

Woodacre Wastewater - Background Studies

Septic Matters Program – 2004-05; 2007-08

Voluntary (confidential) septic system inspections conducted as part of a County-wide outreach effort (“Septic Matters Program”). 135 septic systems evaluated County-wide, with highest concentration in Woodacre (62 systems). Found roughly two-thirds of the systems inspected in Woodacre to have marginal to unacceptable operating conditions due to many of the following conditions and factors:

- System age, pre-dating modern standards and codes
- Small systems, undersized for current uses
- Additional living units, placing increased demand on sewage disposal systems
- Small parcel size with high intensity of development and limited remaining area for sewage disposal
- Restricted access to yard areas for system maintenance and repair
- Unpermitted repairs and greywater systems
- Shallow depth to groundwater, including seasonal saturation at or near ground surface
- Shallow soils and marginal soil permeability
- Close proximity to streams and local drainages

Inspection Results for Woodacre, Septic Matters Program (2004/05 and 2007/08)

Category	Septic System Evaluation Factors	Results	
		# of Systems	% of Systems Inspected
Overall Status & Site Conditions	Total systems inspected	62	-
	Systems < 100 feet from a watercourse	55	90%
	Systems with “satisfactory” or “good” overall rating	19	31%
	Systems exhibiting one or more problem conditions	43	69%
	Systems exhibiting high groundwater conditions	15	24%
	Systems incorporating alternative treatment/dispersal	8	19%
Septic Tank Status	Acceptable	35	56%
	Unacceptable	15	24%
	Unknown/ not Accessible	12	19%
Disposal System Status	Acceptable	30	48%
	Unacceptable	21	34%
	Unknown/ not Accessible	12	19%
Hydraulic Load Test Results	Good or Excellent	20	32%
	Satisfactory or Marginal	8	13%
	Poor or Failing	28	45%
	Unknown/Not Accessible	6	10%

Tomales Bay Watershed Council

- Conducted surface water quality sampling in Woodacre area, winter of 2006-07, plus 2008 follow-up sampling
- Found elevated levels of coliform bacteria, nitrate, ammonia and MBAS in the community of Woodacre is likely attributed to the relatively high density of septic systems.

Woodacre Surface Water Quality Sampling Results

Parameters or Pollutants	EPA Benchmark (units)*	Observed Range
pH 6 to 9	(standard units)	6.17 – 8.24
EC 300 – 500	(µmhos/cm)	58.2 - 595
Temperature	Not specified (° C)	8.2 – 15.2
Dissolved Oxygen	Not specified (mg/l)	4.73 – 12.97
MBAS	Not specified (mg/l)	<0.005 – 0.36
Nitrate	3 (mg/l)	<0.5 – 82
Ammonia	19 (mg/l)	<0.1 – 8.6
Total coliform	Not specified (mpn/100mL)	170 – 160,000
E. coli	Not specified (mpn/100mL)	<1 – 13,000

*See first paragraph for explanation of EPA Benchmarks

Questa Engineering, 2011 Wastewater Feasibility Study

EHS Septic System Permit File Reviews

- **Records.** Septic system records found for 58 of 150 parcels (39%)
- **Age of System.**

Age Grouping (years in service)	Original Installation	Repair System	Total # of Systems	Percent of Total Systems
<10	1	5	6	10%
11-25	6	12	18	31%
26-30	6	5	11	19%
>30	8	15	23	39%
Total	21	37	58	-

- **System Repairs.** About two-thirds of the septic systems (37 out of 58) have been repaired at least once.

- **Prevailing Code.** ~ 40% of 58 septic systems (new and repair) constructed under the current (1984) County septic regulations (adopted in 1984); the remaining 60 percent occurred under previous regulations.
- **Types of Systems in Use.** A wide range of septic system technologies and designs have been used in the area, as follows:

System Type		Number of Systems
Gravity Leachfield		31
Seepage Pit/Seepage Bed		14
Alternative Systems	Mound System	7
	Pressure Distribution (PD) Leachfield	1
	Sand Filter/PD Leachfield	2
	Open Bottom Sand Filter	1
Unknown		2

Onsite Field Reviews

- Voluntary, 33 field reviews completed
- Objective – Assess property conditions, constraints and issues/challenges for system upgrade to Class II standards
- Divided into (3) Subareas: West, Central and East
- Findings:
 - ✓ Many systems can't meet 100' setbacks to Woodacre Creek
 - ✓ Inadequate local drainage ditches affect most properties.
 - ✓ Chronic ponded water in winter months.
 - ✓ Numerous drains and sumps for drainage control.
 - ✓ Very Inadequate local drainage ditches affect most properties.
 - ✓ Numerous drains and sumps for drainage control.
 - ✓ Conflicts with between disposal fields and cut banks and between properties.
 - ✓ Limited undeveloped space