers Landing Beach Intake Site. Table 5 summarizes tree impacts for this alternative.

Table 5
Tree Impact Summary for the Lodge WTP Site with Parking Lot and Restroom

Tree Species (Common Name)	Tree Quantities					
	Tree Removal, by Trunk Diameter			Tree Encroachment, by Trunk Diameter		
	6 to 13.9”	14 to 29.9”	30”+	6 to 13.9”	14 to 29.9”	30”+
White fir	44	15	8	1	13	1
Red fir	0	2	0	0	0	0
Incense cedar	2	0	0	0	0	0
Lodgepole pine	1	0	0	0	0	0
Jeffrey pine	1	14	9	1	3	5
Sugar pine	0	0	1	0	0	0
Black cottonwood	0	0	0	0	1	2
Quaking aspen	1	1	0	2	0	0
Total:	49	32	18	4	17	8

Note: One standing dead trees (28.5” white fir) will also require removal but is not included in the tree totals presented in Table 5.

3.2.3 Chamberland WTP Site

Impacts associated with the Chamberland WTP Site alternative include those for the WTP, new water pipeline alignments, and the existing pipeline alignment from SR 89 to the Chambers Landing Beach Intake Site. Table 6 summarizes tree impacts for this alternative.

Table 6
Tree Impact Summary for the Chamberland WTP Site

Tree Species (Common Name)	Tree Quantities					
	Tree Removal, by Trunk Diameter			Tree Encroachment, by Trunk Diameter		
	6 to 13.9”	14 to 29.9”	30”+	6 to 13.9”	14 to 29.9”	30”+
White fir	19	26	0	1	5	1
Lodgepole pine	4	1	0	0	0	0
Jeffrey pine	1	16	6	1	2	3
Sugar pine	1	0	0	0	0	0
Black cottonwood	0	0	0	0	1	2
Quaking aspen	1	1		2	0	
Total:	26	44	6	4	8	6

Note: One standing dead trees (27.6” white fir) will also require removal but is not included in the tree totals presented in Table 6.

3.2.4 Chamberland WTP Site with Parking Lot and Restroom

Impacts associated with the Chamberland WTP Site with Parking Lot and Restroom alternative include those for the WTP, the parking lot and restroom area, new water pipeline alignments, and

the existing pipeline alignment from SR 89 to the Chambers Landing Beach Intake Site. Table 7 summarizes tree impacts for this alternative.

Table 7
Tree Impact Summary for the Chamberland WTP Site with Parking Lot and Restroom

Tree Species (Common Name)	Tree Quantities					
	Tree Removal, by Trunk Diameter			Tree Encroachment, by Trunk Diameter		
	6 to 13.9”	14 to 29.9”	30”+	6 to 13.9”	14 to 29.9”	30”+
White fir	21	33	1	1	5	1
Lodgepole pine	4	2	0	0	0	0
Jeffrey pine	2	20	9	1	2	3
Sugar pine	1	0	0	0	0	0
Black cottonwood	0	0	0	0	1	2
Quaking aspen	1	1	0	2	0	0
Total:	29	56	10	4	8	6

Note: One standing dead trees (27.6” white fir) will also require removal but is not included in the tree totals presented in Table 7.

3.2.5 Lagoon WTP Site

Impacts associated with the Lagoon WTP Site alternative include those for the WTP and new water pipeline alignments between the WTP and Lagoon Road. The raw water pipeline alignment from the Lagoon WTP site to its proposed lake intake pipeline (running from the site northward on Lagoon Road, then northward on Sacramento Avenue, then eastward on Tahoe Ski Bowl Way, then southward on Highway 89 to its intake location at McKinney Shores Beach) is assumed to occur entirely within paved road alignments. As such, tree removal is not expected to occur for the pipeline component of the Lagoon WTP site alternative. Table 8 summarizes tree impacts for this alternative.

Table 8
Tree Impact Summary for the Lagoon WTP Site

Tree Species (Common Name)	Tree Quantities					
	Tree Removal, by Trunk Diameter			Tree Encroachment, by Trunk Diameter		
	6 to 13.9”	14 to 29.9”	30”+	6 to 13.9”	14 to 29.9”	30”+
White fir	2	10	0	0	2	0
Incense cedar	0	1	0	0	0	0
Sugar pine	0	1	0	0	0	0
Total:	2	12	0	0	2	0

3.2.6 Project Alternative Impact Summary

Table 9 provides a comparison of tree removal and encroachment impacts associated with each analyzed alternative. As shown, both the Lodge and Chambers WTP alternatives (without public parking lots and restrooms) require nearly the same total number of removals (76 for the Chambers WTP alternative and 77 for the Lodge WTP alternative), although impacts to trees measuring 30 inches dbh or more are greater for the Lodge WTP alternative. The fewest number of tree impacts are associated with the Lagoon WTP alternative, likely the result of recent thinning/tree removal observed on site and the proximity of the WTP to Lagoon Road. The importance of trunk diameter in evaluating project impact totals and comparing project alternatives is derived from the TRPA Code of Ordinances (Section 61.1.5) that exempts the removal of trees measuring 14 inches dbh or less from TRPA approval requirements. Trees measuring greater than 14 inches dbh will require TRPA approval prior to removal.

Table 9
Tree Impact Comparison Summary for All Project Alternatives

Project Alternative	Tree Quantities							
	Tree Removal, by Trunk Diameter				Tree Encroachment, by Trunk Diameter			
	6 to 13.9”	14 to 29.9”	30”+	Total Removals	6 to 13.9”	14 to 29.9”	30”+	Total Encroachments
Lodge WTP Site	24	39	14	77	5	15	8	28
Lodge WTP Site with Parking Lot and Restroom	49	32	18	99	4	17	8	29
Chambers WTP Site	26	44	6	76	4	8	6	18
Chambers WTP Site with Parking Lot and Restroom	29	56	10	95	4	8	6	18
Lagoon WTP Site	2	12	0	14	0	2	0	2

4.0 MITIGATION AND MANAGEMENT RECOMMENDATIONS

4.1 Mitigation Recommendations

Tree impacts will differ depending on the selected project alternative. As such, the following recommendations are provided to minimize impacts to retained trees and mitigate tree losses.

- Implement vegetation protection measures during construction activity, consistent with Section 33.6 of the TRPA Code of Ordinances. These requirements are intended to minimize damage to retained trees and are provided in Appendix C.
- Prepare a Tree Treatment Plan to address tree removal and tree protection provisions, as outlined in TRPA Code of Ordinances Section 33.6.4.
- Depending on the option selected, prepare a Revegetation Plan to establish vegetative cover on disturbed areas that will not be otherwise developed (expected to include new pipeline alignments only, and not applicable to the Lagoon WTP site as new pipelines occur beneath other developed areas), as identified in TRPA Code of Ordinances, Section 61.4. Revegetation efforts should consider post-construction stand density, stand health, and fire safety/defensible space requirements.
- A qualified forester, as defined in the TRPA Code of Ordinances, should be on-site during ground disturbance and excavation activities to provide guidance and recommendations for minimizing damage to retained trees. Additionally, the qualified forester may make recommendations for retention of trees adjacent to project development areas that are identified for removal in this report. Retention recommendations should consider tree size, tree health, proximity to disturbance, and extent of construction-related damage.

4.2 Permits and Exemptions

Based on expected impacts for the project alternatives, the following permits and exemptions will be necessary prior to tree removal activities:

- Placer County Tree Removal Permit: obtain a tree removal permit from Placer County for removal of trees measuring 6 inches dbh or greater.
- TRPA Tree Removal Permit: obtain a Tahoe Basin Tree Removal Permit from TRPA for removal of trees measuring 14 inches dbh or greater.
- Timberland Conversion Exemption: obtain an approved Less Than 3 Acre Conversion Exemption from CAL FIRE prior to removal of trees.

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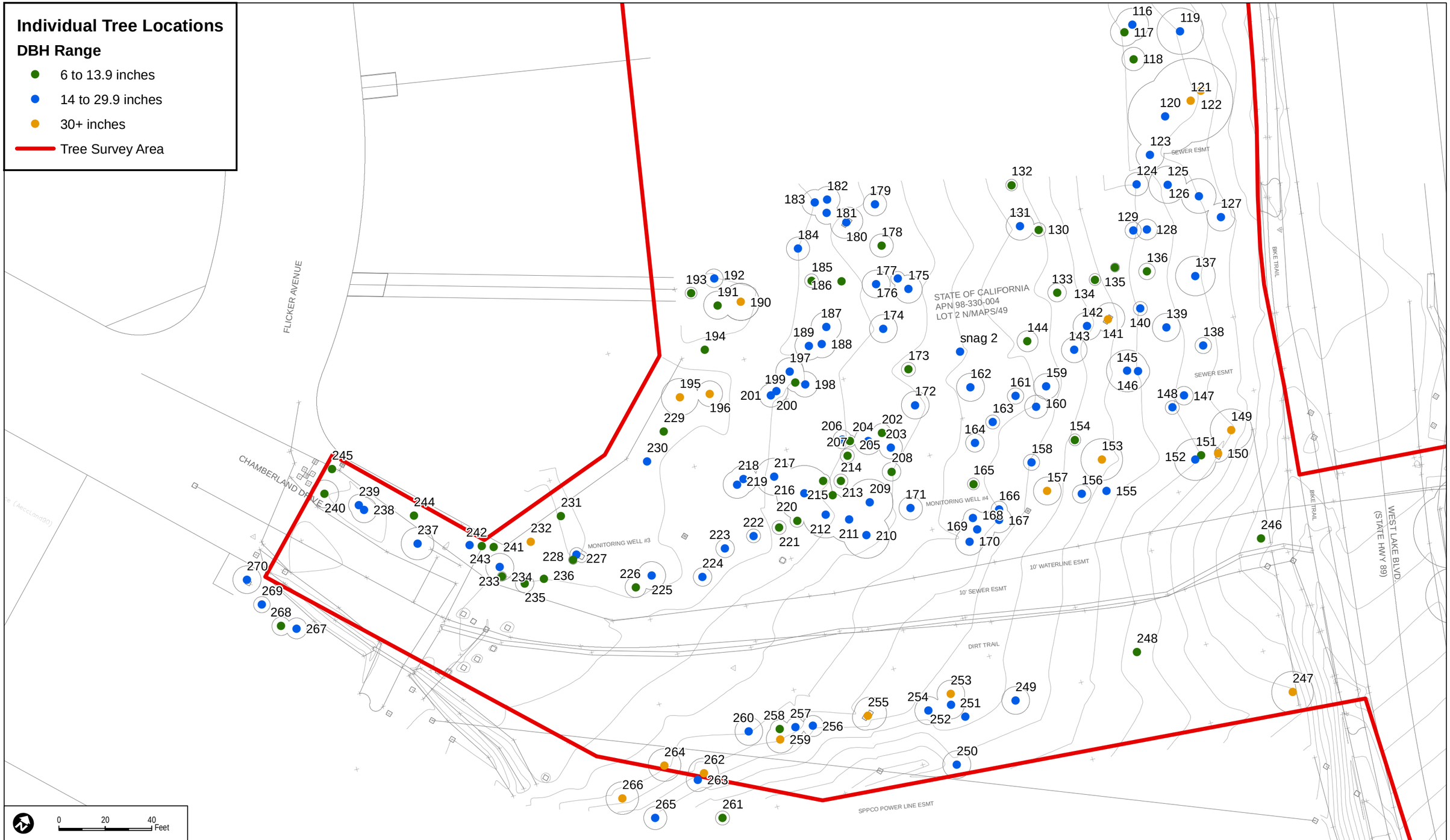
APPENDIX A

Tree Location Exhibits



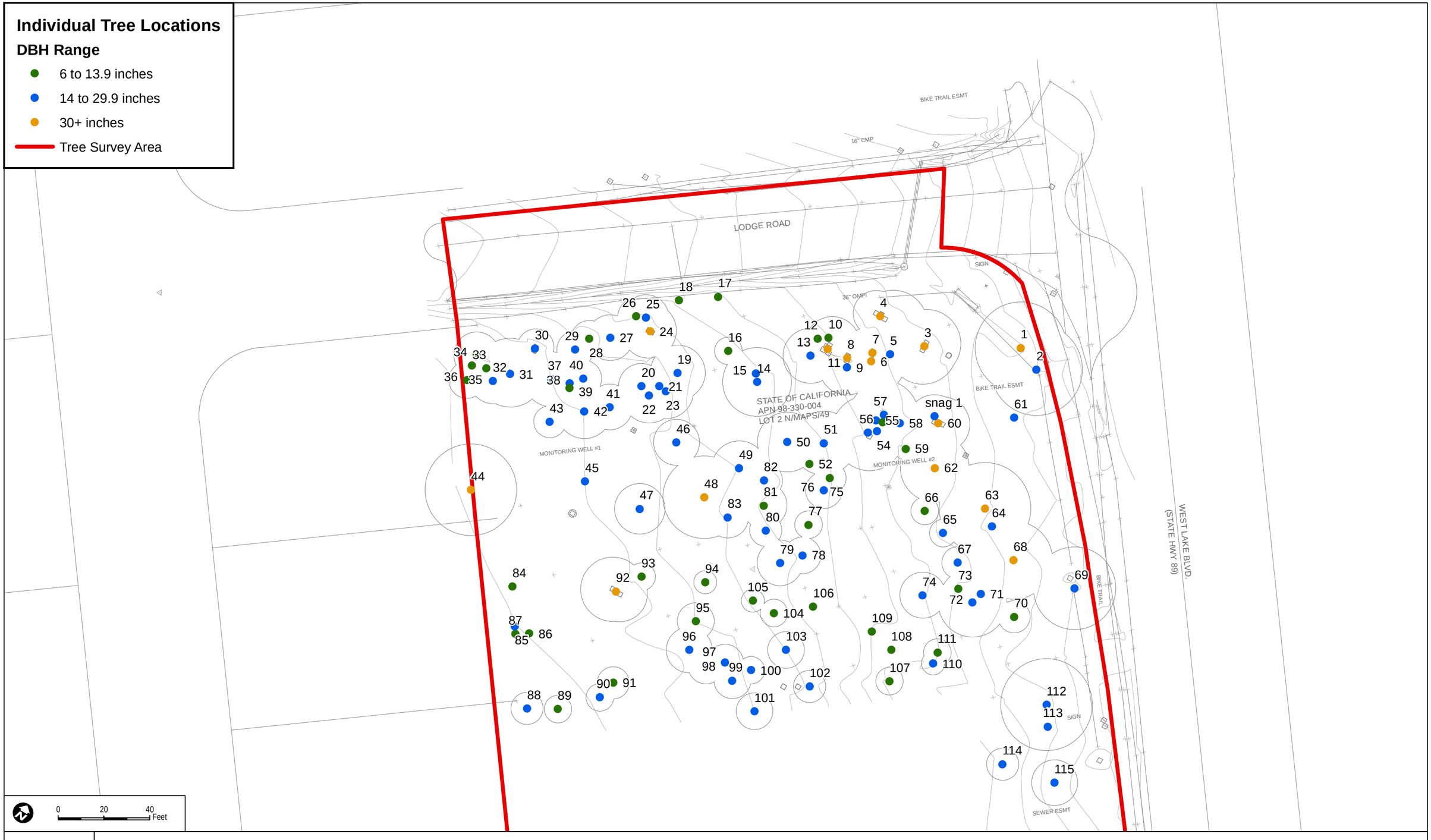
DUDEK

7788

SOURCE: Auerbach Engineering 2014; Dudek 2014

APPENDIX A-1

Tree Location Exhibit - Chamberland WTP Site



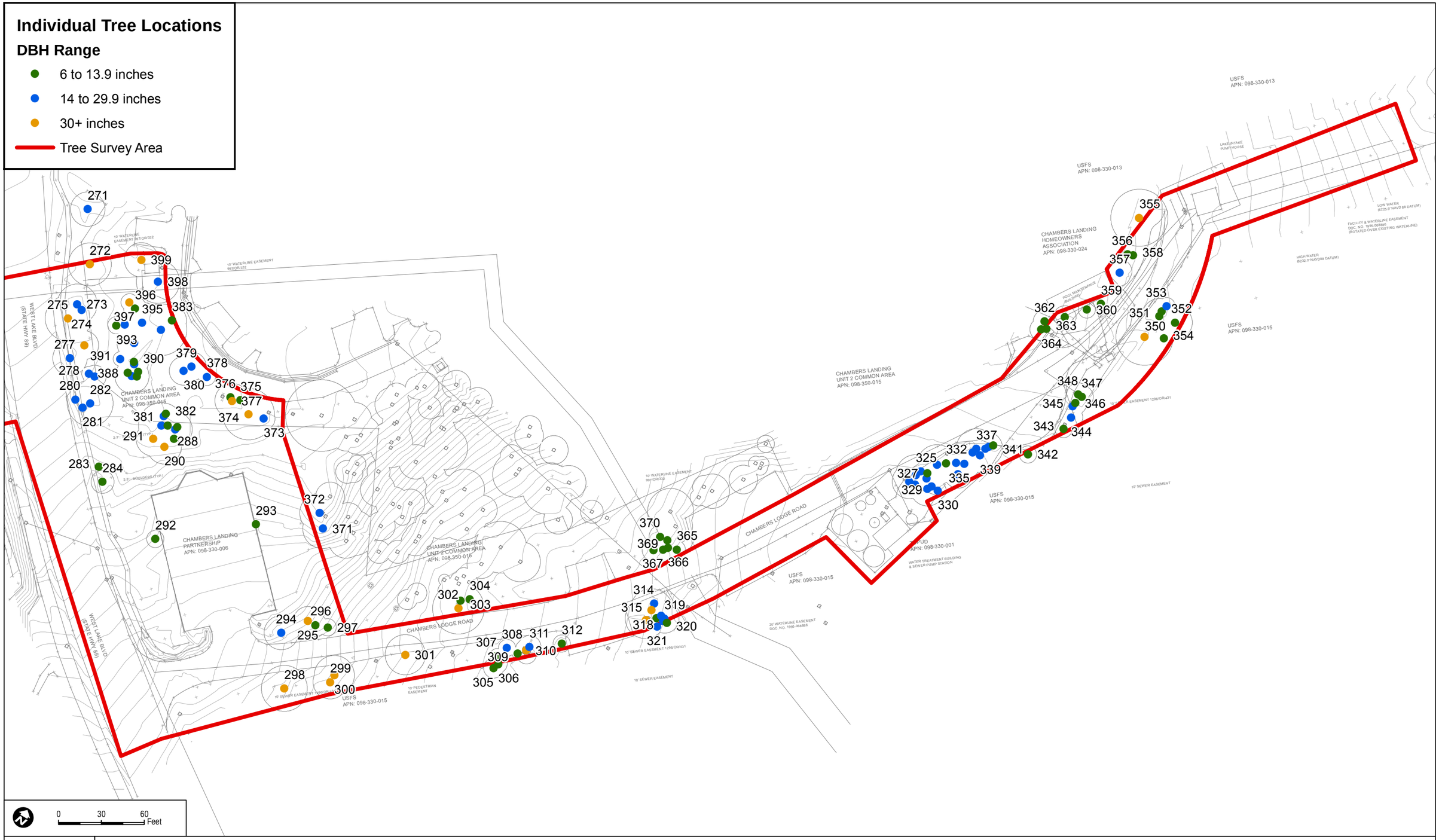
DUDEK

7788

SOURCE: Auerbach Engineering 2014; Dudek 2014

APPENDIX A-2

Tree Location Exhibit - Lodge WTP Site



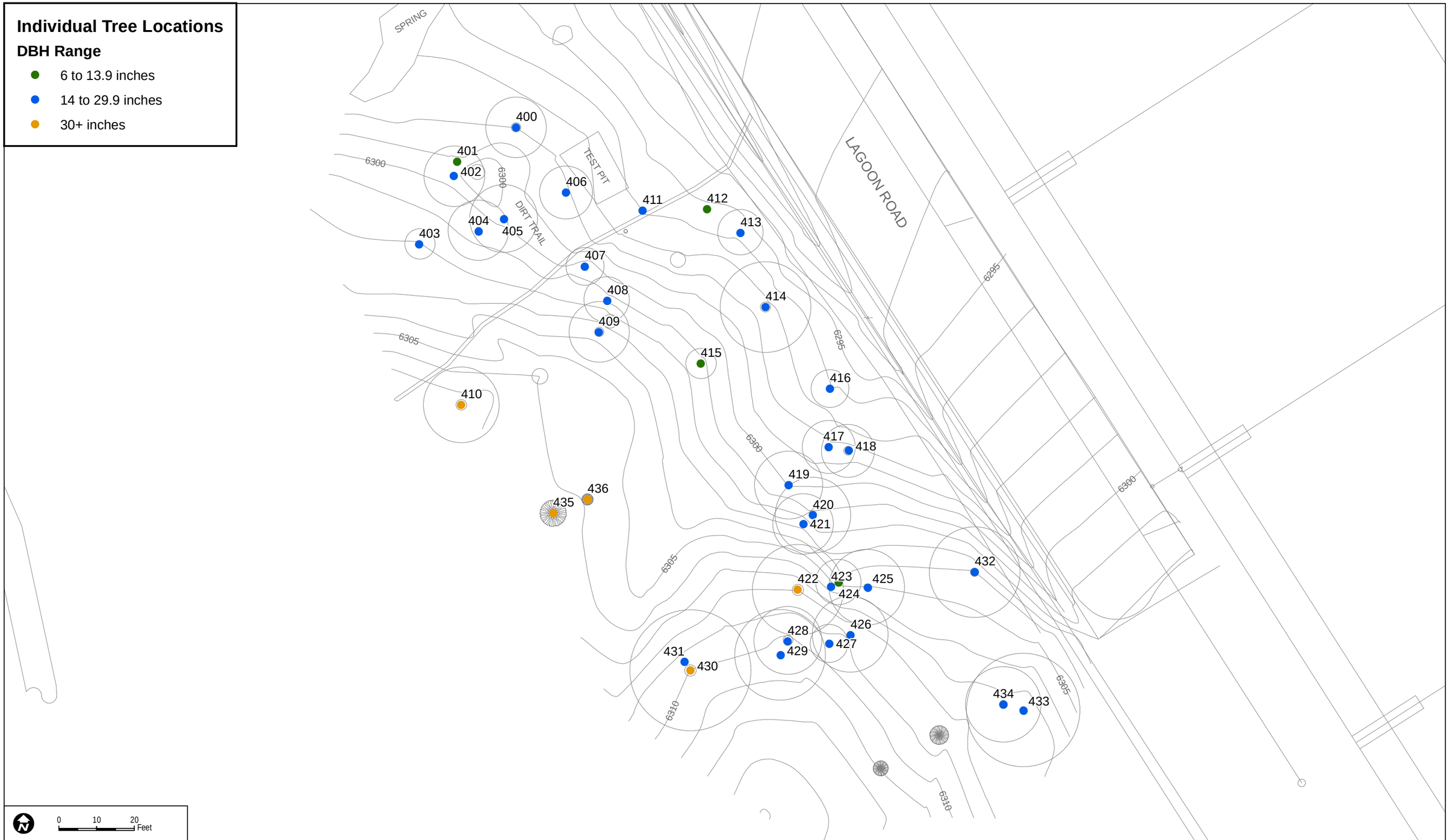
DUDEK

7788

SOURCE: Auerbach Engineering 2014; Dudek 2014

APPENDIX A-3

Tree Location Exhibit - Chambers Lodge Road



DUDEK

7788

SOURCE: Auerbach Engineering 2014; Dudek 2014

APPENDIX A-4

Tree Location Exhibit - Lagoon WTP Site

APPENDIX B

Tree Information Matrix

West Lake Tahoe Regional Water Treatment Plant - Tree Survey Report

Tree ID	Botanical Name	Common Name	Trunk Diameter (in.)						Composite Diameter (in.)	Tree Height (ft.)	Notes	Site	Impacts					
			1	2	3	4	5	6					Chamberland WTP	Chamberland WTP w/ Parking	Lodge WTP	Lodge WTP w/ Parking	Lagoon WTP	Chambers Lodge Road Pipeline
1	*Pinus jeffreyi*	Jeffrey pine	33.5						33.5	70	Old wiring embedded in trunk @ 15'	Lodge Road				Encroachment		
2	*Pinus jeffreyi*	Jeffrey pine	29.7						29.7	65	Old wiring embedded in trunk @ 15'	Lodge Road						
3	*Pinus jeffreyi*	Jeffrey pine	28.5	26.5					55.0	60		Lodge Road			Removal	Removal		
4	*Abies concolor*	White fir	28.1	13.4					41.5	60	3rd main trunk previously cut	Lodge Road			Removal	Removal		
5	*Abies concolor*	White fir	15.5						15.5	40	Suppressed, trunk wound at 3' and 6'	Lodge Road			Removal	Removal		
6	*Abies concolor*	White fir	30.0						30.0	65		Lodge Road			Removal	Removal		
7	*Abies concolor*	White fir	16.0	15.0					31.0	40	Trunk dbh estimated (growing too close to measure), slight sweep	Lodge Road			Removal	Removal		
8	*Abies concolor*	White fir	22.7	16.0					38.7	50	Sweep on 16" trunk, very close to tree #9	Lodge Road				Removal		
9	*Abies concolor*	White fir	24.7						24.7	55	Very close to tree #8	Lodge Road				Removal		
10	*Abies concolor*	White fir	11.6						11.6	35		Lodge Road				Removal		
11	*Abies concolor*	White fir	23.6	23.2	21.7	7.8			76.3	55	Tight cluster of trunks, dead top on smallest trunk (7.8")	Lodge Road				Removal		
12	*Abies concolor*	White fir	10.1						10.1	30	Suppressed, very close to tree #11, poor overall structure	Lodge Road				Removal		
13	*Abies concolor*	White fir	27.0						27.0	60	Slight sweep, heart rot, rot in plane of lean	Lodge Road				Removal		
14	*Abies concolor*	White fir	27.3						27.3	60	Heart rot	Lodge Road			Removal	Removal		
15	*Abies concolor*	White fir	17.4						17.4	40	Heavy sweep	Lodge Road			Removal	Removal		
16	*Abies concolor*	White fir	7.9						7.9	25		Lodge Road			Removal			
17	*Pinus jeffreyi*	Jeffrey pine	6.8						6.8	15	Basal wounds (mechanical damage)	Lodge Road			Removal			
18	*Pinus jeffreyi*	Jeffrey pine	4.5	3.7					8.2	15	Basal wounds (mechanical damage)	Lodge Road			Removal			
19	*Abies concolor*	White fir	20.2						20.2	50		Lodge Road			Encroachment			
20	*Abies concolor*	White fir	29.2						29.2	60	Trunk sweep	Lodge Road						
21	*Abies concolor*	White fir	20.1						20.1	50	Trunk sweep	Lodge Road						
22	*Abies concolor*	White fir	23.1						23.1	50	Trunk sweep	Lodge Road				Encroachment		
23	*Abies concolor*	White fir	28.0						28.0	60	Trunk sweep	Lodge Road				Encroachment		
24	*Abies concolor*	White fir	21.2	8.8					30.0	50	Small trunk (8.8") suppressed	Lodge Road						
25	*Abies concolor*	White fir	15.8						15.8	40		Lodge Road						
26	*Abies concolor*	White fir	9.2						9.2	30		Lodge Road						
27	*Abies concolor*	White fir	16.0						16.0	40		Lodge Road						
28	*Abies concolor*	White fir	13.3						13.3	35	Suppressed	Lodge Road						
29	*Abies concolor*	White fir	17.5						17.5	45		Lodge Road				Removal		
30	*Abies concolor*	White fir	14.2	10.2					24.4	40	Smaller trunk (10.2") suppressed	Lodge Road				Removal		
31	*Abies concolor*	White fir	21.6						21.6	50		Lodge Road						
32	*Abies concolor*	White fir	14.6						14.6	40		Lodge Road						
33	*Abies concolor*	White fir	9.5						9.5	30		Lodge Road						
34	*Abies concolor*	White fir	9.5						9.5	25	Suppressed	Lodge Road						
35	*Abies concolor*	White fir	8.5						8.5	25	Suppressed	Lodge Road						
36	*Abies concolor*	White fir	10.1						10.1	30	Suppressed	Lodge Road						
37	*Abies concolor*	White fir	19.6						19.6	45	Crook in trunk at 20'	Lodge Road				Removal		
38	*Pinus jeffreyi*	Jeffrey pine	14.8						14.8	40	Suppressed	Lodge Road				Removal		
39	*Abies concolor*	White fir	10.8						10.8	30	Suppressed	Lodge Road				Removal		
40	*Pinus jeffreyi*	Jeffrey pine	19.6						19.6	45		Lodge Road				Removal		
41	*Pinus jeffreyi*	Jeffrey pine	14.4						14.4	40	Basal wound, forked top with 1 dead leader	Lodge Road				Encroachment		
42	*Abies concolor*	White fir	27.7						27.7	60		Lodge Road				Removal		
43	*Pinus jeffreyi*	Jeffrey pine	28.4						28.4	60		Lodge Road				Removal		
44	*Calocedrus decurrens*	Incense cedar	60.7						60.7	60	Large burn scar on west side	Lodge Road						
45	*Pinus jeffreyi*	Jeffrey pine	29.2						29.2	60	Cable embedded in trunk, swing cable attched to trunk	Lodge Road				Removal		
46	*Abies concolor*	White fir	21.1						21.1	50		Lodge Road			Encroachment	Removal		
47	*Abies concolor*	White fir	22.6						22.6	50		Lodge Road				Removal		
48	*Pinus lambertiana*	Sugar pine	38.4						38.4	75	Basal wound	Lodge Road			Removal	Removal		
49	*Abies concolor*	White fir	26.7						26.7	60		Lodge Road			Removal	Removal		
50	*Abies concolor*	White fir	28.7						28.7	60		Lodge Road			Removal	Removal		
51	*Abies concolor*	White fir	27.7						27.7	60	Trunk sweep	Lodge Road			Removal	Removal		
52	*Abies concolor*	White fir	8.6						8.6	30		Lodge Road			Removal	Removal		
53	*Abies concolor*	White fir	27.6						27.6	60		Lodge Road			Removal	Removal		
54	*Abies magnifica*	Red fir	22.3						22.3	50		Lodge Road			Removal	Removal		
55	*Abies concolor*	White fir	17.0						17.0	45		Lodge Road			Removal	Removal		
56	*Abies concolor*	White fir	8.1						8.1	25	Suppressed	Lodge Road			Removal	Removal		
57	*Abies concolor*	White fir	20.6						20.6	50		Lodge Road			Removal	Removal		
58	*Abies concolor*	White fir	25.1						25.1	55		Lodge Road			Removal	Removal		
59	*Calocedrus decurrens*	Incense cedar	7.1						7.1	20		Lodge Road			Removal	Removal		
60	*Abies concolor*	White fir	28.1	18.1					46.2	60	Slight sweep on both trunks	Lodge Road			Removal	Removal		
61	*Abies concolor*	White fir	21.2						21.2	50	Basal wound on northwest side	Lodge Road				Removal		
62	*Pinus jeffreyi*	Jeffrey pine	31.5						31.5	65		Lodge Road			Removal	Removal		
63	*Pinus jeffreyi*	Jeffrey pine	38.3						38.3	75		Lodge Road			Encroachment	Removal		
64	*Abies concolor*	White fir	17.6						17.6	45		Lodge Road			Encroachment	Removal		
65	*Abies concolor*	White fir	17.5						17.5	45	Small crook in trunk at 4'	Lodge Road			Removal	Removal		
66	*Calocedrus decurrens*	Incense cedar	7.4						7.4	15	Suppressed	Lodge Road			Removal	Removal		
67	*Abies concolor*	White fir	14.9						14.9	40	Suppressed, lean	Lodge Road			Removal	Removal		
68	*Pinus jeffreyi*	Jeffrey pine	30.0						30.0	65	Forked top	Lodge Road			Encroachment	Encroachment		
69	*Pinus jeffreyi*	Jeffrey pine	27.0						27.0	60		Lodge Road			Removal			
70	*Abies concolor*	White fir	11.9						11.9	35		Lodge Road				Removal		
71	*Abies concolor*	White fir	19.9						19.9	50		Lodge Road			Removal	Removal		
72	*Pinus jeffreyi*	Jeffrey pine	23.3						23.3	55		Lodge Road			Removal	Removal		
73	*Abies concolor*	White fir	13.7						13.7	35		Lodge Road			Removal	Removal		
74	*Abies concolor*	White fir	18.8						18.8	45	Trunk wound on south side at 4'	Lodge Road			Removal	Removal		
75	*Abies concolor*	White fir	10.3						10.3	30	Suppressed	Lodge Road			Removal	Removal		
76	*Pinus jeffreyi*	Jeffrey pine	18.1						18.1	45		Lodge Road			Removal	Removal		
77	*Abies concolor*	White fir	12.4						12.4	35		Lodge Road			Removal	Removal		
78	*Abies concolor*	White fir	15.6						15.6	40		Lodge Road			Removal	Removal		
79	*Abies concolor*	White fir	25.9						25.9	40	Basal wound on north side, broken top, sweep, heart rot	Lodge Road			Removal	Removal		
80	*Abies concolor*	White fir	15.3						15.3	40		Lodge Road			Removal	Removal		

West Lake Tahoe Regional Water Treatment Plant - Tree Survey Report

Tree ID	Botanical Name	Common Name	Trunk Diameter (in.)						Composite Diameter (in.)	Tree Height (ft.)	Notes	Site	Impacts					
			1	2	3	4	5	6					Chamberland WTP	Chamberland WTP w/ Parking	Lodge WTP	Lodge WTP w/ Parking	Lagoon WTP	Chambers Lodge Road Pipeline
81	*Abies concolor*	White fir	8.0						8.0	25		Lodge Road			Removal	Removal		
82	*Pinus jeffreyi*	Jeffrey pine	16.1						16.1	40	Crook in trunk at 40'	Lodge Road			Removal	Removal		
83	*Abies concolor*	White fir	15.2						15.2	40		Lodge Road			Removal	Removal		
84	*Abies concolor*	White fir	11.5						11.5	35		Lodge Road						
85	*Abies concolor*	White fir	26.5						26.5	35		Lodge Road						
86	*Pinus jeffreyi*	Jeffrey pine	8.0						8.0	35	Trunk wound on south side at 5'	Lodge Road						
87	*Abies concolor*	White fir	13.4						13.4	35		Lodge Road						
88	*Abies concolor*	White fir	16.3						16.3	40		Lodge Road						
89	*Abies concolor*	White fir	13.1						13.1	35		Lodge Road						
90	*Abies concolor*	White fir	15.4						15.4	40		Lodge Road						
91	*Abies concolor*	White fir	12.0						12.0	35		Lodge Road						
92	*Abies concolor*	White fir	28.6	24.7					53.3	60	Heart rot, basal wound on northern trunk,	Lodge Road				Removal		
93	*Abies concolor*	White fir	8.9						8.9	25		Lodge Road				Removal		
94	*Abies concolor*	White fir	12.7						12.7	35		Lodge Road			Removal	Removal		
95	*Pinus contorta var. murrayana*	Lodgepole pine	13.3						13.3	35		Lodge Road				Removal		
96	*Abies concolor*	White fir	15.4						15.4	40		Lodge Road				Removal		
97	*Abies concolor*	White fir	14.4						14.4	40		Lodge Road			Encroachment	Encroachment		
98	*Abies concolor*	White fir	21.0						21.0	50		Lodge Road			Removal	Encroachment		
99	*Abies concolor*	White fir	22.5						22.5	50		Lodge Road			Encroachment	Encroachment		
100	*Abies concolor*	White fir	19.1						19.1	45	Basal wound, cracking, heart rot	Lodge Road			Removal	Encroachment		
101	*Abies concolor*	White fir	17.8						17.8	45		Lodge Road						
102	*Abies concolor*	White fir	21.5						21.5	50	Dead	Lodge Road			Encroachment	Encroachment		
103	*Abies magnifica*	Red fir	19.1						19.1	45		Lodge Road			Removal	Removal		
104	*Abies concolor*	White fir	12.7						12.7	35		Lodge Road			Removal	Removal		
105	*Abies concolor*	White fir	13.6						13.6	35		Lodge Road			Removal	Removal		
106	*Abies concolor*	White fir	6.8						6.8	25	Basal wounds on north and northwest sides	Lodge Road			Removal	Removal		
107	*Abies concolor*	White fir	11.9						11.9	40		Lodge Road				Removal		
108	*Abies concolor*	White fir	6.7						6.7	20	Trunk sweep	Lodge Road			Removal	Removal		
109	*Abies concolor*	White fir	6.5						6.5	20	Trunk sweep	Lodge Road			Removal	Removal		
110	*Pinus jeffreyi*	Jeffrey pine	14.6						14.6	40	Trunk wound at 3'	Lodge Road				Removal		
111	*Pinus jeffreyi*	Jeffrey pine	13.0						13.0	35		Lodge Road			Encroachment	Removal		
112	*Pinus jeffreyi*	Jeffrey pine	29.2						29.2	60	Forked top	Lodge Road			Removal	Removal		
113	*Abies concolor*	White fir	24.3						24.3	55		Lodge Road			Removal	Removal		
114	*Abies concolor*	White fir	17.0						17.0	45		Lodge Road						
115	*Abies concolor*	White fir	24.3						24.3	55	Slight lean to east	Lodge Road			Removal	Removal		
116	*Abies concolor*	White fir	14.0						14.0	35		Lodge Road						
117	*Abies concolor*	White fir	13.3						13.3	35		Lodge Road						
118	*Abies concolor*	White fir	9.5						9.5	30		Lodge Road						
119	*Abies concolor*	White fir	24.1						24.1	55		Lodge Road			Encroachment	Encroachment		
120	*Abies concolor*	White fir	20.6						20.6	50		Chamberland Drive						
121	*Pinus jeffreyi*	Jeffrey pine	32.9						32.9	70		Chamberland Drive			Removal	Removal		
122	*Abies concolor*	White fir	24.6	16.9	15.3				56.8	55		Chamberland Drive			Removal	Removal		
123	*Pinus jeffreyi*	Jeffrey pine	26.6						26.6	60		Chamberland Drive						
124	*Abies concolor*	White fir	22.6						22.6	50	Dead top, crook in trunk, trunk wound at 5'	Chamberland Drive						
125	*Abies concolor*	White fir	28.3						28.3	60	Slight trunk sweep	Chamberland Drive						
126	*Abies concolor*	White fir	17.6						17.6	45	Trunk sweep, basal wound on west side	Chamberland Drive			Removal	Removal		
127	*Abies concolor*	White fir	23.9						23.9	55		Chamberland Drive			Removal	Removal		
128	*Abies concolor*	White fir	18.5						18.5	45		Chamberland Drive						
129	*Pinus jeffreyi*	Jeffrey pine	20.1						20.1	50	Forked top	Chamberland Drive						
130	*Abies concolor*	White fir	9.5						9.5	30	Slight trunk sweep	Chamberland Drive						
131	*Abies concolor*	White fir	27.6						27.6	60	Heart rot on west side, trunk sweep	Chamberland Drive						
132	*Abies concolor*	White fir	10.5						10.5	30	Trunk forks at 7', included bark	Chamberland Drive						
133	*Abies concolor*	White fir	11.5						11.5	30		Chamberland Drive						
134	*Abies concolor*	White fir	11.1						11.1	30	Trunk crook at 4'	Chamberland Drive						
135	*Abies concolor*	White fir	10.3						10.3	30		Chamberland Drive						
136	*Abies concolor*	White fir	10.7						10.7	30		Chamberland Drive						
137	*Pinus jeffreyi*	Jeffrey pine	28.3						28.3	60		Chamberland Drive						
138	*Pinus jeffreyi*	Jeffrey pine	23.7						23.7	55	Basal wound on west side, old co-dominant leader removed	Chamberland Drive						
139	*Pinus jeffreyi*	Jeffrey pine	22.0						22.0	50		Chamberland Drive		Removal				
140	*Abies concolor*	White fir	15.8						15.8	40	Slight trunk sweep	Chamberland Drive		Removal				
141	*Abies concolor*	White fir	30.5	13.9					44.4	65	Branch dieback	Chamberland Drive		Removal				
142	*Abies concolor*	White fir	18.6						18.6	45		Chamberland Drive		Removal				
143	*Abies concolor*	White fir	28.2						28.2	60		Chamberland Drive		Removal				
144	*Abies concolor*	White fir	11.8						11.8	30	Broken top, basal wound	Chamberland Drive	Removal	Removal				
145	*Pinus jeffreyi*	Jeffrey pine	28.1						28.1	60	Cable embedded in trunk at 6' on south side	Chamberland Drive		Removal				
146	*Abies concolor*	White fir	14.5						14.5	40		Chamberland Drive		Removal				
147	*Pinus jeffreyi*	Jeffrey pine	17.1						17.1	45		Chamberland Drive		Removal				
148	*Pinus jeffreyi*	Jeffrey pine	18.3						18.3	45		Chamberland Drive	Removal	Removal				
149	*Pinus jeffreyi*	Jeffrey pine	30.7	20.8	16.0				67.5	65	Trunk to west suppressed with broken top	Chamberland Drive	Removal	Removal	Removal	Removal		
150	*Pinus jeffreyi*	Jeffrey pine	21.4	16.5					37.9	50	Trunk wounds at 3' and 5' on southern trunk	Chamberland Drive	Removal	Removal				
151	*Abies concolor*	White fir	11.5						11.5	35	Trunk crook at 40', suppressed	Chamberland Drive	Removal	Removal				
152	*Pinus contorta var. murrayana*	Lodgepole pine	22.3						22.3	50		Chamberland Drive		Removal				
153	*Pinus jeffreyi*	Jeffrey pine	27.2	18.9					46.1	60		Chamberland Drive		Removal				
154	*Abies concolor*	White fir	9.3						9.3	30	Old co-dominant trunk cut at 3', included bark	Chamberland Drive		Removal				
155	*Abies concolor*	White fir	18.0						18.0	45	Trunk sweep, possible heart rot	Chamberland Drive		Removal				
156	*Pinus jeffreyi*	Jeffrey pine	26.4						26.4	60		Chamberland Drive		Removal				
157	*Pinus jeffreyi*	Jeffrey pine	30.2						30.2	65		Chamberland Drive		Removal				
158	*Abies concolor*	White fir	16.3						16.3	40		Chamberland Drive		Removal				
159	*Abies concolor*	White fir	28.6						28.6	60		Chamberland Drive	Removal	Removal				
160	*Abies concolor*	White fir	21.0						21.0	50	Dead top	Chamberland Drive		Removal				

West Lake Tahoe Regional Water Treatment Plant - Tree Survey Report

Tree ID	Botanical Name	Common Name	Trunk Diameter (in.)						Composite Diameter (in.)	Tree Height (ft.)	Notes	Site	Impacts					
			1	2	3	4	5	6					Chamberland WTP	Chamberland WTP w/ Parking	Lodge WTP	Lodge WTP w/ Parking	Lagoon WTP	Chambers Lodge Road Pipeline
161	*Abies concolor*	White fir	22.7						22.7	50		Chamberland Drive		Removal				
162	*Abies concolor*	White fir	27.2						27.2	60	Basal wound on east side	Chamberland Drive	Removal	Removal				
163	*Pinus jeffreyi*	Jeffrey pine	21.6						21.6	50		Chamberland Drive						
164	*Abies concolor*	White fir	19.0						19.0	45		Chamberland Drive						
165	*Abies concolor*	White fir	10.8						10.8	30		Chamberland Drive	Removal	Removal				
166	*Abies concolor*	White fir	18.9						18.9	45		Chamberland Drive						
167	*Abies concolor*	White fir	22.4						22.4	50		Chamberland Drive						
168	*Abies concolor*	White fir	15.0						15.0	40	Basal wound on west side	Chamberland Drive	Removal	Removal				
169	*Abies concolor*	White fir	20.1						20.1	50	Basal wound on east side	Chamberland Drive	Removal	Removal				
170	*Abies concolor*	White fir	17.2						17.2	45		Chamberland Drive	Removal	Removal				
171	*Abies concolor*	White fir	16.4						16.4	40	Basal wound on east side	Chamberland Drive	Removal	Removal				
172	*Abies concolor*	White fir	20.0						20.0	50	Old co-dominant trunk broken off at 3'	Chamberland Drive	Removal	Removal				
173	*Abies concolor*	White fir	9.4						9.4	30		Chamberland Drive	Removal	Removal				
174	*Abies concolor*	White fir	23.7						23.7	55		Chamberland Drive	Removal	Removal				
175	*Abies concolor*	White fir	15.0						15.0	40	Possible heart rot, broken top, co-dominant leaders	Chamberland Drive						
176	*Pinus jeffreyi*	Jeffrey pine	14.1						14.1	40		Chamberland Drive						
177	*Abies concolor*	White fir	17.9						17.9	45		Chamberland Drive						
178	*Abies concolor*	White fir	12.5						12.5	35		Chamberland Drive						
179	*Pinus lambertiana*	Sugar pine	21.4						21.4	50	Dead top, trunk crook at 6'	Chamberland Drive						
180	*Abies concolor*	White fir	14.6	14.2					28.8	40	Heart rot on southern trunk, trunk crook at 7' on northern trunk	Chamberland Drive						
181	*Abies concolor*	White fir	21.8						21.8	50		Chamberland Drive						
182	*Abies concolor*	White fir	20.1						20.1	50	Old co-dominant trunk removed, trunk sweep	Chamberland Drive						
183	*Abies concolor*	White fir	19.4						19.4	45	Trunk sweep	Chamberland Drive						
184	*Abies concolor*	White fir	14.8						14.8	40		Chamberland Drive						
185	*Abies concolor*	White fir	8.0						8.0	25		Chamberland Drive						
186	*Abies concolor*	White fir	8.7						8.7	25		Chamberland Drive						
187	*Abies concolor*	White fir	18.9						18.9	45		Chamberland Drive	Removal	Removal				
188	*Pinus jeffreyi*	Jeffrey pine	20.4						20.4	50		Chamberland Drive	Removal	Removal				
189	*Pinus jeffreyi*	Jeffrey pine	22.0						22.0	50		Chamberland Drive	Removal	Removal				
190	*Abies concolor*	White fir	31.7						31.7	65		Chamberland Drive						
191	*Abies concolor*	White fir	12.3						12.3	35		Chamberland Drive						
192	*Abies concolor*	White fir	16.7						16.7	40		Chamberland Drive						
193	*Abies concolor*	White fir	8.2						8.2	25		Chamberland Drive						
194	*Abies concolor*	White fir	12.4						12.4	35		Chamberland Drive						
195	*Pinus jeffreyi*	Jeffrey pine	31.2						31.2	65		Chamberland Drive						
196	*Abies concolor*	White fir	32.2	31.8					64.0	65	Trunk wound at 5 feet, dead top, beetle damage (southern trunk)	Chamberland Drive						
197	*Abies concolor*	White fir	14.0						14.0	35		Chamberland Drive	Removal	Removal				
198	*Abies concolor*	White fir	16.6						16.6	40		Chamberland Drive	Removal	Removal				
199	*Pinus lambertiana*	Sugar pine	11.8						11.8	35	Dead top	Chamberland Drive	Removal	Removal				
200	*Abies concolor*	White fir	22.2						22.2	50		Chamberland Drive	Removal	Removal				
201	*Abies concolor*	White fir	14.8						14.8	40		Chamberland Drive	Removal	Removal				
202	*Abies concolor*	White fir	11.8						11.8	35		Chamberland Drive	Removal	Removal				
203	*Pinus jeffreyi*	Jeffrey pine	17.5						17.5	45		Chamberland Drive	Removal	Removal				
204	*Abies concolor*	White fir	21.5						21.5	50		Chamberland Drive	Removal	Removal				
205	*Abies concolor*	White fir	9.7						9.7	30		Chamberland Drive	Removal	Removal				
206	*Abies concolor*	White fir	18.6						18.6	45		Chamberland Drive	Removal	Removal				
207	*Abies concolor*	White fir	9.7						9.7	30		Chamberland Drive	Removal	Removal				
208	*Abies concolor*	White fir	7.8						7.8	25		Chamberland Drive	Removal	Removal				
209	*Pinus jeffreyi*	Jeffrey pine	17.0						17.0	45		Chamberland Drive	Removal	Removal				
210	*Abies concolor*	White fir	23.8						23.8	55		Chamberland Drive	Removal	Removal				
211	*Pinus jeffreyi*	Jeffrey pine	23.9						23.9	55		Chamberland Drive	Removal	Removal				
212	*Pinus jeffreyi*	Jeffrey pine	26.3						26.3	60		Chamberland Drive	Removal	Removal				
213	*Abies concolor*	White fir	8.4						8.4	25		Chamberland Drive	Removal	Removal				
214	*Abies concolor*	White fir	8.8						8.8	25		Chamberland Drive	Removal	Removal				
215	*Abies concolor*	White fir	9.9						9.9	30		Chamberland Drive	Removal	Removal				
216	*Abies concolor*	White fir	23.2						23.2	55	Basal wound on south side	Chamberland Drive	Removal	Removal				
217	*Pinus jeffreyi*	Jeffrey pine	19.2						19.2	45		Chamberland Drive	Removal	Removal				
218	*Pinus jeffreyi*	Jeffrey pine	14.5						14.5	40		Chamberland Drive	Removal	Removal				
219	*Abies concolor*	White fir	16.0						16.0	40		Chamberland Drive	Removal	Removal				
220	*Abies concolor*	White fir	8.7						8.7	25		Chamberland Drive	Removal	Removal				
221	*Abies concolor*	White fir	8.7						8.7	25		Chamberland Drive	Removal	Removal				
222	*Pinus jeffreyi*	Jeffrey pine	20.4						20.4	50		Chamberland Drive	Removal	Removal				
223	*Abies concolor*	White fir	18.9						18.9	45		Chamberland Drive	Removal	Removal				
224	*Abies concolor*	White fir	16.6						16.6	40		Chamberland Drive	Removal	Removal				
225	*Abies concolor*	White fir	21.7						21.7	50		Chamberland Drive	Removal	Removal				
226	*Pinus jeffreyi*	Jeffrey pine	10.6						10.6	30		Chamberland Drive	Removal	Removal				
227	*Abies concolor*	White fir	7.9	7.9					15.8	25	Tight cluster	Chamberland Drive	Removal	Removal				
228	*Abies concolor*	White fir	7.0	6.9					13.9	25	Tight cluster	Chamberland Drive	Removal	Removal				
229	*Abies concolor*	White fir	6.8						6.8	25		Chamberland Drive						
230	*Abies concolor*	White fir	14.2	7.7					21.9	40		Chamberland Drive						
231	*Abies concolor*	White fir	8.9						8.9	30		Chamberland Drive						
232	*Abies concolor*	White fir	26.7	19.5	9.3				55.5	60	Suppressed trunk (9.3")	Chamberland Drive						
233	*Pinus jeffreyi*	Jeffrey pine	15.1						15.1	40		Chamberland Drive						
234	*Pinus contorta var. murrayana*	Lodgepole pine	7.1						7.1	25	Suppressed, basal wound on southeast side	Chamberland Drive	Removal	Removal				
235	*Pinus contorta var. murrayana*	Lodgepole pine	10.0						10.0	30	Trunk wound at 5' on northeast side	Chamberland Drive	Removal	Removal				
236	*Pinus contorta var. murrayana*	Lodgepole pine	6.2						6.2	20		Chamberland Drive	Removal	Removal				
237	*Pinus jeffreyi*	Jeffrey pine	23.4						23.4	55		Chamberland Drive	Removal	Removal				
238	*Pinus contorta var. murrayana*	Lodgepole pine	16.7						16.7	40		Chamberland Drive	Removal	Removal				
239	*Abies concolor*	White fir	14.2						14.2	40		Chamberland Drive	Removal	Removal				
240	*Pinus contorta var. murrayana*	Lodgepole pine	12.3						12.3	35		Chamberland Drive	Removal	Removal				

West Lake Tahoe Regional Water Treatment Plant - Tree Survey Report

Tree ID	Botanical Name	Common Name	Trunk Diameter (in.)						Composite Diameter (in.)	Tree Height (ft.)	Notes	Site	Impacts					
			1	2	3	4	5	6					Chamberland WTP	Chamberland WTP w/ Parking	Lodge WTP	Lodge WTP w/ Parking	Lagoon WTP	Chambers Lodge Road Pipeline
241	*Pinus contorta var. murrayana*	Lodgepole pine	7.8						7.8	25	Suppressed, crooked trunk	Chamberland Drive						
242	*Pinus jeffreyi*	Jeffrey pine	12.9						12.9	35		Chamberland Drive						
243	*Pinus jeffreyi*	Jeffrey pine	19.9						19.9	50		Chamberland Drive						
244	*Populus tremuloides*	Quaking aspen	9.4						9.4	30		Chamberland Drive						
245	*Pinus contorta var. murrayana*	Lodgepole pine	11.6						11.6	35	Pruned for utility line clearance	Chamberland Drive						
246	*Pinus jeffreyi*	Jeffrey pine	6.6						6.6	10		Chamberland Drive						
247	*Pinus jeffreyi*	Jeffrey pine	35.6						35.6	70		Chamberland Drive						
248	*Pinus jeffreyi*	Jeffrey pine	8.4						8.4	15		Chamberland Drive		Removal				
249	*Abies concolor*	White fir	26.7						26.7	60	Trunk wound at 2' on north side	Chamberland Drive						
250	*Pinus jeffreyi*	Jeffrey pine	27.2						27.2	60	Suppressed, cable embedded in trunk at 12'	Chamberland Drive						
251	*Abies concolor*	White fir	18.7						18.7	45	Trunk wound on east side, decay, beetle damage	Chamberland Drive						
252	*Abies concolor*	White fir	16.0						16.0	40		Chamberland Drive						
253	*Pinus jeffreyi*	Jeffrey pine	34.9						34.9	70	Old co-dominant trunk previously removed (approx. 16" dbh), decay at base of old cut	Chamberland Drive		Removal				
254	*Abies concolor*	White fir	22.9						22.9	50	Cable embedde din trunk at 10'	Chamberland Drive						
255	*Abies concolor*	White fir	23.0	18.3					41.3	55	Trunk wound on northwest side of northern trunk	Chamberland Drive						
256	*Abies concolor*	White fir	15.1						15.1	40		Chamberland Drive						
257	*Pinus jeffreyi*	Jeffrey pine	19.8						19.8	50	Trunk wound on north side	Chamberland Drive						
258	*Pinus jeffreyi*	Jeffrey pine	11.0						11.0	30	Suppressed, dead top	Chamberland Drive						
259	*Pinus jeffreyi*	Jeffrey pine	31.2						31.2	65	Pruned for utility line clearance	Chamberland Drive						
260	*Pinus jeffreyi*	Jeffrey pine	29.5						29.5	65	Pruned for utility line clearance	Chamberland Drive						
261	*Abies concolor*	White fir	13.4						13.4	35		Chamberland Drive						
262	*Pinus jeffreyi*	Jeffrey pine	31.6						31.6	65	Pruned for utility line clearance	Chamberland Drive						
263	*Abies concolor*	White fir	23.7						23.7	55		Chamberland Drive						
264	*Pinus jeffreyi*	Jeffrey pine	33.6						33.6	70	Pruned for utility line clearance	Chamberland Drive						
265	*Abies concolor*	White fir	27.1						27.1	60		Chamberland Drive						
266	*Pinus jeffreyi*	Jeffrey pine	36.5						36.5	75		Chamberland Drive						
267	*Pinus contorta var. murrayana*	Lodgepole pine	19.1						19.1	45	Pruned for utility line clearance	Chamberland Drive						
268	*Abies concolor*	White fir	12.7						12.7	35		Chamberland Drive						
269	*Abies concolor*	White fir	19.0						19.0	45	Pruned for utility line clearance	Chamberland Drive						
270	*Pinus contorta var. murrayana*	Lodgepole pine	15.4						15.4	40	Topped, trunk wounds, utiloty pole guy wire against trunk	Chamberland Drive						
271	*Abies concolor*	White fir	21.8						21.8	50		Chambers Entrance						
272	*Pinus jeffreyi*	Jeffrey pine	45.0						45.0	80	Located behind fence, dbh estimated from survey base data, canker on south side of trunk	Chambers Entrance						
273	*Pinus jeffreyi*	Jeffrey pine	29.0						29.0	60		Chambers Entrance	Removal	Removal	Removal	Removal	Removal	Removal
274	*Abies concolor*	White fir	14.9						14.9	40		Chambers Entrance	Removal	Removal	Removal	Removal	Removal	Removal
275	*Pinus jeffreyi*	Jeffrey pine	29.7	18.3	14.7				62.7	65		Chambers Entrance	Encroachment	Encroachment	Encroachment	Encroachment	Encroachment	Encroachment
276	*Abies concolor*	White fir	30.8						30.8	65	Dying, crown mostly dead with minimial live folaige at base of crown	Chambers Entrance						
277	*Abies concolor*	White fir	14.3						14.3	40	Soil deposited at base of tree from adjacent recent road construction activity, crook at 20'	Chambers Entrance						
278	*Pinus jeffreyi*	Jeffrey pine	14.5						14.5	40		Chambers Entrance						
279	*Pinus jeffreyi*	Jeffrey pine	15.5						15.5	40		Chambers Entrance						
280	*Abies concolor*	White fir	19.0						19.0	45	Roots cut previously for recent road construction	Chambers Entrance						
281	*Abies concolor*	White fir	16.5						16.5	40	Roots cut previously for recent road construction	Chambers Entrance						
282	*Abies concolor*	White fir	21.6						21.6	50		Chambers Entrance						
283	*Pinus jeffreyi*	Jeffrey pine	6.3	5.5					11.8	15		Chambers Entrance						
284	*Pinus jeffreyi*	Jeffrey pine	9.7						9.7	25		Chambers Entrance						
285	*Pinus jeffreyi*	Jeffrey pine	23.9						23.9	55		Chambers Entrance						
286	*Abies concolor*	White fir	7.7						7.7	25	Suppressed	Chambers Entrance						
287	*Pinus jeffreyi*	Jeffrey pine	26.7						26.7	60		Chambers Entrance						
288	*Pinus jeffreyi*	Jeffrey pine	11.4						11.4	35	Suppressed	Chambers Entrance						
289	*Abies concolor*	White fir	8.7						8.7	30	Suppressed	Chambers Entrance						
290	*Abies concolor*	White fir	12.4	11.6	11.5	5.7			41.2	35	Smallest trunk suppressed	Chambers Entrance						
291	*Abies concolor*	White fir	13.8	12.7	7.8				34.3	35	Smallest trunk suppressed	Chambers Entrance						
292	*Pinus jeffreyi*	Jeffrey pine	8.0						8.0	25		Chambers Entrance						
293	*Pinus jeffreyi*	Jeffrey pine	7.2						7.2	25		Chambers Entrance						
294	*Pinus jeffreyi*	Jeffrey pine	27.6						27.6	60		Chambers Entrance						
295	*Populus balsamifera ssp. Trichocarpa*	Black cottonwood	24.7	18.0	16.6				59.3	55	Smallest trunk dead and topped at 20'	Chambers Entrance	Encroachment	Encroachment	Encroachment	Encroachment	Encroachment	Encroachment
296	*Abies concolor*	White fir	12.0						12.0	35		Chambers Entrance	Removal	Removal	Removal	Removal	Removal	Removal
297	*Abies concolor*	White fir	8.7						8.7	25		Chambers Entrance	Removal	Removal	Removal	Removal	Removal	Removal
298	*Abies concolor*	White fir	20.3	16.7					37.0	40	Barbed wire embedded in tree trunk	Chambers Entrance						
299	*Pinus jeffreyi*	Jeffrey pine	40.4						40.4	80		Chambers Entrance						
300	*Abies concolor*	White fir	21.8	17.4					39.2	50	Suppressed	Chambers Entrance	Encroachment	Encroachment	Encroachment	Encroachment	Encroachment	Encroachment
301	*Pinus jeffreyi*	Jeffrey pine	32.0	28.6					60.6	65	Pruned for utility line clearance	Chambers Entrance	Encroachment	Encroachment	Encroachment	Encroachment	Encroachment	Encroachment
302	*Pinus jeffreyi*	Jeffrey pine	44.2						44.2	80	Pruned for utility line clearance	Chambers Entrance	Encroachment	Encroachment	Encroachment	Encroachment	Encroachment	Encroachment
303	*Abies concolor*	White fir	12.2						12.2	35		Chambers Entrance						
304	*Abies concolor*	White fir	9.7						9.7	30		Chambers Entrance						
305	*Pinus jeffreyi*	Jeffrey pine	10.0						10.0	30		Chambers Entrance						
306	*Pinus jeffreyi*	Jeffrey pine	7.1						7.1	25		Chambers Entrance						
307	*Pinus jeffreyi*	Jeffrey pine	7.8						7.8	25		Chambers Entrance						
308	*Populus tremuloides*	Quaking aspen	19.1						19.1	45	Split trunk, one leader broken at 30'	Chambers Entrance						
309	*Abies concolor*	White fir	7.0						7.0	25		Chambers Entrance						
310	*Populus tremuloides*	Quaking aspen	14.5	13.5	11.5	8.4			47.9	40	Canopy damage, broken limbs	Chambers Entrance						
311	*Populus tremuloides*	Quaking aspen	18.6						18.6	45		Chambers Entrance						
312	*Pinus jeffreyi*	Jeffrey pine	9.6						9.6	30		Chambers Entrance						
313	*Populus balsamifera ssp. Trichocarpa*	Black cottonwood	16.1	11.5	8.9				36.5	40		Chambers Lodge Road						
314	*Abies concolor*	White fir	21.8						21.8	50		Chambers Lodge Road	Encroachment	Encroachment	Encroachment	Encroachment	Encroachment	Encroachment
315	*Populus balsamifera ssp. Trichocarpa*	Black cottonwood	23.8	19.0	17.5				60.3	55		Chambers Lodge Road	Encroachment	Encroachment	Encroachment	Encroachment	Encroachment	Encroachment
316	*Abies concolor*	White fir	13.5						13.5	35		Chambers Lodge Road						
317	*Populus balsamifera ssp. Trichocarpa*	Black cottonwood	11.5	11.2					22.7	35	Smaller trunk (11.2") dead with broken top	Chambers Lodge Road						
318	*Populus balsamifera ssp. Trichocarpa*	Black cottonwood	14.0						14.0	35		Chambers Lodge Road						
319	*Abies concolor*	White fir	15.1						15.1	40		Chambers Lodge Road						
320	*Populus balsamifera ssp. Trichocarpa*	Black cottonwood	7.0						7.0	25		Chambers Lodge Road						

West Lake Tahoe Regional Water Treatment Plant - Tree Survey Report

Tree ID	Botanical Name	Common Name	Trunk Diameter (in.)						Composite Diameter (in.)	Tree Height (ft.)	Notes	Site	Impacts					
			1	2	3	4	5	6					Chamberland WTP	Chamberland WTP w/ Parking	Lodge WTP	Lodge WTP w/ Parking	Lagoon WTP	Chambers Lodge Road Pipeline
321	*Populus balsamifera ssp. Trichocarpa*	Black cottonwood	8.5	7.8					16.3	25	Smaller trunk (7.8") bent over	Chambers Lodge Road						
322	*Abies concolor*	White fir	18.9						18.9	45		Chambers Lodge Road	Encroachment	Encroachment	Encroachment	Encroachment	Encroachment	Encroachment
323	*Abies concolor*	White fir	14.4						14.4	40		Chambers Lodge Road						
324	*Abies concolor*	White fir	23.7						23.7	55		Chambers Lodge Road	Encroachment	Encroachment	Encroachment	Encroachment	Encroachment	Encroachment
325	*Populus balsamifera ssp. Trichocarpa*	Black cottonwood	17.1						17.1	45		Chambers Lodge Road	Encroachment	Encroachment	Encroachment	Encroachment	Encroachment	Encroachment
326	*Abies concolor*	White fir	15.0						15.0	40		Chambers Lodge Road						
327	*Abies concolor*	White fir	12.5						12.5	35		Chambers Lodge Road						
328	*Abies concolor*	White fir	20.7						20.7	50		Chambers Lodge Road						
329	*Populus balsamifera ssp. Trichocarpa*	Black cottonwood	14.3						14.3	40		Chambers Lodge Road						
330	*Abies concolor*	White fir	16.5						16.5	40		Chambers Lodge Road						
331	*Abies concolor*	White fir	26.8						26.8	60	Basal crack on north side, trunk crack on north side at 5'	Chambers Lodge Road	Encroachment	Encroachment	Encroachment	Encroachment	Encroachment	Encroachment
332	*Abies concolor*	White fir	13.6						13.6	35		Chambers Lodge Road						
333	*Abies concolor*	White fir	20.5						20.5	50		Chambers Lodge Road						
334	*Abies concolor*	White fir	14.3						14.3	40		Chambers Lodge Road						
335	*Abies concolor*	White fir	21.3						21.3	50		Chambers Lodge Road						
336	*Populus balsamifera ssp. Trichocarpa*	Black cottonwood	14.4						14.4	40		Chambers Lodge Road						
337	*Abies concolor*	White fir	21.3						21.3	50		Chambers Lodge Road						
338	*Populus balsamifera ssp. Trichocarpa*	Black cottonwood	17.5						17.5	45		Chambers Lodge Road						
339	*Abies concolor*	White fir	24.8						24.8	55		Chambers Lodge Road						
340	*Abies concolor*	White fir	24.0						24.0	55		Chambers Lodge Road						
341	*Abies concolor*	White fir	7.8						7.8	25		Chambers Lodge Road						
342	*Pinus jeffreyi*	Jeffrey pine	10.4						10.4	30		Chambers Lodge Road						
343	*Pinus jeffreyi*	Jeffrey pine	10.7						10.7	30		Chambers Lodge Road						
344	*Pinus jeffreyi*	Jeffrey pine	14.5						14.5	40		Chambers Lodge Road						
345	*Pinus jeffreyi*	Jeffrey pine	15.0						15.0	40	Mechanical damage to trunk at 5'	Chambers Lodge Road						
346	*Pinus jeffreyi*	Jeffrey pine	13.1						13.1	35		Chambers Lodge Road						
347	*Pinus jeffreyi*	Jeffrey pine	10.8						10.8	30		Chambers Lodge Road						
348	*Pinus jeffreyi*	Jeffrey pine	10.7						10.7	30		Chambers Lodge Road	Encroachment	Encroachment	Encroachment	Encroachment	Encroachment	Encroachment
349	*Pinus jeffreyi*	Jeffrey pine	57.5						57.5	80		Chambers Lodge Road	Removal	Removal	Removal	Removal	Removal	Removal
350	*Populus tremuloides*	Quaking aspen	12.5						12.5	35		Chambers Lodge Road	Encroachment	Encroachment	Encroachment	Encroachment	Encroachment	Encroachment
351	*Populus tremuloides*	Quaking aspen	10.4						10.4	30		Chambers Lodge Road	Removal	Removal	Removal	Removal	Removal	Removal
352	*Abies concolor*	White fir	11.6						11.6	35		Chambers Lodge Road	Removal	Removal	Removal	Removal	Removal	Removal
353	*Populus tremuloides*	Quaking aspen	9.8	9.3					19.1	30		Chambers Lodge Road	Removal	Removal	Removal	Removal	Removal	Removal
354	*Populus tremuloides*	Quaking aspen	8.1						8.1	25		Chambers Lodge Road	Encroachment	Encroachment	Encroachment	Encroachment	Encroachment	Encroachment
355	*Pinus jeffreyi*	Jeffrey pine	47.0						47.0	80	Near adjacent swimming pool	Chambers Lodge Road						
356	*Abies concolor*	White fir	11.3						11.3	30		Chambers Lodge Road						
357	*Populus tremuloides*	Quaking aspen	10.1	10.0					20.1	30		Chambers Lodge Road						
358	*Populus tremuloides*	Quaking aspen	6.0						6.0	20		Chambers Lodge Road						
359	*Populus tremuloides*	Quaking aspen	11.6						11.6	35		Chambers Lodge Road						
360	*Populus tremuloides*	Quaking aspen	9.1						9.1	30		Chambers Lodge Road						
361	*Populus tremuloides*	Quaking aspen	10.4						10.4	30		Chambers Lodge Road						
362	*Populus tremuloides*	Quaking aspen	11.5						11.5	35		Chambers Lodge Road						
363	*Populus tremuloides*	Quaking aspen	8.1						8.1	25		Chambers Lodge Road						
364	*Pinus jeffreyi*	Jeffrey pine	7.9						7.9	25		Chambers Lodge Road						
365	*Populus balsamifera ssp. Trichocarpa*	Black cottonwood	6.6						6.6	25		Chambers Lodge Road						
366	*Populus balsamifera ssp. Trichocarpa*	Black cottonwood	9.9						9.9	30		Chambers Lodge Road						
367	*Populus balsamifera ssp. Trichocarpa*	Black cottonwood	9.8						9.8	30		Chambers Lodge Road						
368	*Populus balsamifera ssp. Trichocarpa*	Black cottonwood	6.0						6.0	20		Chambers Lodge Road						
369	*Populus balsamifera ssp. Trichocarpa*	Black cottonwood	6.4						6.4	20		Chambers Lodge Road						
370	*Populus balsamifera ssp. Trichocarpa*	Black cottonwood	6.5						6.5	25		Chambers Lodge Road						
371	*Pinus jeffreyi*	Jeffrey pine	29.3						29.3	60		Chambers Entrance	Encroachment	Encroachment	Encroachment	Encroachment	Encroachment	Encroachment
372	*Abies concolor*	White fir	26.5						26.5	60		Chambers Entrance	Encroachment	Encroachment	Encroachment	Encroachment	Encroachment	Encroachment
373	*Pinus jeffreyi*	Jeffrey pine	28.0						28.0	60	Located behind fence, dbh estimated from survey base data	Chambers Entrance	Removal	Removal	Removal	Removal	Removal	Removal
374	*Pinus jeffreyi*	Jeffrey pine	32.0						32.0	65	Located behind fence, dbh estimated from survey base data	Chambers Entrance	Removal	Removal	Removal	Removal	Removal	Removal
375	*Abies concolor*	White fir	12.0						12.0	35	Located behind fence, dbh estimated from survey base data	Chambers Entrance	Removal	Removal	Removal	Removal	Removal	Removal
376	*Abies concolor*	White fir	8.0						8.0	25	Located behind fence, dbh estimated from survey base data	Chambers Entrance	Removal	Removal	Removal	Removal	Removal	Removal
377	*Pinus jeffreyi*	Jeffrey pine	30.0						30.0	65	Located behind fence, dbh estimated from survey base data	Chambers Entrance	Removal	Removal	Removal	Removal	Removal	Removal
378	*Pinus jeffreyi*	Jeffrey pine	16.0						16.0	40	Located behind fence, dbh estimated from survey base data	Chambers Entrance	Removal	Removal	Removal	Removal	Removal	Removal
379	*Pinus jeffreyi*	Jeffrey pine	24.0						24.0	55	Located behind fence, dbh estimated from survey base data	Chambers Entrance	Removal	Removal	Removal	Removal	Removal	Removal
380	*Pinus jeffreyi*	Jeffrey pine	22.0						22.0	50	Located behind fence, dbh estimated from survey base data	Chambers Entrance	Encroachment	Encroachment	Encroachment	Encroachment	Encroachment	Encroachment
381	*Pinus jeffreyi*	Jeffrey pine	14.0						14.0	40	Located behind fence, dbh estimated from survey base data	Chambers Entrance						
382	*Abies concolor*	White fir	8.0						8.0	25	Located behind fence, dbh estimated from survey base data	Chambers Entrance						
383	*Abies concolor*	White fir	12.0						12.0	35	Located behind fence, dbh estimated from survey base data	Chambers Entrance	Encroachment	Encroachment	Encroachment	Encroachment	Encroachment	Encroachment
384	*Abies concolor*	White fir	20.0						20.0	50	Located behind fence, dbh estimated from survey base data	Chambers Entrance	Removal	Removal	Removal	Removal	Removal	Removal
385	*Pinus jeffreyi*	Jeffrey pine	26.0						26.0	55	Located behind fence, dbh estimated from survey base data	Chambers Entrance						
386	*Abies concolor*	White fir	12.0						12.0	35	Located behind fence, dbh estimated from survey base data	Chambers Entrance						
387	*Abies concolor*	White fir	8.0						8.0	25	Located behind fence, dbh estimated from survey base data	Chambers Entrance						
388	*Abies concolor*	White fir	6.0						6.0	20	Located behind fence, dbh estimated from survey base data	Chambers Entrance						
389	*Pinus jeffreyi*	Jeffrey pine	16.0						16.0	40	Located behind fence, dbh estimated from survey base data	Chambers Entrance						
390	*Abies concolor*	White fir	10.0						10.0	30	Located behind fence, dbh estimated from survey base data	Chambers Entrance						
391	*Pinus jeffreyi*	Jeffrey pine	14.0						14.0	35	Located behind fence, dbh estimated from survey base data	Chambers Entrance						
392	*Abies concolor*	White fir	16.0						16.0	40	Located behind fence, dbh estimated from survey base data	Chambers Entrance						
393	*Abies concolor*	White fir	12.0						12.0	35	Located behind fence, dbh estimated from survey base data	Chambers Entrance						
394	*Pinus jeffreyi*	Jeffrey pine	22.0						22.0	50	Located behind fence, dbh estimated from survey base data	Chambers Entrance						
395	*Pinus jeffreyi*	Jeffrey pine	24.0						24.0	55	Located behind fence, dbh estimated from survey base data	Chambers Entrance	Removal	Removal	Removal	Removal	Removal	Removal
396	*Abies concolor*	White fir	12.0						12.0	35	Located behind fence, dbh estimated from survey base data	Chambers Entrance	Removal	Removal	Removal	Removal	Removal	Removal
397	*Pinus jeffreyi*	Jeffrey pine	20.0	9.0	9.0	6.0			44.0	50	Located behind fence, dbh estimated from survey base data	Chambers Entrance	Removal	Removal	Removal	Removal	Removal	Removal
398	*Pinus jeffreyi*	Jeffrey pine	26.0						26.0	55	Located behind fence, dbh estimated from survey base data	Chambers Entrance						
399	*Pinus jeffreyi*	Jeffrey pine	32.0						32.0	65	Located behind fence, dbh estimated from survey base data	Chambers Entrance						
400	*Pinus lambertiana*	Sugar pine	25.8						25.8	55	Dead top	Lagoon Site						

West Lake Tahoe Regional Water Treatment Plant - Tree Survey Report

Tree ID	Botanical Name	Common Name	Trunk Diameter (in.)						Composite Diameter (in.)	Tree Height (ft.)	Notes	Site	Impacts					
			1	2	3	4	5	6					Chamberland WTP	Chamberland WTP w/ Parking	Lodge WTP	Lodge WTP w/ Parking	Lagoon WTP	Chambers Lodge Road Pipeline
401	*Abies concolor*	White fir	13.5						13.5	35	Trunk sweep	Lagoon Site						
402	*Abies concolor*	White fir	14.9						14.9	40		Lagoon Site						
403	*Abies concolor*	White fir	18.2						18.2	45	Trunk wound on south side at 4', canopy dieback	Lagoon Site						
404	*Abies concolor*	White fir	21.3						21.3	50		Lagoon Site					Encroachment	
405	*Abies concolor*	White fir	15.7						15.7	40		Lagoon Site					Removal	
406	*Abies concolor*	White fir	19.3						19.3	45	Basal wound on east side	Lagoon Site					Removal	
407	*Abies concolor*	White fir	19.1						19.1	45		Lagoon Site					Removal	
408	*Abies concolor*	White fir	19.3						19.3	45		Lagoon Site					Removal	
409	*Calocedrus decurrens*	Incense cedar	28.7						28.7	60	Burn scar at base of west side, old co-dominant trunk previously cut at base on east side	Lagoon Site					Removal	
410	*Abies concolor*	White fir	30.7						30.7	65	Slight trunk crook at 40'	Lagoon Site						
411	*Abies concolor*	White fir	16.8						16.8	40		Lagoon Site					Removal	
412	*Abies concolor*	White fir	12.7						12.7	35		Lagoon Site					Removal	
413	*Abies concolor*	White fir	17.8						17.8	45		Lagoon Site					Removal	
414	*Abies concolor*	White fir	26.8						26.8	60		Lagoon Site					Removal	
415	*Abies concolor*	White fir	13.9						13.9	40	Heart rot	Lagoon Site					Removal	
416	*Abies concolor*	White fir	15.3						15.3	40	Broken top	Lagoon Site					Removal	
417	*Abies concolor*	White fir	20.1						20.1	50		Lagoon Site					Removal	
418	*Pinus lambertiana*	Sugar pine	25.8						25.8	55		Lagoon Site					Removal	
419	*Abies concolor*	White fir	21.2						21.2	50	Slight trunk sweep	Lagoon Site					Removal	
420	*Abies concolor*	White fir	18.6						18.6	45		Lagoon Site					Encroachment	
421	*Abies concolor*	White fir	15.6						15.6	40		Lagoon Site						
422	*Pinus lambertiana*	Sugar pine	32.1						32.1	65		Lagoon Site						
423	*Abies concolor*	White fir	14.2						14.2	40	Suppressed, lean	Lagoon Site						
424	*Calocedrus decurrens*	Incense cedar	6.7						6.7	25		Lagoon Site						
425	*Abies concolor*	White fir	20.1						20.1	50		Lagoon Site						
426	*Abies concolor*	White fir	19.5						19.5	45		Lagoon Site						
427	*Abies concolor*	White fir	15.3						15.3	40		Lagoon Site						
428	*Abies concolor*	White fir	29.7						29.7	65	Trunk damage on east side from recent tree felling activity	Lagoon Site						
429	*Abies concolor*	White fir	18.5						18.5	45		Lagoon Site						
430	*Pinus lambertiana*	Sugar pine	39.3						39.3	75		Lagoon Site						
431	*Abies concolor*	White fir	17.7						17.7	45	Trunk sweep	Lagoon Site						
432	*Pinus lambertiana*	Sugar pine	25.0						25.0	55		Lagoon Site						
433	*Abies concolor*	White fir	21.3						21.3	50		Lagoon Site						
434	*Abies concolor*	White fir	23.8						23.8	55		Lagoon Site						
435	*Salix spp.*	Willow	8.4	8.1	7.4	7.4	7.2	6.9	45.4	20	Additional 3 stems (dbh 6.5", 4.7", 3.1")	Lagoon Site						
436	*Salix spp.*	Willow	13.8	13.4	11.0				38.2	15		Lagoon Site						
437	*Abies concolor*	White fir	25.8						25.8	30	30' tall snag	Lodge Road			Removal	Removal		
438	*Abies concolor*	White fir	27.6						27.6	35	35' tall snag	Chamberland Drive	Removal	Removal				

APPENDIX C

Tree Protection Measures

Appendix C
Tree Protection Measures

The following tree protection measures are those included in the Tahoe Regional Planning Agency (TRPA) Code of Regulations, Section 33.6. The measures presented should be implemented to protect retained vegetation on site.

Vegetation Protection during Construction

The following vegetation protection provisions shall apply to construction:

33.6.1. Vegetation

Vegetation shall not be disturbed, injured, or removed except in accordance with the Code or conditions of project approval. All trees, major roots, and other vegetation, not specifically designated and approved for removal in connection with a project shall be protected according to methods approved by TRPA. All vegetation outside the construction site boundary, as well as other vegetation designated on the approved plans, shall be protected by installing temporary fencing pursuant to subsections 33.6.9 and 33.6.10.

33.6.2. Equipment

Use of equipment of a size and type that under prevailing site conditions will do the least amount of damage to the environment may be specified as a condition of approval. Construction equipment and materials shall be restricted to the construction site boundary.

33.6.3. Debris

Slash, trees cut for the project, uprooted stumps, or other vegetative debris shall not remain on the project area after October 15 of each year, or final inspection, whichever comes first, except trees bucked into firewood in TRPA-designated areas. Any remaining stump shall be cut within six inches of the ground on the uphill side of the tree.

33.6.4. Tree Treatment Plan

A plan to treat trees on the project area, in accordance with Section 61.1: Tree Removal, may be required as a condition of approval. At a minimum, the plan shall include the following:

A. Provisions for identification and treatment of diseased or insect infested trees;

B. Provisions for identification and removal of hazardous trees; and

C. Provisions for optimum stocking levels of trees including the protection and establishment of younger-aged trees.

33.6.5. Tree Removal

Trees may be removed from within six feet of a foundation, or when other approved construction activities involving soil compaction, excavation, or paving encroach into more than 25 percent of a tree's dripline. Falling, uprooting, or removal of trees and other materials shall be accomplished to avoid damage to remaining trees, vegetation, and soil.

33.6.6. Tree Roots

Tree roots four inches in diameter and larger encountered during excavation of utility trenches shall not be severed, if avoidable. All tree roots four inches in diameter or larger severed during excavation shall be cut flush with the surface of the excavation.

33.6.7. Prohibition

Trees shall not be used for the purpose of sign posts, telephone wires or temporary power, bracing for forms, or other similar types of uses.

33.6.8. Revegetation Plan

Areas outside the construction site boundary that sustain vegetation damage during construction shall be revegetated according to a revegetation plan in accordance with Section 61.4.

33.6.9. Standards for Soil and Vegetation Protection

A. The location and type of protective fencing shall be shown on approved plans.

B. No material or equipment shall enter or be placed in the areas protected by fencing or outside the construction areas without prior approval from TRPA.

C. Protective fencing for soil and vegetation shall be constructed with metal posts and industry-standard mesh fencing that is least four feet tall, unless an alternative protection method is approved by TRPA.

D. All protective fencing shall be adequately maintained and provide a functional barrier during construction.

33.6.10. Standards for Retained Tree Protection

All trees designated to be retained during construction shall be protected as follows:

A. Fencing shall be placed no closer than the dripline of the tree(s) unless an alternative placement is approved prior by TRPA.

B. The location and type of the protective fencing shall be shown on approved plans.

C. No material or equipment shall enter or be placed in the areas protected by fencing or outside the construction areas without prior approval from TRPA.

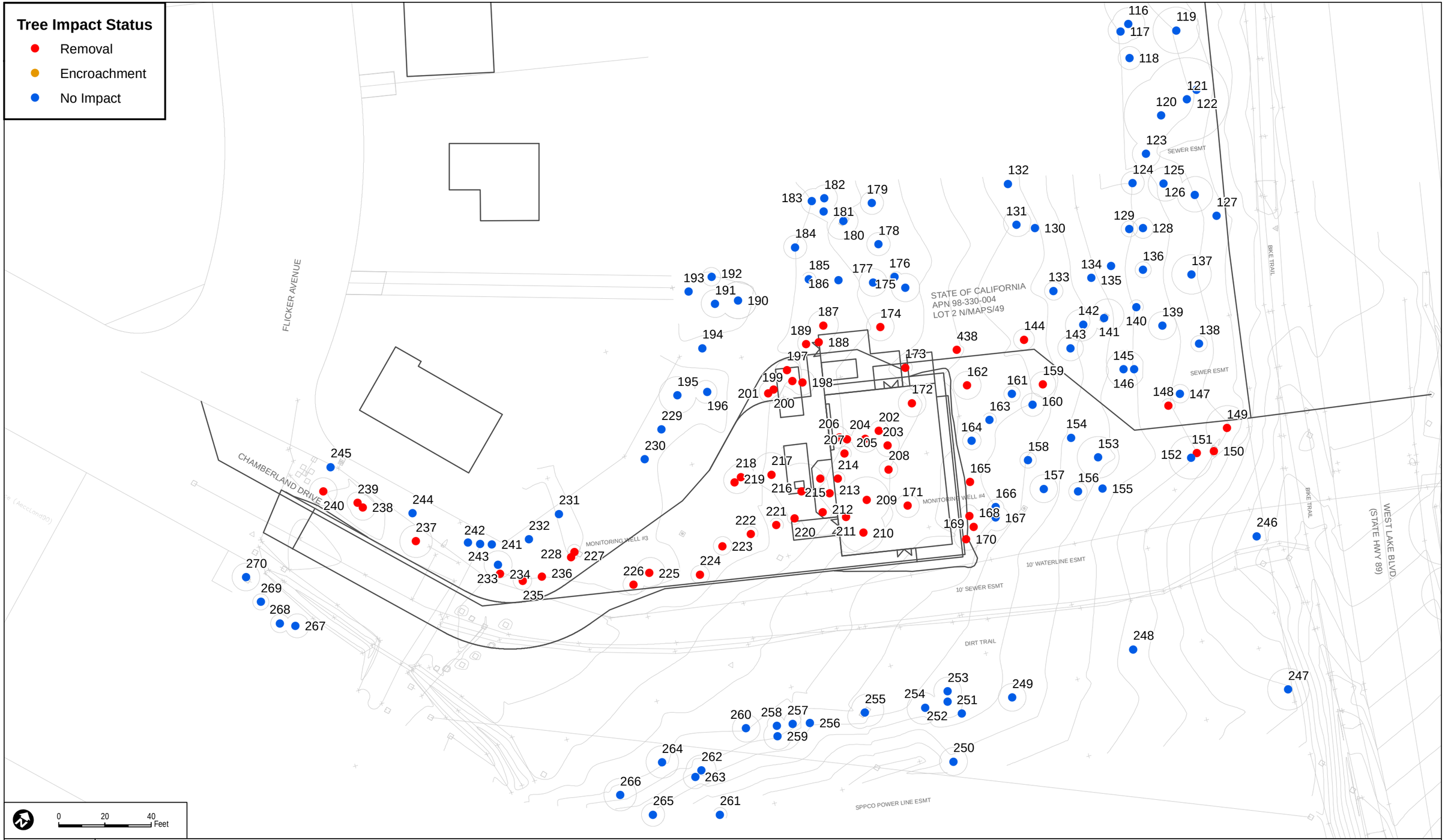
D. Protective fencing for trees shall be constructed with metal posts and industry standard mesh fencing that is at least four feet tall, unless an alternative method is approved by TRPA.

E. All protective fencing shall be adequately maintained and provide a functional barrier during construction.

F. An alternative method of tree protection may be required if conditions warrant due to location of tree or the importance of the tree for visual screening. A tree treatment plan may be required per subsection 33.6.4.

APPENDIX D

Tree Impact Analysis Exhibits



DUDEK

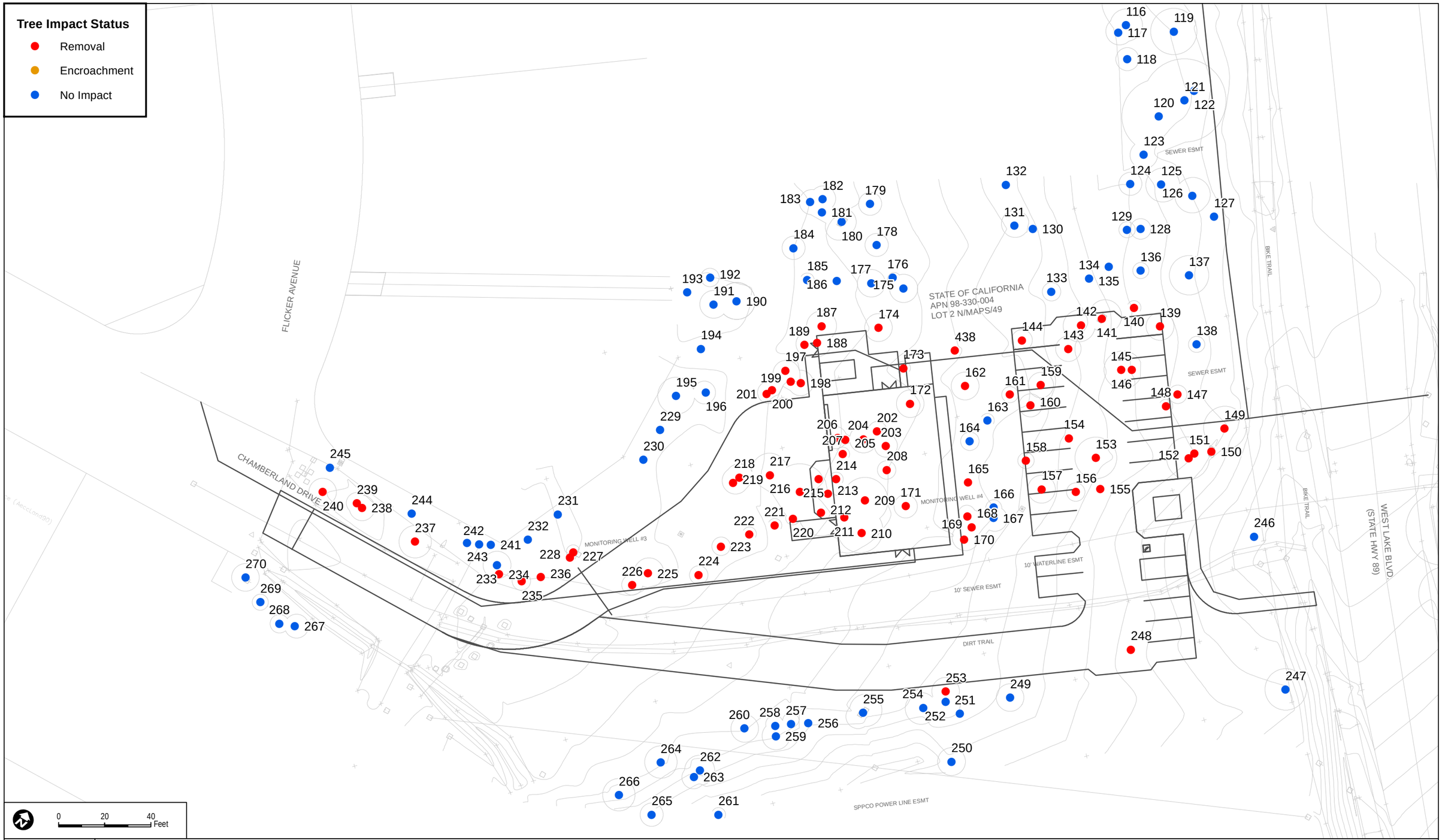
7788

SOURCE: Auerbach Engineering 2014; Dudek 2014

APPENDIX D-1

Tree Impact Analysis Exhibit - Chamberland WTP Site

TCPUD West Lake Tahoe Regional Water Treatment Plant - Tree Survey Report



DUDEK

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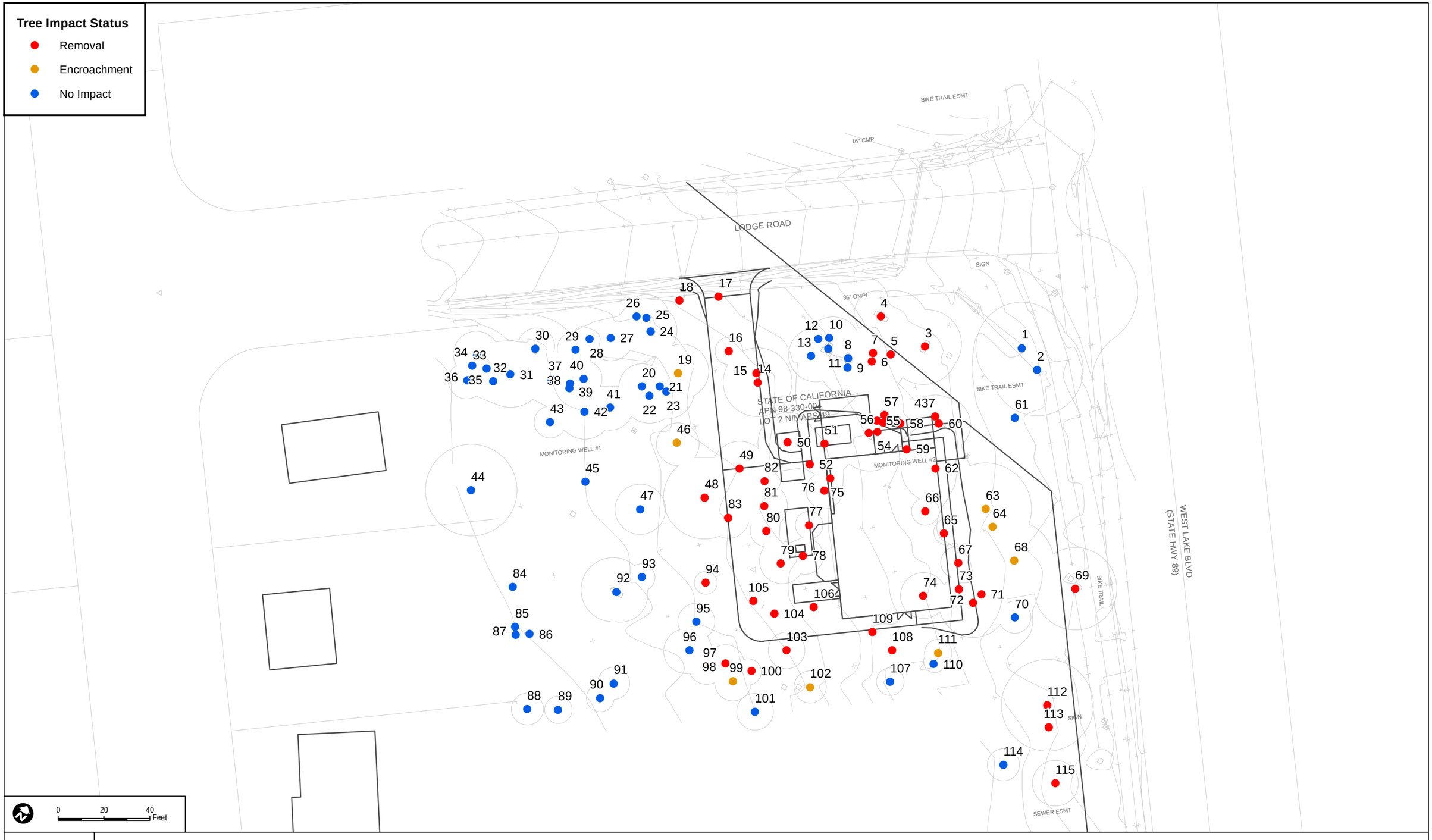
SOURCE: Auerbach Engineering 2014; Dudek 2014

APPENDIX D-2

Tree Impact Analysis Exhibit - Chamberland WTP Site with Parking Lot and Restroom

TCPUD West Lake Tahoe Regional Water Treatment Plant - Tree Survey Report



DUDEK

7788

SOURCE: Auerbach Engineering 2014; Dudek 2014

APPENDIX D-3

Tree Impact Analysis Exhibit - Lodge WTP Site

Tree Impact Status

- Removal
- Encroachment
- No Impact

DUDEK

7788

SOURCE: Auerbach Engineering 2014; Dudek 2014

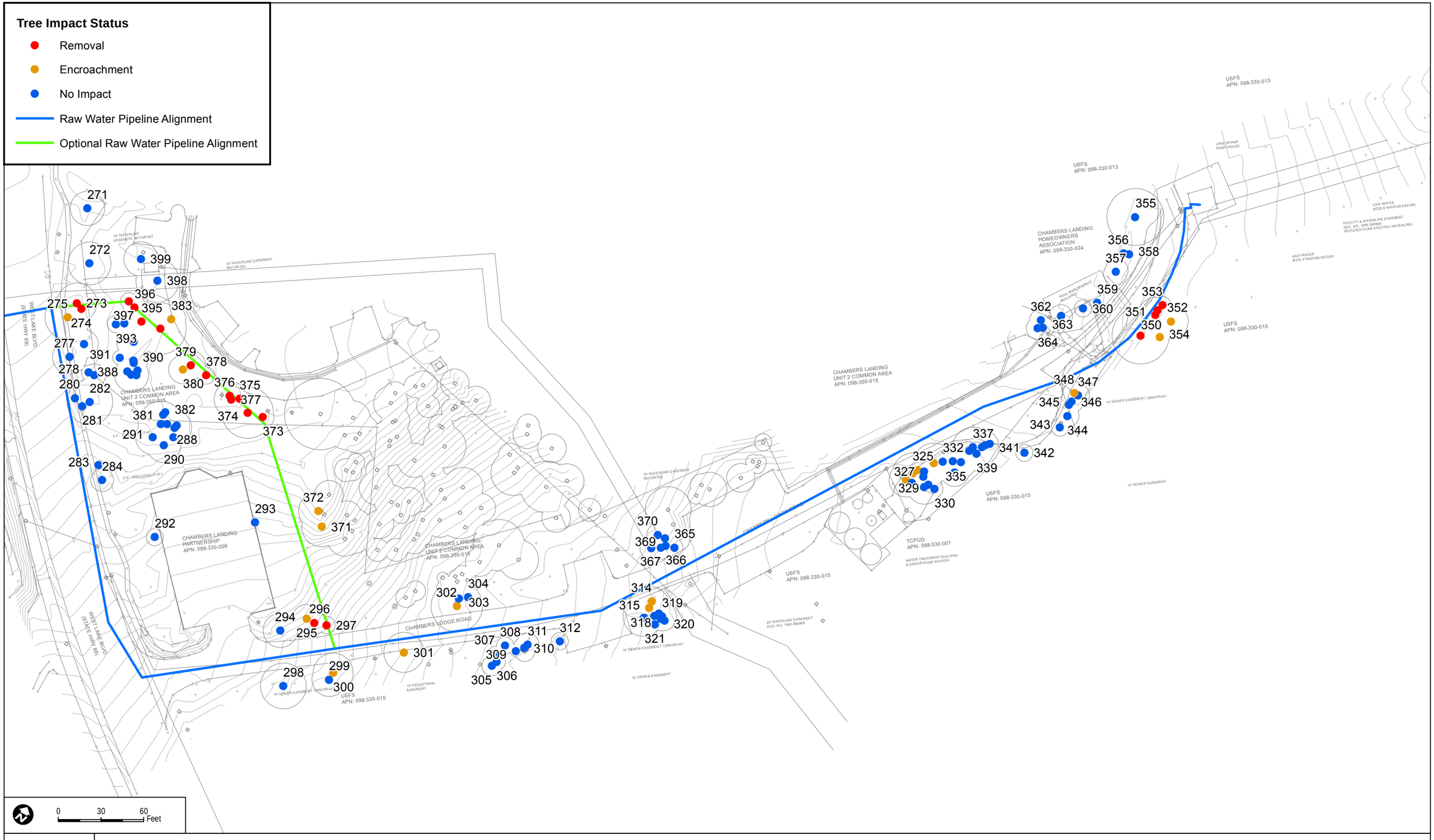
APPENDIX D-4

Tree Impact Analysis Exhibit - Lodge WTP Site with Parking Lot and Restroom

TCPUD West Lake Tahoe Regional Water Treatment Plant - Tree Survey Report

Tree Impact Status

- Removal
- Encroachment
- No Impact
- Raw Water Pipeline Alignment
- Optional Raw Water Pipeline Alignment



DUDEK

7788

SOURCE: Auerbach Engineering 2014; Dudek 2014

APPENDIX D-5

Tree Impact Analysis Exhibit - Chambers Lodge Road

Individual Tree Locations

Impact Status

- Removal
- Encroachment
- No Impact

400
401
402
403
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435
436

0 10 20 Feet

DUDEK

7788

SOURCE: Auerbach Engineering 2014; Dudek 2014

APPENDIX D-6

Tree Impact Analysis Exhibit - Lagoon WTP Site

TCPUD West Lake Tahoe Regional Water Treatment Plant - Tree Survey Report

APPENDIX C

Cultural Resources

CULTURAL RESOURCES ASSESSMENT OF THE WEST LAKE TAHOE REGIONAL WATER TREATMENT PLANT PROJECT AREA, PLACER COUNTY, CALIFORNIA

Prepared by

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July 31, 2015
(Job #12-124)

INTRODUCTION

The Tahoe City Public Utility District (TCPUD) proposes to construct a new water treatment plant (WTP), which would replace an existing interim WTP to improve the reliability and quality of water service in the West Lake Tahoe region.

The proposed project is located in the TCPUD McKinney-Quail Service Area, near the community of Tahoma on the west shore of Lake Tahoe in California, in Placer County, California (Figures 1 and 2).

When this report was prepared TCPUD was considering a number of different site options that are all evaluated in this report (Lodge Road WTP site, Chamberland Drive WTP site, Lagoon Road WTP site, McKinney Shores Beach lake intake location and Chambers Landing Beach lake intake location). Based on a review of technical reports and other considerations, TCPUD ultimately decided to propose to construct the proposed improvements at the Lodge Road WTP and Chambers Landing Beach lake intake location with an option to develop a parking lot and/or restroom facilities.

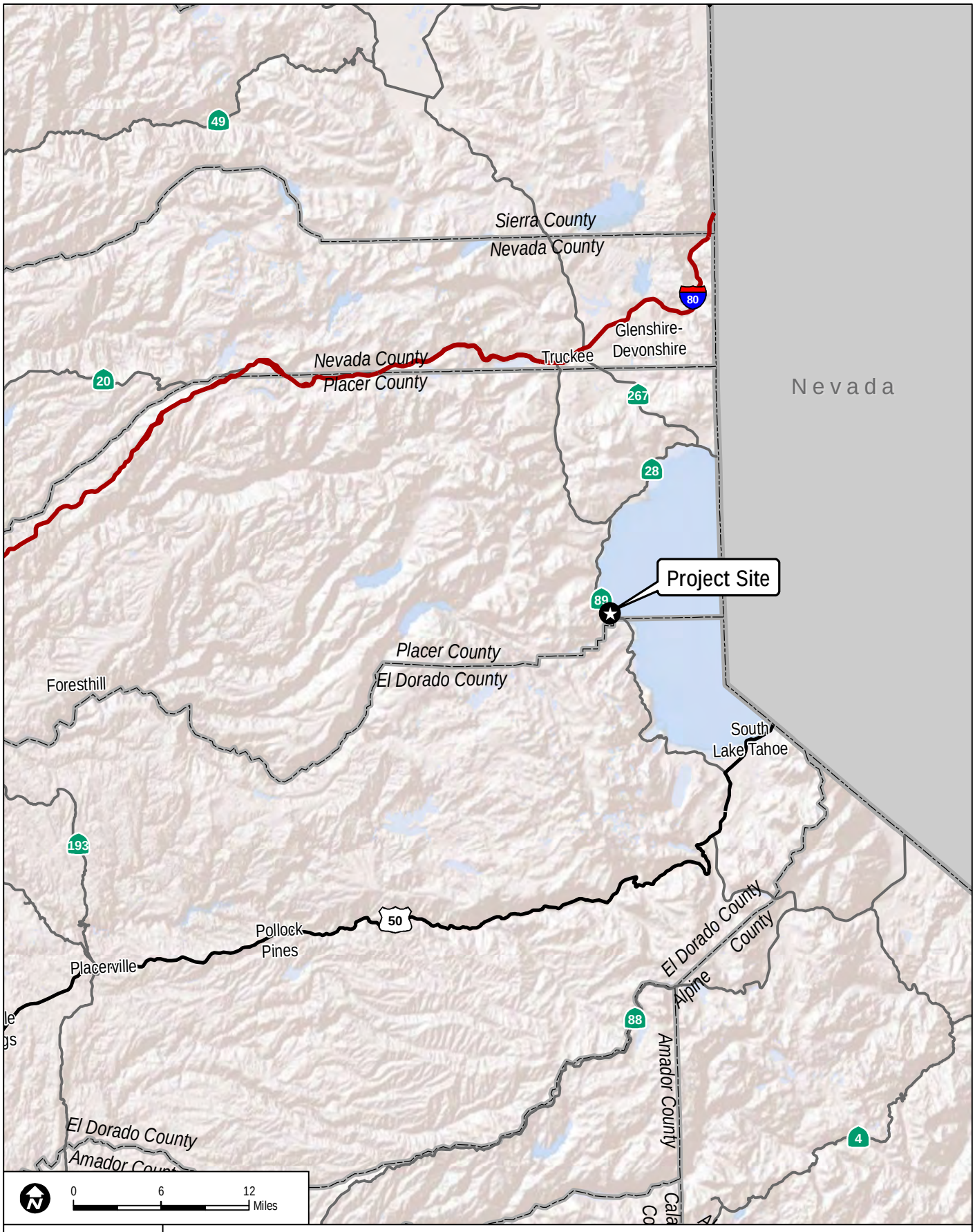
The three alternative water treatment plant facilities/pipeline areas originally under consideration are located along the west shore of Lake Tahoe near the community of Homewood. The three alternative areas are located in Township 14 North, Range 16 East, section 12, and Township 14 North, Range 17 East, section 7 as shown on a copy of the United States Geological Survey (USGS) Homewood 7.5 minutes series topographic quadrangle (Figure 3).

Project Description

The three potential WLTRWTP sites are:

Lodge Road: At this location, the WLTRWTP would be constructed adjacent to Lodge Road on the northern portion of an approximately 6.5-acre vacant parcel. This parcel contains two of the proposed sites and is referred to herein as the “Chamberland/Lodge” parcel (Figure 4). This Chamberland/Lodge parcel is owned by the California Tahoe Conservancy (CTC). The Lodge site is adjacent to residences and immediately west of SR 89. The Chambers Landing beach is located across SR 89, approximately 0.2 miles from the Lodge site (Figure 4).

Chamberland Drive: At this location, the WLTRWTP would be constructed in the southern portion of the Chamberland/Lodge parcel and access from the intersection of Chamberland Drive and Flicker Avenue. The Chamberland site is also adjacent to residences, immediately west of SR 89, and Chambers Landing is directly east of this site (Figure 4). The Tahoe City to Sugar Pine bike trail runs between SR 89 and the Chamberland/Lodge parcel.



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7788

SOURCE: ESRI 2015

FIGURE 1

Regional Map

TCPUD West Lake Tahoe Regional Water Treatment Plant

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SOURCE: USGS 7.5-Minute Series Homewood Quadrangle.

FIGURE 2

Vicinity Map

TCPUD West Lake Tahoe Regional Water Treatment Plant

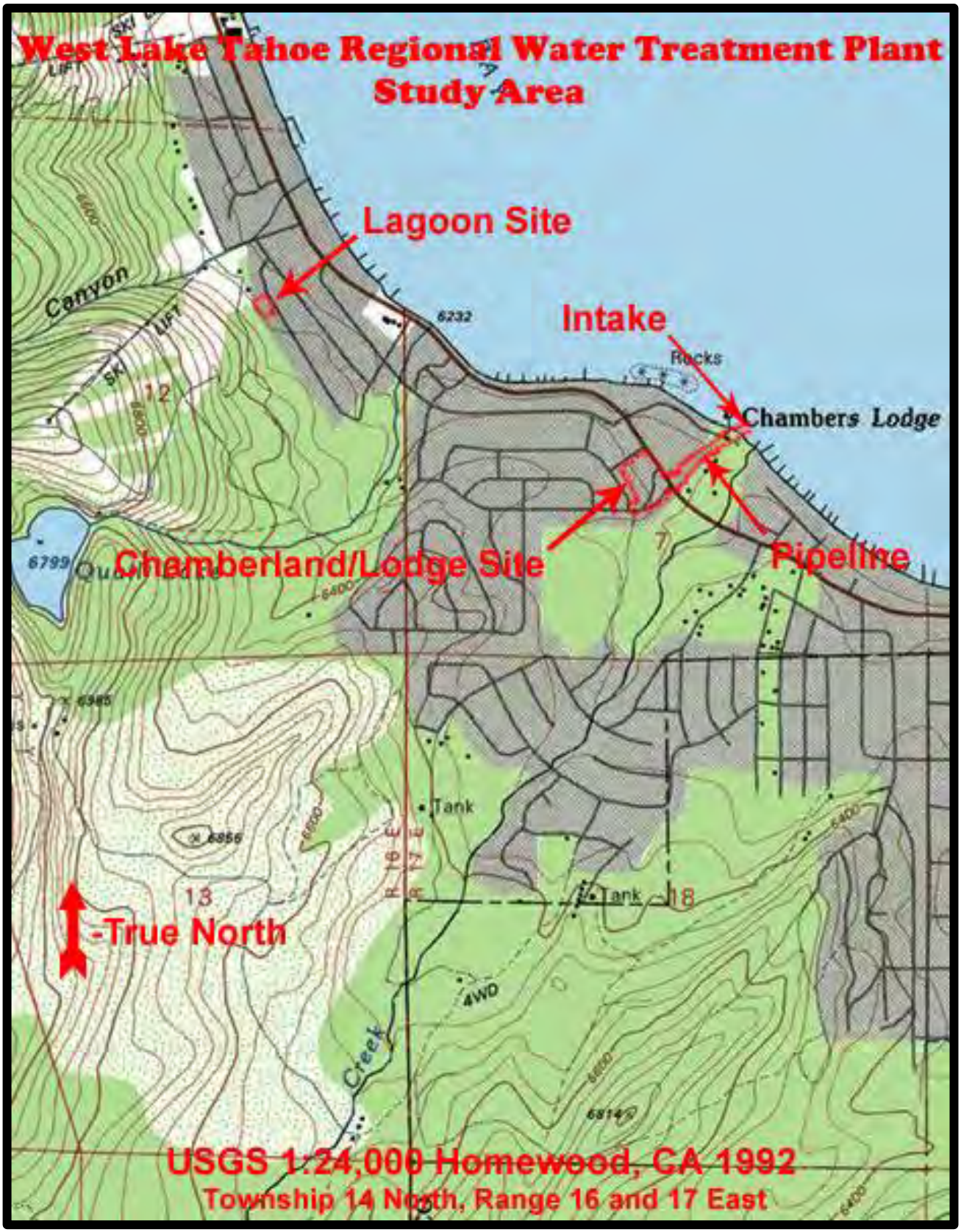

West Lake Tahoe Regional Water Treatment Plant
Study Area
Lagoon Site
Intake
Chamberland/Lodge Site
Pipeline
Chambers Lodge
Rocks
Canyon
SKI LIFT
Tank
Tank
4WD
Creek
True North
USGS 1:24,000 Homewood, CA 1992
Township 14 North, Range 16 and 17 East

Figure 3

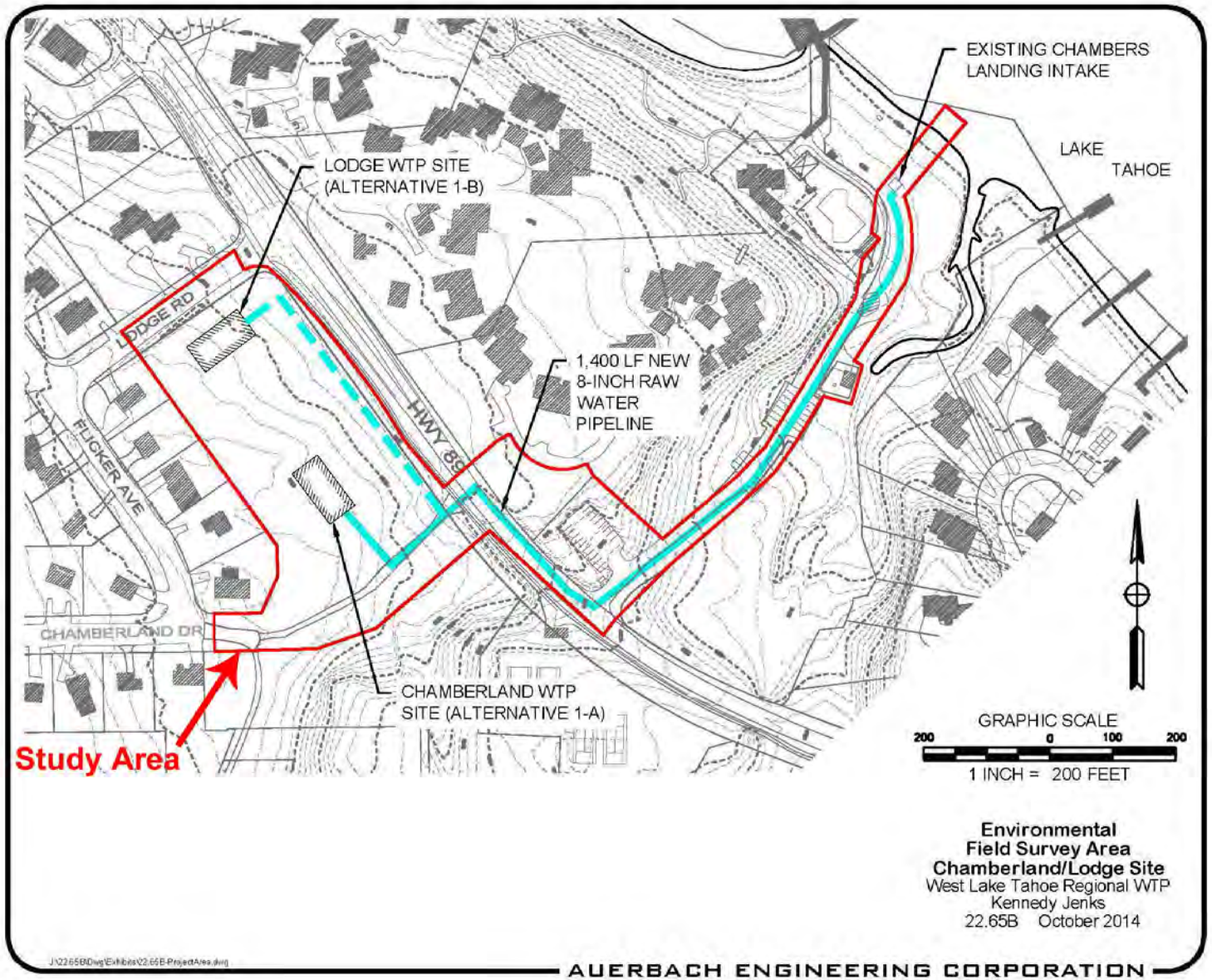

EXISTING CHAMBERS
LANDING INTAKE
LAKE
TAHOE
LODGE WTP SITE
(ALTERNATIVE 1-B)
LODGE RD
1,400 LF NEW
8-INCH RAW
WATER
PIPELINE
HWY 89
FLICKER AVE
CHAMBERLAND DR
CHAMBERLAND WTP
SITE (ALTERNATIVE 1-A)
Study Area
GRAPHIC SCALE
200 0 100 200
1 INCH = 200 FEET
Environmental
Field Survey Area
Chamberland/Lodge Site
West Lake Tahoe Regional WTP
Kennedy Jenks
22.65B October 2014
AUERBACH ENGINEERING CORPORATION

Figure 4

Lagoon Road: At this location, the WLTRWTP would be constructed adjacent to Lagoon Road on a portion of an approximately 23-acre vacant parcel owned by TCPUD (Figure 5). The Lagoon site is adjacent to residences and the Homewood Mountain Resort ski area. Relative to the Lodge and Chamberland sites, the Lagoon site is set farther back into the residential neighborhood and is approximately 0.25 miles east of SR 89.

Proposed WLTRWTP

The proposed WLTRWTP would be constructed in two phases, with an ultimate buildout capacity of 1,100 gpm or 1.5 million gallons per day (MGD). While the minimum capacity needed to serve the TCPUD McKinney-Quail service area is 375 gpm, Phase 1 has been designed for a capacity of 650 gpm or 1.0 MGD. It is expected that Phase I would be constructed in 2016 and 2017 while Phase II would be constructed based on increased demands and is anticipated to occur sometime between 2025 and 2030.

The WTP would receive raw water taken from Lake Tahoe through an intake pump station (Figure 4). The pump station would be fully submerged within the lake and connected to an underground raw water pipeline. The submersible pumps would pump the water from the lake to the lake intake electrical and chemical feed building. At this location, sodium hypochlorite would be injected into the pipeline and the water would continue to be conveyed to the WTP and through the treatment processes into the chlorine contactor and operational storage clearwell. This approach avoids the need to "repump" the water at various stages of the treatment process. The WTP features would include a skid mounted membrane filtration process; UV disinfection; post-chlorination disinfection for water distribution disinfection residual maintenance; partially buried clearwell for treated water storage; treated water booster pump station; backwash recovery treatment process and underground storage tanks; recycled water pump station; off-site solids disposal; and permanent standby generator in a sound attenuating enclosure. The individual components of the WTP project include the following:

Intake Pump Station

The Intake Pump Station would be converted from a land-based pump station to a submersible pump station. The submersible pump station would be installed below the surface of the lake approximately 650 feet from the shoreline, at the current pump station intake screen location. A new Lake Intake electrical controls and pre-chlorination chemical feed building would be constructed at the existing interim WTP. A new underground electrical cable to operate the submersible pumps would be constructed from the new Lake Intake electrical controls and chemical building to the submersible pumps, buried in the ground and strapped to the outside of the existing 6-inch and 8-inch raw water pipeline. The existing vault that contains the current Intake Pump Station would be demolished once it has been replaced by the new submersible pump station. The existing lake intake booster pump station site would be restored to the current beach recreational area that surrounds the existing lake intake pump station

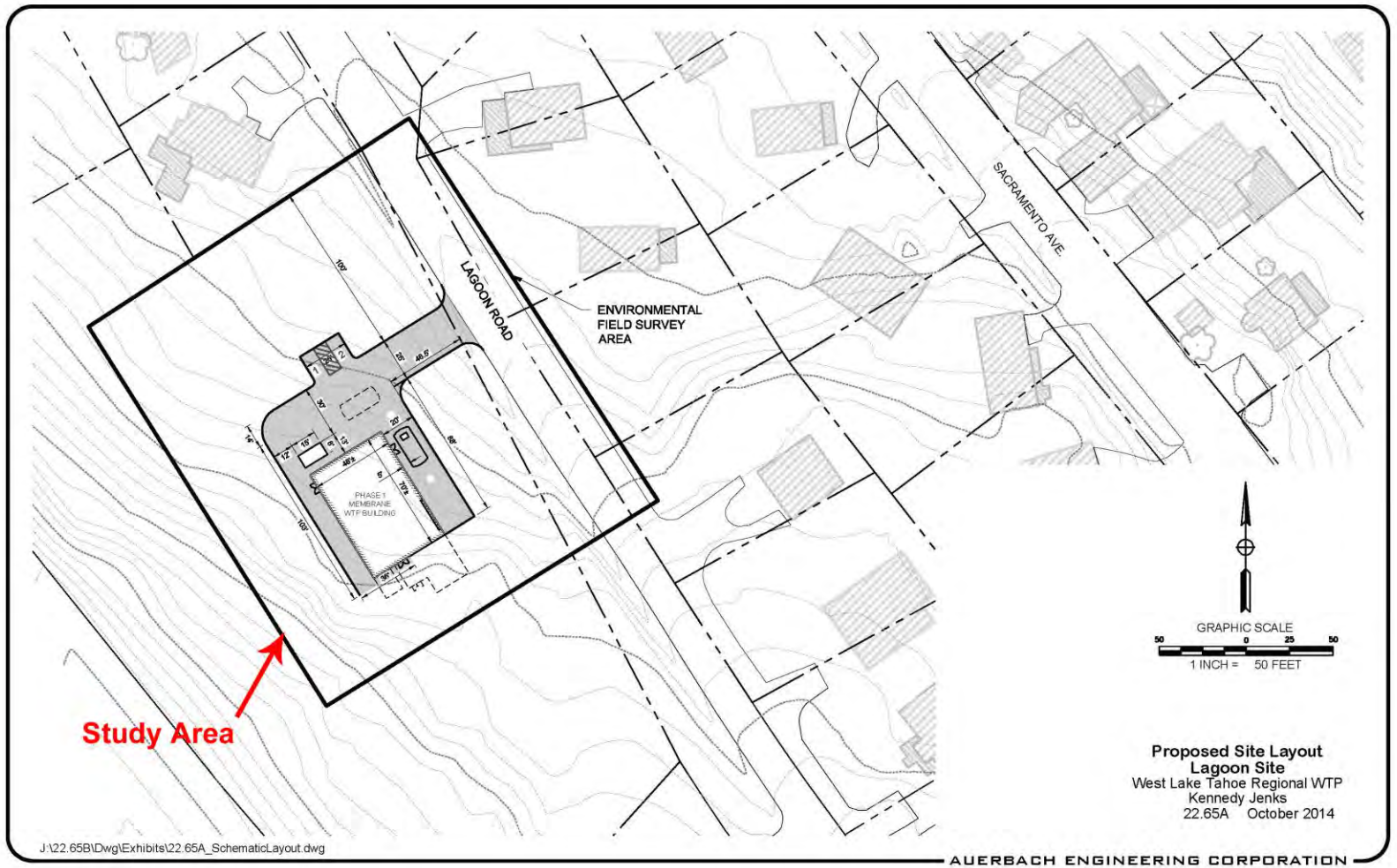

LAGOON ROAD
ENVIRONMENTAL
FIELD SURVEY
AREA
SACRAMENTO AVE.
PHASE 1
MEMBRANE
WTF BUILDING
Study Area
GRAPHIC SCALE
50 0 25 50
1 INCH = 50 FEET
Proposed Site Layout
Lagoon Site
West Lake Tahoe Regional WTP
Kennedy Jenks
22.65A October 2014
J:\22.65B\Dwg\Exhibits\22.65A_SchematicLayout.dwg
AUERBACH ENGINEERING CORPORATION

Figure 5

Intake Electrical/Chemical Feed Room
The Electrical/Chemical Feed Room for the pump station would be located on TCPUD property at the existing interim WTP and sewer lift station site. The existing lift station building would be expanded to provide a new separate electrical/chemical feed room.

A permanent sound-attenuated standby diesel generator would be constructed inside for Phase 1 that would be sized to operate both the lake intake submersible pumps and the existing sewer lift station. The existing standby generator for the sewer lift station would be removed as well as the existing interim WTP controls located in the Chambers Landing Homeowners Association Pool Room. For Phase 2, the generator would be upsized to operate a larger capacity lake intake pump station. As the sewer lift station site is located within a floodplain, the electrical/chemical feed room addition would be designed to be flood resistant with a flood protection door, and the generator would be constructed above the floodplain.

Intake Pipeline
Under the WTP Phase I, no improvements to the existing Chambers Landing intake water pipeline are needed. The existing pipeline consists of approximately 650 linear feet of 8-inch and 6-inch diameter pipes from the inlet screen in the lake to the existing pump station in the beach. The pipeline would be replaced with a 10-inch diameter line in order to attain the Phase 2 capacity.

Water Treatment Plant
The WTP would require approximately 3,500 square feet of building space for Phase 1 and would be expanded by approximately 1,000 square feet for Phase 2. Construction activities would include excavation for the building foundation, and partially buried contactor / clearwell tank.

Raw Water Pipeline: Approximately 1,400 linear feet of additional raw water pipeline (10-inch diameter) would be required from the Chambers Landing beach intake pipeline to the WTP building. This pipeline would be installed through an existing steel casing that crosses under SR 89 (Figure 4).

Filtration and Disinfection Processes: Treatment and disinfection would be provided by a multi-barrier approach to comply with Surface Water Treatment Rule (SWTR) drinking water standards. Filtration would be provided utilizing a packaged microfiltration (MF) system. Disinfection would be provided with a combination of UV reactors and free chlorine. Packaged microfiltration or ultrafiltration (collectively described as MF) would provide reliable, low turbidity filtered water independent of pre-treatment chemical coagulation and variations in the source water quality and would ensure that applicable California State Water Resource Control Board (SWRCB) Division of Drinking Water (DDW) standards are met.

Water would be pumped from Lake Tahoe to the electrical and chemical feed room where sodium hypochlorite would be injected into the pipeline. The water would continue to be conveyed to the WTP to the inlet of the packaged MF units. Sodium hypochlorite would be

added to the source water from the new electrical / chemical feed room, adjacent to the the existing sewer lift station (located on the existing interim WTP site) to pre-oxidize the water and provide some disinfection in the pipeline prior to the WTP site. Sodium hypochlorite would also be added after filtration and UV treatment at the WTP to maintain chlorine residual in the water distribution system.

Two package MF units would be provided to meet the production for Phase 1 capacity. A third MF unit would be required for Phase 2. It is expected that the MF units would include a strainer, direct pumping through the membrane unit and backwash supply pipeline from the discharge side of the treated water pump station, membrane elements, and associated piping, valves, instrumentation and controls for the unit. A separate clean-in-place system, neutralization tank, and compressed air system would be required for the two (Phase 1) to three (Phase 2) MF System.

Disinfection would be provided with a combination of pressurized ultraviolet disinfection reactors and free chlorine (using liquid sodium hypochlorite). The Minimum and Phase 1 WTP capacities would require one duty and one standby UV reactor, with a third UV reactor installed for Phase 2.

Because chlorine does not kill pathogens instantaneously on contact, disinfection with chlorine requires the appropriate chlorine concentration and sufficient contact time with the water. A portion of the required disinfection would be achieved with the presence of residual chlorine in the raw water pipeline. The remaining disinfection would be achieved in a contactor partition volume, which would be provided with a 16,160-gallon tank constructed of serpentine reinforced concrete. The contactor tank would be partially-buried onsite.

STATE REGULATIONS

State historic preservation regulations affecting this project include the statutes and guidelines contained in the California Environmental Quality Act (CEQA; Public Resources Code sections 21083.2 and 21084.1 and sections 15064.5 and 15126.4 (b) of the CEQA Guidelines). CEQA Section 15064.5 requires that lead agencies determine whether projects may have a significant effect on archaeological and historical resources. Public Resources Code Section 21098.1 further cites: A project that may cause a substantial adverse change in the significance of an historical resource is a project that may have a significant effect on the environment.

An “historical resource” includes, but is not limited to, any object, building, structure, site, area, place, record or manuscript that is historically or archaeologically significant (Public Resources Code section 5020.1).

Advice on procedures to identify such resources, evaluate their importance, and estimate potential effects is given in several agency publications such as the series produced by the Governor’s Office of Planning and Research (OPR), *CEQA and Archaeological*

Resources, 1994. The technical advice series produced by OPR strongly recommends that Native American concerns and the concerns of other interested persons and corporate entities, including, but not limited to, museums, historical commissions, associations and societies be solicited as part of the process of cultural resources inventory. In addition, California law protects Native American burials, skeletal remains, and associated grave goods regardless of the antiquity and provides for the sensitive treatment and disposition of those remains (California Health and Safety Code Section 7050.5, California Public Resources Codes Sections 5097.94 et al).

The California Register of Historical Resources (Public Resources Code Section 5020 et seq.)

The State Historic Preservation Office (SHPO) maintains the California Register of Historical Resources (CRHR). Properties listed, or formally designated as eligible for listing, on the National Register of Historic Places are automatically listed on the CRHR, as are State Landmarks and Points of Interest. The CRHR also includes properties designated under local ordinances or identified through local historical resource surveys.

For the purposes of CEQA, an historical resource is a resource listed in, or determined eligible for listing in the California Register of Historical Resources. When a project will impact a site, it needs to be determined whether the site is an historical resource. The criteria are set forth in Section 15064.5(a) (3) of the CEQA Guidelines, and are defined as any resource that does any of the following:

Is associated with events that have made a significant contribution to the broad patterns of California's history and cultural heritage;

Is associated with the lives of persons important in our past;

Embodies the distinctive characteristics of a type, period, region, or method of construction, or represents the work of an important creative individual, or possesses high artistic values; or

Has yielded, or may be likely to yield, information important in prehistory or history.

In addition, the CEQA Guidelines, Section 15064.5(a) (4) states:

The fact that a resource is not listed in, or determined to be eligible for listing in the California Register of Historical Resources, not included in a local register of historical resources (pursuant to section 5020.1(k) of the Public Resources Code), or identified in an historical resources survey (meeting the criteria in section 5024.1(g) of the Public Resources Code) does not preclude a lead agency from determining that the resource may be an historical resource as defined in Public Resources Code section 5020.1(j) or 5024.1.

California Health and Safety Code Sections 7050.5, 7051, And 7054

These sections collectively address the illegality of interference with human burial remains, as well as the disposition of Native American burials in archaeological sites. The law protects such remains from disturbance, vandalism, or inadvertent destruction, and establishes procedures to be implemented if Native American skeletal remains are discovered during construction of a project, including the treatment of remains prior to, during, and after evaluation, and reburial procedures.

California Public Resources Code Section 15064.5(e)

This law addresses the disposition of Native American burials in archaeological sites and protects such remains from disturbance, vandalism, or inadvertent destruction. The section establishes procedures to be implemented if Native American skeletal remains are discovered during construction of a project and establishes the Native American Heritage Commission as the entity responsible to resolve disputes regarding the disposition of such remains.

CULTURAL HISTORY

Ethnology

Prior to and at the time of American penetration into the area, the Lake Tahoe region was part of the nuclear territory of the Washoe Indians. Linguistically, the Washoe were unrelated to the surrounding Indian groups, being more closely allied to the Shastan speakers to the north, the Pomo, Salinan, and the Chumash of the coast, and the Yuman speakers of the Colorado River region. Price (1963:1) has noted that the Washo divided into broad, regionally distinctive groups--the northerners, the easterners, and the southerners.

Washoe territory extended from the crest of the Sierra on the west to the Virginia and Pine Nut mountains east of Reno. Honey Lake on the north and Antelope Valley on the south appear to have formed the other boundary lines (Price 1963). Although the Washoe intensively occupied some 2000 square miles and altogether utilized 4000 square miles, it is estimated that their maximum population did not exceed 1500 (Kroeber 1925). Until the 1820s, the Washoe followed a nomadic life pattern. Their winter homes were the eastern valleys of low elevation.

The rugged nature of Washoe territory included three major life zones: the boreal zone around Lake Tahoe and at elevations from 6,000 to 10,000 feet in the sierra, the Jeffrey pine zone below this and the sagebrush zone of the eastern desert and lower foothills. The variety of environmental zones allowed the Washoe to use a wide variety of natural food resources. In summer the boreal region, with its many lakes and streams, provided fish, mountain sheep, deer, and antelope. The flat valleys on the east side of the sierra provided deer, antelope, birds and fish from Lake Tahoe, Honey Lake and

Topaz Lake (d'Azevedo 1986). Some Washoe crossed the sierra crest to exploit the acorns that were plentiful on the west slope.

To efficiently exploit the wide variety of resources that were available but spread over a large territory, the Washoe employed a subsistence strategy called the "seasonal round." Over the calendar year the population moved from area to area as certain food sources became most readily available. At times, this allowed for assembly of virtually all the Washoe in a limited area. At other times, they would be broken down into small bunches, as Downs (1966:45) terms them; basically family groups exploiting a limited resource base. An individual lived and moved within a territory that may have been large but was sparsely populated, to such an extent that he might not know much about other nearby Washoe groups (d'Azevedo 1963:328).

The major assembly in the spring centered on Lake Tahoe for fishing, hunting and gathering. Even here, some division was apparent as the Sierra Valley-Honey Lake groups camped on the north side of the lake while the Carson Valley-Woodfords-Southern groups camped on the south shore (Downs 1966:13). In summer, the bands were split up and moved into the high Sierra, some groups moving over the crest to hunt and gather in the high valleys of the western slope. Occasionally, bands on the west slope would not return to the Washoe heartland until the next spring, wintering with the Nisenan and Miwok in the western foothills (Downs 1966:15).

For the rest of the bands, fall brought the other big assemblage of the Washoe people -- the piñon harvest. This did not bring the entire population together. The group that camped on the north side of Lake Tahoe gathered piñon nuts in the hills west of Reno, while the southern group gathered them in the hills south and east of Minden and Gardnerville (Downs 1966:22).

Food procurement was very difficult for the Washoe during the harsh winters of their territory. No resources capable of supporting a large population were present, so the Washoe divided into small bunches again and got through as best they could. The bands started the winter with a good supply of piñon nuts, but, after a particularly harsh winter, early spring could find them in desperate shape for food. Some birds wintered in Washoe territory and became an important food source (Downs 1966:34).

Washoe villages were generally located on high ground near rivers or springs. Care was taken to place them near a variety of ecological zones so that various resources could be accessed from a central location. Smaller satellite camps were located in areas where favored resources were abundant. The seasonal camps were occupied only when specific resources were available at that location. The typical Washoe dwelling was a wooden framed conical structure with wood plank siding. A temporary summerhouse was sometimes built of brush in a conical shape.

Trade routes between the Central Valley and Great Basin populations passed through Washoe territory. The Washoe traded salt, obsidian, pine nuts and rabbit skins to the Maidu in exchange for acorns, salmon, pelts and, occasionally, seashells. On the east

side of the mountains the Mono and Paiute people supplied pam pam bulbs, tubers, skins, and kutsavi, a small grub of the *Ephydra* fly.

The Washoe were unique for their assimilation of aspects from both the California and the Great Basin cultures into a unique culture of their own. While ethnographic data are scanty for the project area, fishing along the Carson River was probably very important. The diversion of creeks in order to trap fish has been documented by Freed (1966), who reports that Donner Creek was preferred to the Truckee because it was more easily diverted.

Historical Background

The west shore of Lake Tahoe, including the Homewood area, was sparsely settled during most of the 19th century. During the 1880's, Chambers Lodge, located along the lake at the mouth of McKinney Creek, about a mile and a half south of the APE, was constructed. The resort community of Idlewild, about a mile north of the APE, was also established during this period (Scott 1957:73).

Homewood was established as a resort community in 1889 and lots were put up for sale for one-hundred dollars each. Initial sales were weak, so lots were offered at no cost as long as the new owners built a permanent residence (Lekisch 1988 as cited in Hauge Brueck Associates 2011). A post office was established in 1909 (Frickstad 1955).

Hotel Homewood, constructed in 1910, was the first main commercial building in town. Several years later, a large casino and dance floor was built across the road from the hotel complex. By the late 1920's about two dozen residents called Homewood home. Hotel Homewood was still operating and a large boathouse, pier, and store had been added to the commercial interests (Scott 1957:74).

1931 was not a good year at the resort community. A portion of the pier had burned in a fire, and during the winter, heavy snows collapsed another small resort building, Hunter's Lodge. A similar disaster happened during the winter of 1938 when heavy snows destroyed Homewood Hotel's dance floor and casino (Scott 1957:71).

In 1947, a new retail complex was built on the site of the old dance floor and casino and this commercial center eventually became the nucleus of the Homewood Ski Resort (Huff 1984 as cited in Hauge Brueck Associates, 2011). The southern portion of the APE is located adjacent to the Homewood Ski Resort, and Hotel Homewood's former dance floor and casino site.

Homewood Ski Resort has experienced difficult financial hardships over the years, but a succession of owners continue to plan for a brighter economic future for the resort. The community of Homewood currently is primarily residential with some scattered commercial enterprises.

The community and adjacent bay received their name after Sunnyside Cottage, a private resort and pier built near the old mill site. Anglers, after world-class trout fishing in nearby Ward Creek, filled the resort By 1910, 5,000 square foot lots were selling along the lakeshore for $50. Many wealthy families from the Bay Area took advantage of the available lots and built summer-occupied mini-mansions along the lakeshore (Scott 1957:60). The modern community of Sunnyside retains its resort like appeal with many examples of modest, and not-so-modest, summer and year-round occupied residences along the shore and adjacent hillsides.

RESEARCH

The North Central Information Center (NCIC), California Historical Resources Information System (CHRIS), conducted a record search for the alternative project areas on April 24, 2013 (NCIC #PLA-13-34, Appendix A, confidential). The NCIC examined their files for information concerning previous cultural resource investigations and recorded cultural resources for the alternative project areas, and a one-quarter mile radius.

Lagoon Site Study Area

CA-PLA-2299, Iron Springs, was identified within the Lagoon Site Study Area. The resource consists of: an old spring with a few historic, and one prehistoric period, artifact. A second cultural resource, P-31-003598, was found to be recorded about 1200 feet south of the Lagoon Site Study Area. P-31-003598 is described as a road and trails associated with the 1960 Olympics.

The Lagoon Site Study Area was subjected to an intensive archeological inspection in 2008 (Betts and Lindstrom 2008).

Chamberland/Lodge Site Study Area

Two resources were determined by NCIC to be located adjacent to the Chamberland/Lodge Site Study Area: P-31-3594 is an unpaved logging road: and, P-31-003743 is the site of an old steamer landing. Two other resources, P-31-002762, a logging feature, and, P-31-003742, a Washoe medicinal plant collection area/ campsite are recorded within a one-quarter miles radius of the Chamberland/Lodge Site Study Area.

Portions of the Chamberland/Lodge Site Study Area have been subjected to an archeological inspection (McMorrow 2010) and archival and literature review (Gerike, et al. 1994).

NATIVE AMERICAN CONSULTATION

Peak & Associates requested that the Native American Heritage Commission (NAHC) perform a Sacred Lands File search for the four alternative project areas. The NAHC responded on May 14, 2013 stating that there was no record of Native American cultural resources in the immediate project vicinity. The NAHC also provided a list of Native American individuals and organizations who may have knowledge of cultural resources in the project area (Appendix B).

Consultation effort

A letter with attached topographic quadrangle map and figures showing the four alternative project areas were sent to five individuals/organizations from a list provided by the NAHC on May 20, 2013. These individuals/organizations were: Stacy Dixon, Chairperson, Susanville Indian Rancheria; Wanda Batchelor, Chairperson, Washoe Tribe of Nevada and California; Darrel Cruz, Cultural Resources Coordinator, Washoe Tribe of Nevada and California; Rose Enos; and, April Wallace Moore (Appendix B). As of April 15, 2015 no replies have been received.

A second Sacred Lands File check was performed by the NAHC on July 22, 2015 and a second round of letters requesting information and comment were sent by Peak & Associates on July 2, 2015 to Stacy Dixon, Chairperson, Susanville Indian Rancheria; Wanda Batchelor, Chairperson, Washoe Tribe of Nevada and California; Darrel Cruz, Cultural Resources Coordinator, Washoe Tribe of Nevada and California; Rose Enos; and, April Wallace Moore (Appendix B). As of July 31, 2015 no replies have been received to this second round of consultation.

FIELD INVESTIGATION

A complete, intensive examination of the Chamberland/Lodge Site Study Area (Figure 4) and Lagoon Site Study Area (Figure 5) was undertaken on October 2, 2014 (Figure 6). Transect spacing was less than 10 meters in width and numerous surface scrapes were conducted throughout both study areas to expose sediment beneath the duff layer. Both study areas were characterized by vegetation consisting of a mixed coniferous forest overstory and scattered brush understory that were spaced at intervals that allowed access for the inspection. Portions of the Chamberland/Lodge Study Area were covered with asphalt and the underlying sediment could not be examined in these areas (Highway 89, parking area and access road for Chambers Lodge).

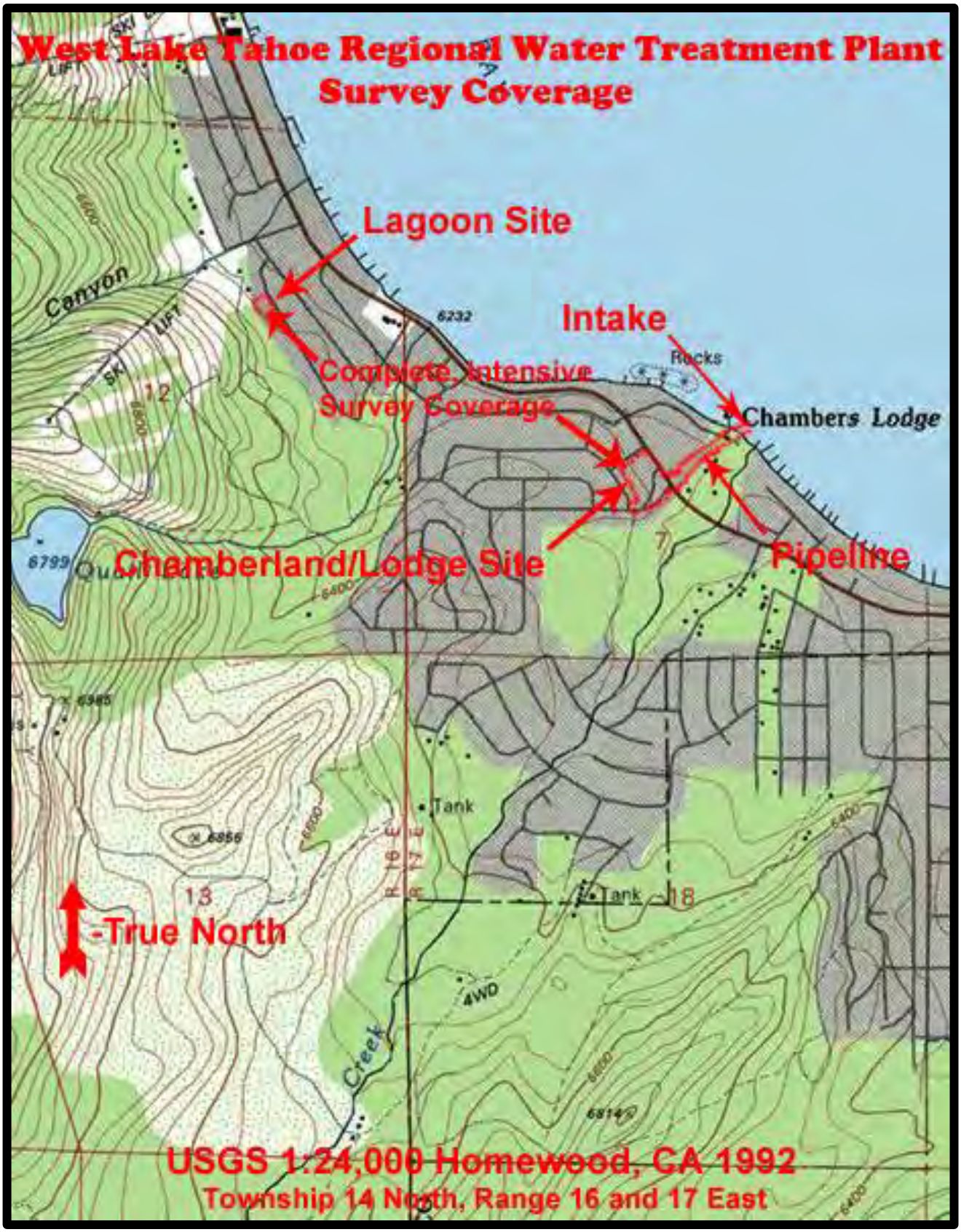

West Lake Tahoe Regional Water Treatment Plant
Survey Coverage
Lagoon Site
Intake
Complete, Intensive
Survey Coverage
Chamberland/Lodge Site
Pipeline
Chambers Lodge
Canyon
SKI
LIFT
Rocks
Tank
4WD
Creek
-True North
USGS 1:24,000 Homewood, CA 1992
Township 14 North, Range 16 and 17 East

Figure 6

FIELD RESULTS

Chamberland/Lodge Study Area

The previously identified resource P-31-003594, shown terminating at the edge of the study area, was found to extend into the study area and a supplemental site record was prepared for this extension and is presented in Appendix C (Confidential). No evidence of P-31-003743, the old steamer landing, was observed.

Lagoon Site Study Area

The previously identified resource CA-PLA-2299, Iron Springs, was found to be located as described in the 2008 form for the resource. The scatter of historic period artifacts near
the spring were relocated and an additional historic period artifact, a fragment of amethyst-colored bottle glass, was discovered. An updated supplemental site record was prepared for the resource and is presented in confidential Appendix C along with the original 2008 site record.

A newly identified resource consisting of a linear-shaped depression and associated earthen berm was discovered in a portion of the Lagoon Site Study Area. The resource has been assigned the temporary field identification PA-14-18. A Department of Parks and Recreation (DPR) 523 Series form was prepared and is presented in Appendix C (Confidential).

RECOMMENDATIONS

Chamberland/Lodge Site Study Area

P-31-003594 - The resource is located within the APE for the Chamberland WTP (Figure 7) and will be adversely impacted under current design plans. The resource does not extend into the APE for the Lodge WTP (Figure 8). P-31-003594 does not appear to qualify, however as a historic property under CEQA. The dirt road does not appear to be associated with events that have made a significant contribution to the broad patterns of California's history and cultural heritage; does not appear to be associated with the lives of persons important in our past; does not embody the distinctive characteristics of a type, period, region, or method of construction, or represents the work of an important creative individual, or possesses high artistic values; and has not yielded, or may be likely to yield, information important in prehistory or history. No measures to mitigate the adverse impacts of the proposed development of the Chamberland WTP are necessary.

For the purposes of CEQA, we conclude that there will be no impact to important historical resources from the development of the Chamberland WTP or Lodge WTP as shown on Figures 7 and 8.

Lagoon Site Study Area

CA-PLA-2299, Iron Springs - The resource is located outside of the Area of Potential Effects (APE) for the Lagoon WTP as shown on Figure 9. No adverse impact will occur under current design plans.

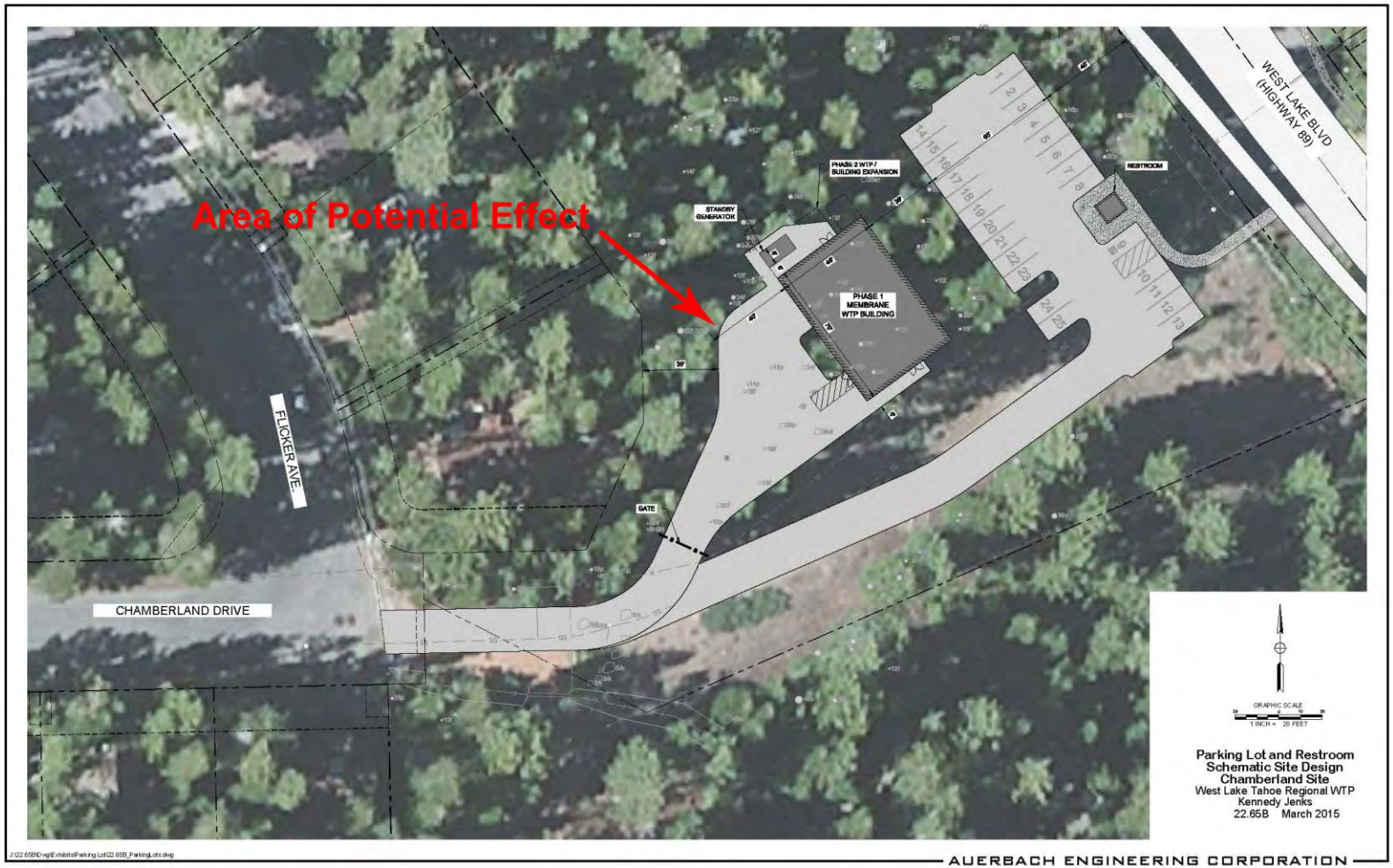
PA-14-18 - The linear depression is located just outside the APE (Figure 9). No adverse impact will occur under current design plans.

For the purposes of CEQA, we conclude that there will be no impact to important historical resources from the development of the Lagoon Site WTP as shown on Figure 9.

General

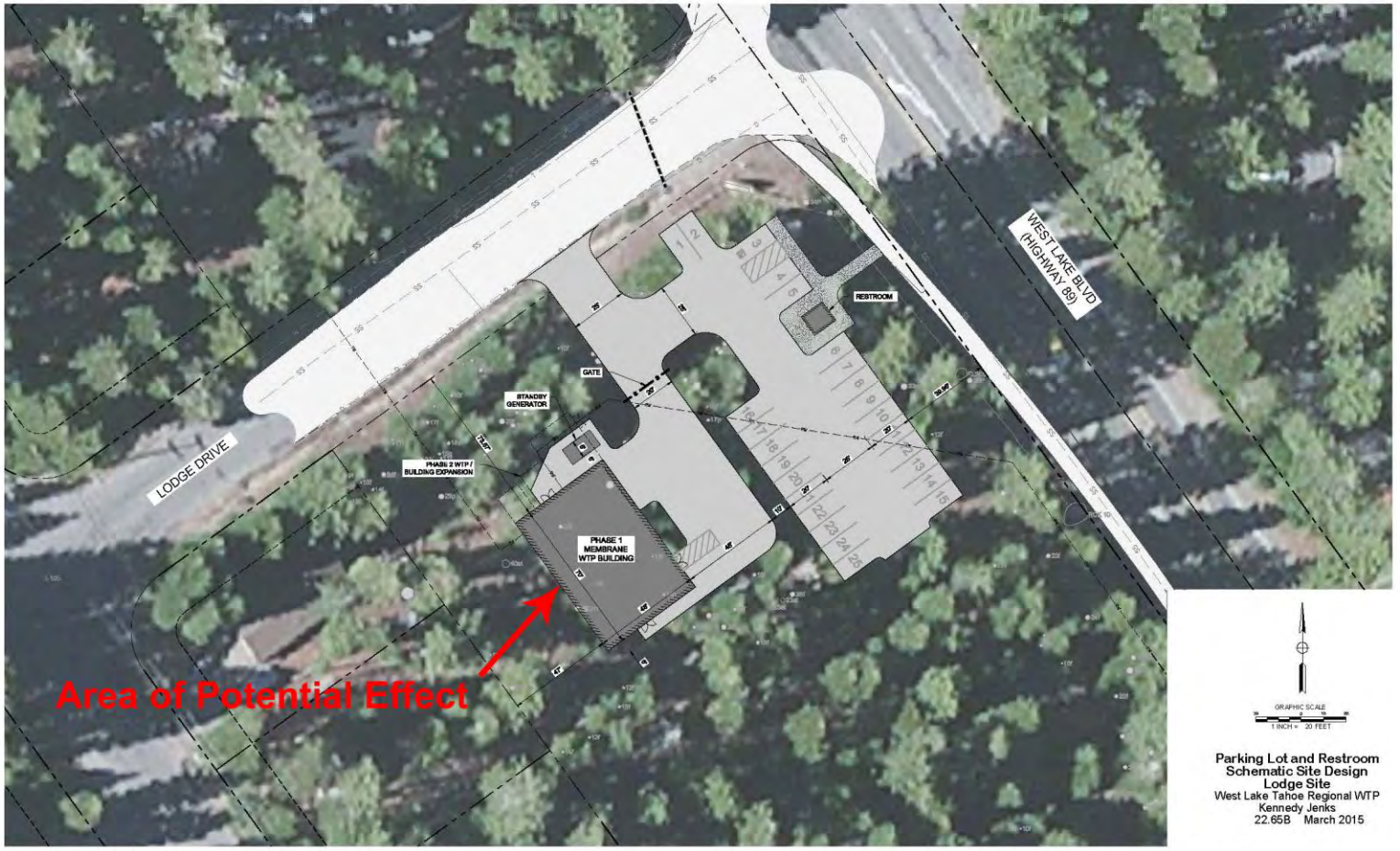
Should any buried archeological materials be uncovered during project activities, such activities shall cease within 100 feet of the find. Prehistoric archeological indicators include: obsidian and chert flakes and chipped stone tools; bedrock outcrops and boulders with mortar cups; ground stone implements (grinding slabs, mortars and pestles) and locally darkened midden soils containing some of the previously listed items plus fragments of bone and fire affected stones. Historic period site indicators generally include: fragments of glass, ceramic and metal objects; milled and split lumber; and structure and feature remains such as building foundations, privy pits, wells and dumps; and old trails. A professional archeologist shall be retained by the Permittee to evaluate the find and recommend appropriate mitigation measures.

If human remains are encountered, then the Permittee shall comply with Section 15064.5 (e) (1) of the CEQA Guidelines and the Health and Safety Code Section 7050.5. All project-related ground disturbance within 100 feet of the find shall be halted until the Placer County coroner has been notified. If the coroner determines that the remains are Native American, the coroner will notify the Native American Heritage Commission to identify the most-likely descendants of the deceased Native Americans. Project-related ground disturbance, in the vicinity of the find, shall not resume until the process detailed under Section 15064.5 (e) has been completed.



AUERBACH ENGINEERING CORPORATION

Figure 7



Parking Lot and Restroom
Schematic Site Design
Lodge Site
West Lake Tahoe Regional WTP
Kennedy Jenks
22.65B March 2015

J:\22.65B\Dwg\Exhibits\Parking Lot\22.65B_ParkingLots.dwg

AUERBACH ENGINEERING CORPORATION

Figure 8

Aerial Photo Overlay
Lagoon Site
West Lake Tahoe Regional WTP
Kennedy Jenks
22.65B March 2015

J:\22.65B\Dwg\Pr-Civil\PR-CIVIL-22.65B.dwg

AUERBACH ENGINEERING CORPORATION

Figure 9

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Appendix A

Confidential: Record Search Results

Appendix B

NAHC Consultation Correspondence

NATIVE AMERICAN HERITAGE COMMISSION
1550 Harbor, Suite 100
WEST SACRAMENTO, CA 95691
(916) 373-3710
Fax (916) 373-5471

May 14, 2013

Neal Neuenschwander
3161 Godman Avenue
Chico, CA 95973

Sent by Fax 530-342-0273

Number of Pages: 2

Re: West Lake Tahoe Regional Water Treatment Plant Project, Placer and El Dorado Counties

Dear Mr. Neuenschwander:

A search of the Native American Heritage Commission (NAHC) *Sacred Lands File* was completed for the area of potential project effect (APE) referenced above. Please note that the absence of specific site information in the *Sacred Lands File* does not indicate the presence of Native American traditional cultural places or sites in the APE. Enclosed is a list of Native American individuals/organizations who may have knowledge of traditional cultural places in your project area. This list should provide a starting place in locating any areas of potential adverse impact.

The NAHC makes no recommendation or preference of any single individual, or group over another. All of those on the list should be contacted, if they cannot supply information, they might recommend others with specific knowledge. By contacting all those listed, your organization will be better able to respond to claims of failure to consult with the appropriate tribe or group. If a response has not been received within two weeks of notification, the NAHC requests that you follow-up with a telephone call to ensure that the project information has been received.

If you receive notification of change of addresses and phone numbers from any of these individuals or groups, please notify me. With your assistance we are able to assure that our lists contain current information. If you have any questions or need additional information, please contact me at my email address: rw_nahc@pacbell.net

Sincerely,

Robert Wood
Associate Government Program Analyst

Native American Contact List
Placer and El Dorado Counties
May 14, 2013

Susanville Indian Rancheria
Stacy Dixon, Chairperson
745 Joaquin Street
Susanville , CA 96130
sirtribalchair@citlink.net
(530) 257-6264
(530) 257-7986 - Fax

Paiute
Maidu
Pit River
Washoe

Rose Enos
15310 Bancroft Road
Auburn , CA 95603
(530) 878-2378

Maidu
Washoe

Washoe Tribe of Nevada and California
Wanda Batchelor, Chairperson
919 Highway 395 South
Gardnerville , NV 89410
ktrovato@washoetribe.us
775-265-4191
775-265-6240 Fax

Washoe

Washoe Tribe of Nevada and California THPO
Darrel Cruz, Cultural Resources Coordinator
919 Highway 395 South
Gardnerville , NV 89410
darrel.cruz@washoetribe.us
(775) 265-4191 ext 1212
(775) 546-3421 - cell
775-265-6240 FAX

Washoe

April Wallace Moore
19630 Placer Hills Road
Colfax , CA 95713
530-637-4279

Nisenan - So Maidu
Konkow
Washoe

This list is current only as of the date of this document.

Distribution of this list does not relieve any person of statutory responsibility as defined in Section 7050.5 of the Health and Safety Code, Section 5097.94 of the Public Resources Code and Section 5097.98 of the Public Resources Code.

This list is only applicable for contacting local Native Americans with regard to cultural resources for the proposed West Lake Tahoe Regional Water Treatment Plant Project, Placer and El Dorado Counties

PEAK & ASSOCIATES, INC.
CONSULTING ARCHEOLOGY

May 20, 2013

Stacey Dixon, Chairperson
Susanville Indian Rancheria
745 Joaquin Street
Susanville, CA 96130

Subject: West Lake Tahoe Regional Water Treatment Plant Project

Dear Chairperson Dixon,

Tahoe City Public Utility District (TCPUD) is in the process of studying four alternative approaches to upgrading their existing water treatment facilities along the west shore of Lake Tahoe near the community of Homewood (please see attached map and figures). The West Lake Tahoe Regional Water Treatment Plant project is for a regional water treatment plant that will initially serve the Tahoe City Public Utility District's McKinney Quail Water Service Area and could be expanded to serve several other water agencies located on the northwest shore of Lake Tahoe. The project consists of the replacement of an existing lake intake pump station, the construction of a new water treatment facility, and a new raw water pipeline between the pump station and the water treatment plant.

The lake intake pump station is currently housed in a 264 square foot vault on the beach. The new vault will be similar in size and may be rebuilt in the same location or possibly moved to a new location off the beach. The water treatment plant will initially treat 0.5 million gallons per day (MGD), but may eventually be upgraded to treat 1.0 to 1.5 MGD. The water treatment process will be housed in about a 2,250 square foot masonry block building with a composite roof and will be built on a half-acre lot. The raw and treated water pipelines will be 12-inch diameter and buried an average depth of three feet below ground surface. The raw water pipeline will be located either within the paved roadway or the shoulder of the road between the pump station and the water treatment plant, except where it crosses the undeveloped lots to get to the water treatment plant. The treated water pipeline will be built and located similarly to the raw water pipeline until it connects to the existing water distribution system.

A record search has been conducted by the North Central Information Center (NCIC) of the California Historical Resources Information System for the overall project area. According to the NCIC record search, previous survey coverage by archeologists is limited to only about 50 percent of any of the four alternatives as shown on the attached map and figures. One prehistoric period resource has been recorded along the lakeshore south of McKinney Creek and east of the proposed project. The prehistoric period cultural resource was recorded by

- 3941 Park Drive, Suite 20#329, El Dorado Hills, CA 95762/Phone: (916)939-2405/peakinc@sbcglobal.net
- 3161 Godman Avenue, Suite A, Chico, CA 95973/Phone: (530)342-2800/ peakinc@yahoo.com

USFS personnel in 1971 and was identified as a special function site used for the collection of medicinal plants. The resource has been assigned the designation P-31-3742 by NCIC. The site form completed in 1971 by USFS personnel lists the site name as "*cu'iu E'th Ukhw O'tha*" and says the resource occupies about a 200 by 100 foot area on private property along the east bank of McKinney Creek.

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I appreciate, as always, your time reviewing this letter and attached map and figures.

Sincerely,

Neal Neuenschwander
Staff Archeologist

Enc. Topographic map, engineering figures.

PEAK & ASSOCIATES, INC.
CONSULTING ARCHEOLOGY

May 20, 2013

Rose Enos
15310 Bancroft Road
Auburn, CA 95603

Subject: West Lake Tahoe Regional Water Treatment Plant Project

Hi Rose,

Tahoe City Public Utility District (TCPUD) is in the process of studying four alternative approaches to upgrading their existing water treatment facilities along the west shore of Lake Tahoe near the community of Homewood (please see attached map and figures). The West Lake Tahoe Regional Water Treatment Plant project is for a regional water treatment plant that will initially serve the Tahoe City Public Utility District's McKinney Quail Water Service Area and could be expanded to serve several other water agencies located on the northwest shore of Lake Tahoe. The project consists of the replacement of an existing lake intake pump station, the construction of a new water treatment facility, and a new raw water pipeline between the pump station and the water treatment plant.

The lake intake pump station is currently housed in a 264 square foot vault on the beach. The new vault will be similar in size and may be rebuilt in the same location or possibly moved to a new location off the beach. The water treatment plant will initially treat 0.5 million gallons per day (MGD), but may eventually be upgraded to treat 1.0 to 1.5 MGD. The water treatment process will be housed in about a 2,250 square foot masonry block building with a composite roof and will be built on a half-acre lot. The raw and treated water pipelines will be 12-inch diameter and buried an average depth of three feet below ground surface. The raw water pipeline will be located either within the paved roadway or the shoulder of the road between the pump station and the water treatment plant, except where it crosses the undeveloped lots to get to the water treatment plant. The treated water pipeline will be built and located similarly to the raw water pipeline until it connects to the existing water distribution system.

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Sincerely,

Neal

Neal Neuenschwander
Staff Archeologist

Enc. Topographic map, engineering figures.

PEAK & ASSOCIATES, INC.
CONSULTING ARCHEOLOGY

May 20, 2013

April Wallace Moore
19630 Placer Hills Road
Colfax, CA 95713

Subject: West Lake Tahoe Regional Water Treatment Plant Project

Hi April,

Tahoe City Public Utility District (TCPUD) is in the process of studying four alternative approaches to upgrading their existing water treatment facilities along the west shore of Lake Tahoe near the community of Homewood (please see attached map and figures). The West Lake Tahoe Regional Water Treatment Plant project is for a regional water treatment plant that will initially serve the Tahoe City Public Utility District's McKinney Quail Water Service Area and could be expanded to serve several other water agencies located on the northwest shore of Lake Tahoe. The project consists of the replacement of an existing lake intake pump station, the construction of a new water treatment facility, and a new raw water pipeline between the pump station and the water treatment plant.

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Neal

Neal Neuenschwander
Staff Archeologist

Enc. Topographic map, engineering figures.

PEAK & ASSOCIATES, INC.
CONSULTING ARCHEOLOGY

May 20, 2013

Darrel Cruz, Cultural Resources Coordinator
Washoe Tribe of Nevada and California
919 Highway 395 South
Gardnerville, NV 89410

Subject: West Lake Tahoe Regional Water Treatment Plant Project

Hi Darrel,

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Sincerely,

Neal

Neal Neuenschwander
Staff Archeologist

Enc. Topographic map, engineering figures.

PEAK & ASSOCIATES, INC.
CONSULTING ARCHEOLOGY

May 20, 2013

Wanda Batchelor, Chairperson
Washoe Tribe of Nevada and California
919 Highway 395 South
Gardnerville, NV 89410

Subject: West Lake Tahoe Regional Water Treatment Plant Project

Dear Chairperson Batchelor,

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I appreciate, as always, your time reviewing this letter and attached map and figures.

Sincerely,

Neal Neuenschwander
Staff Archeologist

Enc. Topographic map, engineering figures.

STATE OF CALIFORNIA Edmund G. Brown, Jr., *Governor*

NATIVE AMERICAN HERITAGE COMMISSION
1550 Harbor Blvd., ROOM 100
West SACRAMENTO, CA 95691
(916) 373-3710
Fax (916) 373-5471

July 22, 2015

Neal Neuenschwander
Peak & Associates, Inc.
3161 Godman Avenue
Chico, CA 95973

Email to: peakinc@yahoo.com

Re: West Lake Tahoe Water Treatment Plant Project, Placer County.

Dear Mr. Neuenschwander,

A record search of the sacred land file has failed to indicate the presence of Native American cultural resources in the immediate project area. The absence of specific site information in the sacred lands file does not indicate the absence of cultural resources in any project area. Other sources of cultural resources should also be contacted for information regarding known and recorded sites.

Enclosed is a list of Native Americans individuals/organizations who may have knowledge of cultural resources in the project area. The Commission makes no recommendation or preference of a single individual, or group over another. This list should provide a starting place in locating areas of potential adverse impact within the proposed project area. I suggest you contact all of those indicated, if they cannot supply information, they might recommend others with specific knowledge. By contacting all those listed, your organization will be better able to respond to claims of failure to consult with the appropriate tribe or group. If a response has not been received within two weeks of notification, the Commission requests that you follow-up with a telephone call to ensure that the project information has been received.

If you receive notification of change of addresses and phone numbers from any of these individuals or groups, please notify me. With your assistance we are able to assure that our lists contain current information. If you have any questions or need additional information, please contact me at (916) 373-3712.

Sincerely,

Katy Sanchez

Katy Sanchez
Associate Government Program Analyst

Native American Contact List
Placer County
July 21, 2015

Rose Enos
15310 Bancroft Road
Auburn , CA 95603
(530) 878-2378

Maidu
Washoe

Washoe Tribe of Nevada and California
Darrell Kizer, Chairperson
919 Highway 395 South
Gardnerville , NV 89410
ktrovato@washoetribe.us
(775) 265-4191 Office

(775) 265-6240 Fax

Washoe

Washoe Tribe of Nevada and California THPO
Darrel Cruz, Cultural Resources Department
919 Highway 395 South
Gardnerville , NV 89410
darrel.cruz@washoetribe.us
(775) 782-0014
(775) 546-3421 Cell

Washoe

April Wallace Moore
19630 Placer Hills Road
Colfax , CA 95713
(530) 637-4279

Nisenan - So Maidu
Konkow
Washoe

This list is current only as of the date of this document.

Distribution of this list does not relieve any person of the statutory responsibility as defined in Section 7050.5 of the Health and Safety Code, Section 5097.94 of the Public Resources Code and Section 5097.98 of the Public Resources Code.

This list is only applicable for contacting locative Americans with regard to cultural resources for the proposed West Lake Tahoe Water Treatment Plant Project, Placer County.

PEAK & ASSOCIATES, INC.
CONSULTING ARCHEOLOGY

July 2, 2015

Honorable Wanda Batchelor
Washoe Tribe of Nevada and California
919 Highway 395 South
Gardnerville, NV 89410

Subject: West Lake Tahoe Regional Water Treatment Plant Project, Placer County, California

Dear Chairperson Batchelor,

The Tahoe City Public Utility District (TCPUD) proposes to construct a new water treatment plant (WTP), which would replace an existing interim WTP to improve the reliability and quality of water service in the West Lake Tahoe region. The proposed project is located in the TCPUD McKinney-Quail Service Area, near the community of Tahoma on the west shore of Lake Tahoe in California, in Placer County, California

The preferred project site for the West Lake Tahoe Regional Water Treatment Plant (WLTRWTP) is a vacant parcel west of State Route (SR) 89 and south of Lodge Drive. The project would also include construction of a new water intake pump station and pipeline at Chambers Landing beach and new water transmission pipelines between the intake station and the treatment plant (please see the attached topographic map quadrangle and aerial photograph with the project area delineated).

A record search through the North Central Information Center, California Historical Resources Information System (CHRIS) has been completed and an intensive cultural resource pedestrian survey was undertaken by our firm last October. No prehistoric period cultural resources will be impacted by the proposed project. If you have any information about any tribal cultural resources that could be affected by the proposed project, or would like to comment on the proposed West Lake Tahoe Water Treatment Plant Project, please don't hesitate to contact me, Neal Neuenschwander, Staff Archeologist, Peak & Associates, Inc., 3161 Godman Avenue, Chico, CA 95973, (530) 342-2800, peakinc@yahoo.com You may also contact Matt Homolka, TCPUD's Assistant General Manager, at 530.580.6042, mhomolka@tcpud.org. Thank you for your time reviewing this letter and attached topographic map quadrangle

Sincerely,

Neal Neuenschwander
Staff Archeologist

Enc. Topographic map quadrangle and aerial photograph with the project area delineated

PEAK & ASSOCIATES, INC.
CONSULTING ARCHEOLOGY

July 2, 2015

Darrel Cruz, THPO
Washoe Tribe of Nevada and California
919 Highway 395 South
Gardnerville, NV 89410

Subject: West Lake Tahoe Regional Water Treatment Plant Project, Placer County, California

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PEAK & ASSOCIATES, INC.
CONSULTING ARCHEOLOGY

July 2, 2015

April Wallace Moore
19630 Placer Hills Road
Colfax, CA 95713

Subject: West Lake Tahoe Regional Water Treatment Plant Project, Placer County, California

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PEAK & ASSOCIATES, INC.
CONSULTING ARCHEOLOGY

July 2, 2015

Honorable Stacey Dixon, Chairperson
Susanville Indian Rancheria
745 Joaquin Street
Susanville, CA 96130

Subject: West Lake Tahoe Regional Water Treatment Plant Project, Placer County, California

Dear Chairperson Dixon,

The Tahoe City Public Utility District (TCPUD) proposes to construct a new water treatment plant (WTP), which would replace an existing interim WTP to improve the reliability and quality of water service in the West Lake Tahoe region. The proposed project is located in the TCPUD McKinney-Quail Service Area, near the community of Tahoma on the west shore of Lake Tahoe in California, in Placer County, California

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Staff Archeologist

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Appendix C

CONFIDENTIAL

Cultural Resource Records

APPENDIX D

Noise Assessment

DUDEK

853 Lincoln Way, Suite 208
Auburn, California 95603
T 530.863.4642 F 530.887.1250

May 18, 2015 PN: 7788

Tahoe City Public Utility District
PO Box 5249
Tahoe City, CA 96145
Contact: Matt Homolka

Subject: ***West Lake Tahoe Regional Water Treatment Plant***
Focused Environmental Noise Assessment

Dear Mr. Homolka:

Dudek has prepared this focused noise study evaluating noise impacts associated with the proposed West Lake Tahoe Regional Water Treatment Plant to be located in the unincorporated Tahoma community of Placer County, California. This noise study evaluates short-term construction-related noise and the long-term noise associated with operation of the proposed water treatment system, including water intake facility and water treatment plant.

In summary, the operation of the water intake facility and water treatment would not expose noise-sensitive land uses in the project vicinity to noise levels in excess of standards established in the general plan noise element. Under certain of the alternatives for incorporation of a stand-by diesel-powered electrical generator, testing of the generator could result in sound levels which exceed allowable levels specified the Noise Ordinance; the noise associated with these events would occur relatively infrequently (once per month) and would not occur for extended periods of time (from 30 minutes to no more than 3 hours). Finally, short-term construction noise levels are not anticipated to result in significant temporary increases in ambient noise levels, but could result in nuisance noise complaints from vicinity residents. Construction schedule limits are recommended in order to avoid construction noise nuisance.

When this report was prepared the TCPUD was considering a number of different site options that are all evaluated in this report (Lodge Road WTP site, Chamberland Drive WTP site, Lagoon Road WTP site, McKinney Shores Beach lake intake location and Chambers Landing Beach lake intake location). Based on a review of the technical reports and taking into account other considerations, the TCPUD ultimately decided to move forward with the Lodge Road WTP site and Chambers Landing Beach lake intake location with an option to develop a parking lot and/or restroom facilities.

Background and Terminology

This report is a focused noise assessment that evaluates the noise associated with the proposed West Lake Tahoe Regional Water Treatment Plant to be located in the unincorporated Tahoma community of Placer County, California. The project regional setting and local vicinity are depicted in *Figure 1 and Figure 2*. Noise-sensitive land uses in the project vicinity include residences immediately adjacent to Chambers Landing Beach and McKinney Shores Beach; residences along Lodge Drive and Flicker Avenue; and residences along West Lake Boulevard, Tahoe Ski Bowl Way, Sacramento Avenue, and Lagoon Road. Refer to *Figure 3, 4, and 5* for the location of these residences in relation to proposed project components. *Figure 6* depicts the water service area for Tahoe City Public Utility District.

Vibrations, traveling as waves through air from a source, exert a force perceived by the human ear as sound. Sound pressure level (referred to as sound level) is measured on a logarithmic scale in decibels (dB) that represent the fluctuation of air pressure above and below atmospheric pressure. Frequency, or pitch, is a physical characteristic of sound and is expressed in units of cycles per second or hertz (Hz). The normal frequency range of hearing for most people extends from about 20 to 20,000 Hz. The human ear is more sensitive to middle and high frequencies, especially when the noise levels are quieter. As noise levels get louder, the human ear starts to hear the frequency spectrum more evenly. To accommodate for this phenomenon, a weighting system to evaluate how loud a noise level is to a human was developed. The frequency weighting called "A" weighting is typically used for quieter noise levels which de-emphasizes the low frequency components of the sound in a manner similar to the response of a human ear. This A-weighted sound level is called the "noise level" and is referenced in units of dBA (refer to *Attachment 1* for definitions of acoustical terms).

Since sound is measured on a logarithmic scale, a doubling of sound energy results in a 3 dBA increase in the noise level. Changes in a community noise level of less than 3 dBA are not typically noticed by the human ear (Caltrans 1980). Changes from 3 to 5 dBA may be noticed by some individuals who are extremely sensitive to changes in noise. A 5 dBA increase is readily noticeable. The human ear perceives a 10 dBA increase in sound level as a doubling of the sound level (i.e., 65 dBA sounds twice as loud as 55 dBA to a human ear).

An individual's noise exposure occurs over a period of time; however, noise level is a measure of noise at a given instant in time. The equivalent noise level L_{eq}, also referred to as the average sound level, is a single-number representing the fluctuating sound level in decibels (dB) over a specified period of time. It is a sound-energy average of the fluctuating level and is equal to a constant unchanging sound of that dB level. Community noise sources vary continuously, being the product of many noise sources at various distances, all of which constitute a relatively

stable background or ambient noise environment.

Noise levels are generally higher during the daytime and early evening when traffic (including airplanes), commercial, and industrial activity is the greatest. However, noise sources experienced during nighttime hours when background levels are generally lower can be potentially more conspicuous and irritating to the receiver. In order to evaluate noise in a way that considers periodic fluctuations experienced throughout the day and night, a concept termed "community noise equivalent level" (CNEL) was developed, The CNEL scale represents a time-weighted 24-hour average noise level based on the A-weighted sound level. CNEL accounts for the increased noise sensitivity during the evening hours (7 p.m. to 10 p.m.) and nighttime hours (10 p.m. to 7 a.m.) by adding five dB to the average sound levels occurring during the evening hours and 10 dB to the sound levels occurring during nighttime hours.

Project Description

The WLTRWTP Project (project) would include the following components, which are described in more detail below and shown on Figures 3, 4, and 5:

- lake intake pump station and lake intake pipeline (two potential locations are under consideration)
- raw water pipeline from lake intake facilities to the proposed water treatment plant (WTP),
- intake pump station electrical and chemical feed room (two potential locations are under consideration),
- WTP facility (three potential locations are under consideration),
- various water distribution system improvements (pipelines) to distribute treated water from the WTP to the existing water distribution system,
- decommission and removal of the existing ISWTP, and
- potentially a public parking lot and public restrooms to improve access to recreational facilities in the vicinity.

Intake Pump Station

For both lake intake locations being considered (Chambers Landing Beach and McKinney Shores Beach), the Intake Pump Station would be converted from the existing land-based pump station to a submersible pump station. The submersible pump station would be installed below the surface of the lake and would consist of two submersible pumps anchored to the bottom of the lake with an intake screen for each pump. A submerged electrical power cable for each pump would be installed and connected to the intake

pipeline. Because the pump station would be submerged, there would be no audible sound from pump operation.

Intake Pipeline

An intake pipeline is necessary to convey lake water from the new Intake Pump Station to the shoreline. For Phase I at the Chambers Landing Beach intake location, no improvements to the existing Chambers Landing intake pipeline are needed. The existing pipeline consists of approximately 650 linear feet of 8-inch and 6-inch diameter pipes from the inlet screen in the lake to the existing pump station on the beach. For Phase II, the existing pipeline would be replaced with a 10-inch diameter line in order to attain the Phase II capacity. At the McKinney Shores Beach location, the existing 4-inch diameter lake intake line would be replaced with a 10-inch lake intake line for Phase I. This size would be sufficient to accommodate the Phase II capacity, so that no replacement would be necessary for Phase II. Construction of the intake pipeline would involve minimal equipment and limited noise; once constructed the intake pipeline would not generate audible noise.

Intake Electrical/Chemical Feed Room

At each intake location being considered, a new Electrical/Chemical Feed Room would be constructed to replace the existing electrical service/control and chemical feed facilities that exist at each of the existing lake intake sites. The room would contain all electrical service, electrical control, and communication facilities necessary to operate the Lake Intake Pump Station. It would also contain chemical storage and feed and injection facilities necessary to pre-chlorinate the raw water being pumped from the lake. Finally, a standby diesel-powered 60 kW electrical generator would be included to operate the pump station and chemical feed facilities in case of a power outage.

For the Chambers Landing Beach location, the new room would be located on TCPUD property at the existing ISWTP site. The TCPUD's existing McKinney Sewer Lift Station building at this site would be expanded to provide the new separate electrical/chemical feed room. At the Chambers Landing Beach location, the generator would be located inside the new Electrical/Chemical Feed Room. The distance from the expanded building to the adjacent residential property line is approximately 40 feet.

For the McKinney Shores Beach location, the electrical/chemical feed room would be reconstructed at the site of the existing electrical room, with a minimum footprint of 180 square feet, to accommodate both electrical service and controls and the chemical storage/feed. Depending upon final design and subject to landowner agreement, the building could be expanded beyond the existing footprint (to a maximum of 450 square feet) to accommodate a restroom and/or a permanent standby generator equivalent to that proposed at the Chambers Landing Beach Intake location. Depending upon site constraints,

the generator could be located inside the new room or outside and within a sound-attenuating enclosure. The distance from the expanded building to the adjacent residential property line is approximately 60 feet.

Raw Water Pipeline

A Raw Water Pipeline would be constructed from the shoreline (starting at the end of the Lake Intake Pipeline) past the Electrical/Chemical Feed Room to the new WTP location. The new Raw Water Pipeline would be 10-inch diameter underground water pipe. The total length of pipe required to be installed at each of the three WTP sites under consideration is summarized below. See Figures 3, 4, and 5 for potential pipeline alignments. The average distance from the raw water pipeline to adjacent residential property lines along the alignment is 25 feet, which is used for analysis of short-term construction noise levels.

- Lodge Road WTP Site: Approximately 1,700 linear feet of Raw Water Pipeline
- Chamberland Drive WTP Site: Approximately 1,400 linear feet of Raw Water Pipeline
- Lagoon Road WTP Site: Approximately 2,700 linear feet of Raw Water Pipeline

Water Treatment Plant

The WTP would require approximately 3,500 square feet of building space for Phase I and would be expanded by approximately 1,000 square feet for Phase II. A conceptual floorplan is provided in Figure 7. Site improvements associated with the building would include paved driveway, parking, and walkway areas, stormwater conveyance and treatment facilities, and typical utility services (water, sewer, power, and communications). See Figures 8, 9, and 10 for preliminary site plans of each of the three WTP sites being considered, and Figures 11 and 12 for site plans that include parking lots for two of the WTP sites. Construction activities would include site grading and paving, excavation for the building foundation, and partially buried contactor / clearwell tank, and site revegetation and restoration.

Operations and Maintenance (O&M)

The O&M requirements for the WLRWTP facilities would increase the TCPUD staff duties from the current winter well-only operation, but they would be relatively similar to the current summer ISWTP operation. A summary of the significant changes in the O&M with the new WLTRWTP system from current operations are:

- Adequate continuous monitoring and controls would be in place to allow the TCPUD to operate the intake pump station and WTP site remotely or onsite.
- TCPUD staff time spent on the backwash operation would increase, requiring approximately 100 hours per year of additional staff time.

- Typical TCPUD staff operations would include checking the operation of the Lake Intake Pump station and WTP five days per week for about one hour per day with another one hour per day to conduct maintenance on pumps, valves, and equipment, running tests to confirm treatment process performances, and replacing spent backwash bags.
- About twice per year, TCPUD staff would pump out the backwash holding tank and transport the solids offsite for disposal. This would require use of the TCPUD's vactor truck.
- Once every 60 to 120 days the TCPUD would receive delivery of chemicals, sodium hypochlorite, clean in place chemicals, and coagulant via a flatbed truck delivering the chemicals to the intake electrical/chemical room and the WTP site.
- Once per month, TCPUD staff would need to operate the standby generator to confirm it is operational.
- The lake intake submersible pumps would be inspected annually.

Potential Public Parking Lot and Restroom

If the WLTRWTP is located at either the Lodge or Chamberland sites, the project could be expanded to include a public parking lot and restroom in order to improve public access to the adjacent and nearby recreational facilities including the west shore bike path and the Chambers Landing public beach. The public parking lot would include approximately 25 parking spaces and the public restroom would include two restrooms (men's and women's) consisting of one toilet and one sink each (4 fixtures total). The public restrooms would be connected to the TCPUD's public water and sewer system. Figures 11 and 12 show the possible configurations of these facilities at the two different sites.

Noise Significance Criteria

Based on the criteria identified in Appendix G of the CEQA Guidelines, the proposed project would have a significant impact on noise if it would result in:

1. The 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.
2. The exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels.
3. A substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project.

4. A substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project.

The proposed project is located in the unincorporated community of Tahoma, in Placer County. The Placer County General Plan Noise Element (Placer County, 2013) specifies the following noise compatibility guidelines applicable to the project.

Placer County General Plan Noise Element (Table 9-1)	
Land Use	**Allowable LDN Noise Levels (Non-Transportation Noise Sources)**
Residential	50
Recreation & Forestry	70

The Noise Ordinance (Placer Code Article 9.36) establishes the following limits for sound generation affecting noise sensitive receptors, which include residences.

9.36.060 Sound limits for sensitive receptors

A. It is unlawful for any person at any location to create any sound, or to allow the creation of any sound, on property owned, leased, occupied or otherwise controlled by such person that:

1. Causes the exterior sound level when measured at the property line of any affected sensitive receptor to exceed the ambient sound level by five dBA; or

2. Exceeds the sound level standards as set forth in Table 1, whichever is the greater.

Sound Level Standards On-Site (Noise Ordinance Table 1)		
Land Use	**Daytime (7 am to 10 pm)**	**Nighttime (10 pm to 7 am)**
Hourly Leq, dB	55	45
Maximum level (Lmax), dB	70	65

9.36.030 Exemptions

A. Sound or noise emanating from the following sources and activities are exempt from the provisions of this title:

6. Emergencies, involving the execution of the duties of duly authorized governmental personnel and others providing emergency response to the general public, including but not limited to sworn peace officers, emergency personnel, utility personnel, and the

operation of emergency response vehicles and equipment;

7. Construction (e.g., construction, alteration or repair activities) between the hours of six a.m. and eight p.m. Monday through Friday, and between the hours of eight a.m. and eight p. m. Saturday and Sunday Provided, however, that all construction equipment shall be fitted with factory installed muffling devices and that all construction equipment shall be maintained in good working order.

With respect to Significance Criteria #1, and based upon the above information, a significant impact would occur if the project resulted in exterior noise exposure levels at vicinity residences greater than 50 dB LDN. A significant project impact would also result if the project would generate sound levels at vicinity residences greater than 55 dB (hourly Leq) during the daytime or 45 dB (hourly Leq) during the nighttime. Recreation facilities exist in the project vicinity as well, consisting primarily of bike paths and hiking trails. A significant impact could occur if the project resulted in noise exposure levels within recreational areas greater than 70 dB LDN.

With respect to Significance Criteria #2, the project would not have the potential to generate long-term ground-borne vibration or ground-borne noise. Over the short-term, the construction process largely involves excavation for pipeline, trench backfill and paving, limited foundation work for proposed structures, and construction of two structures with modest floor area. Even with potential use of a vibratory roller for compaction of structural foundation area, none of these construction activities is a source for substantial temporary groundborne vibration. The project construction would not involve the principal sources for vibration generation and complaints, which are pile driving and blasting.

With respect to Significance Criteria #3, a "substantial" increase in ambient noise level is typically defined as a 3 dB increase in the CNEL for the vicinity surrounding the proposed project (Caltrans, 1980). Therefore, a significant impact would occur if the project increased off-site ambient noise levels by 3 CNEL dB or more.

With respect to Significance Criteria #4, construction is the most common source of temporary increases in the ambient noise levels caused by a proposed project. The Placer County Noise Ordinance establishes schedule limits for construction (M-F 6 am – 8 pm; Sat/Sun 8 am – 8 pm), which is intended to avoid nuisance to neighbors from elevated noise during construction.

Existing Conditions

The ambient sound level in the project vicinity is primarily dictated by noise generated from traffic along State Route 89 (SR89), which is known locally as West Lake Boulevard. Proposed project components are located at distances ranging from 60 feet to approximately 800 feet

from the edge of right-of-way for SR 89.

In order to determine current ambient noise levels associated with SR89, Dudek modeled the traffic noise based upon data for existing traffic trips on the roadways. According to Caltrans (2013), the segment of SR-89 adjacent to the project site currently carries 6,600 average daily trips (ADTs), combined for both directions of travel. The percentage of medium trucks and heavy trucks out of the total vehicles along this segment in 2013 was 2% apiece (Caltrans 2013). Traffic noise is generally assessed using software provided by the Federal Highway Administration (FHWA), the current version of which is titled Transportation Noise Model 2.5 (TNM 2.5). The worksheets in *Appendix A* are based on the FHWA TNM 2.5 model, but provide an easier to understand format than the full model input and output data sheets. *Table 1* presents the results of the noise modelling of existing traffic levels, at various receptor sites of concern. Because SR-89 is substantially lower in elevation than the Chamberland Drive and Lodge Road sites, a 24-hour sound level measurement was performed at the residential property line adjacent to each of these sites to characterize the existing noise levels. The recorded hourly sound levels and calculated LDN for the Chamberland Drive and Lodge Road sites is also included in *Appendix A.*

Table 1
Existing Ambient Noise Levels
Selected Receptor Locations
(dBA)

Receptor / Location	Noise Source	L_{EQ} Daytime	LDN
McKinney Beach Control Room	SR-89	65	66
Chambers Landing Control Room	SR-89	50	51
Lagoon Road WTP Site	SR-89	47	48
Lodge Road WTP Site[1]	SR-89	50	51
Chamberland Drive WTP Site[1]	SR-89	45	45

Table Notes: [1] 24-hour sound level measurement results

As illustrated in Table 1, the existing hourly average noise levels during the day range from 45 to 50 dBA L_{EQ} at all the sites except for the McKinney Beach Control Room site. Because this site is only 60 feet from the edge of the SR-89 right-of-way with unobstructed exposure to SR-89, the daytime sound level at this site is 65 dBA $L_{EQ.}$ The existing LDN values range from 45 to 51 dBA at the noise-sensitive land uses adjacent to the future location of project components, except for the McKinney Beach Control Room site; at this site the current LDN value is 66 dBA. Current noise levels at the residential properties adjacent to future project components are essentially in compliance with the Place County noise exposure guidelines for residential properties (50 LDN dBA). It should be noted the Placer County guideline is for

non-transportation noise sources. The State of California, Office of Planning and Research, uses an exterior noise exposure limit of 65 dBA LDN for residences, which accounts for contributions from all noise sources. Existing residential noise exposure levels adjacent to future project components are therefore considered to be acceptable.

Noise Impact Analysis

Pump Control Room & Water Treatment Plant – Normal Operations

Exterior Noise Exposure Levels (Noise Element Criterion)

The proposed project would include the development of facilities that would generate noise from operations. The two primary components with respect to noise generating potential include the lake intake pump electrical room / control room and the water treatment plant.

In October 2014, Dudek measured the noise from the Sewer Lift Station and Interim Water Treatment Plant (IWTP) at Chambers Landing. Mechanical equipment was observed to be operating during the 10-minute measurement. The measurement was taken ten feet from the fence-line of the facility. The measured sound level was 52 dBA L_{EQ}. This sound level is assumed to be representative of routine water treatment plant operations. Dudek did not obtain measurements of the existing intake pump control room; however the sound level measured for the IWTP is considered conservative for evaluation of the expanded control room at McKinney Beach or Chambers Landing. In order to calculate the LDN value, the recorded average noise level was assumed for each hour of the day (i.e., 24-hour operations)

Using a standard formula for exterior noise attenuation with distance, Dudek calculated the noise level at vicinity noise-sensitive land uses from operation of the lake intake pump control room and separate WTP. The LDN at each sensitive receptor is identified in *Table 2* and compared against applicable criterion to determine significance. Refer to *Appendix B* for calculation worksheets.

Table 2
Project Generated Noise Levels
Adjacent Receptor Locations
(LDN dBA)

Receptor / Location	Existing LDN	Criterion	Project Generated LDN	Impact ?
McKinney Beach Control Room	66	50	43	No
Chambers Landing Control Room	51	50	46	No
Lagoon Road WTP Site	48	50	39	No
Lodge Rd WTP Site (No Parking)	51	50	35	No
Lodge Rd WTP Site (Parking)	51	50	40	No
Chamberland Dr WTP (No Parking)	45	48[1]	41	No
Chamberland Dr WTP (Parking)	45	48[1]	41	No

Table Notes: [1] Significance criteria based upon an increase not greater than 3 dBA over ambient.

The analysis concludes that normal operations for the control room and WTP would not result in noise exposure levels at adjacent residential property lines that exceed the Placer County Noise Element exterior noise exposure criterion of 50 LDN dBA for residences. Normal operations would also not increase the existing LDN level by more than 3 dBA above ambient conditions. Consequently normal operations would comply with the Noise Element criterion, and would remain below significant levels in this regard.

Exterior Noise Exposure for Sensitive Receptors (Noise Ordinance)

The Noise Ordinance restricts noise generation levels for sensitive receptors, including residences, as calculated at the property line for the residential use and expressed as a daytime hourly average ($L_{EQ\ HOUR}$) and nighttime hourly average. Using a standard formula for exterior noise attenuation with distance, Dudek calculated the hourly LEQ noise level at the property line of vicinity noise-sensitive land uses from operation of the lake intake pump control room and separate WTP. The hourly average sound at each sensitive receptor is identified in *Table 3,* and compared against the daytime and nighttime criterion from the Noise Ordinance . Refer to *Appendix B* for calculation worksheets.

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Table 3
Project Generated Noise Levels
Adjacent Receptor Locations
($L_{EQ\ Hour}$ dBA)

Receptor / Location	Calculated Operations Noise Level	Daytime Limit	Nighttime Limit	Impact ?
McKinney Beach Control Room	36	55	45	No
Chambers Landing Control Room	40			No
Lagoon Road WTP Site	33			No
Lodge Rd WTP Site (No Parking)	29			No
Lodge Rd WTP Site (Parking)	33			No
Chamberland Dr WTP (No Parking)	35			No
Chamberland Dr WTP (Parking)	35			No

As can be seen in *Table 3,* calculated noise levels for normal operations of the intake pump control room and WTP would be well below the allowable noise levels as contained in the Noise Ordinance. Consequently normal operations of these proposed facilities would comply with the Noise Ordinance criterion, and would remain below significant levels in this regard.

Pump Control Room & Water Treatment Plant – Standby Generator Operations

Generator Test Activity - Exterior Noise Exposure for Sensitive Receptors (Noise Ordinance)

A standby diesel-powered electrical generator is proposed for the intake pump control room and for the WTP, to provide power for critical system operations during disruption of power distribution from the electric utility. The generator proposed for the intake pump room would be a 60 kW model from Caterpillar (D-60). The generator proposed for the WTP would be a 100 kW model from Caterpillar (D-100).

Maintenance of the stand-by generators includes periodic testing and also a slightly longer run period each quarter to ensure the battery is properly charged for successful starting when the generator is needed. It is anticipated each generator would be run tested one time each month for 30 minutes (8 months out of the year), and run once per quarter to charge the battery for 3 hours (four months out of the year). Documentation from Caterpillar indicates the D-60 has a sound level of 91 dBA L_{EQ} at 3 feet; the D-100 has a sound level of 98 dBA L_{EQ} at 3 feet. For outdoor placement, a weatherproof and sound attenuating enclosure is available from Caterpillar that reduces the sound level by approximately 9 dBA. For location within an

industrial grade structure such as the control room or WTP, sound attenuation from the structure is anticipated to be approximately 20 dBA, assuming baffled louvers for air circulation and the high-performance acoustic kit from Caterpillar for the system exhaust.

The generator for the McKinney Beach control room is anticipated to be outside the control room in a sound attenuating enclosure from Caterpillar. The generator for the Chambers Landing control room would be placed inside the structure. For the proposed WTP facility, it is anticipated the generator would be placed outside in a sound attenuating enclosure from Caterpillar for Phase 1, but contained inside the building with Phase 2 expansion.

Using a standard formula for exterior noise attenuation with distance, Dudek calculated the noise level at vicinity noise-sensitive land uses from operation of the proposed generator at the lake intake pump control room and separate generator at the WTP. For comparison with the Noise Ordinance exterior noise exposure criterion, Dudek calculated the hourly average noise level ($L_{EQ\ HOUR}$) resulting from the monthly 30 minute testing and the quarterly 3-hour operation of the proposed generators. Refer to *Appendix B* for calculation worksheets.

The hourly average sound at each sensitive receptor from monthly and quarterly testing of the pertinent generators are identified in *Table 4,* and compared against the daytime and nighttime criterion from the Noise Ordinance.

Table 4
Generator Testing Activity Noise Levels
Adjacent Receptor Locations
($L_{EQ\ Hour}$ dBA)

Receptor / Location	Calculated Generator Noise Level (Monthly)	Calculated Generator Noise Level (Quarterly)	Daytime Limit	Daytime Impact ?	Nighttime Limit	Nighttime Impact ?
McKinney Beach Control Room	53	55		No		**YES**
Chambers Landing Control Room	47	49		No		**YES**
Lagoon Road WTP Site (Phase 1)	56	59		**YES**		**YES**
Lagoon Road WTP Site (Phase 2)	47	48		No		**YES**
Lodge Rd WTP Site (Phase 1)	52	55		No		**YES**

Table 4
Generator Testing Activity Noise Levels
Adjacent Receptor Locations
($L_{EQ\ Hour}$ dBA)

Receptor / Location	Calculated Generator Noise Level (Monthly)	Calculated Generator Noise Level (Quarterly)	Daytime Limit	Daytime Impact ?	Nighttime Limit	Nighttime Impact ?
Lodge Rd WTP Site (Phase 2)	44	44	55	No	45	No
Lodge Rd WTP with Parking (Phase 1)	56	60		**YES**		**YES**
Lodge Rd WTP with Parking (Phase 2)	47	49		No		**YES**
Chamberland Dr WTP (Phase 1)	58	61		**YES**		**YES**
Chamberland Dr WTP (Phase 2)	48	50		No		**YES**

As can be seen in *Table 4,* calculated noise levels ($L_{EQ\ HOUR}$) for generator testing carried out in the nighttime period (10 PM to 7 AM) would result in noise levels which exceed the Noise Ordinance allowance, which is considered a potentially significant impact. Consequently, generator testing should be carried out in the daytime period only (refer to the Mitigation Measures section).

Also, for the Phase 1 WTP site at Lagoon Road, Lodge Road (with optional parking lot), and Chamberland Drive, both monthly and quarterly testing of the generator during daytime hours would result in noise levels which exceed the Noise Ordinance allowance, which is considered a potentially significant impact. The unacceptable noise level is due to the generator location outside the structure in Phase 1; once the generator is inside the building (Phase 2), noise levels at adjacent residential property lines would comply with the Noise Ordinance for monthly and quarterly testing operations. For Phase 1, a minimum 6-foot high solid wall enclosure should be provided around the exterior location for the generator (refer to the Mitigation Measures section).

Generator Operation During Power Failures (Emergency Operations) - Noise Ordinance

The Noise Ordinance exempts certain activities from the limitations generally imposed for noise exposure of sensitive receptors. During extended operation of the proposed generators during a disruption of electrical service, the following exemption would apply.

9.36.030 Exemptions

A. Sound or noise emanating from the following sources and activities are exempt from the provisions of this title:

   6. Emergencies, involving the execution of the duties of duly authorized governmental personnel and others providing emergency response to the general public, including but not limited to sworn peace officers, emergency personnel, utility personnel, and the operation of emergency response vehicles and equipment;

Therefore, operation of the proposed generators during a power failure to provide electricity for emergency operations of the intake pump and WTP facilities would result in less than significant noise impacts.

Short-Term Construction Noise

Construction of the development proposed in the project would generate noise that could expose nearby receptors to elevated noise levels that may disrupt communication and routine activities. The magnitude of the impact would depend on the type of construction activity, equipment, duration of the construction, distance between the noise source and receiver, and intervening structures. This section of the report discusses the noise levels calculated to result from construction of the project, at nearby sensitive receptors (i.e, residences).

The construction activities for the proposed improvement project will be varied by component and location. For instance, the installation of raw water pipeline would include jackhammer, backhoe, dump truck, compactor and roller; control room construction would include most of these as well, substituting a concrete truck for the roller, a flatbed truck for the compactor, and adding several pick-up trucks; the WTP construction would require the largest inventory of construction equipment, including a crane and additional compressors. Use of equipment at the WTP sites would be spread across the entire project area, with varying distances to sensitive receptors. However, for a conservative analysis of off-site construction levels, the evaluation used the distance from the construction area or activity located closest to each identified sensitive receptor.

A separate construction noise analysis was performed for the raw water pipeline, the control room structure, and the WTP. The raw water pipeline used a distance of 25 feet from construction activity to residential property boundary, an average distance for water line placed within the identified roadway right-of-ways. The control room analysis was performed for McKinney Beach and for Chambers Landing, and used the distance to the adjacent residential property line. The WTP construction analysis used the distance to the adjacent residential property line at each of the three alternate sites.

A noise analysis was performed using a model developed under the auspices of the Federal Highway Administration (FHWA) called the Roadway Construction Noise Model (RCNM) (FHWA 2008). Input variables for RCNM consist of the receiver / land use types, the equipment type (i.e., backhoe, crane, truck, etc.), the number of equipment pieces, the duty cycle for each piece of equipment (i.e., percentage of hours the equipment typically works per day), and the distance from the sensitive noise. The reader is referred to *Appendix C* for the inputs used in the RCNM model, as well as results.

The various construction equipment types and quantities (as described above) were used for this analysis of each project component. The RCNM has default duty cycle values for the various pieces of equipment, which were derived from an extensive study of typical construction activity patterns. Those default duty cycle values were utilized for this analysis.

Table 5 presents the summary results of the construction noise analysis. The reader is referred to *Appendix C* for the RCNM model data and results.

Table 6
Construction Noise Levels
Summary of Results
(dBA L_{EQ})

Receptor / Location	Use	Construction Noise Level
Raw Water Pipeline		
Residences Along Roadways	Residential	90
Pump Intake Control Room Structure		
Chambers Landing	Residential	83
McKinney Beach	Residential	80
WTP		
Lagoon Road Site	Residential	81
Lodge Road Site	Residential	77
Chamberland Drive Site	Residential	82

While the Noise Ordinance Exempts construction activity which is conducted between 6 am and 8 am M-F, and 8 am – 8 pm Saturday and Sunday, some annoyance may occur from the construction noise levels identified in *Table 6*. Therefore, while construction noise would not reach significant levels, the following measures are recommended in order to minimize nuisance effects during construction.

- Equip all internal combustion engine driven equipment with intake and exhaust mufflers that are in good condition and appropriate for the equipment.
- Locate stationary noise generating equipment as far as possible from sensitive receptors when sensitive receptors adjoin or are near a construction project area.
- Utilize "quiet" air compressors and other stationary noise generating equipment where appropriate technology exists.
- The project sponsor should designate a "disturbance coordinator" who would be responsible for responding to any local complaints about construction noise. The disturbance coordinator would determine the cause of the noise complaint (e.g., starting too early, bad muffler, etc.) and would require that reasonable measures warranted to correct the problem be implemented. The project sponsor should also post a telephone number for excessive noise complaints in conspicuous locations in the vicinity of the project site. Additionally, the project sponsor should send a notice to neighbors in the project vicinity with information on the construction schedule and the telephone number for noise complaints.

Average noise levels from construction activities may be mildly annoying at times, compared to existing daytime ambient noise levels. With lower ambient noise levels in the evening and at night, the construction noise would be more noticeable in these periods, and would also have a greater potential to be disruptive for residences and lodging uses in the project vicinity. It is therefore recommended to restrict construction activities to the daytime period (7 AM to 7 PM) to avoid disruption of evening time relaxation and overnight sleep periods. Refer to the recommended mitigation section, below.

Required Mitigation Measures

Routine periodic testing of proposed generators, including monthly and quarterly operation of the generator units, would result in potentially significant noise impacts at adjacent residential property lines under Phase 1 configuration of the Water Treatment Plant at any of the three alternate sites. Also, test operations conducted at night could exceed applicable Noise Ordinance limitations. The following mitigations are therefore required to reduce potentially significant generator testing noise impacts.

1. Generators shall only be test operated during the daytime (7 AM to 10 PM).
2. The proposed generator for Phase 1 of the WTP shall be enclosed with minimum 6-foot high perimeter solid walls, in addition to incorporating the Level 2 sound attenuating cabinet from the manufacturer. Any opening in the perimeter wall shall be equipped with solid door or gates.

The above mitigation measures would reduce the sound level at adjacent residential property lines from generator testing to acceptable levels.

Recommended Mitigations

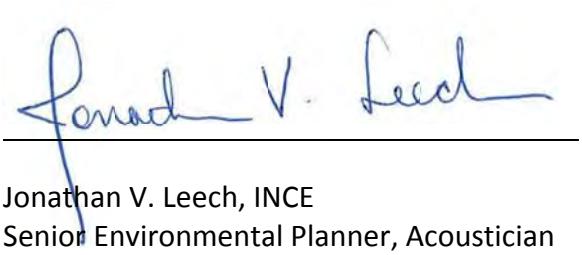
The above analysis concludes the project would not have significant short-term construction noise impacts upon vicinity noise-sensitive land uses. However, to minimize construction noise impacts, the following measures are recommended.

- Construction activity shall comply with the Noise Ordinance Construction restriction for occurrence only between 6 am and 8 am M-F, and 8 am – 8 pm Saturday and Sunday.
- Equip all internal combustion engine driven equipment with intake and exhaust mufflers that are in good condition and appropriate for the equipment.
- Locate stationary noise generating equipment as far as possible from sensitive receptors when sensitive receptors adjoin or are near a construction project area.
- Utilize "quiet" air compressors and other stationary noise generating equipment where appropriate technology exists.
- The project sponsor should designate a "disturbance coordinator" who would be responsible for responding to any local complaints about construction noise. The disturbance coordinator would determine the cause of the noise complaint (e.g., starting too early, bad muffler, etc.) and would require that reasonable measures warranted to correct the problem be implemented. The project sponsor should also post a telephone number for excessive noise complaints in conspicuous locations in the vicinity of the project site. Additionally, the project sponsor should send a notice to neighbors in the project vicinity with information on the construction schedule and the telephone number for noise complaints.

This concludes our noise study. Should you have any questions regarding the study, please do not hesitate to contact me at (805) 308-8527 or jleech@dudek.com.

Respectfully submitted,

DUDEK



Jonathan V. Leech, INCE
Senior Environmental Planner, Acoustician

Attachments: Figures 1-12
Appendix A – Ambient Noise Level Data
Appendix B – Noise Levels Calculation Worksheets
Appendix C – Construction Noise Model Data and Results

REFERENCES

Caltrans (California Department of Transportation). 1980. *Fundamentals and Abatement of Highway Traffic Noise.* September 1980.

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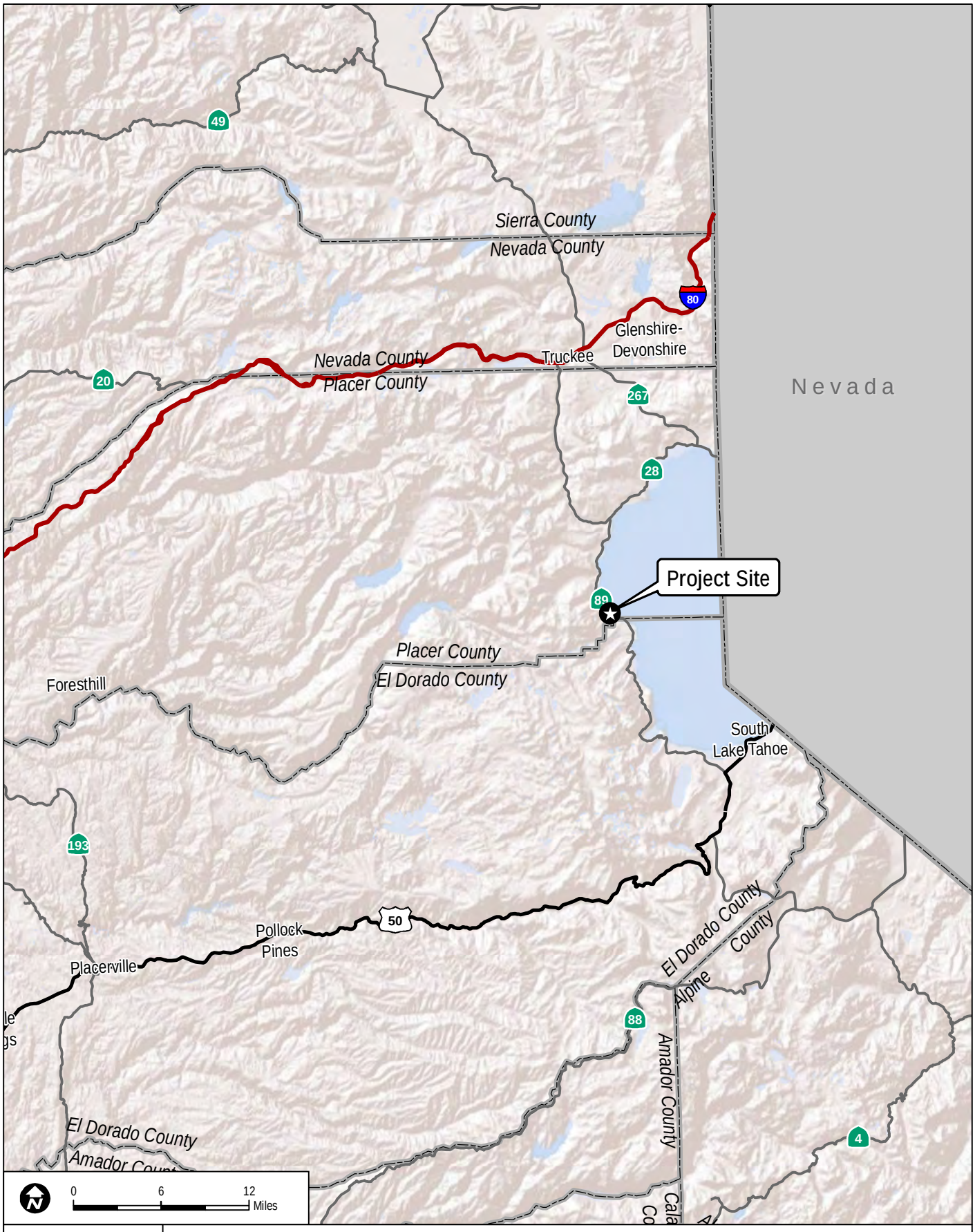
Placer County, 2013. *General Plan, Noise Element*



DUDEK

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SOURCE: ESRI 2015

FIGURE 1

Regional Map

TCPUD West Lake Tahoe Regional Water Treatment Plant

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SOURCE: USGS 7.5-Minute Series Homewood Quadrangle.

FIGURE 2

Vicinity Map

TCPUD West Lake Tahoe Regional Water Treatment Plant

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SOURCE: Kennedy/Jenks Consultants 2014; Placer County 2011; Bing Maps 2015

FIGURE 3

Aerial Map - Lodge WTP Site

TCPUD West Lake Tahoe Regional Water Treatment Plant

DUDEK

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SOURCE: Kennedy/Jenks Consultants 2014; Placer County 2011; Bing Maps 2015

FIGURE 4

Aerial Map - Chamberland WTP Site

TCPUD West Lake Tahoe Regional Water Treatment Plant

DUDEK

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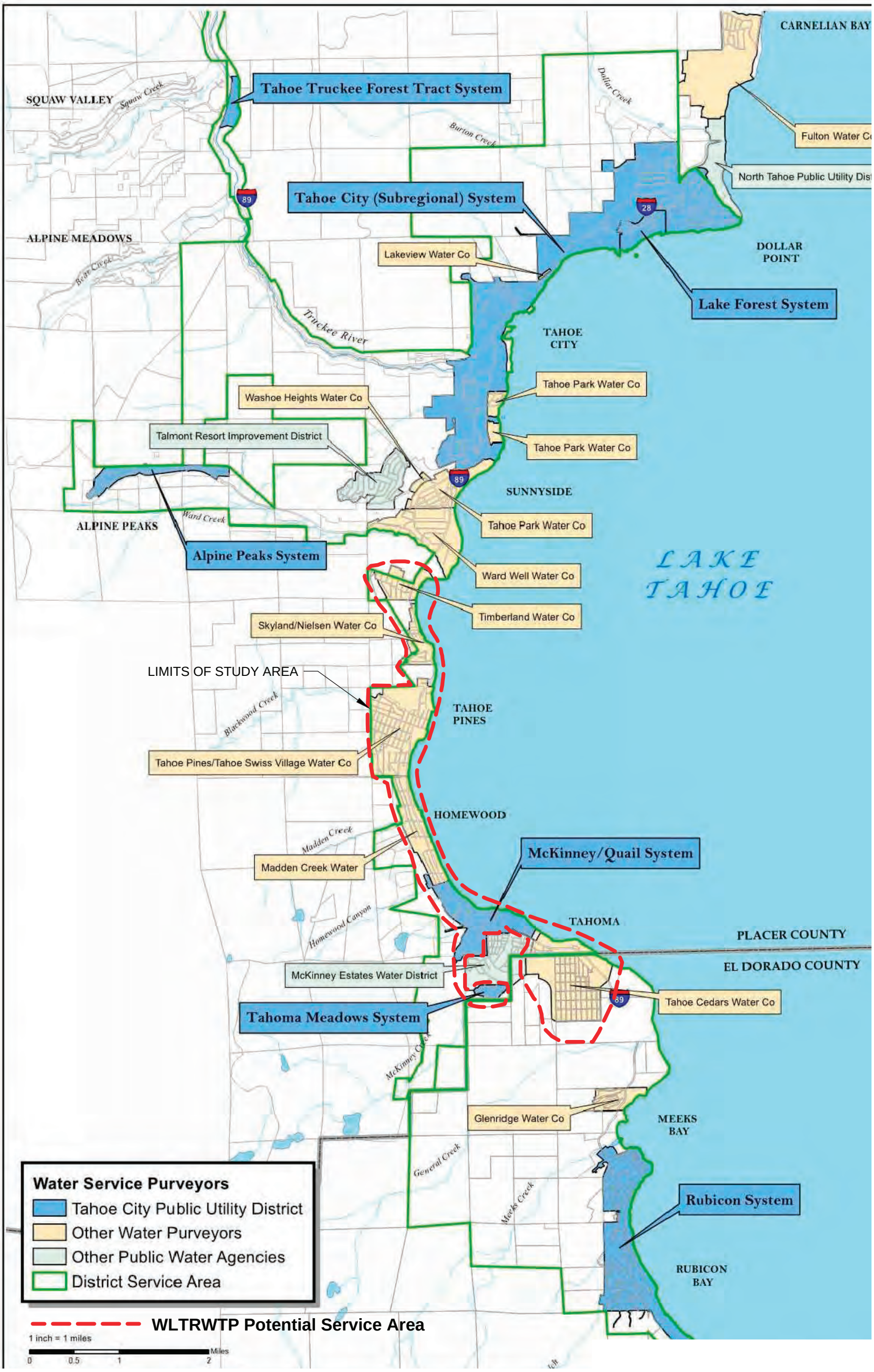
SOURCE: Kennedy/Jenks Consultants 2014; Placer County 2011; Bing Maps 2015

FIGURE 5

Aerial Map - Lagoon WTP Site

TCPUD West Lake Tahoe Regional Water Treatment Plant



SOURCE: Preliminary Design Report - Kennedy/Jenks Consultants 2014

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FIGURE 6

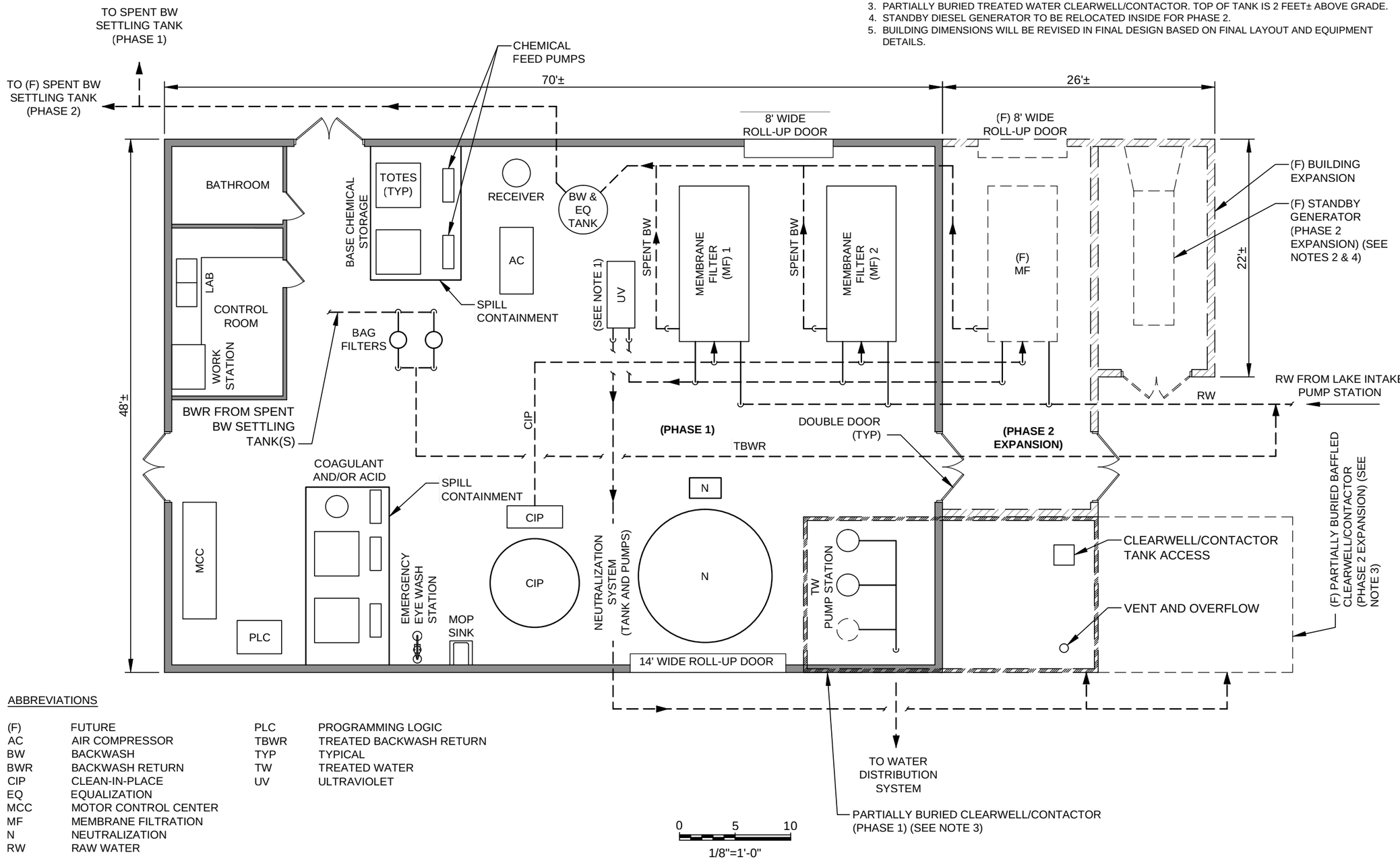
Service Areas for Water Systems

TCPUD West Lake Tahoe Regional Water Treatment Plant

Z:\Projects\

NOTES:

1. STACKABLE UV (MIN / PH1 - 2 UV UNITS AND PH 2 - 3RD UV UNIT).
2. STANDBY GENERATOR LOCATED OUTSIDE BUILDING AT (F) MF SPACE IN PHASE 1.
3. PARTIALLY BURIED TREATED WATER CLEARWELL/CONTACTOR. TOP OF TANK IS 2 FEET± ABOVE GRADE.
4. STANDBY DIESEL GENERATOR TO BE RELOCATED INSIDE FOR PHASE 2.
5. BUILDING DIMENSIONS WILL BE REVISED IN FINAL DESIGN BASED ON FINAL LAYOUT AND EQUIPMENT DETAILS.



ABBREVIATIONS

(F)	FUTURE	PLC	PROGRAMMING LOGIC
AC	AIR COMPRESSOR	TBWR	TREATED BACKWASH RETURN
BW	BACKWASH	TYP	TYPICAL
BWR	BACKWASH RETURN	TW	TREATED WATER
CIP	CLEAN-IN-PLACE	UV	ULTRAVIOLET
EQ	EQUALIZATION		
MCC	MOTOR CONTROL CENTER		
MF	MEMBRANE FILTRATION		
N	NEUTRALIZATION		
RW	RAW WATER		

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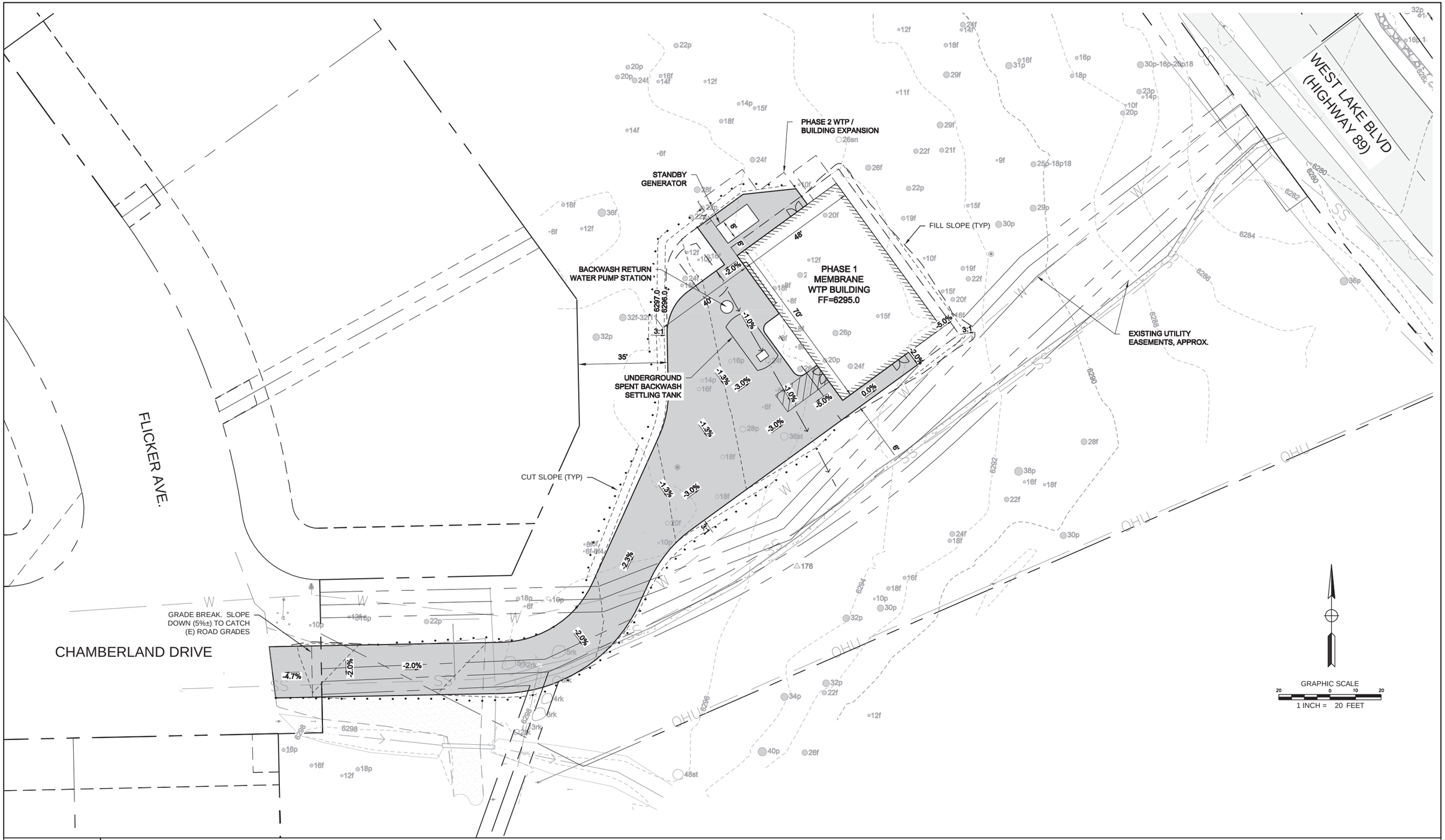
SOURCE: Preliminary Design Report - Kennedy/Jenks Consultants 2015

FIGURE 7
Conceptual Floor Plan

TCPUD West Lake Tahoe Regional Water Treatment Plant



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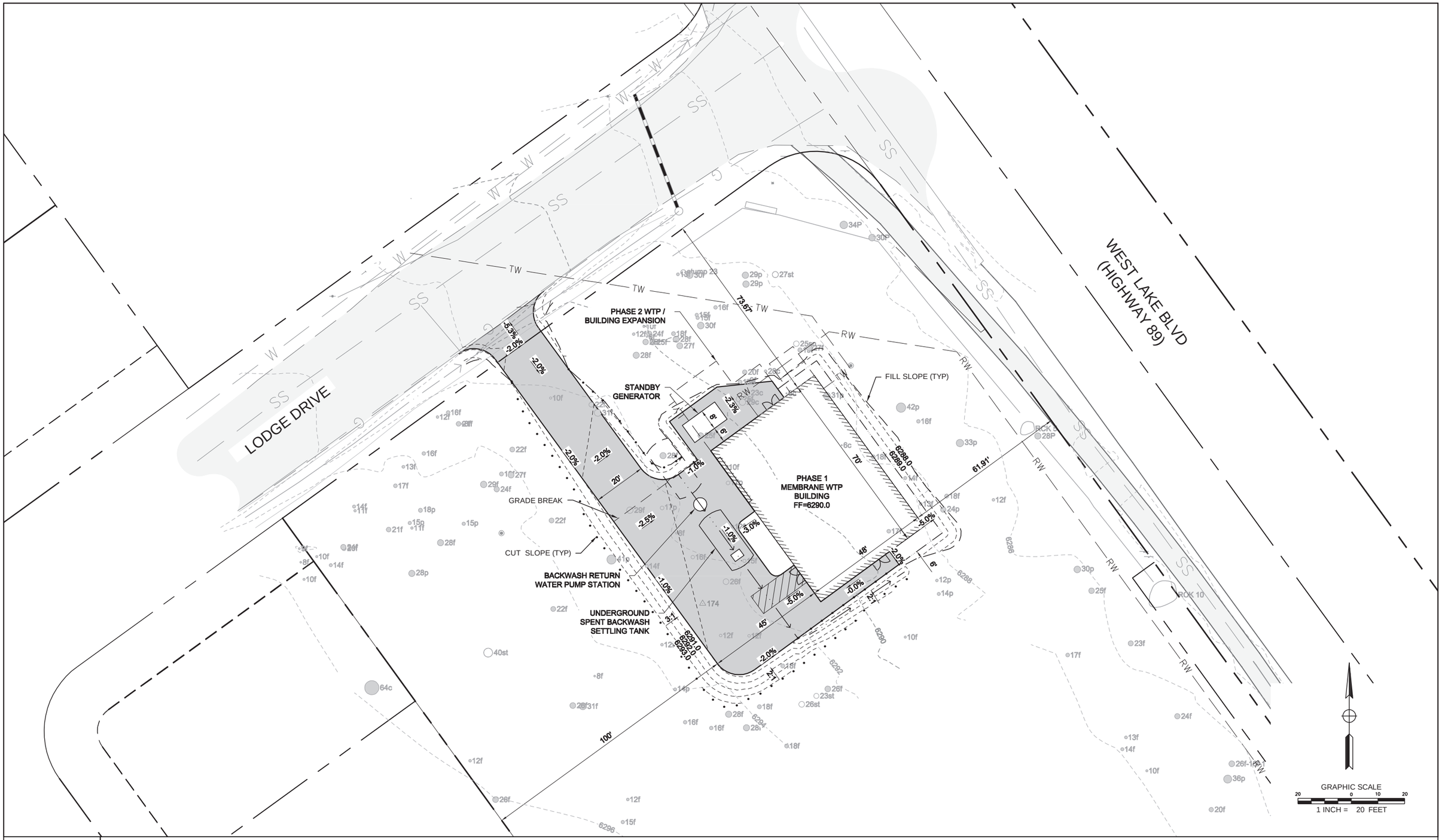
SOURCE: Preliminary Design Report - Kennedy/Jenks Consultants 2014

FIGURE 8

Chamberland Site without Parking Lot Layout

TCPUD West Lake Tahoe Regional Water Treatment Plant



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SOURCE: Preliminary Design Report - Kennedy/Jenks Consultants 2014

FIGURE 9
Lodge Site without Parking Lot Layout

TCPUD West Lake Tahoe Regional Water Treatment Plant

LAGOON ROAD

PHASE 1
MEMBRANE
WTP BUILDING
FF=6294.0

STANDBY
GENERATOR

UNDERGROUND
SRENT BACKWASH
SETTLING TANK

BACKWASH RETURN
WATER PUMP STATION

PHASE 2 WTP /
BUILDING EXPANSION

BUILDING ACTS AS
RETAINING WALL
(MAX H=12').

FG 6291.9±
MATCH (E)

FG 6293.30

FG 6293.50

FG 6295.9±
MATCH (E)

FG 6293.84

FG 6299.9±
MATCH (E)

FG 6300.3±
MATCH (E)

FG 6295.80

FG 6294.60

FG 6296.3±
MATCH (E)

FG 6293.90

FG 6298.8±
MATCH (E)

FG 6293.90

FG 6301.3±
MATCH (E)

FG 6304.5±
MATCH (E)

FG 6304.1±
MATCH (E)

48±

70±

86'

88'

-5.0%

-3.3%

-7.7%

GRAPHIC SCALE
20 0 10 20
1 INCH = 20 FEET

SOURCE: Preliminary Design Report - Kennedy/Jenks Consultants 2015

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FIGURE 10
Lagoon Site Layout

TCPUD West Lake Tahoe Regional Water Treatment Plant

SOURCE: Preliminary Design Report - Kennedy/Jenks Consultants 2015

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FIGURE 11

Chamberland Site with Parking Lot Layout

TCPUD West Lake Tahoe Regional Water Treatment Plant

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SOURCE: Preliminary Design Report - Kennedy/Jenks Consultants 2015

FIGURE 12
Lodge Site with Parking Lot Layout

TCPUD West Lake Tahoe Regional Water Treatment Plant

ATTACHMENT "A"

ACOUSTICAL TERMS AND DEFINITIONS

Term	Definition
Ambient Noise Level	The composite of noise from all sources near and far. The normal or existing level of environmental noise at a given location.
A-Weighted Sound Level	dBA is the sound pressure level in decibels as measured on a sound level meter using the A-weighted filter network. The A-weighting filter de-emphasizes the very low and very high frequency components of the sound in a manner similar to the frequency response of the human ear and correlates well with subjective reactions to noise.
Community Noise Equivalent Level	CNEL is the A-weighted equivalent continuous sound exposure (CNEL) level for a 24-hour period with a ten dB adjustment added to sound levels occurring during nighttime hours (10 pm to 7 am) and a five dB adjustment added to the sound levels occurring during the evening hours (7 pm to 10 pm).
Day / Night Noise Equivalent Level	Ldn is the A-weighted equivalent continuous sound exposure level for a 24-hour period with a ten dB adjustment added to sound levels occurring during nighttime hours (10 pm to 7 am).
Decibel	dB is the unit for measuring sound pressure level, equal to 10 times the logarithm to the base 10 of the ratio of the measured sound pressure squared to a reference pressure, which is 20 micro-Pascal.
Time-Average Sound Level	TAV is the sound level corresponding to a steady state sound level and containing the same total energy as a time varying signal over a given sample period. TAV is designed to average all of the loud and quiet sound levels occurring over a specific time.

APPENDIX A

Ambient Noise Level Data

FHWA Traffic Model
Noise Calculation Worksheets

FHWA - HIGHWAY TRAFFIC NOISE PREDICTION MODEL

(modified for CNEL)

DUDEK

PROJECT:	WTPUD	JN:	7788
ROADWAY:	SR 89	DATE:	18-May-15
LOCATION:	**McKinney Beach Control Room**	BY:	J. Leech

ADT	6,600	Existing, south of ward creek		PK HR VOL	660
SPEED	55				
PK HR %	10				
DIST CTL	60				
DIST N/F	76	(M=76,P=52,S=36,C=12)	AUTO SLE DISTANCE		46.7
DIST WALL	60		MED TRUCK SLE DIST		46.5
DIST W/OB	0		HVY TRUCK SLE DIST		46.5
HTH WALL	0.0	********			
HTH OBS	5.0				
AMBIENT	0.0				
ROADWAY VIEW:					
LF ANGLE	-20				
RT ANGLE	20				
DF ANGLE	40				

SITE CONDITIONS:		(10=HARD SITE, 15=SOFT SITE)			
AUTOM	15.0				
MED TR	15.0				
HVY TR	15.0				
BARRIER	0	(0=WALL,1=BERM)			
ELEVATIONS:					
PAD	0.0	AUTOMOBILES =	0.00		
ROAD	0.0	MEDIUM TRUCKS=	2.30		
		HEAVY TRUCKS =	8.01		
GRADE:	0.0 %	GRADE ADJUSTM=	0.0	(TO HEAVY TRUCKS)	

VEHICLE DISTRIBUTION:

	DAY	EVE	NIGHT	DAILY
AUTOMOBILES	0.775	0.129	0.096	0.9600
MEDIUM TRUCKS	0.848	0.049	0.103	0.0200
HEAVY TRUCKS	0.865	0.027	0.108	0.0200

NOISE IMPACTS WITHOUT TOPO OR BARRIER SHIELDING:

	LEQ PK HR	LEQ DAY	LEQ EVE	LEQ NIGHT	CNEL
AUTOMOBILES	64.3	62.4	60.7	54.6	63.8
MEDIUM TRUCKS	58.2	56.7	50.3	48.8	57.4
HEAVY TRUCKS	62.2	60.7	51.7	52.9	61.4
VEHICULAR NOISE	67.0	65.3	61.5	57.5	66.4

FHWA - HIGHWAY TRAFFIC NOISE PREDICTION MODEL

(modified for CNEL)

DUDEK

PROJECT:	WTPUD	JN:	7788
ROADWAY:	SR 89	DATE:	18-May-15
LOCATION:	**Chambers Landing Control Room**	BY:	J. Leech

ADT	6,600	Existing, south of ward creek		PK HR VOL	660
SPEED	55				
PK HR %	10				
DIST CTL	480				
DIST N/F	76	(M=76,P=52,S=36,C=12)	AUTO SLE DISTANCE		478.5
DIST WALL	480		MED TRUCK SLE DIST		478.5
DIST W/OB	0		HVY TRUCK SLE DIST		478.5
HTH WALL	0.0	********			
HTH OBS	5.0				
AMBIENT	0.0				
ROADWAY VIEW:					
LF ANGLE	-20				
RT ANGLE	20				
DF ANGLE	40				

SITE CONDITIONS:		(10=HARD SITE, 15=SOFT SITE)			
AUTOM	15.0				
MED TR	15.0				
HVY TR	15.0				
BARRIER	0	(0=WALL,1=BERM)			
ELEVATIONS:					
PAD	0.0	AUTOMOBILES =	0.00		
ROAD	0.0	MEDIUM TRUCKS=	2.30		
		HEAVY TRUCKS =	8.01		
GRADE:	0.0 %	GRADE ADJUSTM=	0.0	(TO HEAVY TRUCKS)	

VEHICLE DISTRIBUTION:

	DAY	EVE	NIGHT	DAILY
AUTOMOBILES	0.775	0.129	0.096	0.9600
MEDIUM TRUCKS	0.848	0.049	0.103	0.0200
HEAVY TRUCKS	0.865	0.027	0.108	0.0200

NOISE IMPACTS WITHOUT TOPO OR BARRIER SHIELDING:

	LEQ PK HR	LEQ DAY	LEQ EVE	LEQ NIGHT	CNEL
AUTOMOBILES	49.2	47.3	45.5	39.5	48.7
MEDIUM TRUCKS	43.0	41.5	35.1	33.6	42.3
HEAVY TRUCKS	47.0	45.6	36.5	37.8	46.2
VEHICULAR NOISE	51.8	50.1	46.4	42.3	51.2

FHWA - HIGHWAY TRAFFIC NOISE PREDICTION MODEL

(modified for CNEL)

DUDEK

PROJECT:	WTPUD	JN:	7788
ROADWAY:	SR 89	DATE:	18-May-15
LOCATION:	**Lagoon Road Site**	BY:	J. Leech

ADT	6,600	Existing, south of ward creek		PK HR VOL	660
SPEED	55				
PK HR %	10				
DIST CTL	800				
DIST N/F	76	(M=76,P=52,S=36,C=12)	AUTO SLE DISTANCE		799.1
DIST WALL	800		MED TRUCK SLE DIST		799.1
DIST W/OB	0		HVY TRUCK SLE DIST		799.1
HTH WALL	0.0	********			
HTH OBS	5.0				
AMBIENT	0.0				
ROADWAY VIEW:					
LF ANGLE	-20				
RT ANGLE	20				
DF ANGLE	40				

SITE CONDITIONS:		(10=HARD SITE, 15=SOFT SITE)			
AUTOM	15.0				
MED TR	15.0				
HVY TR	15.0				
BARRIER	0	(0=WALL,1=BERM)			
ELEVATIONS:					
PAD	0.0	AUTOMOBILES =	0.00		
ROAD	0.0	MEDIUM TRUCKS=	2.30		
		HEAVY TRUCKS =	8.01		
GRADE:	0.0 %	GRADE ADJUSTM=	0.0	(TO HEAVY TRUCKS)	

VEHICLE DISTRIBUTION:

	DAY	EVE	NIGHT	DAILY
AUTOMOBILES	0.775	0.129	0.096	0.9600
MEDIUM TRUCKS	0.848	0.049	0.103	0.0200
HEAVY TRUCKS	0.865	0.027	0.108	0.0200

NOISE IMPACTS WITHOUT TOPO OR BARRIER SHIELDING:

	LEQ PK HR	LEQ DAY	LEQ EVE	LEQ NIGHT	CNEL
AUTOMOBILES	45.8	43.9	42.2	36.1	45.3
MEDIUM TRUCKS	39.6	38.1	31.8	30.2	38.9
HEAVY TRUCKS	43.6	42.2	33.2	34.4	42.9
VEHICULAR NOISE	48.5	46.8	43.0	39.0	47.9

Leq	Time	Adjustment					
36.6	Midnight	10	46.6	46.6			
35.4	1	10	45.4	45.4			
37.8	2	10	47.8	47.8			
36.5	3	10	46.5	46.5			
37.6	4	10	47.6	47.6			
41.2	5	10	51.2	51.2			
46.4	6	10	56.4	56.4			
58.9	7am		58.9	58.9			
52.2	8		52.2	52.2			
50.9	9		50.9	50.9			
53.7	10		53.7	53.7			
47.7	11		47.7	47.7			
50.4	noon		50.4	50.4			
53.9	1		53.9	53.9			
49.8	2		49.8	49.8			
46.9	3		46.9	46.9			
46.4	4		46.4	46.4			
48.3	5		48.3	48.3			
44.6	6		44.6	44.6			
45.8	7	5	50.8	45.8			
42	8	5	47	42			
39.2	9	5	44.2	39.2			
39.3	10	10	49.3	49.3			
37.3	11	10	47.3	47.3			
			51.2	51.0			
			CNEL	LDN			

Leq	Time	Adjustment					
32.8	Midnight	10	42.8	42.8			
31.4	1	10	41.4	41.4			
33.9	2	10	43.9	43.9			
32.3	3	10	42.3	42.3			
33.4	4	10	43.4	43.4			
36.6	5	10	46.6	46.6			
42.3	6	10	52.3	52.3			
47	7am		47	47			
47.6	8		47.6	47.6			
49	9		49	49			
42.6	10		42.6	42.6			
40.6	11		40.6	40.6			
47.3	noon		47.3	47.3			
44	1		44	44			
40.9	2		40.9	40.9			
40.9	3		40.9	40.9			
40.8	4		40.8	40.8			
43.3	5		43.3	43.3			
40.5	6		40.5	40.5			
43	7	5	48	43			
38.6	8	5	43.6	38.6			
35.9	9	5	40.9	35.9			
35.5	10	10	45.5	45.5			
33.4	11	10	43.4	43.4			
			45.4	45.0			
			CNEL	LDN			

APPENDIX B

Noise Calculation Worksheets

Normal Operations

And

Generator Testing Activity

STAND-BY GENERATOR NOISE LEVEL EVALUATION

Scenario: Chambers Landing Intake Control Room

Source	Source Noise Level	Source Reference Distance	Distance to Nearest Property Line	Distance Attenuation	Noise Level at Property Line (LEQ dBA)
Interior Gen-Set	71	3	40	22.5	48.5
Hourly LEQ Monthly Test					47
Hourly LEQ Qtr. Test					49
LDN (24-hour Operation)					55

Scenario: McKinney Shores Intake Control Room

Source	Source Noise Level	Source Reference Distance	Distance to Nearest Property Line	Distance Attenuation	Noise Level at Property Line (LEQ dBA)
Interior Gen-Set	71	3	60	26.0	45.0
Hourly LEQ Monthly Test					45
Hourly LEQ Qtr. Test					45
LDN (24-hour Operation)					51
Exterior Gen-Set	82	3	60	26.0	56
Hourly LEQ Monthly Test					53
Hourly LEQ Qtr. Test					56
LDN (24-hour Operation)					62

Scenario: Lagoon Road Site WTP

Source	Source Noise Level	Source Reference Distance	Distance to Nearest Property Line	Distance Attenuation	Noise Level at Property Line (LEQ dBA)
Interior Gen-Set	78	3	90	29.5	48.5
Hourly LEQ Monthly Test					47
Hourly LEQ Qtr. Test					48
LDN (24-hour Operation)					55
Exterior Gen-Set	89	3	90	29.5	59.5
Hourly LEQ Monthly Test					56
Hourly LEQ Qtr. Test					59
LDN (24-hour Operation)					66

WTPUD
Water Treatment Plant Proposal

STAND-BY GENERATOR NOISE LEVEL EVALUATION

Scenario: Lodge Road Site WTP (No Parking)

Source	Source Noise Level	Source Reference Distance	Distance to Nearest Property Line	Distance Attenuation	Noise Level at Property Line (LEQ dBA)
Interior Gen-Set	78	3	145	33.7	44.3
Hourly LEQ Monthly Test					44
Hourly LEQ Qtr. Test					44
LDN (24-hour Operation)					51
Exterior Gen-Set	89	3	145	33.7	55.3
Hourly LEQ Monthly Test					52
Hourly LEQ Qtr. Test					55
LDN (24-hour Operation)					62

Scenario: Lodge Road Site WTP (WITH Parking)

Source	Source Noise Level	Source Reference Distance	Distance to Nearest Property Line	Distance Attenuation	Noise Level at Property Line (LEQ dBA)
Interior Gen-Set	78	3	87	29.2	48.8
Hourly LEQ Monthly Test					47
Hourly LEQ Qtr. Test					49
LDN (24-hour Operation)					55
Exterior Gen-Set	89	3	87	29.2	59.8
Hourly LEQ Monthly Test					56
Hourly LEQ Qtr. Test					60
LDN (24-hour Operation)					66

Scenario: Montgomery Road Site WTP (With or Without Parking)

Source	Source Noise Level	Source Reference Distance	Distance to Nearest Property Line	Distance Attenuation	Noise Level at Property Line (LEQ dBA)
Interior Gen-Set	78	3	75	28.0	50.0
Hourly LEQ Monthly Test					48
Hourly LEQ Qtr. Test					50
LDN (24-hour Operation)					56
Exterior Gen-Set	89	3	75	28.0	61.0
Hourly LEQ Monthly Test					58
Hourly LEQ Qtr. Test					61
LDN (24-hour Operation)					67

Scenario: Chambers Landing Intake Control Room

	Source Noise Level	Source Reference Distance	Distance to Nearest Property Line	Distance Attenuation	Noise Level at Property Line (LEQ_{hour} dBA)
Enclosed Equipment	52	10	40	12.0	40.0
LDN (24-hour Operation)					46

Scenario: McKinney Shores Intake Control Room

	Source Noise Level	Source Reference Distance	Distance to Nearest Property Line	Distance Attenuation	Noise Level at Property Line (LEQ_{hour} dBA)
Enclosed Equipment	52	10	60	15.6	36.4
LDN (24-hour Operation)					43

Scenario: Lagoon Road Site WTP

	Source Noise Level	Source Reference Distance	Distance to Nearest Property Line	Distance Attenuation	Noise Level at Property Line (LEQ_{hour} dBA)
Enclosed Equipment	52	10	90	19.1	32.9
LDN (24-hour Operation)					39

Scenario: Lodge Road Site WTP (No Parking)

	Source Noise Level	Source Reference Distance	Distance to Nearest Property Line	Distance Attenuation	Noise Level at Property Line (LEQ_{hour} dBA)
Enclosed Equipment	52	10	145	23.2	28.8
LDN (24-hour Operation)					35

Scenario: Lodge Road Site WTP (WITH Parking)

	Source Noise Level	Source Reference Distance	Distance to Nearest Property Line	Distance Attenuation	Noise Level at Property Line (LEQ_{hour} dBA)
Enclosed Equipment	52	10	87	18.8	33.2
LDN (24-hour Operation)					40

Scenario: Montgomery Road Site WTP (With or Without Parking)

	Source Noise Level	Source Reference Distance	Distance to Nearest Property Line	Distance Attenuation	Noise Level at Property Line (LEQ_{hour} dBA)
Enclosed Equipment	52	10	75	17.5	34.5
LDN (24-hour Operation)					41

APPENDIX C

Roadway Noise Construction Model (RNCM)

Input & Results Data Sheets

Roadway Construction Noise Model (RCNM),Version 1.1

Report date: 5/1/2015
Case Description: Waterline Install

		Baselines (dBA)		---- Receptor #1 ----
Description	Land Use	Daytime	Evening	Night
Closest Prop. Bndr.to Line	Residential	50	45	40

Description	Impact Device	Usage(%)	Equipment Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Backhoe	No	40		77.6	25	0
Dump Truck	No	40		76.5	25	0
Compactor (ground)	No	20		83.2	25	0
Roller	No	20		80	25	0
Jackhammer	Yes	20		88.9	25	0

Results

		Calculated (dBA)	
Equipment		*Lmax	Leq
Backhoe		83.6	79.6
Dump Truck		82.5	78.5
Compactor (ground)		89.3	82.3
Roller		86	79
Jackhammer		94.9	87.9
	Total	94.9	90.1

*Calculated Lmax is the Loudest value.

Roadway Construction Noise Model (RCNM),Version 1.1

Report date: 5/1/2015
Case Description: Intake Electric & Control Room

---- Receptor #1 ----

Description	Land Use	Baselines (dBA) Daytime	Evening	Night
Chambers Landing	Residential	50	45	40

Description	Impact Device	Usage(%)	Equipment Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Backhoe	No	40		77.6	40	0
Dump Truck	No	40		76.5	40	0
Concrete Mixer Truck	No	40		78.8	40	0
Compressor (air)	No	40		77.7	40	0
Flat Bed Truck	No	40		74.3	40	0
Pickup Truck	No	40		75	40	0
Pickup Truck	No	40		75	40	0

Results

Equipment		Calculated (dBA) *Lmax	Leq
Backhoe		79.5	75.5
Dump Truck		78.4	74.4
Concrete Mixer Truck		80.7	76.8
Compressor (air)		79.6	75.6
Flat Bed Truck		76.2	72.2
Pickup Truck		76.9	73
Pickup Truck		76.9	73
	Total	80.7	83.1

*Calculated Lmax is the Loudest value.

---- Receptor #2 ----

Description	Land Use	Baselines (dBA) Daytime	Evening	Night
McKinney Shores	Residential	50	45	40

Description	Impact Device	Usage(%)	Equipment Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Backhoe	No	40		77.6	60	0
Dump Truck	No	40		76.5	60	0

Concrete Mixer Truck	No	40	78.8	60	0
Compressor (air)	No	40	77.7	60	0
Flat Bed Truck	No	40	74.3	60	0
Pickup Truck	No	40	75	60	0
Pickup Truck	No	40	75	60	0

Results

Calculated (dBA)

Equipment	*Lmax	Leq
Backhoe	76	72
Dump Truck	74.9	70.9
Concrete Mixer Truck	77.2	73.2
Compressor (air)	76.1	72.1
Flat Bed Truck	72.7	68.7
Pickup Truck	73.4	69.4
Pickup Truck	73.4	69.4
Total	77.2	79.6

*Calculated Lmax is the Loudest value.

Report date: 5/1/2015
Case Description: Water Treatment Plant

---- Receptor #1 ----

		Baselines (dBA)		
Description	Land Use	Daytime	Evening	Night
Lagoon Site	Residential	50	45	40

Description	Impact Device	Usage(%)	Equipment Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Backhoe	No	40		77.6	90	0
Dump Truck	No	40		76.5	90	0
Concrete Mixer Truck	No	40		78.8	90	0
Compressor (air)	No	40		77.7	90	0
Flat Bed Truck	No	40		74.3	90	0
Pickup Truck	No	40		75	90	0
Pickup Truck	No	40		75	90	0
Excavator	No	40		80.7	90	0
Crane	No	16		80.6	90	0
Compressor (air)	No	40		77.7	90	0
Man Lift	No	20		74.7	90	0
All Other Equipment > 5 HP	No	50	85		90	0

Results

Calculated (dBA)

Equipment	*Lmax	Leq
Backhoe	72.5	68.5
Dump Truck	71.3	67.4
Concrete Mixer Truck	73.7	69.7
Compressor (air)	72.6	68.6
Flat Bed Truck	69.1	65.2
Pickup Truck	69.9	65.9
Pickup Truck	69.9	65.9
Excavator	75.6	71.6
Crane	75.4	67.5
Compressor (air)	72.6	68.6
Man Lift	69.6	62.6
All Other Equipment > 5 HP	79.9	76.9
Total	79.9	80.7

*Calculated Lmax is the Loudest value.

---- Receptor #2 ----

		Baselines (dBA)		
Description	Land Use	Daytime	Evening	Night
Lodge Site	Residential	50	45	40

Description	Impact Device	Usage(%)	Equipment Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Backhoe	No	40		77.6	145	0
Dump Truck	No	40		76.5	145	0
Concrete Mixer Truck	No	40		78.8	145	0
Compressor (air)	No	40		77.7	145	0
Flat Bed Truck	No	40		74.3	145	0
Pickup Truck	No	40		75	145	0
Pickup Truck	No	40		75	145	0
Excavator	No	40		80.7	145	0
Crane	No	16		80.6	145	0
Compressor (air)	No	40		77.7	145	0
Man Lift	No	20		74.7	145	0
All Other Equipment > 5 HP	No	50	85		145	0

	Results Calculated (dBA)		
Equipment	*Lmax	Leq	Day Lmax
Backhoe	68.3	64.3	N/A
Dump Truck	67.2	63.2	N/A
Concrete Mixer Truck	69.6	65.6	N/A
Compressor (air)	68.4	64.4	N/A
Flat Bed Truck	65	61	N/A
Pickup Truck	65.8	61.8	N/A
Pickup Truck	65.8	61.8	N/A
Excavator	71.5	67.5	N/A
Crane	71.3	63.3	N/A
Compressor (air)	68.4	64.4	N/A
Man Lift	65.5	58.5	N/A
All Other Equipment > 5 HP	75.8	72.7	N/A
Total	75.8	76.6	N/A

*Calculated Lmax is the Loudest value.

---- Receptor #3 ----

		Baselines (dBA)		
Description	Land Use	Daytime	Evening	Night
Chamberland Site	Residential	50	45	40

Equipment	Spec	Actual	Receptor	Estimated

Description	Impact Device	Usage(%)	Lmax (dBA)	Lmax (dBA)	Distance (feet)	Shielding (dBA)
Backhoe	No	40		77.6	75	0
Dump Truck	No	40		76.5	75	0
Concrete Mixer Truck	No	40		78.8	75	0
Compressor (air)	No	40		77.7	75	0
Flat Bed Truck	No	40		74.3	75	0
Pickup Truck	No	40		75	75	0
Pickup Truck	No	40		75	75	0
Excavator	No	40		80.7	75	0
Crane	No	16		80.6	75	0
Compressor (air)	No	40		77.7	75	0
Man Lift	No	20		74.7	75	0
All Other Equipment > 5 HP	No	50	85		75	0

Results

Calculated (dBA)

Equipment	*Lmax	Leq
Backhoe	74	70.1
Dump Truck	72.9	68.9
Concrete Mixer Truck	75.3	71.3
Compressor (air)	74.1	70.2
Flat Bed Truck	70.7	66.7
Pickup Truck	71.5	67.5
Pickup Truck	71.5	67.5
Excavator	77.2	73.2
Crane	77	69.1
Compressor (air)	74.1	70.2
Man Lift	71.2	64.2
All Other Equipment > 5 HP	81.5	78.5
Total	81.5	82.3

*Calculated Lmax is the Loudest value.