

Technical Memorandum Name: On Site Treatment, January 2008
Committer: Keith Wimer
Comments Date: February 14, 2008
Responses Date: March 30, 2008

The following comments were submitted in response to the above listed Technical Memorandum (TM). The TM was developed as part of the EIR process for the project, in order to help facilitate and broaden the discussion of project issues important to the community. The responses should be considered preliminary because the EIR process is not complete, and the information necessary to fully respond has not yet been developed. The project team is grateful to those citizens who took the time to review the TM and provide comments at this early stage in the process. The project team will endeavor to fully address the comments and concerns through the on-going project development process.

	Comment	Response
1	Page 2-4— 2.1 Types of Treatment —The TM indicates that plant trimmings, etc., will have to be removed from the each home site (if some nitrogen removal from reuse water is accomplished through plant uptake). It also states that subsurface irrigation may be needed, and suggests that the Nitrex systems do not adequately treat nitrates due to an inadequate nitrification process.	The TM indicates that specifically designed denitrification filters would likely be able to reduce total nitrogen, provided that adequate nitrification is provided in the treatment process.
2	Since Los Osos has Green Waste service, shouldn't the TM assume plant materials leave the site?	It cannot be ensured that homeowners would remove all of their yard trimmings. Regardless of individual homeowners' landscaping habits, it is expected that total nitrogen limits below 10 mg/L would be required for effluent reuse from on site systems.
3	Because the nitrogen in the reuse water removes the need for nitrogen fertilizers, shouldn't reuse water be considered to contribute no net nitrogen increase? (Surely, the water board isn't going to regulate fertilizer use.)	It cannot be ensured that homeowner would completely cease the use of fertilizers. Regardless of individual homeowners' landscaping habits, it is expected that total nitrogen limits below 10 mg/L would be required for effluent reuse from on site systems.
4	Why does the TM omit reference to Nitrex pretreatment system, which performs the nitrification process (shown on the LAI website)	The Onsite Treatment TM provides an overview of onsite treatment processes. There are several types of treatment processes discussed, which are marketed by many companies. The reference to Nitrex for denitrification was provided as an example.
5	Has the water board or County indicated that it will not allow grey water systems (e.g., subsurface irrigation) on site, which meets state codes?	Gray water recycling systems are allowable if they are properly permitted.
6	Is there a system that removes nitrates (i.e., ammonia sources) prior to their entering the septic tank—and how much would these reduce system costs?	We are not aware of a system that is designed to denitrify prior to entering a septic tank.
7	Page 5-7— 2.2 Operations Issues, 3.0 Los Osos Specific Issues —The TM refers to the Stinson Beach Onsite Wastewater Management Program as an example of a working program, and states	The Regional Water Board for Stinson Beach has allowed the continued use of septic tanks, provided that a management program is followed. The situation in Los Osos is such

	<p>that maintenance is usually the responsibility of the homeowner. The TM then goes on to suggest that water quality tests would need to be run on each home. If water quality tests are not run on individual septic systems in Stinson Beach, why would they be run on each one in Los Osos? Aren't the water quality tests in Stinson Beach taken at test sights and test wells? Why do the systems in Stinson Beach not require nitrates to be reduced to under 10mg/l? What are the requirements for the systems in high ground water and for new development in Stinson Beach? (See comment on below)</p>	<p>that all discharges from individual on site systems have been prohibited by the Regional Water Board.</p>
8	<p>The water-quality standards and testing requirements the water board will set for on-site systems in Los Osos should be determined a.s.a.p. On-site systems are recognized by experts as viable alternative for wastewater treatment and can treat water to standards very near the standards of centralized treatment. The SWRCB website urges use of low-impact-development (LID) and on-site treatment solutions. Although the website applies (LID) mainly to storm water run off, the reasons for using LID (reduced energy, reduced infrastructure costs, and increased effectiveness of natural solutions and processes) also apply to on-site wastewater systems. Asano and Tchobanoglous, in <u>Water Reuse</u> (2006), point out on-site systems have become a viable alternative to centralized systems, in large part due the effectiveness of soil filtration systems over centralized treatment." Centralized facilities would need to be equipped with advanced treatment processes to produce a quality effluent that is comparable to the high level of treatment that occurs naturally in the soil. The use of effluent from a DWM (Decentralized Wastewater Management) system for irrigation fulfills the goals of agricultural and landscape irrigation and high quality treatment in the soil for water that percolates out of the root zone" (Page 770). Therefore, to require highly treated water for reuse/disposal on-site appears to use energy and resources unnecessarily. The Project Team should ask the water board directly for the specific standards it will apply to on-site systems—and lobby the water board as necessary to enable this viable option to be considered.</p>	<p>The Regional Water Quality Control Board has repeatedly stated that the Basin Plan prohibits all discharges from individual onsite systems.</p> <p>While individual onsite systems are a viable option in some situations, the RWQCB has indicated that they are not appropriate for Los Osos.</p> <p>Regarding the advantages of on-site systems as they relate to the effectiveness of soil filtration, it must be understood that the situation in Los Osos (fine, sandy soils, with high percolation rates and shallow depths to groundwater) is far from optimum for using on-site systems. Short residence times in the soil column can translate into inadequate treatment. Soil conditions are one of the key drivers behind the RWQCBs prohibition on onsite systems.</p> <p>The use of treated effluent in lieu of irrigation is a very attractive element of any wastewater option; unfortunately, the added costs may make irrigation reuse less cost-effective than other reuse or disposal options.</p>
9	<p>Page 7—3.4 Cost Estimates—The TM estimates the cost for an on-site treatment system at between \$18,000 and \$28,000, with the cost of subsurface irrigation at between \$6,000 and \$15,000. Why aren't the costs quoted by LAI on its website used for the system (\$16,000 to \$22,000)?</p>	<p>The cost estimates reference information on the LAI website. The LAI estimates are within the range of the estimates in the Onsite Treatment TM.</p>
10	<p>Where did the \$2-5 per sq ft for subsurface</p>	<p>Estimates are based on discussion with</p>

	irrigation come from?	designers of on site disposal systems and examples from other communities, including a report by the City of Austin, Texas.
11	Why is lawn restoration included in subsurface irrigation, when lawn is typically removed in strips or sections and put back in place as with sprinkler installation (i.e., not completely replaced)?	The irrigations lines would require spacing of 12 to 18 inches in sandy soil and be at a depth of more than 1-foot. This type of installation would require the restoration of most of the landscaping.
12	How much would it cost to install a connection for toilet flushing and a spigot for car washing and other outdoor uses of the water (e.g., instead of subsurface irrigations)?	These would not be allowable uses for treated wastewater.
13	Given that the subsurface irrigation is not necessary, wouldn't the basic estimate for the required system be \$16,000 to \$22,000? Considering that electrical costs, per LAI's website, are \$30 per year for these systems, wouldn't there be a potential cost savings for these systems over the VPA/s in the Fine Screening of 30% or more?	Subsurface irrigation would be necessary for disposal from on site treated wastewater so it is appropriate to include these costs when considering the on site alternative. The electrical cost estimate of \$30 refers to the costs to operate a Nitrex filter, which is just one required component of an on site treatment system.