

3.13

UTILITIES AND SERVICE SYSTEMS

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This section of the Draft EIR analyzes the potential demands on utility systems generated by the proposed project and makes determinations regarding the significance of these impacts. Utility systems included in this analysis are wastewater, storm drainage, water supply, solid waste, electric and natural gas, and telecommunications. Drainage, flooding, and groundwater impacts are discussed in Section 3.8 of this EIR, *Hydrology and Water Quality*. During the NOP period, comments were received regarding the use of groundwater to support the proposed project and the reliability of the wastewater treatment plant.

3.13.1 SETTING

Environmental Setting

SOLID WASTE

Solid waste services for the unincorporated areas of Shasta County are managed by the Shasta County Waste Management Agency. The agency contracts with two private companies, Waste Management, Inc. and Burney Disposal, Inc. for collection services. There are 11 transfer stations located throughout the County as well as two active landfills.

The West Central Landfill located at 14095 Clear Creek Road in Igo on 1,058 acres is the nearest landfill to the proposed project site. The landfill is permitted to accept up to 700 tons of waste per day on a permitted disposal area of 107 acres. The landfill has a capacity of 7,078,000 cubic yards with a remaining capacity, as of 2001, of 6,605,722 cubic yards and is projected to close in 2019.

According to Bill Ramsdell with the Shasta County Public Works Department, the County has prepared and adopted a Solid Waste Reduction and Recycling Element. The California Integrated Waste Management Board has recorded a diversion rate of 62 percent for the years 2005 and 2006. This is well above the required 50 percent diversion rate mandated by AB 939 (California Integrated Waste Management Act of 1989).

ELECTRIC AND GAS

Electric and natural gas services can be provided to the project site by Pacific Gas and Electric Company.

WASTEWATER

Regional Wastewater Treatment

Wastewater collection, treatment, and disposal process or techniques vary throughout Shasta County. Community wastewater disposal is provided in two forms; central wastewater treatment plants and smaller package treatment plants. Community disposal in the form of a central plant is provided in the City of Shasta Lake, the City of Anderson and the City of Redding, as well as

in the Palo Cedro Community Services Area, the Cottonwood Community Service Area, the Burney Water District, and the Fall River Mills Community Services District.

The majority of the unincorporated County currently uses individual on-site septic tanks/systems for wastewater disposal. The project site will not have access to public wastewater services and an on-site septic tank would be inadequate for the size of the project. Therefore, the proposed project will use a package wastewater treatment plant which is specifically designed for use by medium-sized developments that do not have access to public services such as the proposed project.

Project Wastewater Treatment

The project site is remote from urban wastewater systems, and must therefore be served by on-site wastewater collection, treatment, and disposal facilities to be developed and maintained by the project proponent. The proposed locations of the on-site package treatment plant and the leachfield are illustrated on Figure 2-3. A package treatment plant is a method of sewage treatment which uses a process involving energy and mechanical, biological, chemical or physical treatment of the wastewater to reduce Biological Oxygen Demand (BOD), suspended solids (SS), nitrogen (N), bacteria and other sewage constituents and which is of a degree of complexity that a certified wastewater treatment plant operator is required.

According to the Water and Wastewater Facilities Narrative provided by PACE CIVIL, INC (see [Appendix P](#)) for the proposed project in January 2009, the sewage collection system will consist of gravity sewer mains to a centrally-located submersible pump station that will convey raw sewage to the wastewater treatment facility. The treatment plant process is described as follows:

The Membrane Bioreactor (MBR) treatment plant consists of a partially buried reinforced concrete basin partitioned into two separate treatment trains. Each train consists of a series of treatment basins containing the following:

- **Pre-Anoxic Basin:** In this 6,700-gallon basin, raw sewage is mixed with return activated sludge from the MBR basin. The microorganisms in the activated sludge begin consuming the organics in the raw sewage.
- **Pre-Aeration Basin:** The pre-aeration basin is a 10,000-gallon basin consisting of fine bubble diffusers which provide an oxygen supply to sustain the colony of microorganism.
- **Post-Anoxic Basin:** The 5,000-gallon post-anoxic basin provides an environment in which the microorganisms in the activated sludge are starved for oxygen creating a propensity for other oxygenated compounds to become the oxygen source for the microorganisms. For example, oxygen molecules in the compound nitrate, are consumed and nitrogen gas is released into the atmosphere.
- **MBR Basin:** The 10,700-gallon MBR basin contains submerged membrane units that separate liquid from the activated sludge. This liquid (effluent) is highly treated and meets

discharge requirements for Biochemical Oxygen Demand (BOD), suspended solids and nitrate.

- **Aerobic Digester:** The aerobic digester is a four-chambered basin consisting of an anoxic basin, membrane thickener, and two digester basins. Utilizing diffused air and MBR modules, the digester stabilizes the sludge by removing volatile organics and enhancing pathogen destruction, while reducing the volume to be disposed offsite.

The effluent is then disinfected utilizing ultraviolet radiation and discharged to the effluent dosing station, which conveys treated effluent to the subsurface disposal fields at the north end of the site. At full build out, the wastewater treatment plant will be designed for the following criteria:

Average Dry Weather Flow (ADWF):	80,000 Gallons per Day (GPD)
Peak Wet Weather Flow (PWW):	240,000 GPD
Influent Biochemical Oxygen Demand (BOD):	300 mg/L
Influent Suspended Solids (SS):	250 mg/L
Influent Total Kjeldahl Nitrogen (TKN):	60 mg/L
Effluent BOD:	5 mg/L
Effluent SS:	5 mg/L
Effluent Nitrate, as Nitrogen:	3 mg/L

Initially, the wastewater treatment plant will be designed for 67% of full buildout capacity, or about 53,600 GPD; however, the concrete basins and infrastructure will be designed for full build out. Once flows approach 67% of full buildout, it will be necessary to add an additional submerged MBR unit into each MBR basin.

In February 2008, PACE performed a soils investigation of on-site soils in order to evaluate their compatibility for subsurface disposal of treated effluent. The investigation included excavation of 15 soil test pits and performance of 12 percolation tests at various depths in the area north of the proposed development. In general, the deeper soils (4-foot to 8-foot) consisted of gravelly sands and loams with percolation rates in the 5 to 12 minutes per inch (MPI) range. The shallow soils (less than 2-foot) consisted of loamy soils with percolation rates between 5.3 and 40 MPI. The acceptable percolation range in Shasta County, for conventional on-site sewage disposal systems, is 5 to 60 MPI. Thus, it appears the site could accommodate on-site wastewater disposal.

Wastewater disposal could consist of conventional leach trenches, or shallow drip tubes, such as the Geoflow Subsurface Drip System. However, in order to maximize the distance between the disposal trenches and the area groundwater, the shallow drip tube disposal option is recommended. Due to the variability of percolation rates in the shallower soils, additional percolation tests would be necessary before final design of the subsurface drip system.

There are approximately 14.6 acres available at the north end of the site for subsurface treated effluent disposal. According to the technical memorandum by Lawrence & Associates, this entire area will need to be utilized in order to provide adequate separation from area groundwater and a

100% disposal field replacement area per County Standards. Although a drip disposal system would maximize the separation to groundwater, a pressurized distribution system is recommended due to the large area requirement. This type of distribution system allows for alternatively dosing a number of zonal areas. It is anticipated that up to four zones will be required at full project buildout.

Sludge Disposal: It is proposed that digested sludge be removed from the aerobic digester and hauled to the Shasta County Septage Ponds once a week. Shasta County has expanded the septage ponds and has indicated it has surplus capacity to receive sludge.

Project Wastewater Flows

Based on the analysis contained in the PACE CIVIL narrative, a design capacity of 265,000 gallons of wastewater per day was determined to be more than adequate.

Groundwater Levels

Although three aquifer zones have been delineated at the project site, similar water levels in the upper two zones suggest that these zones could be considered as one (see Appendix I, *Water Supply Assessment Knighton & Churn Creek Commons Retail Center, July 2009*) Static water levels in observation wells completed in the upper and intermediate zones are about 30 feet below ground surface. Static water level for water from the deep zone is about 52 feet. Thus, the lower aquifer is distinct from the intermediate and upper zones. Most of the domestic wells in the vicinity are screened in the upper aquifer or above, with a few in the intermediate zone. The site production well was screened in the lower aquifer.

WATER SUPPLY

The project site is remote from urban water systems, and must therefore be served by on-site water supply and distribution facilities. The source for all potable water will be an on-site well installed and tested in 1998 as part of the environmental review process for the formerly proposed Flying J Travel Plaza project (see Appendix J, *Well Installation, Aquifer Testing and Groundwater Modeling for Flying J Knighton Road Travel Plaza, Shasta County, California*). This well, which is 325 feet deep, is located in the southwest portion of the project site (see Figure 6-1 of Appendix I, *Water Supply Assessment Knighton & Churn Creek Commons Retail Center, July 2009*). The screened interval is from 245 to 325 feet below ground surface (bgs); the sanitary seal extends to 235 feet bgs. The casing is 10 inches in diameter; the screened interval is wire-wrapped stainless-steel.

The water-supply well is, and the treatment system will be, located in the western part of the site. The well will be equipped with a maximum 500 gpm pump, which will deliver water to a 300,000-gallon water-storage tank to be centrally located along the north boundary of the proposed project site. The storage tank will provide for all on-site water demands beyond maximum-day demand. Separate booster pump stations will charge a pressure system to deliver all domestic and fire-flow demands.

Water Demand

Water demand for the project has been estimated at approximately 200 acre-feet per year in the *Water Supply Assessment Knighton & Churn Creek Commons Retail Center, July 2009* provided in Appendix I.

Regulatory Setting

FEDERAL

There are no federal regulations applicable to the proposed utility service systems.

STATE

Waste Discharge Requirements

The Central Valley Regional Water Quality Control Board (RWQCB) considers the adoption of waste discharge requirements (WDRs) for all package treatment plants (see [Appendix Q, Municipal and Domestic Wastewater: Treatment, Disposal, and Reclamation](#)). The WDR will contain specific effluent limitations. The WDR will also include monitoring and reporting requirements. Monitoring of the effluent may include analyses for the following parameters: flow, biological and/or chemical oxygen demand (BOD/COD), total dissolved solids, suspended solids, total and fecal coliform bacteria, nitrate, total nitrogen, total phosphorus, methylene blue active substances (MBAS), and purgeable halocarbons and aromatics. Monitoring requirements will include monitoring of the receiving water, including the underlying groundwater. The process for obtaining WDRs includes the following steps:

1. File the Report of Waste Discharge form with the necessary supplemental information with the RWQCB at least 120 days before beginning to discharge waste.
2. RWQCB staff reviews the application for completeness and may request additional information.
3. Once the application is complete, staff determines whether to propose adoption of the WDRs, prohibit the discharge, or waive the WDRs.
4. If WDRs are proposed, staff prepares draft WDRs and distributes them to persons and public agencies with known interest in the project for a minimum 30-day comment period. Staff may modify the proposed WDRs based upon comments received from the discharger and interested parties.
5. The RWQCB holds a public hearing with at least a 30-day public notification. If WDRs are uncontested, the notice requirement is only 10 days. The RWQCB may adopt the proposed WDRs or modify and adopt them at the public hearing by majority vote.

Safe Drinking Water Act (Chapter 7 of the California Health and Safety Code)

The adoption of implementing regulations and the enforcement of the drinking water laws of California are the responsibility of the California Department of Health Services (Department). A key feature of the Safe Drinking Water Act is the requirement that no person may operate a public water system without having secured a domestic water supply permit from the Department. The statutes provide a clear definition of a public water system. Basically, anyone who serves drinking water to at least 25 persons for at least 60 days out of the year, or who serves domestic water to 15 or more service connections, is a public water system and must have a domestic water supply permit.

California Code of Regulations, Title 22, Reclamation Criteria

The California Department of Health Services (DHS) has established statewide reclamation criteria in Chapter 3, Division 4, Title 22, California Code of Regulations (CCR), Section 60301, et seq. (Title 22) for the use of reclaimed water for food crop, fodder, fiber, seed crop and landscape irrigation and impoundment supply. The permit implements the reclamation criteria in Title 22.

In 1996, the State Water Quality Control Board and DHS set forth principles, procedures, and agreements to which the agencies committed themselves, relative to the use of recycled water in California, in a document titled *Memorandum of Agreement Between the Department of Health Services and the State Water Resources Control Board on the Use of Reclaimed Water* (MOA). Consistent with the MOA and as authorized by the California Water Code [Section 13522.5(a)] Regional Water Quality Control Boards may issue Master Reclamation Permits, which are required for “any person recycling or proposing to recycle water, or using or proposing to use recycled water, within any region for any purpose for which recycling criteria have been established.”

SB 610 Water Supply Assessment

Senate Bill 610 (SB 610), passed in 2001, amended the California Water Code, to require a written water supply assessment for projects of 500 or more residential units, 500,000 square feet of retail commercial space, or 250,000 square feet of office commercial space.

California Urban Water Management Planning Act

The Urban Water Management Planning Act (§10610-10656 of the California Water Code) requires that all urban water suppliers prepare urban water management plans and update them every five years.

AB 939 California Integrated Waste Management Act

To minimize the amount of solid waste that must be disposed of by transformation or land disposal, the State Legislature passed Assembly Bill 939, the California Integrated Waste Management Act of 1989, effective January 1990. According to AB 939, all cities and counties in California are required to divert 25 percent of all solid waste from landfill or transformation

facilities by January 1, 1995, and 50 percent by January 1, 2000, through source reduction, recycling and composting, and environmentally safe transformation.

AB 1327 California Solid Waste Reuse and Recycling Access Act

The Solid Waste Reuse and Recycling Access Act of 1991 requires each jurisdiction to adopt an ordinance by September 1, 1994, requiring each development project to provide an adequate storage area for collection and removal of recyclable materials.

California Public Utilities Commission (CPUC)

The CPUC regulates privately owned telecommunication, electric, natural gas, water, railroad, rail transit, and passenger transportation companies. It is the responsibility of the CPUC to: assure California utility customers receive safe, reliable utility service at reasonable rates; protect utility customers from fraud; and promote a healthy California economy. The Public Utilities Code, adopted by the legislature, defines the jurisdiction of the CPUC.

Title 24 Building Energy Efficiency Standards

Building energy consumption is regulated under Title 24 of the California Code of Regulations. The efficiency standards contained in this title apply to new construction of both residential and non-residential buildings, and regulate energy consumed for heating, cooling, ventilation, water heating, and lighting.

LOCAL

Small Public Community Water System Permit

A permit from the Shasta County Environmental Health Division is required to operate a small public community water system, transient or non-transient non-community public water system, and state small public water system. A complete set of plans and specifications must be submitted when applying for this permit. An annual fee is charged based on the type of water system.

Shasta County General Plan

Policy W-b: Septic systems, waste disposal sites, and other sources of hazardous or polluting materials shall be designed to prevent contamination to streams, creeks, rivers, reservoirs, or groundwater basins in accordance with standards adopted by the County.

Policy W-c: All proposed land divisions and developments in Shasta County shall have an adequate water supply, from a quantity and a quality standpoint, for the planned uses. Furthermore, the potential adverse impacts on the existing reasonable and beneficial uses of utilizing that same water supply should not be significant. Project proponents shall submit data and reports, when requested, which demonstrate that these criteria can be met. In the case of land divisions, the reports shall be submitted to the County for review and acceptance prior to a

completeness determination of a tentative map. This policy will not apply to developments in special districts which have committed and documented, in writing, the ability to provide the needed water supply.

Policy W-d: The potential for cumulative water quality impacts resulting from widespread use of septic systems in poorly suited soil areas shall be periodically evaluated for the need to provide greater monitoring and possible changes to applicable standards.

Table 3.13-1 provides a discussion of the proposed project’s consistency with applicable portions of *Shasta County General Plan Policies* related to utilities and service systems.

**Table 3.13-1
General Plan Consistency – Utilities and Service Systems**

Policy No.	Finding	Discussion
W-b	Consistent	The wastewater and dripfield will be designed in accordance with Shasta County standards.
W-c	Consistent	The project will demonstrate adequate water supply; designs and completed facilities will be reviewed and inspected by County staff.
W-d	Consistent	The wastewater treatment facilities and dripfields will be permitted by the Regional Water Quality Board and meet all waste discharge requirements.

3.13.2 THRESHOLDS OF SIGNIFICANCE

Consistent with Appendix G of the CEQA Guidelines, the proposed project is considered to have a significant impact on the environment if it will:

- Exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board
- 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
- 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
- Have sufficient water supplies available to serve the project from existing entitlements and resources, or are new or expanded entitlements needed
- 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 providers existing commitments.
- Be served by a landfill with sufficient permitted capacity to accommodate the project’s solid waste disposal needs

- Comply with federal, state, and local statutes and regulations related to solid waste.

3.13.3 IMPACTS AND MITIGATION MEASURES

Impact #3.13-1: Potential to violate RWQCB, Central Valley Region wastewater treatment requirements and cause degradation of groundwater quality.

Discussion/Conclusion: Wastewater discharges from operation of the proposed sanitary wastewater treatment and disposal system could potentially cause nitrogen contamination to groundwater in the project area. The Water and Wastewater Facilities Narrative provided by PACE CIVIL, INC (January 20, 2009) describes the operation of the system and how it will meet the standard of 5 mg/liter for nitrogen concentrations established in RWQCB's basin goals. The analysis found that nitrogen attributable to project discharges would be essentially nondetectable below the upper aquifer, beneath the project site and nondetectable in all aquifers beyond the project boundary. Wastewater quality impacts would not adversely affect groundwater pumped from neighboring wells.

The project proponent will be required to file a Report of Waste Discharge form with RWQCB. In addition, the project proponent will be required to meet Title 22 requirements if reclaimed water from the wastewater treatment system is to be used for irrigation of landscaping. This is a *potentially significant* impact.

Mitigation Measures

Although the sanitary wastewater treatment and disposal system non-degradation plan for the proposed project is designed to meet RWQCB regulations and avoid increases of nitrogen levels in groundwater. Implementation of the following mitigation measure will ensure proper design, installation and operation and reduce this impact to a *less-than-significant* level.

Mitigation Measure #3.13-1:

The project proponent shall establish an appropriate mechanism to maintain and operate the on-site wastewater treatment facility and the facility shall be in place, operational, and certified by the Regional Board prior to issuance of certificates of occupancy.

Impact #3.13-2: Construction of new water or wastewater treatment facilities, which could cause significant environmental effects.

Discussion/Conclusion: The proposed project includes the construction of new water supply and wastewater treatment and disposal facilities on the project site. Because these new facilities are an inherent aspect of the proposed project, potential environmental impacts and mitigation associated with their construction and operation are addressed as a component of project development throughout this EIR. With implementation of applicable federal, State and local regulations and the mitigation measures included in this EIR, *potentially significant* impacts

resulting from construction and operation of these facilities will be reduced to *less than significant*.

Mitigation Measures

No additional mitigation measures are required.

Impact #3.13-3: Construction of new storm water drainage facilities, which could cause significant environmental effects.

Discussion/Conclusion: The proposed storm drainage system is an inherent aspect of the proposed project, potential environmental impacts and mitigation associated with its construction and operation are addressed as a component of project development throughout this EIR. With implementation of applicable federal, State and local regulations and the mitigation measures included in this EIR, *potentially significant* impacts resulting from construction and operation of new storm water drainage facilities will be reduced to *less than significant*.

Mitigation Measures

No additional mitigation measures are required.

Impact #3.13-4: Adequacy of water supplies to serve the proposed project.

Discussion/Conclusion: At build-out, the proposed project will encompass approximately 740,000 square feet. Since the project is more than 500,000 square feet of retail space, a written water supply assessment per the requirements of SB 610 has been prepared and is found as Appendix I of the Draft EIR. The SB 610 Water Supply Assessment, as referenced and discussed in Section 3.8 and Section 3.13 of this EIR, demonstrates that there is a sufficient groundwater resource to serve the project without significant impact on other groundwater users. This impact is *less than significant*.

Mitigation Measures

No mitigation measures are required.

Impact #3.13-5: Be served by a landfill with sufficient permitted capacity to accommodate the project's solid waste disposal needs

Discussion/Conclusion: Solid waste from the project will be collected by a private company contracted through the County and disposed of at the West Central Landfill. This landfill is permitted to accept up to 700 tons per day. According to the Shasta County *General Plan* (1998), this landfill accepted 30,447 tons of solid waste in 1996 or approximately 84 tons per day. The solid waste to be generated by the proposed development (approximately 9.25 tons at full buildout) is well within the capacity of the West Central Landfill and will not result in the landfill exceeding its permitted throughput. This impact is *less than significant*.

Mitigation Measures

No mitigation measures are required.

Impact #3.13-6: 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 providers existing commitments.

Discussion/Conclusion: The proposed project will be served by an on-site wastewater treatment facility that is designed to meet the project needs. The facility's sole commitment will be to the proposed project. This impact is *less than significant*.

Mitigation Measures

No mitigation measures are required.

Impact #3.13-7: Comply with federal, state, and local statutes and regulations related to solid waste.

Discussion/Conclusion: Solid waste from the project will be collected by a private company contracted through the County and disposed of at the West Central Landfill. All collection, transport and disposal of solid waste will be in compliance with applicable federal, state and local statutes. This impact is *less than significant*.

Mitigation Measures

No mitigation measures are required.