

Sunol Community Onsite Wastewater Study

Phase 1 - Scope of Work, Budget and Schedule

Scope of Work

Task 1 - Background Information and Problem Assessment

Background Information. The first task will cover the compilation, review and organization of all relevant background information on the project area conditions, prior studies, planning policies and regulatory requirements.

Additionally, information regarding existing OWTS in study area will be researched and compiled through the following:

- **County File Review.** Review all relevant OWTS information contained in Alameda County DEH files for individual properties in the study area. This will include historical survey and permit information as well as recent or on-going projects involving septic system repairs, upgrades and replacement systems for existing new development.
- **Questionnaire Survey.** Prepare, distribute and compile results of an OWTS questionnaire survey covering all property owners in the study area. The questionnaire survey will mainly be aimed at confirming, correcting or augmenting OWTS information in County files. Additionally, it may be used to obtain initial property owner concerns, opinions and preferences on various OWTS issues (e.g., community sewerage ideas, growth concerns, etc.) pertinent to the study. A draft questionnaire will be prepared and reviewed at a community meeting prior to finalizing and distributing.
- **Field Inspection Surveys.** Subject to owner permission, field walk-through inspections will be conducted to evaluate the conditions and constraints for continued use and/or upgrade of existing OWTS on individual properties. This will be on a voluntary basis only, with the aim being to survey a representative cross-section of properties and conditions in the different parts of the study area. The inspections work will focus on augmenting background information on constraints and options for OWTS upgrades and/or replacement. The work is not intended to include testing/assessing the function status of individual OWTS. The results will be provided to the respective property owner. Site specific findings will remain confidential; only compiled summaries will be made public.

The type and range of information to be collected and summarized through background research and surveys in Task 1 are expected to include:

- # of parcels, vacant and developed
- Parcel sizes
- Age of OWTS

- Type of OWTS
- Available reserve/replacement area
- Functioning status of OWTS
- Code compliance issues
- Types of repair/replacement options
- Planning policies and development requirements

Watershed Land Use Mapping. Land use conditions in within Sinbad Creek watershed will be mapped and reviewed. The will include and focus on: (a) residential development; (b) commercial/non-residential development; and (c) animal grazing and other agricultural activities. The information will be presented on annotated maps, graphed and analyzed for comparison with water quality data and for use in the problem assessment sub-task below.

Water Quality Sampling. Questa will develop and implement a water quality sampling program to augment stream water quality data collected by volunteer groups in 2017 and other existing information on surface water and groundwater quality conditions in the Sunol study area. The purpose of this work will be to collect and evaluate information on local water resources to determine possible influences from existing OWTS or other sources. It may be feasible to conduct this work in association with other agencies involved with water resources management in the area.

The water quality sampling will focus on Sinbad Creek and tributary streams to the extent flowing water is present for sampling. Per the draft LAMP, this will cover potential areas of concern for OWTS (Kilkare Woods and Downtown Sunol).

Attached Figure 1-1 and 1-2 show proposed sampling locations, including one upstream control, six locations generally within Kilkare Woods and four locations within Downtown Sunol. All sampling stations are within public road rights-of-way, all but one at bridge/road crossings. Sampling will be conducted by Questa field/engineering technicians experienced in water quality sampling procedures.

Water samples will be taken and analyzed for: (a) total and fecal coliform; and (b) nitrate-nitrogen (at least one sampling run). The samples will all be take within an approximate 4-hour time frame, and delivered the same day for laboratory analysis to the Alpha Analytical Laboratories in Dublin. Three sampling runs are anticipated: June 2017; March 2018 and April 2018. Additional sampling may be done in coordination with ACDEH staff and analyzed at the standard County laboratory facility. The results will be graphed, analyzed and summarized for use in the problem assessment sub-task below.

Summary and Problem Assessment. The product of this task will be an OWTS suitability assessment and map(s) for the study area. This will be organized around distinct sub-areas (e.g., Downtown Sunol, Kilkare Woods, and intervening areas) or other criteria that may evolve from the study. The overall objective would be to identify and describe geographical areas according to their apparent ability to accommodate on-lot OWTS upgrades, the types of technologies required, variance issues, and areas in greatest need of community solutions, including local

maintenance/management district approach and/or community wastewater facilities. The findings and conclusions of Task 1 will be summarized in the form of a “problem assessment” that will inform the subsequent development of service area boundaries and wastewater alternatives in Tasks 2 and 3.

Task 2 – Define Service Area(s)

Based on the results of Task 1 alternative service area boundaries for community-based OWTS management in Sunol will be developed and mapped in Task 2. The boundaries will be developed in consultation with the community and County, taking into consideration the OWTS management issues and needs identified in Task 1.

For the defined project service area(s), estimates of existing and projected wastewater flows and the number of properties (residential and commercial) will be developed. This may be based on local water use data or other information from OWTS owners. Additionally, wastewater flow information for comparable communities, such as Lake Canyon Community Services District near Los Gatos or others. Special wastewater characteristics (flows and constituents) associated with commercial uses, the elementary school and other properties will be evaluated and included as applicable.

Task 3 - Formulate Wastewater Alternatives

Under this task a list of all reasonably possible wastewater alternatives will be developed, including individual onsite upgrades overseen by a local management district, cluster systems, a community system, and other variations. This will require a reconnaissance survey of the community and nearby areas to identify possible sites for locating community or cluster-type wastewater facilities. Various combinations of collection, treatment, storage, dispersal and water reuse methods will be considered. Input will be obtained from the County and, as appropriate, Regional Water Quality Control Board staff and other agencies, regarding applicable regulatory requirements and options.

After compiling a comprehensive list of options, a preliminary review and screening of alternatives would be completed to narrow the alternatives to the apparent most favorable. Maps and schematic diagram(s) and brief descriptions will be prepared to present and explain the key facilities, capacity and other aspects each alternative. These will be reviewed with the community before finalizing the list of options to be examined in the subsequent, follow-on phase of the feasibility study.

A preliminary list of the range of alternatives to be considered includes:

- No Project Alternative – i.e., status quo
- Onsite system upgrades with local management/maintenance district oversight
- Community system for Kilcare Woods
- Combination of several cluster systems and onsite upgrades for Kilcare Woods
- Community system for Downtown Sunol
- Combined community system for Kilcare Woods and Sunol

- Community system for entire study area
- Hybrid system including variations of the above

A broad range of conventional and alternative wastewater technologies will be considered. This will include: (a) all OWTS technologies recognized in the Alameda County LAMP; (b) alternative collection system methods, such as Septic Tank Effluent Pump (STEP), small diameter effluent sewers, pressure sewers, and combinations; (c) community/cluster leachfields with primary or secondary treated water; and (d) tertiary treatment and water recycling for irrigation or other approved uses with practical application in the Sunol area.

Task 4 – Preliminary Cost Estimates and Financing

Develop planning level cost estimates for each alternative, including costs for engineering and environmental studies, construction and land acquisition, annual operation and maintenance, planning and project administration, and contingencies. Compile and utilize information from other similar wastewater projects and cost factors applicable to the Alameda County area.

Review and describe financing options such as property assessments, loans, grants and bonds and present example approaches followed in other communities, as applicable. Summarize estimated costs to individual property owners for different financing approaches and assumptions.

Task 5 – Phase 1 Report

Present the results and recommendations of Tasks 1 through 4 in a Draft Phase 1 Report for review by County staff and community members. Following review by the prepare Final Phase 1 Report, including supplementary information and revisions based on input and comments on the Draft Report.

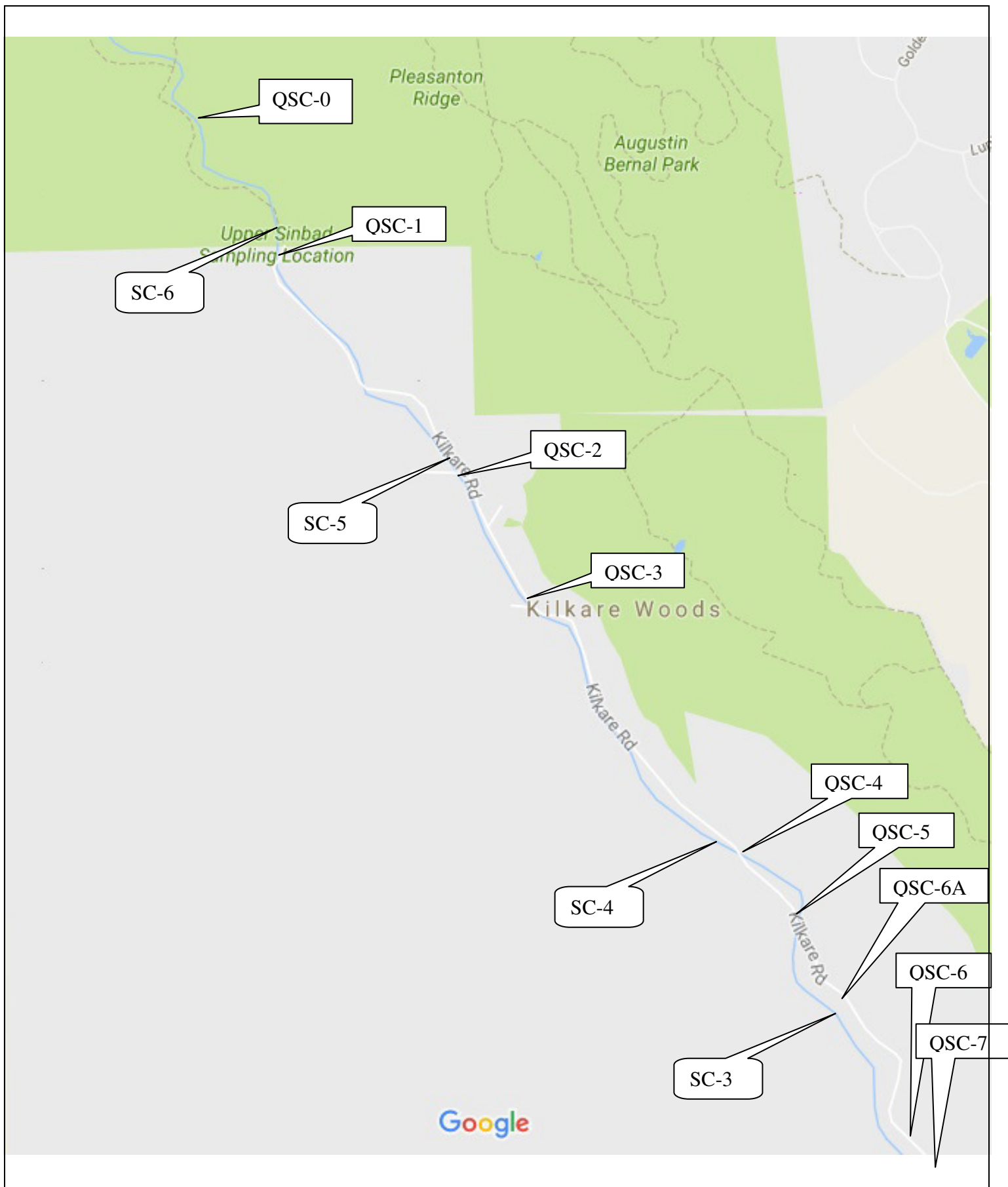
Budget

<u>Work Task</u>	<u>Cost (\$)</u>
• Task 1 - Background Information, Water Quality Sampling & Problem Assessment	25,000
• Task 2 – Define Service Area(s)	7,500
• Task 3 - Formulate Wastewater Alternatives	14,500
• Task 4 – Preliminary Cost Estimates and Financing	6,000
• Task 5 – Phase 1 Report	<u>7,500</u>
	\$ 60,500

Schedule

<u>Work Task</u>	<u>Estimated Completion Date</u>
• Task 1 - Background Information, Water Quality Sampling & Problem Assessment	July 2018
• Task 2 – Define Service Area(s)	August 2018
• Task 3 - Formulate Wastewater Alternatives	August 2018
• Task 4 – Preliminary Cost Estimates and Financing	September 2018
• Task 5 – Phase 1 Report	October 2018

DRAFT

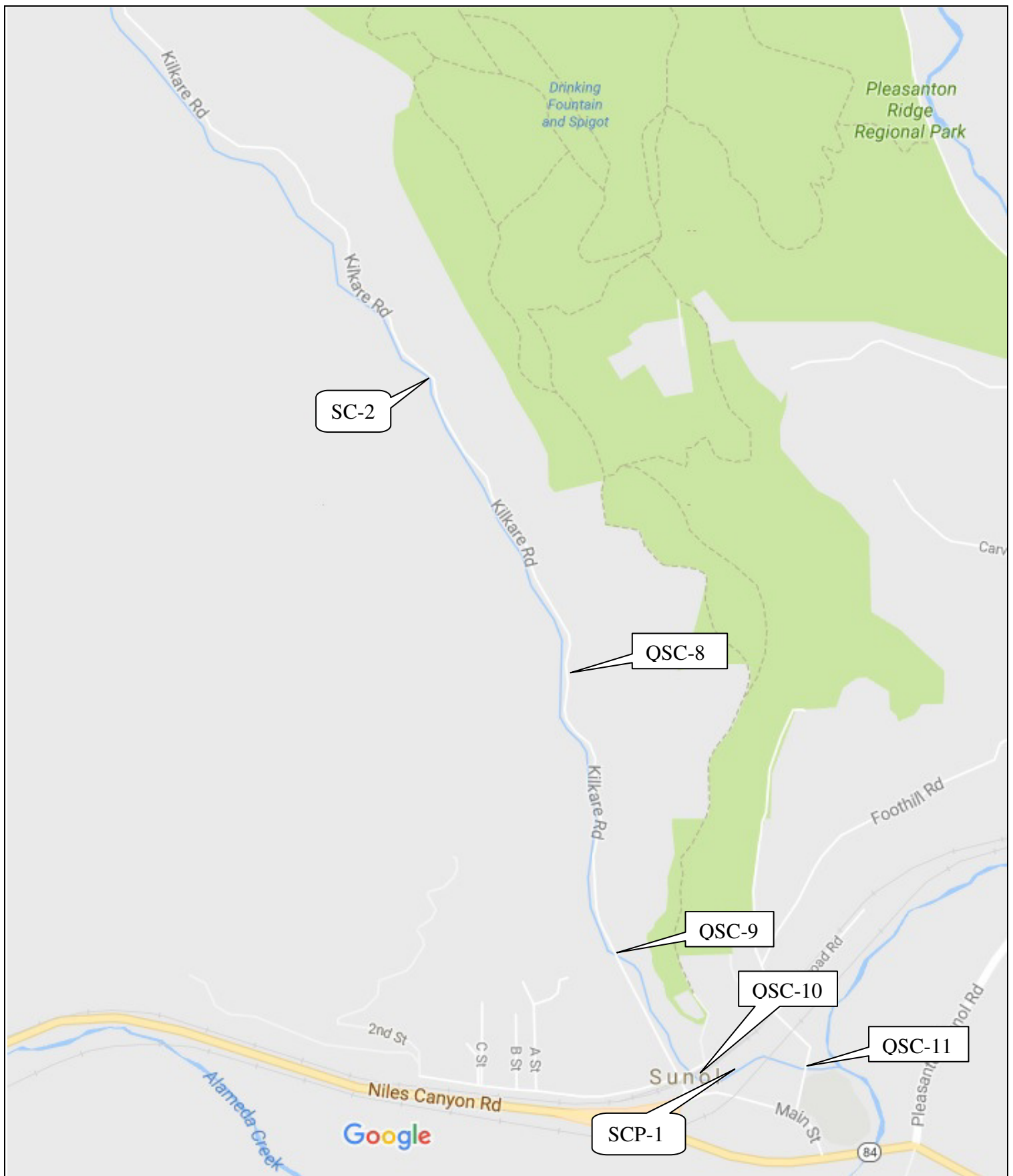


DATE:	7/11/2017
PROJECT:	Alameda County LAMP
PROJECT NO.:	1500042
DRAWN:	MF
APPROVED:	NH



Upper Sinbad Creek Sampling Locations

FIGURE
1-1



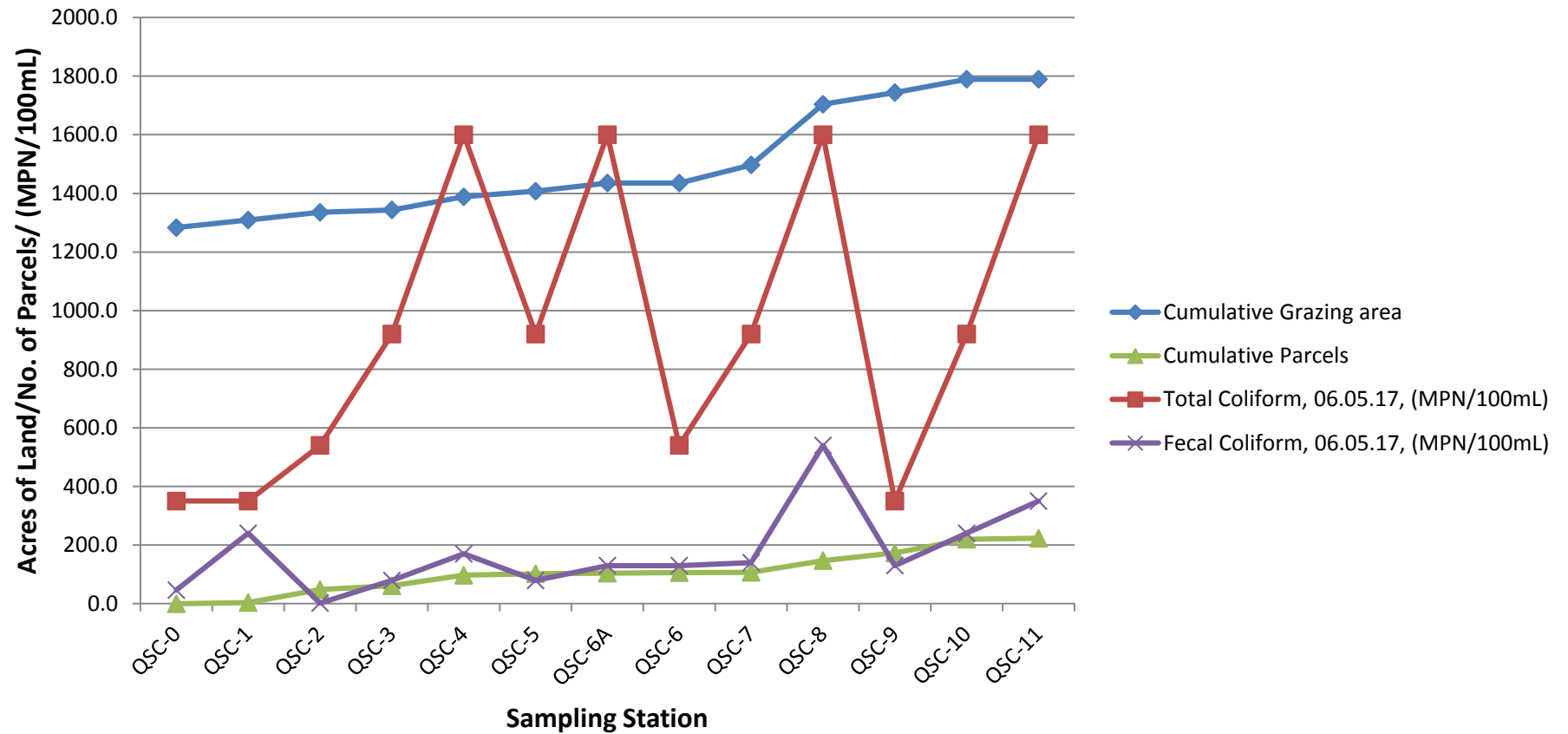
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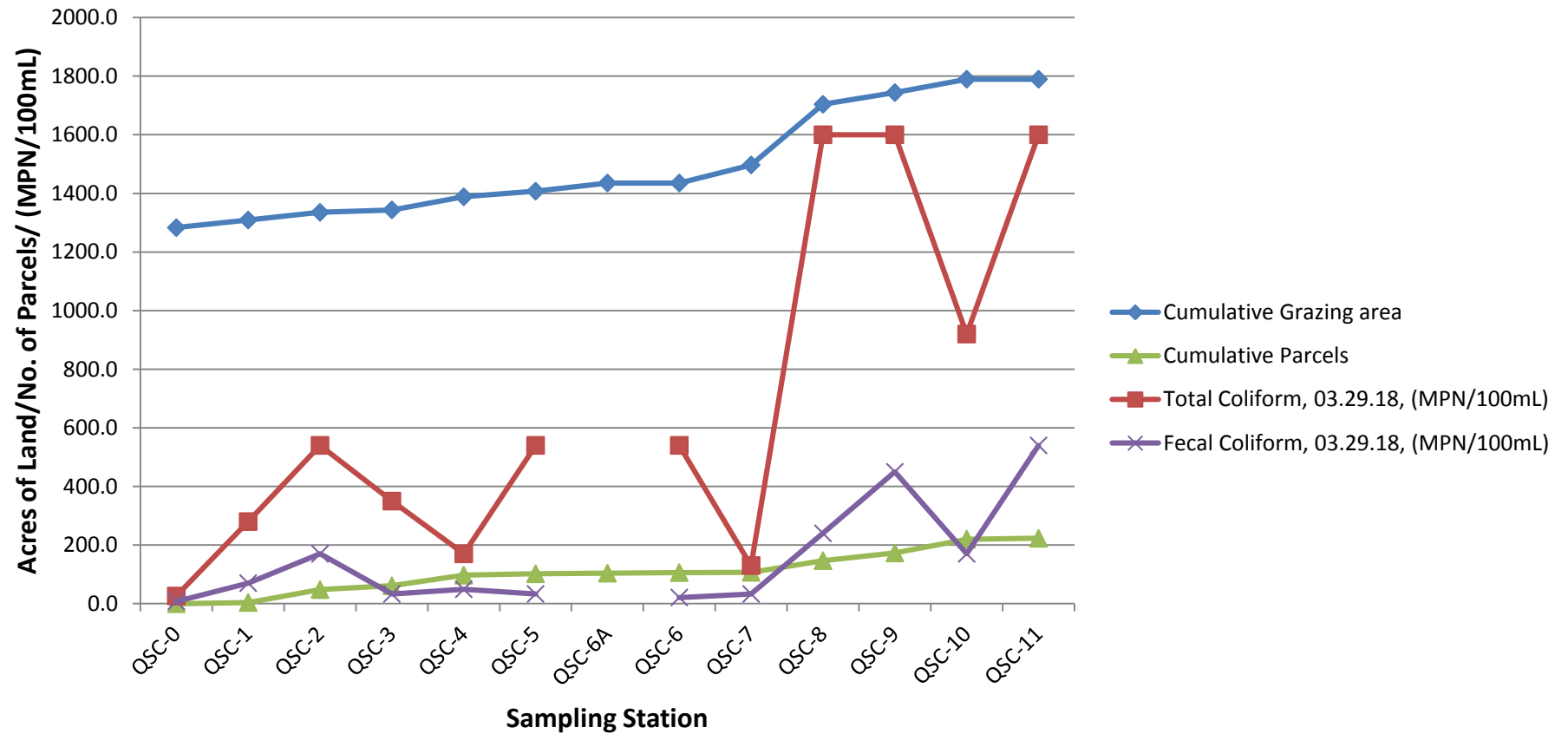
Lower Sinbad Creek Sampling Locations

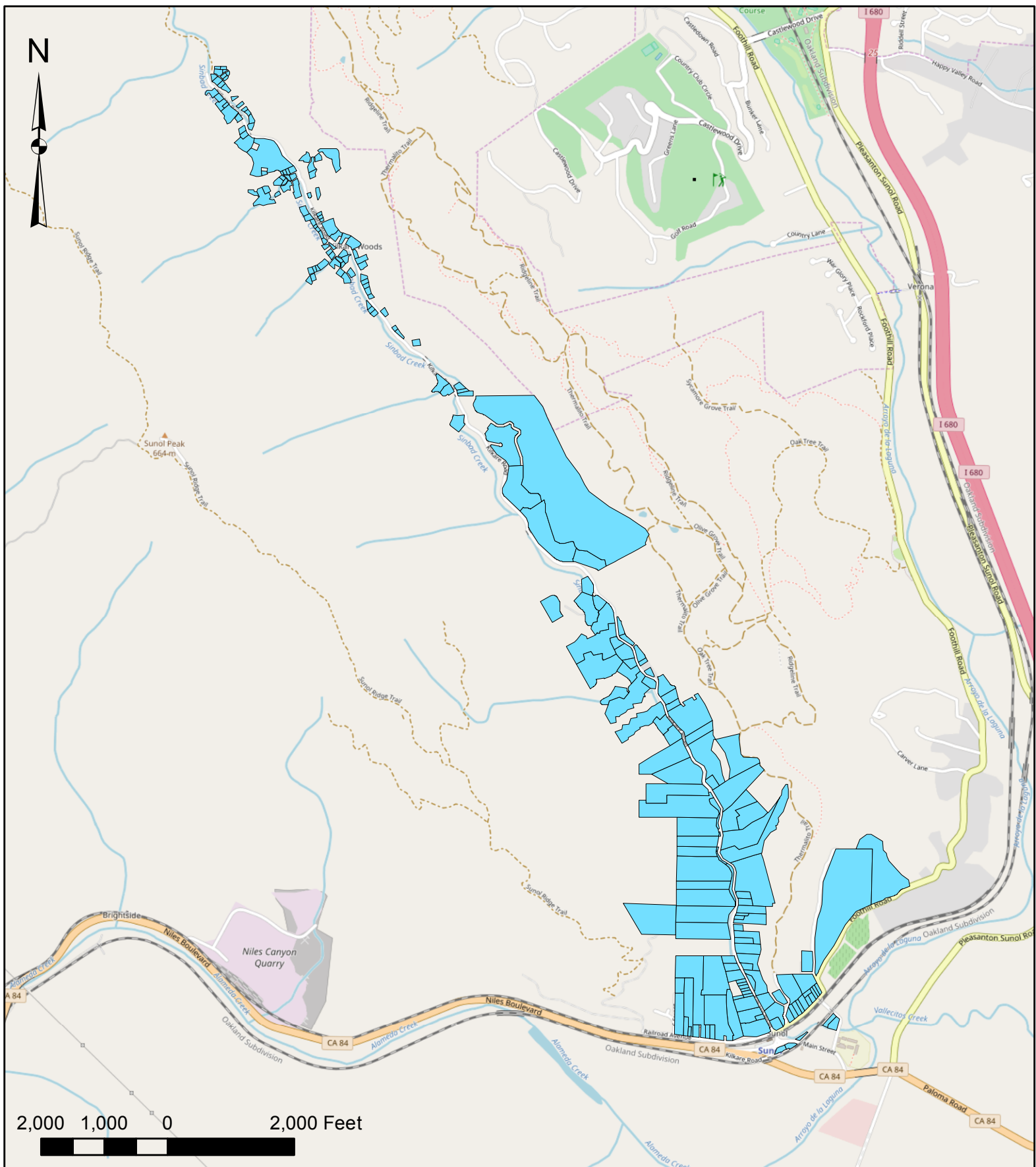
FIGURE
1-2

Estimated Grazing Area



Estimated Grazing Area



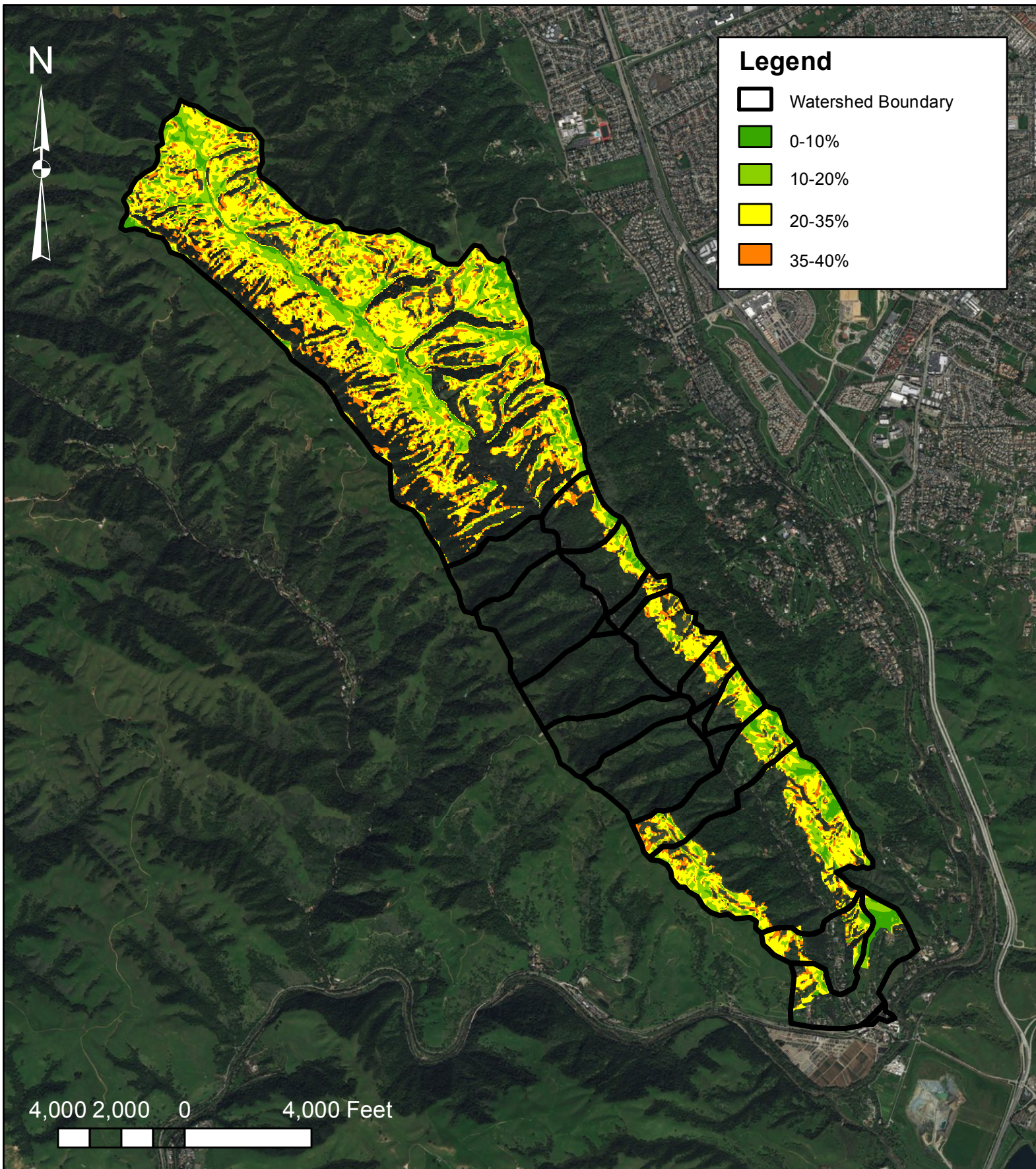


DATE:	03/13/2018
PROJECT:	ALAMEDA LAMP
PROJECT NO.:	1500042
DRAWN:	DD
APPROVED:	NH



PARCELS

**FIGURE
1**



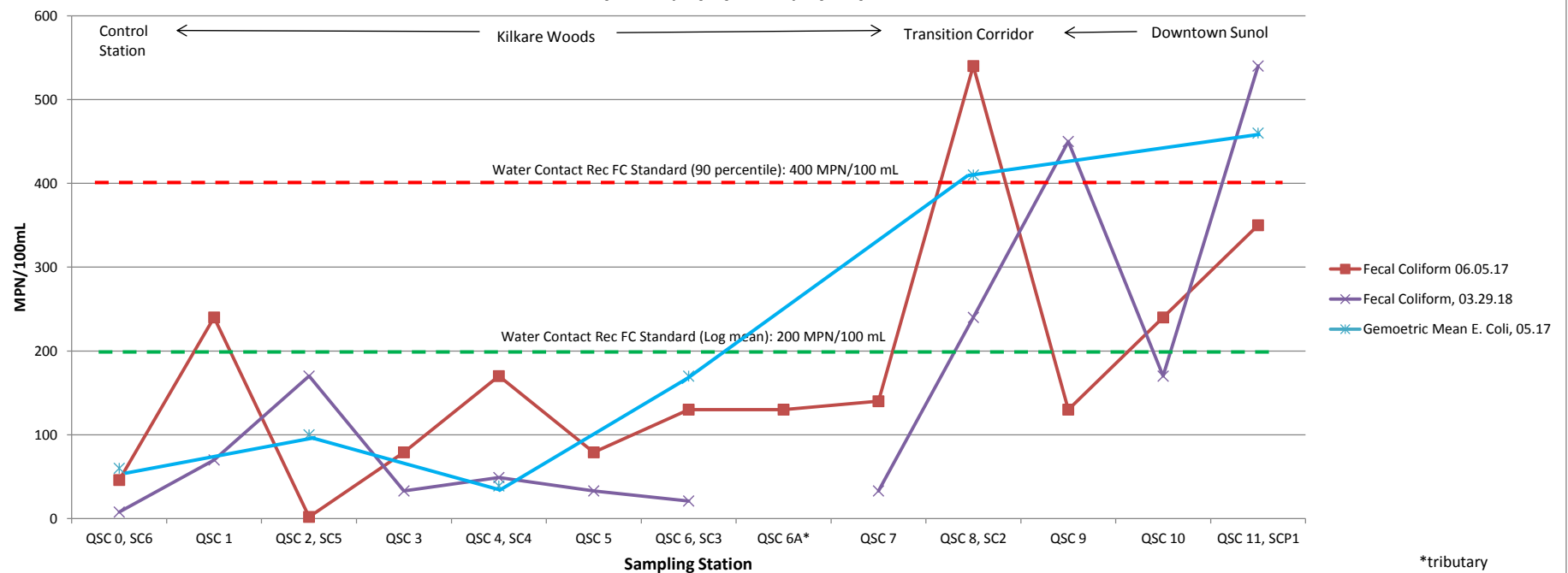
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PROJECT:	ALAMEDA LAMP
PROJECT NO.:	1500042
DRAWN:	DD
APPROVED:	NH



GRAZING

**FIGURE
G**

Sinbad Creek Water Quality Results **(Alameda Creek Alliance, Questa Engineering)** **05/2017, 6/5/2017, 3/29/2018**



Example - Woodacre Flats Wastewater Feasibility Study (Marin County)

Repair Criteria - Onsite Wastewater Management Program

ITEM	CRITERIA / DESIGN ASSUMPTION
Wastewater Design Flow	- Property owners responsible for installing ultra-low flush toilets and low flow fixtures; - Assume design flow of 105 gpd/bedroom; - Design flow of <105 gpd/bedroom if necessary due to dispersal area limitations and with additional monitoring requirements (per below).
Septic Tanks	- Existing concrete/fiberglass tanks of appropriate size may be retained if found to be structurally sound, watertight and are upgraded with code compliant access risers. - Effluent filters required for all new and upgraded tanks - Setbacks to water and landscape features to be maintained as close as possible to code requirements; - Setbacks to wells and springs - 50-ft minimum with variance from code.
Supplemental Treatment Units	- NSF Certification or equivalent technology verification required. - Performance standard: Per standard EHS protocol*; for special/extreme creek encroachment situations, TMDL receiving water standard for fecal coliform at end of supplemental treatment process (i.e., dosing tank) or at groundwater monitoring wells adjacent to disposal field. 50% nitrogen removal may be required per future Tomales Bay or Lagunitas Creek TMDLs.

* Includes operating permit with standard and site specific inspection, testing, and reporting requirements

ITEM	CRITERIA / DESIGN ASSUMPTION
Dispersal System	▪ All reasonable dispersal technologies may be considered, including trenches, beds, mounds, drip dispersal; ▪ Design capacity – 100% of daily sewage flow; provide reserve area as feasible; ▪ Design loading rate: per soil characteristics and percolation rate; treatment credit for supplemental treatment OK per established sand filter design criteria; ▪ Setbacks to water and landscape features to be maintained as close as possible to code requirements; ▪ Setbacks to wells and springs - 100-ft minimum
Site Modifications	▪ Utilize curtain drains and surface drainage alteration wherever needed and feasible without impacts to/from other onsite systems or to surface waters; ▪ Soil excavation and replacement with sand fill – not normally allowed but may be considered case-by-case, e.g., for removal improvement of compacted fill area.
Performance Monitoring	▪ Wastewater flow: Monitor from pump operations and/or water meter; require flow meter (or comparable device) and data logging for systems without 100% disposal capacity; ▪ Monitoring: water quality sampling required for coliform for special case systems at pump basin (following supplemental treatment), once/year; ▪ Visual inspection and maintenance once per year minimum; ▪ Remote alarm monitoring for identified high risk systems, e.g., creek encroachment with less than 100% disposal capacity.
Other Alternatives	▪ Holding tanks: May be required case-by-case to overcome extreme site limitations, such as soil/groundwater/drainage conditions or water course setbacks; ▪ Composting toilets: Not anticipated to be feasible or acceptable in high density residential area such as Woodacre and San Geronimo. ▪ Greywater Systems: Case-by-case evaluation based on State and County Greywater Standards