

# PROJECT DESCRIPTION – MALIBU CREEK PLAZA, MALIBU, CA

**Project:** Malibu Creek Plaza  
Shopping Plaza

**Design Flow:** 16,000 gpd High Strength  
Equivalent to ~40,000 gpd  
Residential Strength Wastewater  
System – approximately 200  
home

**Client:** Malibu Creek Preservation Co.  
c/o Soboroff Partners

**Wastewater  
Engineer:** Lombardo Associates, Inc.  
Malibu, CA & Boston, MA  
www.LombardoAssociates.com



## Project Description.

The Malibu Creek Plaza is a shopping plaza consisting of both retail and commercial businesses. It is located in an environmentally sensitive area adjacent to the famous Surfrider Beach in Malibu, California. In 1999 the California Regional Water Quality Control Board (CRWQCB) and the City of Malibu conducted groundwater and surface water sampling at Malibu Creek Plaza and the nearby area and determined that wastewater discharge from the Plaza caused groundwater pollution, which adversely impacted Malibu Creek and Malibu Lagoon. The CRWQCB required the Plaza to produce the following tertiary quality effluent:

### Effluent Standards:

Monthly Constituent	Unit	Avg.	Max.
BOD <sub>5</sub>	mg/L	30	45
Suspended solids	mg/L	30	45
Turbidity	NTU	10	15
Oil and Grease	mg/L	-	15
TDS	mg/L	-	2,000
Sulfate	mg/L	-	500
Chloride	mg/L	-	500
Total Nitrogen	mg/L	-	10
Fecal Coliform <sup>(a)</sup>	MPN/100 mL	-	200
Enterococcus <sup>(b)</sup>	MPN/100 mL	24	104

a The limits for coliform shall apply, prior to discharge of the effluent into the drainfields.

b The Enterococcus limit is based on geometric mean of at least 5 equally spaced samples in any 30-day period.

Environmental Engineers/Consultants

**LOMBARDO ASSOCIATES, INC.**

Lombardo Associates, Inc. (LAI) was retained to engineer a compliant wastewater management system to protect Malibu Lagoon and Surfrider Beach.

The previous system was a conventional system consisting of grease traps, septic tanks and gravel drainfields, which provided insufficient nitrogen and bacteria removal.

LAI designed a cost-effective wastewater management system that employs a septic tank effluent pump (STEP) collection system and treatment system consisting of the Nitrex™ Nitrogen Removal Technology, recirculating media pretreatment of septic tank effluent, and an ozone – UV disinfection system for bacteria removal. Treated effluent is discharged to new high capacity drainfields. The treatment system was designed to treat 16,000 gpd of the high strength wastewater (equivalent to ~40,000 gpd of residential strength wastewater).



The effluent quality is compliant with permit requirements as well as California Title 22 unrestricted water reuse requirements. The Malibu Creek Plaza Wastewater Treatment System has been operational as of July 2007.

**Water Quality Data – Nitrex™ Wastewater System – Malibu Creek Plaza, Malibu, CA**

Malibu Creek Plaza Effluent Standards				Title 22 Unrestricted Reuse Requirements		TREATMENT PLANT EFFLUENT
Monthly Constituent	Units	Average	Max	Average	Max	
BOD <sub>5</sub>	mg/l	30	45			6.0
Suspended Solids	mg/l	30	45			<5
Turbidity	NTU	10	15	2	10	1.0
Oil & Grease	mg/l	-	15			<5
TDS	mg/l	-	2,000			596
Sulfate	mg/l	-	500			66.4
Chloride	mg/l	-	500			241
Total Nitrogen	mg/l	-	10			5.29
Fecal Coliform <sup>(a)</sup>	MPN/100 ml	-	200			<2
Enterococcus <sup>(b)</sup>	MPN/100 ml	24	104			<1
Total Coliform	MPN/100 ml			2.2	23	<2

Energy use of the high strength 16,000 gpd facility (equivalent to a 40,000 gpd residential strength wastewater system- which is equivalent to approximately 200 homes) is approximately \$7,400 per year (135 kwhr/day @\$0.15). Operation & Maintenance requirements are monthly visits.

Environmental Engineers/Consultants  
**LOMBARDO ASSOCIATES, INC.**

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