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INDIVIDUAL SEPTIC DISPOSAL SYSTEM PLAN FOR CALLICOTTE RANCH SUBDIVISION

The Callicotte Ranch Subdivision is located in lot 17 and the SW1/4SW1/4 of section 13, the NW1/4 and the NW1/4SW1/4 of section 24, T.7 S., R.88 W. of the 6th P.M. County of Garfield, State of Colorado. This subdivision will be served by Individual Sewage Disposal Systems (ISDS) since the lot sizes are consistent with the Garfield County Zoning Resolution. ISDS design, installation, and maintenance will be the responsibility of the individual lot owner. Percolation tests and soil profile evaluations must be done in accordance with local regulations prior to individual designs. ISDS designs are required by a State of Colorado licensed professional engineer for percolation tests results with a value of less than 30 minutes per inch. The installation will be inspected and certified by a professional engineer registered in the State of Colorado and/or his representative. Maintenance shall be performed by a licensed contractor in the State of Colorado engaged in the business of cleaning and maintaining ISDS systems.

Callicotte Ranch Subdivision is located in Garfield County. Any ISDS questions or concerns should be directed to Garfield County representatives and Garfield County code should be referenced. Garfield County contact information is:

Garfield County Building
108 8th Street, Suite 200
Glenwood Springs, Colorado 81601
(970) 945-8212

INTRODUCTION

An Individual Sewage Disposal System (ISDS), also referred to as a "septic system", receives waste water and solids from a building's plumbing facilities (bathrooms, kitchens, shower, laundry), treats, and then disposes of the effluent from this waste, by permitting it to absorb into the natural soils within the lot. "Treatment" is accomplished by bacterial action in the "septic" or "treatment" tank, and by bacteria within the soil surrounding the effluent absorption system, the "drain-field." This bacterial action is needed to reduce the level of pathogens in the effluent discharges from the waste system into the soil. The principal components of a private on-site waste disposal system usually include the following:

- Piping
- Septic Tank
- Effluent Filter
- Absorption Field

However, many variations on this general scheme are used and special equipment and numerous systems can be designed and utilized for problem or difficult sites.

According to the geotechnical report moderately expansive clays exist throughout the

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subdivision. Expansive clays are not favorable in ISDS design due to high percolation tests. Percolation tests are determined by the amount of time moisture is able to flow through the soil. High percolation test results, more time it takes for moisture to flow through the soil, results in more area required for the ISDS design.

HOUSEHOLD USE

Your septic system is designed to handle human waste, toilet paper and water from plumbing fixtures such as toilets, baths, and sinks. Household cleaners, detergents and bleach will not damage your system if used in moderation. However, biodegradable and environmentally friendly soaps, detergents and other products are recommended. If your septic field is inundated with harsh chemicals or overloaded with detergents and soaps, your septic system function may be impaired or field failure may occur. Never pour oil, cooking grease, paint, or insecticides into your plumbing system. These items can inhibit the bacteria which are so critical to the proper functioning of your system and/or plug the pores of your system.

Non-degradable paper products, such as diapers, sanitary napkins or tampons, and paper towels are harmful to your system. Also refrain from introducing any other non-biodegradable substances such as condoms, plastic baggies, plastic film-wrap, or cigarette butts. These items can cause serious clogging problems. A garbage disposal can be used if your septic system was designed around it; however, you should have your tank pumped more frequently if large particles are present within the effluent.

Your system is also designed to handle a certain volume of water. If you consistently overload your septic system, you will cause premature failure. A frequent source of overload is leaking plumbing fixtures and water treatment systems. This can amount to hundreds of extra gallons of water going into your septic system each month. Leaks should be repaired immediately.

Other home recommendations for reducing wastewater flow are; installing water-saving devices in your shower heads and faucets and lowering the amount of water hitting the system from the laundry by spreading your weekly washing over several days rather than doing it all within a short time period.

SEPTIC TANK

The bacteria that thrive in a septic tank are called "anaerobic bacteria" because they do not require oxygen. These bacteria are essential to the proper functioning of a septic system as they degrade and decompose the solids. When too much solid material accumulates in the tank over a period of years, it begins to wash out of the tank and into the drain-field with the normal liquid effluent. The solids clog the drain-field absorption rates into the natural soils are reduced. As more solids flow from the tank, the drain-field will eventually not be able to absorb the liquid effluent, and the drain-field will fail. This is the most common cause of drain-field failure. Your drain field should have monitoring wells located at the far end of the field. These wells can help detect or prevent a field failure prior to its occurrence. A professional field maintenance company should be scheduled for regular maintenance and well monitoring. It is suggested that

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you have your septic tank pumped every 2-3 years on a regular maintenance schedule.

DRAINFIELD AREA

The drain-field is ideally located in a sunny open area for maximum evaporation. Trees and shrubs should not be planted near the drain-field as root intrusion may impair the drain-field. Any plants that do not have deep roots can be planted over a drain-field. Grasses and ground cover provide the highest level of evapo-transpiration (the cycle of plants taking moisture from the soil by their root systems and giving it off to the atmosphere using the sun's energy) without the complication of root systems clogging drainpipes and gravel beds. Mulched areas of flower beds do hold moisture and decrease drain-field efficiency. Walkways, patios, parking areas, decks or other permanent structures should not be constructed over either the septic tank or the drain-field. Vehicle traffic should be kept off of the drain-field and heavy trucks/equipment should be kept a minimum of 10 horizontal feet away from the drain-field area. Heavy vehicles can cause the drain-field to collapse. Rainwater or other drainage water should be diverted from the drain-field area. The drain-field is designed to meet the capacity of waste water coming from the house. Additional water from poor drainage may cause premature field failure. Livestock should not be allowed on the ISDS due to compaction and component damage concerns.

Table 1. Minimum Horizontal Distances In Feet

	Spring Wells, Suction Lines	Drinking Water Supply Line	Drinking Water Supply Cistern	Dwelling Occupied Building	Property Lines, drain tiles, Piped, Lined or Intermittent Irrigation Ditch	Lake, Water, Course, Irrigation Ditch or Stream	Dry Gulches	Septic Tanks
Absorption Trench, Seepage Bed, Sand Filter, Sub-surface Dispersal System or Drywell	100	25	25	20	10	50	25	6
Seepage Pit	100	50	25	20	25	50	25	6
Lined Evaportranspiration Field or Lined Wastewater Pool	60	10	25	15	10	25	10	5
Unlined or Partially Lined Evaportranspiration System Wastewater Pond, or Surface Disposal System Other than Aerosol	100	25	25	15	10	25	15	10
Lined Sand Filter	60	10	25	15	10	25	10	5
Unlined Sand in Soil With a Perc Rate Slower than 60 minutes per inch	100	25	25	15	10	25	15	10
Dispersal System Using Aerosol Method	100	10	50	125	10	25	10	10
Vault Privy	50	10	25	15	10	25	10	
Septic Tanks, Treatment Plants, Dosing Tanks, Vaults	50	10	25	5	10	50	10	
Building Sewer or Effluent Lines	50	10	25	0	10	50	10	

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OPERATION AND MAINTENANCE OF ISDS

A. Responsibility: The Callicotte Ranch Owners Association, Inc. shall be responsible for collecting funds, and hiring a reputable service company to maintain the ISDS systems for all of the individual homeowners within the subdivision. This company will be required to inspect and maintain (including pumping of the septic tank, if necessary, but such pumping shall be an additional expense charged to that Lot) 1/3 of the systems each year so as to provide maintenance for each individual system every three years. The owner and the party in possession of real property upon which an individual sewage disposal system is used, shall remain jointly and severally responsible for operation and maintenance of the system, beyond the periodic inspection provided by the Homeowners Association.

B. Maintenance and Cleaning: The selected service company shall be required to inspect the systems for acceptable operation, pump the septic tanks (if required), and verify the local and state regulations are being met with the inspected systems. Routine maintenance and pumping of the septic tanks will be paid for by the homeowners association. Other required repairs to individual systems will be the requirement of the individual homeowner. The owner of an individual sewage disposal system shall notify the local health department on any proposed system modifications prior to making the changes, and shall have the system approved once the modifications are complete.

C. Disposal of Waste Materials:
Disposal of waste materials removed from a system in the process of maintenance or cleaning shall be accomplished at a site approved by local county officials in a manner which does not create a hazard to the public health, a nuisance or an undue risk of pollution and which complies with state and local rules and regulations.

D. No Discharge is Permitted Which Does not Comply With Rules and Regulations:
No sewage or effluent shall be permitted to be discharged into or upon the surface of the ground or into state waters unless the sewage system and effluent meets the minimum requirements of applicable rules and regulations.

E. Termination of Use of System:
The contents of a septic tank, vault, or seepage pit, the use of which has been terminated, shall be properly disposed of whereupon the emptied tank, vault, or pit shall be filled with soil or rock, or the health officer may require the tank or vault to be removed and disposed of properly.

SUMMARY

ISDS systems are a good alternative to homeowners who do not have access to a community sewage disposal system. With the proper monitoring and maintenance of your ISDS system, may years of trouble free functioning can be had out of your ISDS system.