

LASSEN COUNTY ENVIRONMENTAL HEALTH DEPARTMENT

# Local Area Management Plan

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## Onsite Wastewater Treatment Systems

12/8/2016

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# Chapter 1

## Introduction (OWTS Policy 9.2)

The California Water Code authorizes the State Water Resources Control Board (SWRCB) to regulate all discharges that could affect the quality of the waters of the state. The policies of the SWRCB are implemented locally through nine regional water quality control boards. Historically, each regional board developed “basin plans” that outlined water quality objectives in their respective jurisdictions as well as policies and programs to achieve those objectives.

Discharges are regulated through the use of Waste Discharge Requirements that act as discharge permits. With regards to the regulation of wastewater in Lassen County, the Lahontan Regional Water Quality Control Board (LRWQCB) and the Central Valley Regional Water Quality Control Board (CVRWQCB) issue discharge permits to the municipalities and special districts that operate wastewater (sewage) treatment plants in the county. In addition, they issue storm water permits to the incorporated cities and to the County as well as permits for the use of recycled water.

The State’s regulatory authority extends to individual Onsite Wastewater Treatment Systems (OWTS). Therefore, general guidelines for the siting, design and construction of new OWTS were part of each regional board’s basin plan. The SWRCB and the regional boards recognized the advantages and efficiencies of regulation of such systems by local agencies. Consequently, while the regional boards retained primacy over large and some specialized systems, direct regulatory authority for individual OWTS has been delegated to individual counties through Memorandums of Understanding.

In June 2012, the SWRCB adopted the Water Quality Control Policy for Siting, Design, Operation and Maintenance of Onsite Wastewater Treatment Systems hereinafter referred to as the State Policy or the Policy. This Policy was developed and adopted to comply with California Assembly Bill 885 (AB 885). The Policy became effective in May 2013 and for the first time, established a statewide, risk-based tiered approach for the regulation and management of OWTS. Please refer to the State OWTS Policy (Appendix II or online at [http://www.waterboards.ca.gov/water\\_issues/programs/owts/docs/owts\\_policy.pdf](http://www.waterboards.ca.gov/water_issues/programs/owts/docs/owts_policy.pdf)) to review the complete text of the Policy.

Under the tiered approach of the Policy, Tier 1 establishes minimum standards for low risk new or replacement OWTS. Tier 2 allows local agencies to develop customized management programs that address the conditions specific to that jurisdiction. These Local Agency Management Programs (LAMPS) must be approved by the appropriate regional water quality control board. Tier 3 applies special, enhanced standards to both new and existing OWTS located near a water body that has been listed as impaired due to nitrogen or pathogens pursuant to Section 303(d) of the Clean Water Act. Tier 4 applies to systems that have or are failing. Once approved, the standards contained in an approved LAMP supersede the Tier 1 standards.

The purpose of the LAMP is to allow the continued use of onsite wastewater treatment systems (OWTS) within the jurisdiction of Lassen County as well as to expand the local program to permit and regulate alternative OWTS while protecting water quality and public health. The LAMP also applies to OWTS on federal, state, and tribal lands to the extent authorized by law or agreement.

The LAMP is designed to protect groundwater sources and surface water bodies from contamination through the proper design, placement, installation, maintenance, and assessment of individual OWTS. This plan develops minimum standards for the treatment and ultimate disposal of sewage through the use of OWTS in Lassen County. The LAMP does not include the following which require individual waste discharge requirements or a waiver of individual waste discharge requirements issued by the RWQCB (see also Chapter 5 Not Allowed LAMP Items).

- Any OWTS with a projected wastewater flow of over 3,500 gallons per day.
- Any OWTS that receives high strength wastewater, unless the waste stream is from a commercial food service facility.
- Any OWTS that receives high strength wastewater from a commercial food service facility with a BOD higher than 900 mg/l or that does not have a properly sized and functioning oil/grease interceptor.
- Any Surface discharge

It is the intent of the Board of Supervisors, in adopting this plan, to ensure that OWTS are constructed, modified, repaired, abandoned, operated, maintained, inspected and serviced in a manner that prevents environmental degradation and protects the health, safety and general welfare of the people of the county. This LAMP conforms to all of the applicable Tier 2 criteria listed in Section 9 of the State Policy including adherence to the “prohibitions” contained in Section 9.4.

The standards for existing and new OWTS are specified in the State Water Resources Control Board’s Policy, the California Plumbing Code and in this Lassen County LAMP.

OWTS, including conventional systems, require routine maintenance in order to ensure that they function properly and to extend the life of the system. While this LAMP does not require mandatory maintenance for conventional systems, regular maintenance and reporting conditions, will be required for all other types of systems.

The provisions of this LAMP will apply to the unincorporated and incorporated (Susanville) areas of Lassen County.

While every effort was made to make this a comprehensive plan, it is likely that it will be necessary to modify it in the future for several reasons. Section 9.3.3 of the Policy requires that a jurisdiction complete an evaluation of its monitoring program every five (5) years to determine if water quality is being impacted by OWTS and whether modifications must be made to its LAMP to address any noted water quality impacts. In addition, modifications or revisions will be needed as technology, conditions and experience change over time. When it has been determined changes are necessary, those changes will be made after

consultation with the Lahontan Regional Water Quality Control Board and if changes are substantive, the Lassen County Environmental Health Department (EHD) will return to the Lassen County Board of Supervisors for approval.

## Chapter 2

### Definitions

**“As-built drawing”** means a drawing that depicts the final placement of an on-site wastewater treatment system once it has been installed.

**“At-grade system”** means an OWTS dispersal system with a discharge point located at the preconstruction grade (ground surface elevation). The discharge from an at-grade system is always subsurface.

**“Average annual rainfall”** means the average of the annual amount of precipitation for a location over a year as measured by the nearest National Weather Service station for the preceding three decades. For example the data set used to make a determination in 2012 would be the data from 1981 to 2010.

**“Basin Plan”** means the same as “water quality control plan” as defined in Division 7 (commencing with Section 13000) of the Water Code. Basin Plans are adopted by each Regional Water Board, approved by the State Water Board and the Office of Administrative Law, and identify surface water and groundwater bodies within each Region’s boundaries and establish, for each, its respective beneficial uses and water quality objectives. Copies are available from the Regional Water Boards, electronically at each Regional Water Boards website, or at the State Water Board’s Plans and Policies web page ([http://www.waterboards.ca.gov/plans\\_policies/](http://www.waterboards.ca.gov/plans_policies/)).

**“Bedrock”** means the rock, usually solid, that underlies soil or other unconsolidated, surficial material.

**“Cap/Cap depth”** means the depth below the natural ground surface to the top of the horizontal or vertical seepage pit system where the infiltrative sidewall surface begins.

**“Cesspool”** means an excavation in the ground receiving domestic wastewater, designed to retain the organic matter and solids, while allowing the liquids to seep into the soil. Cesspools differ from seepage pits because cesspool systems do not have septic tanks and are not authorized under this Policy. The term cesspool does not include pit-privies and out-houses which are not regulated under this Policy.

**“Chemical toilet”** means a watertight, portable, self-contained toilet which may contain an environmentally safe bactericide and/or deodorant. A chemical toilet serves the same purpose and has the same meaning as a portable toilet.

**“Clay”** means a soil particle; the term also refers to a type of soil texture. As a soil particle, clay consists of individual rock or mineral particles in soils having diameters <0.002 mm. As a soil texture, clay is the soil material that is comprised of 40 percent or more clay particles, not more than 45 percent sand and not more than 40 percent silt particles using the USDA soil classification system.

**“Cobbles”** means rock fragments 76 mm or larger using the USDA soil classification systems.



**“Cut/Slope”** means any slope greater than 60% or man-made contour that exposes the vertical soil profile. Cuts and slopes require a 4 foot horizontal setback for every 1 foot of vertical height to any dispersal system.

**“Dispersal system”** means a leach field, leach bed, mound, subsurface drip field, or other type of system for final wastewater treatment and subsurface discharge.

**“Domestic wastewater”** means wastewater with a measured strength less than high-strength wastewater and is the type of wastewater normally discharged from, or similar to, that discharged from plumbing fixtures, appliances and other household devices including, but not limited to toilets, bathtubs, showers, laundry facilities, dishwashing facilities, and garbage disposals. Domestic wastewater may include wastewater from commercial buildings such as office buildings, retail stores, and some restaurants, or from industrial facilities where the domestic wastewater is segregated from the industrial wastewater. Domestic wastewater may include incidental RV holding tank dumping but does not include wastewater consisting of a significant portion of RV holding tank wastewater such as at RV dump stations. Domestic wastewater does not include wastewater from industrial processes.

**“Domestic well”** means a groundwater well that provides water for human consumption and is not regulated by the California Department of Public Health.

**“Earthen material”** means a substance composed of the earth’s crust (i.e. soil and rock).

**“Effective absorptive area”** means sidewall or bottom area of a disposal field bed, trench or seepage pit, located below the point at which effluent is released from the disposal field piping, and consisting of undisturbed native soil strata having acceptable percolation rates and/or soil texture classifications meeting the requirements of this Manual.

**“Effluent”** means sewage, water, or other liquid, partially or completely treated or in its natural state, flowing out of a septic tank, aerobic treatment unit, dispersal system, or other OWTS component.

**“Existing OWTS”** means an OWTS that was constructed and operating prior to the effective date of this Policy, and OWTS for which a construction permit has been issued prior to the effective date of the Policy.

**“Flowing water body”** means a body of running water flowing over the earth in a natural water course, where the movement of the water is readily discernible or if water is not present it is apparent from review of the geology that when present it does flow, such as in an ephemeral drainage, creek, stream, or river.

**“Groundwater”** means water below the land surface that is at or above atmospheric pressure.

**“High-strength wastewater”** means wastewater having a 30-day average concentration of biochemical oxygen demand (BOD) greater than 300 milligrams-per-liter (mg/L) or of total suspended solids (TSS) greater than 330 mg/L or a fats, oil, and grease (FOG) concentration greater than 100 mg/L prior to the septic tank or other OWTS treatment component.

**“IAPMO”** means the International Association of Plumbing and Mechanical Officials.

**“Impaired water bodies”** means those surface water bodies or segments thereof that are identified on a list approved first by the State Water Board and then approved by US EPA pursuant to Section 303(d) of the federal Clean Water Act.

**“Local agency”** means any subdivision of state government that has responsibility for permitting the installation of and regulating OWTS within its jurisdictional boundaries; typically a county, city, or special district.

**“Major repair”** means either: (1) for a dispersal system, repairs required for an OWTS dispersal system due to surfacing wastewater effluent from the dispersal field and/or wastewater backed up into plumbing fixtures because the dispersal system is not able to percolate the design flow of wastewater associated with the structure served, or (2) for a septic tank, repairs required to the tank for a compartment baffle failure or tank structural integrity failure such that either wastewater is exfiltrating or groundwater is infiltrating.

**“Mottling”** means a soil condition that results from oxidizing or reducing minerals due to soil moisture changes from saturated to unsaturated over time. Mottling is characterized by spots or blotches of different colors or shades of color (grays and reds) interspersed within the dominant color as described by the USDA soil classification system. This soil condition can be indicative of historic seasonal high groundwater level, but the lack of this condition may not demonstrate the absence of groundwater.

**“Mound system”** means an aboveground dispersal system (covered sand bed with effluent leach field elevated above original ground surface inside) used to enhance soil treatment, dispersal, and absorption of effluent discharged from an OWTS treatment unit such as a septic tank. Mound systems have a subsurface discharge.

**“New OWTS”** means an OWTS permitted after the effective date of this Policy.

**“NSF”** means NSF International (a.k.a. National Sanitation Foundation), a not for profit, nongovernmental organization that develops health and safety standards and performs product certification.

**“Oil/grease interceptor”** or **“grease trap”** means a passive interceptor that has a rate of flow exceeding 50 gallons-per-minute and that is located outside a building. Oil/grease interceptors are used for separating and collecting oil and grease from wastewater.

**“Onsite wastewater treatment system(s)”** (OWTS) means individual disposal systems, community collection and disposal systems, and alternative collection and disposal systems that use subsurface disposal. The short form of the term may be singular or plural. OWTS do not include “gray water” systems pursuant to Health and Safety Code Section 17922.12.

**“Percolation test”** means a method of testing water absorption of the soil. The test is conducted with clean water and test results can be used to establish the dispersal system design.

**“Permit”** means a document issued by a local agency that allows the installation and use of an OWTS, or waste discharge requirements or a waiver of waste discharge requirements that authorizes discharges from an OWTS.

**“Person”** means any individual, firm, association, organization, partnership, business trust, corporation, company, State agency or department, or unit of local government who is, or that is, subject to this Policy.

**“Pit-privy”** (a.k.a. outhouse, pit-toilet) means self-contained waterless toilet used for disposal of non-water carried human waste; consists of a shelter built above a pit in the ground into which human waste falls.

**“Policy”** means this Policy for Siting, Design, Operation and Management of OWTS.

**“Pollutant”** means any substance that alters water quality of the waters of the State to a degree that it may potentially affect the beneficial uses of water, as listed in a Basin Plan.

**“Pressure dosed on-site wastewater treatment system”** means a standard on-site wastewater treatment system utilizing pressure dosing technology to distribute septic tank effluent throughout the disposal field.

**“Projected flows”** means wastewater flows into the OWTS determined in accordance with any of the applicable methods for determining average daily flow in the USEPA Onsite Wastewater Treatment System Manual, 2002, or for Tier 2 in accordance with an approved Local Agency Management Program.

**“Public water system”** is a water system regulated by the California Department of Public Health or a Local Primacy Agency pursuant to Chapter 12, Part 4, California Safe Drinking Water Act, Section 116275 (h) of the California Health and Safety Code.

**“Public water well”** is a ground water well serving a public water system. A spring which is not subject to the California Surface Water Treatment Rule (SWTR), CCR, Title 22, sections 64650 through 64666 is a public well.

**“Qualified professional”** means an individual licensed or certified by a State of California agency to design OWTS and practice as professionals for other associated reports, as allowed under their license or registration. Depending on the work to be performed and various licensing and registration requirements, this may include an individual who possesses a registered environmental health specialist certificate or is currently licensed as a professional engineer or professional geologist. For the purposes of performing site evaluations, Soil Scientists certified by the Soil Science Society of America are considered qualified professionals. A local agency may modify this definition as part of its Local Agency Management Program.

**“Qualified service provider”** means a person capable of operating, monitoring, and maintaining an OWTS in accordance with the State Water Board OWTS Policy. The individual must also be certified and/or trained extensively by the manufacturer of an OWTS with supplemental treatment to install, maintain, service, and repair the specific model/type of OWTS.

**“Regional Water Board”** is any of the Regional Water Quality Control Boards designated by Water Code Section 13200. Any reference to an action of the Regional Water Board in this Policy also refers to an action

of its Executive Officer, including the conducting of public hearings, pursuant to any general or specific delegation under Water Code Section 13223.

**“Repair”** is any action that modifies/replaces the existing dispersal system, replaces an existing septic tank, or modifies/replaces a major component of the onsite wastewater treatment system. Repairs require the issuance of a Septic Repair Permit by the County of Lassen-Department of Environmental Health (EHD) and must be inspected by EHD staff.

**“Replacement OWTS”** means an OWTS that has its treatment capacity expanded, or its dispersal system replaced or added onto, after the effective date of this Policy.

**“Sand”** means a soil particle; this term also refers to a type of soil texture. As a soil particle, sand consists of individual rock or mineral particles in soils having diameters ranging from 0.05 to 2.0 millimeters. As a soil texture, sand is soil that is comprised of 85 percent or more sand particles, with the percentage of silt plus 1.5 times the percentage of clay particles comprising less than 15 percent.

**“Septage”** means materials accumulated in septic tanks, cesspools, vault privies, portable toilets, holding tanks, or any other sewage holding apparatus that receives bodily waste or wastewater from plumbing fixtures. Septage does not include sewage sludge from municipal or community sewage treatment plants.

**“Septic tank”** means a watertight, covered receptacle designed for primary treatment of wastewater and constructed to: 1. Receive wastewater discharged from a building; 2. Separate settleable and floating solids from the liquid; 3. Digest organic matter by anaerobic bacterial action; 4. Store undigested solids; and 5. Clarify wastewater for further treatment with final subsurface discharge.

**“Silt”** means a soil particle; this term also refers to a type of soil texture. As a soil particle, silt consists of individual rock or mineral particles in soils having diameters ranging from between 0.05 and 0.002 mm. As a soil texture, silt is soil that is comprised as approximately 80 percent or more silt particles and not more than 12 percent clay particles using the USDA soil classification system.

**“Site”** means the location of the OWTS and, where applicable, a reserve dispersal area capable of disposing of 100% of the design flow from all sources the OWTS is intended to serve.

**“Site evaluation”** means an assessment of the characteristics of the site sufficient to determine its suitability for an OWTS to meet the requirements of this Policy.

**“Soil”** means the naturally occurring body of porous mineral and organic materials on the land surface, which is composed of unconsolidated materials, including sand-sized, silt-sized, and clay-sized particles mixed with varying amounts of larger fragments and organic material. The various combinations of particles differentiate specific soil textures identified in the soil textural triangle developed by the United States Department of Agriculture (USDA) as found in Soil Survey Staff, USDA; Soil Survey Manual, Handbook 18, U.S. Government Printing Office, Washington, DC, 1993, p. 138. For the purposes of this Policy, soil shall contain earthen material of particles smaller than 0.08 inches (2 mm) in size.

**“Soil texture”** means the soil class that describes the relative amount of sand, clay, silt and combinations thereof as defined by the classes of the soil textural triangle developed by the USDA (referenced above).

**“State Water Board”** is the State Water Resources Control Board

**“Substandard system”** means any existing OWTS that does not conform to the accepted requirements related to system sizing, setbacks, groundwater separation, or allowable cover.

**“System evaluation”** means an expression of professional opinion stating that an existing on-site wastewater treatment system, wastewater holding tank, or vault privy is constructed and operating in compliance with the standards set forth in this LAMP. Evaluations shall be performed by a licensed installer or other individual (qualified service provider) approved by the Department and shall not constitute a warranty or guarantee either expressed or implied.

**“TMDL”** is the acronym for "total maximum daily load." Section 303(d)(1) of the Clean Water Act requires each State to establish a TMDL for each impaired water body to address the pollutant(s) causing the impairment. In California, TMDLs are usually adopted as Basin Plan amendments and contain implementation plans detailing how water quality standards will be attained.

**“Waste discharge requirement”** or **“WDR”** means an operation and discharge permit issued for the discharge of waste pursuant to Section 13260 of the California Water Code.

## Chapter 3

### Lassen County OWTS Background (OWTS Policy 9.1 and 9.2)

#### Geology, Soils and Water Resources

##### Geology

The geology of Lassen County is related to the tectonic and depositional history of the area (Basin and Range area), and to volcanism (Sierra Nevada, Cascade and Modoc Plateau areas). The southeast portion of the county is the Basin and Range area with north to south trending uplifted mountains interspersed with drop blocked valleys. The north and northeastern portion of the county is occupied by the Modoc Plateau consisting of vast lava flows (primarily basalt), which have also had some tectonic action creating north and south trending ridges. There are also some volcanic domes and cones interspersed. The Northwest portion of the county is made up of a portion (the very southern end) of the Cascade Mountain Range, composed of volcanic mountains and domes, primarily of basaltic and some andesitic composition. These mountains blend with the Modoc Plateau and it is difficult to separate the two. The Southwestern portion of the county includes the rim and east flank of the northern end of the granitic Sierra Nevada Mountain range.

##### Soils

Foothills and Mountains. The soils in the foothills and mountains are loamy sands and clays derived from igneous rock. Leachfield suitability ranges from moderately to severely limited. The limitations are due to slow percolation rates, steep slopes, and shallow depths to bedrock.

Alluvial Fans, Flood Plains, Valleys, and Terraces. These soils are deep and range from somewhat excessively well drained to somewhat poorly drained and occur on nearly level to moderately steep slopes. The soils are formed in alluvium derived mostly from igneous rock. The soils have a broad range in permeability, from slow to rapid, depending upon the relative amount of sands, silts and clays, and gravel in the sedimentary deposits. Some areas have hardpans. Consequently, the areas include soil types that range from slightly to severely limited for leachfield use.

##### Surface Waters

Lassen County contains 5 principal watersheds: Pitt River, Hamilton Branch/Feather River, Susan River, Willow Creek and Long Valley Creek. Susan River, Willow Creek and Long Valley all flow into the Honey Lake enclosed basin. Eagle Lake and Madeline Plains represent two larger enclosed basins with no major perennial streams flowing into them. There are a number of other smaller enclosed basin watersheds. Hamilton Branch/Feather River and Pitt River eventually flow into the Sacramento River. There are other smaller associated streams to these watersheds. Agricultural water is the primary source of surface water usage.

## **Groundwaters**

Groundwater basins pretty much coincide with portions of the surface watersheds listed above. There are areas within and between these basins that do not have well defined groundwater basins or aquifers where groundwater is found locally within fracture zones of bedrock and similar conditions. Overall, groundwater supplies are sufficient and provide a great majority of Lassen County's residential, commercial, industrial, and agricultural water.

## **Existing Septic System Practices**

### **Regulatory Framework**

In California, all wastewater treatment and disposal systems, including individual septic systems, fall under the overall regulatory authority of the State Water Resources Control Board and the nine California Regional Water Quality Control Boards (Regional Boards). The Regional Board's involvement in regulation of onsite systems most often involves the formation and implementation of basic water protection policies. These are reflected in the individual Regional Board's Basin Plans, generally in the form of guidelines, criteria and/or prohibitions related to the siting, design, construction and maintenance of onsite systems. The Regional Boards generally delegate regulatory authority for septic systems to counties, cities or special districts, subject to the condition that the local agency commits to enforcing the minimum requirements contained in the Basin Plan policies. The Regional Boards generally elect to retain permitting authority over large and/or commercial or industrial onsite systems.

Lassen County falls within the jurisdiction of the Lahontan Regional Water Quality Control Board (LRWQCB) for the majority of its area, but also within the jurisdiction of the Central Valley Regional Water Quality Control Board (CVRWQCB) in the western portion of the county (Hamilton Branch/Feather River and Pitt River drainages). The Regional Boards have adopted policies and requirements pertaining to onsite systems that are contained within the Water Quality Control Plan for their respective basins, more commonly referred to as the "Basin Plans". The onsite systems element of the Basin Plan sets forth various objectives, guidelines, general principles and recommendations for the use of onsite systems that cover various topics related to siting, design, construction, operation, maintenance and corrective/enforcement actions.

Since 1981, onsite sewage disposal systems in Lassen County have been regulated by the County Public Health Department, Environmental Health Division. Prior to that, the Building Department regulated onsite systems.

Lassen County regulations for onsite sewage disposal systems are contained in Chapter 12 of the County Code. These regulations set forth specific requirements related to (a) adoption of the Unified Plumbing Code; (b) requiring connection to public sewers when available; (c) minimum lot size requirements; and (c) variance procedures. Standards pertaining to system sizing and construction are contained in the California (Uniform) Plumbing Code, *and the US Manual of Septic Tank Practices*, as well as the Basin Plan Guidelines and Memorandums of Understanding. Additional requirements for onsite systems in Lassen County may be adopted as part of Community Plans or as project-specific mitigation measures or conditions applied to development proposals.

## **Septic System Design and Siting Requirements**

Lassen County septic system requirements provide for use of conventional systems including septic tanks for treatment and leachlines or leach beds for disposal. Leachlines are the preferred method of disposal; leach beds are permissible only where the use of leachlines is infeasible. Cespools have been prohibited since 1977. There are only a small number of "alternative" systems (less than 10) in the County; these are systems that provide additional treatment (beyond the septic tank) or different methods of disposal (e.g. mounds, or pressure-dosing leachfields) designed to overcome specific soil or groundwater constraints.

The County standard criteria follow the Basin Plan guidelines, and address such factors as (a) soil characteristics and depth; (b) percolation rates; (c) vertical separation to groundwater; (d) maximum ground slope; (e) setback distances to wells and water features; (f) system sizing; and (g) reserve area for future drainfield replacement/expansion.

Land developments and subdivisions consisting of less than one hundred lots may be processed entirely by the health officer. Tentative maps for land developments or subdivisions involving five or more lots shall be transmitted to the Regional Board or the health officer along with sufficient information to determine that the proposed subdivision meets the requirements of this chapter. The Regional Board or the health officer may require a maintenance entity, if potential water quality or public health problems are anticipated.

Tentative maps for subdivisions containing one hundred lots or more shall be transmitted to the Regional Board. The map shall be accompanied by a report of waste discharge and sufficient information to demonstrate that the proposed subdivision will meet the requirements of this chapter. A maintenance entity may be required prior to any discharge of waste.

## **Septic System Usage in Lassen County**

There are an estimated 8,500 properties in unincorporated areas with approximately 6,200 (73% of 8,500) served by septic systems, plus an additional unknown parcels within sewer districts that also have septic systems, despite the availability of sewers. Approximately 1/3 of the entire county is served by OWTS's.

## **Septic System Information Review**

Much of the review was devoted to researching, compiling and reviewing existing information from a variety of sources, including: (a) personal experience and permit and complaint files maintained by the County Health Department; (b) Septic Tank Inspection reports; (c) personal knowledge and experience of septic tank contractors and consultants; and (d) individual homeowners. This information forms a large part of the basis for assessing the status of septic system practices in the County.

## **County Records**

*Permit Files.* One of the main sources of septic system information is County permit files. Since 1981, permanent septic system permit files have been maintained by the Public Health Department in the office in Susanville. Prior to that, permits were issued and maintained by the County Building Department. It is estimated that there is permit information on file with the Health Department for a great majority of the septic systems in the County.



A review of permit files was completed. From this data it was determined that permits issued over the past 10 years included 690 total permits, 311 new construction, 379 modifications, repairs, abandonment, and tank only installations for community STEP systems. This is an annual average of 69 total permits, 31 new constructions and 38 modification, repair, abandonment and tank only permits. The great majority of systems are standard leach line systems. 38 modification and repair permits per year would represent a failure rate of about 0.6 percent of the estimated total 6,200 systems.

*Complaint Files.* The Health Department maintains records of complaints that are received in regard to various public health or sanitation matters. Septic system surfacing and nuisance odor problems can be a complaint issue. During the period of 2006 through 2016, there were a total of 11 sewage complaints with 5 related to septic systems.

### **Septic Tank Inspection**

Lassen County EHD inspects OWTS for bank mortgage transactions. Currently this data is not compiled and is only filed in the appropriate Assessor Parcel Number property file. However, a few systems in failed or failing conditions have been identified, while the great majority have been identified to be in satisfactory operating condition. A few have had to have minor repairs, such as sanitary T's, lids, removal of roots, or the like.

### **Surface Water Quality Impacts**

There have been no comprehensive water quality sampling studies directed specifically at septic system areas in the County. There have been no areas with suspected or confirmed impacts to surface water from OWTS's.

### **Groundwater Quality Impacts**

Standard criteria for siting and design are intended to prevent adverse impacts on groundwaters from onsite sewage disposal systems. The most important factors are the provision of sufficient depth of unsaturated soil below the leachfield where filtering and breakdown of wastewater constituents can take place. Without adequate separation distance to the water table, groundwater becomes vulnerable to contamination with pathogenic bacteria and viruses, as well as other wastewater constituents (e.g., nitrogen). Highly permeable soils (e.g., sands and gravels) also provide minimal treatment of the percolating wastewater and normally require greater separation distances to afford proper groundwater protection. Additionally, where there is a high concentration or density of septic systems in a given area (i.e., small lot sizes), groundwater can be degraded from the accumulation of nitrate, chloride and other salts that are not filtered or otherwise removed to a significant extent by percolation through the soil. Adverse effects on groundwater quality from septic systems can show up in the form of degraded or contaminated well water supplies, or potentially as subsurface seepage into streams, lakes, lagoons or ocean waters.

The Septic System evaluation for Lassen County did not include any field investigation or testing of groundwater quality. General knowledge of private and public water system testing throughout the county have not indicated any suspected or known areas of groundwater contamination from OWTS's within the

County. A few wells in the Johnstonville area have shown elevated levels of nitrates. The source of these nitrates has not yet been determined, but is assumed to be a combination of relatively shallow wells, close proximity to an open irrigation ditch, and surrounding agriculture. A relatively high density of residences with OWTS could possibly be a contributor.

### **Groundwater Basin Information**

Information indicates that groundwater quality is generally adequate for existing and potential uses in most of the groundwater basins in the County. Some basins have naturally high levels of various contaminants, but none associated with OWTS's.

### **Water System Information**

Review of groundwater data for small water system wells show reasonably good groundwater quality, with respect to nitrate concentrations, for most of the systems. None of the systems reported nitrate levels in excess of the drinking water limit of 45 mg/L; however, there were several showing results approaching the limit.

### **Local Problem Areas**

No local problem areas associated with onsite wastewater treatment system impacts have been identified in Lassen County. However, some areas have unique problems for on-site systems and require special attention in siting and designing OWTS's. These include Cady Springs area (area above City of Susanville's spring water source), Stones and Spaulding areas (Eagle Lake Basin), Madeline Plains (seasonal flooding and some areas with hardpan), Lake Forest Subdivision (small lots, density), Leavitt lake (some areas with seasonal groundwater), and Clear Creek (high ground water, surface waters). Qualified professionals are required to evaluate and design OWTS in these areas.

### **Education**

Lassen County does not have a specific education program for OWTS's. The County, being very rural with low population, has few plumbing contractors, engineers and septic pumpers. There is low turnover among those that are there. They are familiar with the County and its policies. There is good communication between those parties and the public. There is good communication between the public, contractors and the County EHD as well. The EHD is centrally located and readily accessible for questions and concerns. The EHD has OWTS handouts for the contractors and the public. Most, if not all, of these documents will eventually be readily available on the County's website.

### **Projected Onsite Wastewater Demand**

Lassen County is a very rural county with nearly 34,000 people. Nearly one-half the population is within the City of Susanville, the only incorporated city in the County and the County seat. The City of Susanville is serviced by a public community sewage disposal system. Population growth has been much below state and national averages. Since 2000, Lassen County has had a reduction of 1.4 percent in its population as of 2014. In that same time period, California has had an increase of 12.39 percent, and the US an increase of 11.61 percent. Lassen County's growth is among the lowest of California Counties.

Many of the larger small unincorporated communities are serviced by community sewage disposal systems. It is estimated that approximately 1/3 of the County population is serviced by individual OWTS's. About 73% of the unincorporated area is serviced by OWTS's.

State law requires that all cities and counties adopt a comprehensive, long-term general plan that outlines physical development of the county or city. The general plan consists of a number of mandated elements that cover a local jurisdiction's entire planning area so that it can adequately address the broad range of issues associated with the city or county's development. One of the mandated elements is the Housing Element.

The Housing Element of the General or Comprehensive Plan guides the determination of housing needs and establishes policy that facilitates the development of housing for all economic segments in the County. The California Department of Housing & Community Development requires that the Housing Element be updated every 8 years.

Using these criteria as a guideline and historical data, this LAMP includes a good faith effort to make a 10 year projection of future OWTS demand. While these are linear projections, the actual numbers could vary significantly as a result of economic conditions and or regulatory changes.

Using data obtained from the Environmental Health Department, during the years from 2006-2015, there were 690 applications to construct OWTS. This equates to an average 69 applications/year. Only 311, or 31 per year, were for construction of new systems.

It is reasonable to assume that permits for approximately 31 new OWTS will be approved in any given year in the future. Furthermore, extrapolating this figure out over a ten year period, it is reasonable to assume that approximately 310 new OWTS will be constructed over the course of the next 10 years. This represents an increase of approximately 5% in the total number of OWTS while the percentage of residents that use an OWTS will remain at about 36% (73% of the unincorporated area). The increase in the number of OWTS may be offset by properties that connect to sewer as it becomes available and abandon existing onsite systems.

This number is in general conformity with the Housing Element of the County's Comprehensive Plan. The Housing Element predicted an unincorporated housing unit growth of 40 per year. If 73% of those are served by individual OWTS's, that represents approximately 29 new septic systems per year, or 290 over the next 10 years.

## Chapter 4

### Data Collection, Reporting, and Notifications

As a condition of EHD oversight of OWTS within Lassen County, EHD has certain responsibilities related to data collection and reporting to the Lahontan and Central Valley Regional Water Quality Control Boards (RWQCB) as well as in some instances to the owners of water systems and the State Water Resources Control Board Division of Drinking Water (SWRCB). This Chapter will detail the data that must be collected and the procedure for reporting to RWQCB and notifications to owners of water systems and SWRCB.

#### Reporting to RWQCB (OWTS Policy 3.3 & 9.3.1)

On an annual basis, EHD will collect data for and report in tabular spreadsheet format the following information. A copy of the report will be provided to both the Lahontan and Central Valley RWQCB by February 1.

- The number and location of complaints pertaining to OWTS operation and maintenance, and identification of those which were investigated and how they were resolved;
- The applications and registrations issued as part of the local septic tank cleaning registration program pursuant to Section 117400 et seq. of the California Health and Safety Code;
- The number, location, and description of permits issued for new and replacement OWTS and which Tier the permit is issued.
- The number, location and description of permits issued for OWTS where a variance from the approved LAMP was granted.

The annual report will include a summary of whether any further actions are warranted to protect water quality or public health.

#### Water Quality Assessment Program (Water Quality Monitoring) (OWTS Policy 9.3.2 & 9.3.3)

In addition, EHD must maintain a water quality assessment program to determine the general operation status of OWTS and to evaluate the impact of OWTS discharges, and assess the extent to which groundwater and local surface water quality may be adversely impacted. The assessment program will include monitoring and analysis of water quality data, review of complaints, failures and OWTS inspections. The water quality data can be obtained from the following sources:

- a. Random well samples.
- b. Well samples taken to establish a well as a “potable source”.
- c. Routine real estate transfer samples.
- c. Routine water samples taken by community water systems.

- d. Beach and bay water quality testing.
- e. Any other sampling data deemed relevant or necessary for the protection of ground/surface water supplies.

A summary of the data shall be submitted on an annual basis on or before February 1st. An evaluation of the monitoring program and an assessment of whether water quality is being impacted by OWTS shall be submitted every 5 years.

### **Permit Records** (OWTS Policy 3.4)

The Lassen County EHD maintains permanent hard copy of all applications and permits for OWTS within the county. These are filed by Assessor's Parcel Number, with a separate folder for each.

### **Notifications to Owners of Water Systems and SWRCB** (OWTS Policy 3.5)

Existing or proposed OWTS in close proximity to public water wells and surface water drinking water supplies have some potential to cause an impact on the water quality from that water source and the owner of that system or SWRCB, if the owner of the system cannot be identified, will be notified under the following conditions.

1. Prior to issuance of a permit to install a new or replaced OWTS that is within a horizontal sanitary setback to the public well; or within 1,200 feet of an intake point for a surface water treatment plant for drinking water, in the drainage catchment in which the intake point is located, or located such that it may impact water quality at the intake point, to allow the water system owner to provide comments to EHD. Notification will be done electronically or in writing by EHD with a copy of the permit application that includes:
  - a. A topographical plot plan for the parcel showing the OWTS components, property boundaries, proposed structures, physical address, and name of property owner.
  - b. The estimated wastewater flows, intended use of proposed structure generating the wastewater, soil data, and estimated depth to seasonally saturated soils.
  - c. An advisement that the public water system owner or SWRCB shall have 15 days from receipt of the permit application to provide recommendations and comments to EHD.
2. Upon discovery of a failing OWTS that is within 150 feet of a public water well, 200 feet of the high water mark of a surface water drinking water supply where the dispersal system is within 1,200 feet of the water system's surface water intake, within the catchment of the drainage and located such that it may impact water quality at the intake point, or 400 feet of the high water mark of a surface water drinking water supply where the dispersal system is between 1,200 and 2,500 feet of the water system's surface water intake, within the catchment of the drainage and located such that it may impact water quality at the intake point. Notification will be done electronically or in writing and will include proposed corrective action that will be taken to mitigate the failure.

## Chapter 5

### Not Allowed or Authorized in LAMP (OWTS Policy 9.4)

EHD's oversight of OWTS is limited to those systems as defined in this LAMP. Limitations exist for the use of OWTS related to the amount and type of wastewater flows that will be generated, types of systems, availability of public sewer and setbacks to public water supplies. The following are not allowed to be authorized by EHD and any such system or deviations can only be approved by the RWQCB.

1. Cesspools of any kind or size.
2. OWTS receiving a projected flow over 10,000 gallons per day.
3. OWTS receiving a projected flow over 3,500 gallons per day must either utilize a supplemental treatment system certified by the NSF or a third party tester as capable of achieving 50 percent total nitrogen reduction when comparing the 30-day average influent to the 30-day average effluent; or submit an evaluation to the County EHD completed by a qualified professional that determines whether or not the discharge from the OWTS will adversely affect groundwater quality.
4. OWTS that utilize any form of effluent disposal that discharges on or above the post installation ground surface such as sprinklers, exposed drip lines, free-surface wetlands, or a pond.
5. Slopes greater than 30 percent without a slope stability report approved by a registered professional.
6. Decreased leaching area for IAPMO certified chamber dispersal systems using a multiplier less than 0.70.
7. OWTS utilizing supplemental treatment without requirements for periodic monitoring or inspections.
8. OWTS dedicated to receiving significant amounts of wastes dumped from RV holding tanks.
9. Separation of the bottom of dispersal system to groundwater less than 2 feet, except for vertical seepage pits, which shall not be less than 10 feet.
10. Installation of new or replacement OWTS where public sewer is available. Public sewer availability is defined as follows:
  - a. The property on which the structure is located abuts a public sewer.
  - b. The property is within the boundaries of the sewer district or annexation has been approved by the sewer district.

- c. No easements must be obtained to access the sewer line.

A waiver of the connection to sewer can be considered where such sewer is located more than 200 feet from the building or plumbing stub out, the connection fees and construction costs are greater than twice the total cost of the OWTS and an OWTS can be installed that will meet the minimum requirements of this LAMP and not affect groundwater or surface water to a degree that makes it unfit for drinking or other uses.

- 11. Except as provided for in Item 12 and 13, new or replacement OWTS with minimum horizontal setbacks less than any of the following:
  - a. 150 feet from a public water well where the depth of the effluent dispersal system does not exceed 10 feet in depth.
  - b. 200 feet from a public water well where the depth of the effluent dispersal system exceeds 10 feet in depth.
  - c. Where the effluent dispersal system is within 600 feet of a public water well and exceeds 20 feet in depth, the horizontal setback required to achieve a two-year travel time for microbiological contaminants shall be evaluated by a qualified professional. In no case shall the setback be less than 200 feet.
  - d. Where the effluent dispersal system is within 1,200 feet from a public water system's surface water intake point, within the catchment of the drainage, and located such that it may impact water quality at the intake point such as upstream of the intake point for flowing water bodies, the dispersal system shall be no less than 400 feet from the high water mark of the reservoir, lake or flowing water body.
  - e. Where the effluent dispersal system is located more than 1,200 feet but less than 2,500 feet from a public water system's surface water intake point, within the catchment of the drainage, and located such that it may impact water quality at the intake point such as upstream of the intake point for flowing water bodies, the dispersal system shall be no less than 200 feet from the high water mark of the reservoir, lake or flowing water body.
- 12. For replacement OWTS that do not meet the horizontal separation requirements in Item 11 above, the replacement OWTS shall meet the horizontal separation to the greatest extent practicable. In such case, the replacement OWTS shall utilize supplement treatment and other mitigation measures, unless the permitting authority finds that there is no indication that the previous system is adversely affecting the public water source, and there is limited potential that the replacement system could impact the water source based on topography, soil depth, soil texture, and groundwater separation.
- 13. For new OWTS, installed on parcels of record existing before May 13, 2013 which is the effective date of the State's OWTS Policy, that cannot meet the horizontal separation requirements in Item

10 above, the OWTS shall meet the horizontal separation to the greatest extent practicable and shall utilize supplemental treatment for pathogens as specified in Section 10.8 of the State's OWTS Policy and any other mitigation measures prescribed by EHD.



## Chapter 6

### Requirements for Existing OWTS (Tier 0)

#### Existing Functioning Onsite Wastewater Treatment Systems

Consistent with the criteria outlined in Tier 0 of the State Policy, systems that are functioning properly will not be affected by this LAMP for as long for as they continue to function properly. Nevertheless, regular inspection and maintenance is necessary to ensure that an OWTS continues to operate satisfactorily and to extend the life of the system. OWTS that fail will be repaired consistent with the criteria outlined in Tier 4 of the Policy and Chapter 11 of this LAMP.

#### Onsite Wastewater Treatment System Repairs/Upgrades

Some repairs/upgrades will not require obtaining a OWTS Permit from EHD. Those include:

- Replacement of piping/plumbing to the tank
- Replacement or repairs to risers
- Replacement of sanitary T's within the tanks

#### Onsite Wastewater Treatment System Evaluation/Modification

Existing functioning OWTS that would otherwise be expected to continue to function properly may become over taxed when homes are remodeled or expanded in a manner that increases the sewage flow or changes the characteristics of the sewage generated. When a building remodel will increase the flow, the OWTS should be upgraded so that the anticipated new flow can be received and treated reliably. Examples of changes that would indicate an increased flow to the system include the addition of a bedroom, increased population or fixtures.

Additionally, improvements on a property that could potentially intrude upon the physical location of the OWTS and the expansion area for the dispersal system would trigger the need for review.

The determination for the need for a system modification is made as part of an evaluation of the existing system by EHD. As part of the evaluation, EHD reviews the proposed changes or project, any EHD records of the existing system, as well as any additional information/data provided by the applicant. If it is concluded that there is no impact or that the existing system is adequate, no modification is required.

## Chapter 7

### **Onsite Wastewater Treatment System Permitting Process and Siting** (OWTS Policy 7.0 and 9.1)

This Chapter describes how OWTS are reviewed and permits issued in Lassen County. The document also summarizes key siting criteria for these systems.

#### **STATE, COUNTY AND CITY ROLES**

##### **State / County Coordination**

OWTS may discharge pollutants to groundwater, and therefore are regulated by the State Water Code. Water Code section 13282, allows Regional Water Quality Control Boards (RWQCB) to authorize a local public agency to issue permits for and to regulate OWTS “to ensure that systems are adequately designed, located, sized, spaced, constructed and maintained.” The RWQCB, with jurisdiction over Lassen County authorizes the County of Lassen (County), Environmental Health Department (EHD) to issue certain OWTS permits throughout the county including within incorporated cities. No city within Lassen County is authorized to issue these permits.

The OWTS SWQCB Policy has imposed conditions and restrictions on the County’s permit program and the County is authorized to issue permits for conventional OWTS and alternative OWTS with supplemental treatment anywhere in the County. The goal of EHD’s OWTS program is to ensure that installed OWTS will last the life of the structure they serve, and not cause any public exposure to surfacing sewage or any contamination of groundwater or surface waters. These requirements are a condition of the State’s authorization for the County to issue OWTS permits locally. This LAMP describes in detail how the County ensures that these State-imposed requirements are met.

##### **County EHD / Local Land Use Agency Coordination**

County EHD OWTS review procedures provide documents that applicants may need to take to land use agencies to secure other required local permits. County EHD also reviews plans submitted to these agencies to ensure that an OWTS will match up with the project to be constructed. The fundamental point that persons seeking OWTS permits must remember is that the County EHD OWTS permit process and local (including County) land use approval and permitting processes are separate processes. While they are coordinated to some extent, a County EHD OWTS permit or related approval is never a substitute for a required local land use or building permit. Similarly, no local land use approval or permit (e.g., approval of a subdivision map or lot split or boundary adjustment, even after preliminary septic system review by EHD), is a substitute for a County EHD OWTS permit, or a guarantee that such a permit can be issued.

#### **SYSTEM DESIGN CONSIDERATIONS**

The most common type of OWTS found in Lassen County consists of a septic tank connected to leach lines. Variations of this system may include a septic tank connected to a leach bed. In some applications, the

disposal field is at a higher elevation than the building site. In this instance, a pump-system is used to deliver the sewage to a standard disposal field where it is distributed by gravity flow. All of these examples would be considered a conventional OWTS because no further sewage treatment is performed between the septic tank and the disposal field. In all cases, the sewage effluent is discharged below the ground surface, and is digested by bacteria in unsaturated soil zones for treatment of the sewage underground. These systems are designed to operate in all weather conditions with minimal maintenance, other than periodic septic tank pumping to remove sludge from the septic tank.

In addition to conventional OWTS, the County also allows the use of alternative and/or OWTS with supplemental treatment. These systems are generally used for those sites that cannot support a conventional OWTS due to shallow groundwater or soil depth conditions. Alternative OWTS use different methods of providing additional sewage treatment beyond what is provided by the septic tank to allow for a reduction in the amount of unsaturated soil below the dispersal system. All alternative OWTS must be designed by a Registered Civil Engineer or be certified by the National Sanitation Foundation or other approved third party tester. Due to the complexity of these systems, ongoing inspection and maintenance contracts are also required.

In unique situations, the Department may authorize the use of wastewater holding tanks, vault privies, or portable toilets to satisfy this requirement. Any property located within 200-feet of a public sewer, the property must be connected to the public sewer unless an exception is granted.

The size and type of OWTS needed for a particular building project will be a function of the following factors:

- |                            |  |
|----------------------------|--|
| Soil Permeability:         | Permeability determines the degree to which soil can accept sewage discharge over a period of time. Permeability is measured by percolation rate, in minutes per inch (MPI). |
| Unsaturated Soil Interval: | The distances between the bottom of the OWTS dispersal field and the highest anticipated groundwater level or the shallowest impervious subsurface layer at a site.          |
| Peak Daily Flow:           | The anticipated peak sewage flow in gallons per day. In many cases the number of bedrooms for a proposed home is used as an indicator of peak daily flow.                    |
| Net Usable Land Area:      | The area available that meets all setback requirements to structures, easements, watercourses, or other geologic limiting factors for the design of an OWTS.                 |

Some sites are not acceptable for conventional or alternative OWTS based on low soil permeability, regardless of the unsaturated soil interval available at the site.

All conventional OWTS in Lassen County will require at least five feet of unsaturated soil between the bottom of the dispersal system and the highest anticipated groundwater level for the site. Alternative OWTS will require at least two feet. Depth to groundwater varies with the amount of rainfall and the geography for many areas in Lassen County. Therefore, the highest anticipated groundwater levels must be established for any OWTS design in order to meet this separation requirement. Details are provided below in this Chapter.

At sites affected by a shallow impervious layer of bedrock, hardpan, or impermeable soils, a minimum five-foot unsaturated soil interval is required between the bottom of the disposal system and the shallowest impervious layer. Alternative OWTS will require at least two feet.

The net useable land area required for an OWTS will usually depend primarily on soil permeability and peak daily flow. Details on setback requirements and net useable land areas requirements are provided below.

In determining suitability for conventional and/or alternative OWTS, and during future 5-year reviews of this LAMP and possible amendments, the County will also consider:

- Degree of vulnerability to pollution from OWTS due to hydrogeological conditions.
- High Quality waters or other environmental conditions requiring enhanced protection from the effects of OWTS.
- Shallow soils requiring a dispersal system installation that is closer to ground surface than is standard.
- OWTS is located in area with high domestic well usage.
- Dispersal system is located in an area with fractured bedrock.
- Dispersal system is located in an area with poorly drained soils.
- Surface water is vulnerable to pollution from OWTS.
- Surface water within the watershed is listed as impaired for nitrogen or pathogens.
- OWTS is located within an area of high OWTS density.
- A parcel's size and its susceptibility to hydraulic mounding, organic or nitrogen loading, and whether there is sufficient area for OWTS expansion in case of failure.
- Geographic areas that are known to have multiple, existing OWTS predating any adopted standards of design and construction including cesspools.
- Geographic areas that are known to have multiple, existing OWTS located within either the pertinent setbacks listed below, or a setback that the local agencies finds is appropriate for that area.

None of these conditions significantly apply in Lassen County at this time except as noted in Chapter 3 of this LAMP. These areas and conditions require that all onsite systems will be evaluated and designed by a Licensed Engineer. Some conditions may occur in limited or isolated circumstances and are evaluated on a case by case basis.

## THE PERMIT PROCESS AND SITE EVALUATION

The design and construction of an individual sewage disposal system must conform to the specifications of the Uniform building Code, Uniform Plumbing Code, as well as the State OWTS Policy and this LAMP. Approval of the Environmental Health Department is not a guarantee that the proposed installation will operate successfully, but merely that the system meets the minimum requirements. However, a system properly designed, installed, monitored and maintained should continue to operate throughout the life of the project, while protecting surface water, ground water and the environment.

A completed sewage disposal permit application, including a to-scale plot plan, must be submitted to the Environmental Health Department for any construction that requires the installation of a new, or the replacement of an existing sewage disposal system. Only after the Environmental Health Department has approved a sewage disposal application can the Building Department issue any permits. The septic system permit is paid for at the Building Department 707 Nevada Street, Susanville Ca.

### **“Certifications” or approvals on parcel or subdivision maps are not OWTS Permits**

The process for obtaining an OWTS permit for development on a legal lot in the County of Lassen is described in this section. This process must be completed even if a lot has previously been “certified” by the County for a septic system. Typically, any such prior certification will be noted in land use records, e.g., through a map or plan notation that the lot is “approved” or “certified” for a septic system, or in a separate County-issued “certificate of compliance”. These notes and certificates may also state conditions for an acceptable OWTS, such as a minimum required leach line length. No matter how detailed and final they appear to be, these map and plan notations and certificates of compliance are not OWTS permits, and they do not assure that an OWTS permit can be issued.

There are several reasons that prior County certifications as part of the land use process do not ensure that an OWTS permit will be issued. First, County EHD can only issue OWTS permits as authorized by the RWQCB. That authorization requires completion of the kind of process described in this section. Second, site characterization work and analysis performed to support prior County certifications may have been the best that could have been done at the time (e.g., in a period of below normal rainfall), but may nevertheless be inadequate to support an OWTS permit. Third, new information may have come to light since a certification was issued, due to measurements taken on or near the site under different rainfall conditions. This is more likely to be the case for older certifications. Fourth, these certifications are not based on detailed project and OWTS designs and layout plans. Certification of a lot for a septic system is not the same thing as approval of a specific system, at a specific location, for a specific project, on that lot. Finally, these certifications provide no legal entitlement. Even if a certification was construed as a permit to construct an OWTS, that permit would expire after one year unless the system was actually constructed, inspected, and given final approval.

Certifications, while not a guarantee that an OWTS permit will be issued, may still be relevant at many sites. This is more likely when the information relied on for the certification is recent, of high quality, and was collected during a normal average rainfall year.

## STEPS IN THE PERMITTING PROCESS

The County EHD OWTS permitting process includes the steps set out below:

1. If a percolation test is needed, the applicant shall submit a percolation test and design as performed by a registered civil engineer, registered engineering geologist, registered environmental health specialist, or an ARCPACS Certified Professional Soil Scientist with experience in onsite wastewater disposal. In some cases, a new percolation test may not be needed, e.g., if the County certified a prior test during the subdivision or lot split process, and more recent information raises no new concerns or issues. See Appendix I for current percolation test procedures.

A percolation test may be required when:

- No previous County EHD approved percolation test was provided for the lot or parcel;
  - Grading or other soil disturbance has occurred in the proposed OWTS location;
  - The system is being shifted out of a previously tested area; or
  - An OWTS other than a system previously considered is being proposed.
2. Submit an application including:
    - An application form as provided by the Lassen County Environmental Health Department
    - A site plan of the proposed disposal system (3 copies) (see Plot Plan requirements below)
    - The appropriate site evaluation/application fee
  3. Obtain onsite EHD approval of the proposed OWTS. Soil profiles (i.e. eight (8) foot deep backhoe excavations) are required to determine the depth and composition of the soil and the distance to ground water. Make an appointment by contacting the Lassen County Environmental Health Department (EHD) for an onsite evaluation of the soils testing done and the suitability of the property to support the proposed sewage disposal system and water supply.

In order that the Health Department may properly evaluate the property, the property corners shall be located and flagged prior to the on-site lot evaluation and permit issuance.

4. Conduct any required percolation tests and submit the results to the EHD.
5. After review, if it appears likely that the proposed OWTS can be permitted at the site, County EHD will provide an approval for the application and plot plan. The approved application form expires after one year.

The County may require additional testing before providing this approval. In some cases, this additional testing will include depth to groundwater measurements during a normal average rainfall year. This may delay County EHD approval for a year or more.

If the EHD determines that a site is not suitable for a conventional system, the applicant may proceed with the process for an alternative system. In some cases, EHD may conclude that a conventional or alternative OWTS cannot be safely used on the lot.

Because of the potential for delays or disapproval, EHD recommends that applicants submit an application and plot plan, and obtain an approval before incurring costs for detailed building plans and architectural fees. Furthermore, to assure that property development complies with all applicable codes, a septic system application must be approved by this department prior to approving a well application for the property.

6. If the requirements set out above have been met, a permit to construct the OWTS will be issued by the Lassen County Building Department. This permit expires after one year.
7. Once the permit to construct the OWTS, has been obtained, the OWTS can be installed. A Licensed General Engineering Contractor (Class A), General Building Contractor (Class B), Sanitation System Contractor (Specialty Class C42), or Plumbing Contractor (Specialty Class C-36) shall install all new OWTS and replacement OWTS in accordance with California Business and Professions Code Sections 7056, 7057, and 7058 and Article 3, Division 8, Title 16 of the California Code of Regulations (Plumbing Code). A property owner may also install his/her own OWTS if the as-built diagram and the installation are inspected and approved by the local agency at a time when the OWTS is in an open condition (not covered by soil and exposed for inspection).
8. The system must be inspected by County EHD before the system is backfilled. If that inspection is satisfactory, EHD will sign off on ("final") the OWTS permit. Occasionally, EHD will hold final approval on the OWTS permit pending specific conditions to be met.
9. If a building permit relies on an OWTS, the building department will require EHD approval of a layout design and a valid permit to construct the OWTS before building plans are approved or a building permit is issued.
10. The Building Department typically requires that the OWTS inspection be completed and the OWTS permit be made final by EHD before occupancy permits are issued.

#### **CHANGES IN DESIGN OR LOCATION**

Any proposed changes in design or septic system location must be approved by the Environmental Health Department prior to installation. If any unexpected problems occur during the installation, consult the County Environmental Health Specialist for advice. Any alternative sewage disposal systems must be designed by a qualified engineer and submitted for approval.

The following inspections by the Lassen County Environmental Health Department will be required and shall be called for by the person or firm constructing the disposal system.

1. An initial inspection for site approval.

2. The applicant must pay the permit fees at the Lassen County Planning and Building Section, Department, 707 Nevada Street prior to construction and/or installation of system. No work shall begin until a permit has been obtained.
3. The final inspection shall be made when the complete system has been installed, but before any backfilling is done. Until the final inspection is made, the top of the septic tank and the drainage ditch will not be backfilled. Final inspection must be done before the premises can be occupied. An inspection at the completion of the excavation for the septic tank and drain field, and before actual installation of the facilities may be required.

**The responsibility for the satisfactory operation of the sewage disposal system rests with the property owner. The sewage must be kept underground. In the event of a sewage system failure the property owner is solely responsible for the cleanup and repair of the system.**

#### **THE PLOT PLAN**

A plot plan of the proposed building construction and OWTS is required. This drawing should be prepared using standard engineer's scale on 8.5" x 11" or 11" x 17" size paper. The basis for the OWTS design will be from percolation testing data and/or conditions of approval from a recorded subdivision map, parcel map, boundary adjustment, or certificate of compliance. The size of the OWTS is a function of the anticipated peak sewage flow based on the number of bedrooms, dwellings or use, and the percolation rate of the soil on the site. While preparing the plot plan, consider all required setbacks (see "Setbacks" below).

The plot plan shall contain the following information:

- Site Address;
- Tax Assessor's Parcel Number;
- Vicinity Map, Scale, North arrow;
- Property Lines and lot dimensions;
- Roads adjoining property (and names of same);
- General slope of the area; Percent slope and direction of fall;
- Dimensional outlines and locations of all existing or proposed improvements, including buildings, decks, patios, driveways, walks, water sources, etc.
- Proposed OWTS design detail (Location of house sewer outlet and proposed location of septic tank and leaching field,);
- Proposed grading with 4:1 setbacks shown along with any impacts to the site and/or adjacent property.
- Location of any existing tree to remain in place which may affect the location of the septic tank or leaching trench.
- All known, recorded easements on or within 20 feet of lot boundaries (open-space, utility, road, waterline, etc.);
- Location of all public waterlines on or within 20 feet of property;
- Location of any streams, ponds, irrigation ditches, or drainage channels within 100 feet of the property.



- Location of all existing or proposed wells, whether in use or abandoned, on or within 100 feet of property;
- Location and nature of any existing sewage disposal system on or within 100 feet of the property.
- Any soils testing information, such as deep soil profile excavations or percolation tests, plotted on the design.

The layout or percolation test design approval is valid for one year. The soils testing data does not expire and will be valid in the use of the system design, unless site conditions change. If a site review reveals any evidence of groundwater changes, including but not limited to; plant growth, ponding water, new information on adjacent lots or OWTS failures in the area, additional groundwater test soil profile excavations may be required. EHD staff will specify the depth and the locations of the additional test soil profile excavations in consultation with project qualified professional.

- If groundwater is observed in the soil profile excavations and/or EHD has reason to believe that groundwater could rise to an unacceptable level which would not meet the minimum separation requirements during the course of a normal rainfall season, a permit will not be issued and monitoring may be required. Monitoring must be conducted during the course of a normal rainfall year when full groundwater recharge has occurred.
- The qualified professional must support their express conclusion that the highest anticipated groundwater elevation will not encroach upon the minimum separation from the bottom of the proposed OWTS. The supporting data shall include, but not be limited to, data on the sites topography, soils, geology, basin studies, hydro geologic studies, and groundwater-monitoring data from the onsite and offsite observation wells through a normal rainfall year. For more information, see Groundwater Separation Requirements and Procedures for Groundwater Determination later in this Chapter.

Information on the layout shall also include the OWTS certification found in one of the following documents: Recorded Map, Parcel Map, Division of Land Plat, Boundary Adjustment, Certificate of Compliance, approved Percolation Test or a Layout with a waiver of percolation testing. The certification provided on the legal description does not ensure the lot can be approved for development based on the use of an onsite wastewater system. It only provides a basis on which to size the onsite wastewater system. A previously approved, valid layout must reflect the current proposed development of the parcel including dwelling size and location, grading and any recent off-site impacts that may affect septic system siting; otherwise, a field review will be required.

#### **PRIMARY AND RESERVE AREA REQUIREMENTS**

In addition to primary system design criteria, all OWTS design proposals, for both new construction and additions to an existing structure, must show 100% reserve area for the active OWTS. Any parcels once created must meet current design standards with 100% replacement.

**SEPTIC TANKS**

All conventional OWTS require the use of a septic tank to allow for the removal of solids in the wastewater prior to being discharged to the dispersal field. Alternative OWTS will also require a septic tank unless a settling chamber is a component of the treatment unit. For specific information on the requirements for and sizing of septic tanks, see Chapter 8 of this LAMP.

**OWTS DISPERSAL SYSTEMS**

Dispersal systems for conventional OWTS in Lassen County can consist of leach lines, or in limited situations, leach beds. The amount and type of disposal field required will be determined by the County Environmental Health Specialist and will be based upon the percolation test data submitted by the applicant. For specific information on the requirements for sizing and design of dispersal systems, see Chapter 8 of this LAMP.

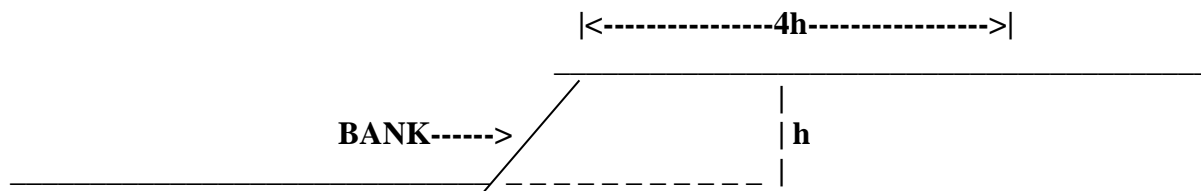
**SETBACKS**

Setbacks in plot plans refer to the required spacing in distance from components of the OWTS and to structures, property lines, easements, watercourses, wells, or grading. Specific setback requirements will vary based on the type of system design and site conditions and are specified in the following table.

The location of the septic system must be approved by the County Environmental Health Specialist and not be in an area in which there is high ground water, filled ground, a proposed improvement, an easement, or sloping ground in excess of 30 percent. Any lot that is 30,000 square feet or more in size must set the sewage disposal system back at least 50 feet from all property lines. Half the width of a county road adjacent to the property may be used as part of the setback on that side. Lots of less than 30,000 (15,000 sq. ft. LC code and LRWQCB MOU) square feet in size and using an individual sewage disposal system and water supply require special consideration because of their small size and may not be developable. The septic system installation must also comply with the following criteria:

<b>MINIMUM HORIZONTAL DISTANCE REQUIRED FROM:</b>	<b>BUILDING SEWER</b>	<b>LEACHING TRENCH SYSTEM</b>	<b>SEPTIC TANK</b>
Building or Structure*	2feet	8 feet	5 feet
Property Line			
-with wells	25feet	50 feet	50 feet
-without wells	clear	5 feet	5 feet
Private Water Wells/monitoring well	50 feet	100 feet	100 feet
Public Water Wells	100 feet	150 feet	150 feet
Lake, Reservoir or Wetlands (measured from the high water line)	50feet	200 feet	200 feet
Flowing springs or streams	50 feet	100 feet	100 feet
Water Line	1 foot	5 feet	5 feet
Pressure public water main	10 feet	10 feet	10 feet
Unstable land mass or earth slides		100 feet	100 feet
Ephemeral streams	25 feet	50 feet	25 feet
Cut Bank	10 feet	4h	25 feet

Distribution Box.....	5 feet.....	5 feet
Large Trees.....	10 feet.....	10 feet



\* Distance requirements shall include porches and steps whether covered or uncovered, breezeways, roofed porte-cocheres, roofed patios, car port, covered walks, covered driveways and similar structures or appurtenances.

**NOTES:**

1. Where the effluent dispersal system is within 1,200 feet from a public water systems' surface water intake point, within the catchment of the drainage, and located such that it may impact water quality at the intake point such as upstream of the intake point for flowing water bodies, the dispersal system shall be no less than 400 feet from the high water mark of the reservoir, lake or flowing water body.
2. Where the effluent dispersal system is located more than 1,200 feet but less than 2,500 feet from a public water systems' surface water intake point, within the catchment of the drainage, and located such that it may impact water quality at the intake point such as upstream of the intake point for flowing water bodies, the dispersal system shall be no less than 200 feet from the high water mark of the reservoir, lake or flowing water body.

Prior to issuing a permit to install an OWTS the permitting agency shall determine if the OWTS is within 1,200 feet of an intake point for a surface water treatment plant for drinking water, is in the drainage catchment in which the intake point is located, and located such that it may impact water quality at the intake point such as being upstream of the intake point for a flowing water body. If the OWTS is within 1,200 feet of an intake point for a surface water treatment plant for drinking water, is in the drainage catchment in which the intake point is located, and is located such that it may impact water quality at the intake point:

- The permitting agency shall provide a copy of the permit application to the owner of the water system of their proposal to install an OWTS within 1,200 feet of an intake point for a surface water treatment. If the owner of the water system cannot be identified, then the permitting agency will notify California Department of Public Health Drinking Water Program.
- The permit application shall include a topographical plot plan for the parcel showing the OWTS components, the property boundaries, proposed structures, physical address, and name of property owner.
- The permit application shall provide the estimated wastewater flows, intended use of proposed structure generating the wastewater, soil data, and estimated depth to seasonally saturated soils.

- The public water system owner shall have 15 days from receipt of the permit application to provide recommendations and comments to the permitting agency.

## **BUILDING PLAN REVIEW**

The EHD recommends that you obtain approval of your OWTS prior to expending funds for a final set of architectural plans for your home or structure. Plans for a new or second dwelling must be submitted to the Planning Department and Building Department for processing and approval. Upon submittal of the plans, the owner/agent may hand carry the plans to the EHD counter for a verification of bedrooms and plot plan concurrence with the approved layout. Bedrooms are used to determine the potential occupancy of a dwelling and therefore the potential amount of wastewater that will be generated.

### **Guidelines for Determining the Number of Bedrooms**

1. Once the living room, dining room, family room, kitchen, bathrooms, and utility rooms have been established, all other rooms shall be considered as potential sleeping rooms. Dens, libraries, studies, weight rooms, sewing rooms, workshops, etc., shall be determined as bedrooms if they do not conform to the criteria listed below.
2. All other habitable rooms totaling at least seventy (70) square feet in size are to be considered bedrooms suitable for sleeping purposes, regardless of whether or not they contain closets or have access to a bathroom.
3. Rooms that open to a living room, dining room, family room, kitchen, or entry way, and have a single, un-obstructive opening (no doors) with a minimum 50% opening of the total wall space (minimum 6' wide) with archways or other acceptable means shall not be considered as bedrooms, due to the lack of personal privacy presented by the opening.
4. Rooms that can only be accessed through another bedroom are to be considered part of that bedroom, such as master suite and not an additional bedroom.
5. In the case of an ambiguous situation, where it is not clear as to whether or not a room is a bedroom, the plans may be re-reviewed on a case-by-case basis by the area supervisor for the respective district.
6. Any cases, which will require the relocation or modification of doorways, are to be reviewed and approved by the Building Department to address any structural considerations such as load bearing walls. This is to be done prior to approval or sign-off by the EHD.

## **POTABLE WATER SUPPLY**

Prior to approval for occupancy by the building department, a potable water supply will be required by connection to a public water supply or the use of domestic water well. The use of a domestic water well will require proof of potability after the well is drilled. A copy of the Well Laboratory Report that indicates the absence of coliform bacteria will be necessary for proof of potability of a private well. The date of the test cannot be more than one year old. If a valid test does not exist, the well must be sampled for bacteriological. Water samples must be obtained by a qualified third party such as a well driller, pump or plumbing contractor, Environmental Health Specialist or water lab employee.

## OWTS PERMIT ISSUANCE

When all applicable items above have been completed to the satisfaction of EHD, an OWTS installation permit can be issued to the owner/agent or to a contractor with the required license(s) from the EHD. The permit is valid for one year and allows for the inspection of the completed OWTS installation by EHD staff prior to backfilling any portion of the installation. In order to make the OWTS permit processing as smooth and efficient as possible, it is recommended that you maintain a record of all paperwork and project control numbers obtained from each Department.

If an owner submits to the EHD an application for a permit extension for a sewage disposal system while the permit is still valid, the health officer shall grant one extension of the permit for a period of one year for the sole purpose of allowing the owner to complete construction and obtain final approval of the system.

## LOT SIZE REQUIREMENTS

The minimum lot size for the use of a new septic system within an existing subdivision shall have a net area greater than or equal to 15,000 sq. ft. However, those lots granted a waiver by Lahontan are exempted from this requirement. Lots of less than 30,000 in size and using an individual sewage disposal system and water supply require special consideration because of their small size and may not be developable.

The EHD has had a minimum lot size requirement of 1 acre, since 1981, for lots proposed to be created and developed based on the use of OWTS. The average density for any subdivision of property made pursuant to the Subdivision Map Act proposing to use OWTS shall not exceed the allowable density values in the table below for a single-family dwelling (SFD), or its equivalent, Where zoning regulations require greater lot sizes, those regulations shall take precedent.

### AVERAGE ALLOWABLE DENSITIES FOR SUBDIVISION LOTS<sup>1</sup>

Average Annual Rainfall (in/yr)	Allowable Density (acres/SFD unit)
0 – 15	2.5
>15 – 20	2.0
>20 – 25	1.5
>25	1.0

## SOIL AND PERCOLATION TEST REQUIRMENTS

Percolation testing shall be performed in accordance with the EHD percolation test procedures found in Appendix I of this LAMP. Backhoe excavations and percolation tests are used to demonstrate that the dispersal site is located in an area of uniform soil and that no conditions exist which could adversely affect the performance of the system or result in groundwater degradation.

1. Leach line systems are limited to soils with percolation rates of 60 minutes per inch or less and more than 1 minute per inch. Percolation rates in excess of 60 minutes per inch and faster than 1 minute per inch are unsuitable for the installation of a conventional OWTS dispersal system. However, conventional systems with percolation rates of 1 to 5 minutes per inch must have increased depths to groundwater (see Goundwater Separation requirements below).

2. At least three percolation test holes at each leach field location should be provided to represent soil types at the depth of the proposed leach lines.
3. At least two backhoe excavations should extend to a depth of at least 8 feet. There shall be a minimum of 5 feet of natural unsaturated, permeable soil between the bottom of the dispersal system and bedrock, hard pan, or impermeable soil layer. A minimum of 2 feet is acceptable for alternative systems or systems using supplemental treatment. See the next for more information on groundwater separation requirements.

The distinction between bedrock and soil is that soil is susceptible to extraction by pick and shovel. Rock fragment content of native soil surrounding the dispersal system shall not exceed **50** percent by volume for rock fragments sized as cobbles or larger and shall be estimated using either the point-count or line-intercept methods.

Dispersal systems shall not be allowed in fill material, unless that material has been certified by a civil engineer to be appropriate for such use and that wastewater will not affect the fill or surface at the base of such material.

4. Additional backhoe excavations may be required to demonstrate uniformity of soil throughout the leach field area(s).
5. Leach line dispersal systems are limited to slopes of 30 percent or less unless the requirements under the section titled Leach Lines on Steep Slopes found later in this chapter are met.

## **Groundwater Separation Requirements for Onsite Wastewater Treatment Systems**

### **Groundwater Separation**

This section is to be used for determining groundwater levels when siting and designing onsite wastewater treatment systems (OWTS) with the purpose to:

- Protect the groundwater quality by ensuring proper treatment of the sewage effluent prior to its entering into the groundwater.
- Protect the public health from failing OWTS caused by high groundwater.
- Provide a methodology for the evaluation of potential building sites using OWTS with regards to maintaining minimum groundwater separation requirements with the use of an OWTS.

The Environmental Health Department requires that at least a five-foot separation be maintained between the bottom of a conventional OWTS disposal system and the highest anticipated groundwater level. For OWTS with supplemental treatment, the required separation can be reduced to no less than two feet. This reduction is allowed due to the level of pretreatment provided by the alternative or supplemental treatment.

The minimum depth to the anticipated highest level of groundwater below the bottom of the leaching trench, and the native soil depth immediately below the leaching trench, shall not be less than prescribed in Table 2.

Table 2: Tier 1 Minimum Depths to Groundwater and Minimum Soil Depth from the Bottom of the Dispersal System

Percolation Rate	Minimum Depth
Faster than 1 MPI Percolation Rate	Alternative or Supplemental Treatment Syst.
1 MPI ≤ Percolation Rate < 5 MPI	Twenty (20) feet or Alternative System
5 MPI ≤ Percolation Rate ≤ 60 MPI	Five (5) feet
60 MPI < Percolation Rate ≤ 120 MPI	Alternative or Supplemental Treatment Syst.

Groundwater typically fluctuates seasonally depending on local geology and rainfall amounts. Groundwater levels fall in response to drought and well extraction, and rise in response to rainfall and in some cases, increased irrigation, agriculture and residential development.

OWTS failures due to high groundwater result in sewage effluent backing up into homes and surfacing on the ground creating public health hazards, and can contribute to the contamination of potable groundwater resources.

Experience has shown that there are instances where the absence of groundwater in a ten, fifteen or even twenty foot deep observation boring on a lot does not guarantee that groundwater will not rise to within five feet from the bottom of the proposed OWTS during periods of normal or above normal rainfall. In some cases, the only certain way to determine depth to high groundwater on a site is to observe the groundwater depth during or immediately after an above average rainfall season. If groundwater has been documented to rise to a level that would violate the requirements of the RWQCB, a permit for the OWTS will not be issued.

#### **PROCEDURE FOR GROUNDWATER DETERMINATION FOR DISCRETIONARY PROJECTS**

Subdivisions, parcel maps, boundary adjustments, certificates of compliance and percolation tests are all projects that may require EHD to certify that each lot can support an OWTS that will not violate the RWQCB mandates. To meet this requirement, test soil profile excavations and/or piezometers for monitoring groundwater in conformance with this policy may be installed. Maps showing the location of the soil profile excavations and their logs shall be submitted to EHD. The project engineer, geologist or environmental health specialist (qualified professional) must determine the actual and potential high groundwater levels in the area of the proposed OWTS at the time of submittal for review by EHD.

The qualified professional, must support their expressed conclusion that it is unlikely that seeps or springs would develop as a results of the OWTS and the high historic groundwater elevation will not encroach upon the minimum separation required between the bottom of the proposed OWTS and the highest anticipated groundwater level.

Transient high groundwater conditions (spikes) must be documented thoroughly if encountered. A written discussion by the qualified professional must be submitted to EHD along with groundwater monitoring log(s) for review and concurrence. The discovery of groundwater spikes on a lot will be evaluated on a case-by-case basis.

EHD and/or the RWQCB may require a comprehensive hydro-geologic study. This study shall include but not be limited to; data such as rainfall, projected water use, surface drainage, geologic formations, depth of water table and other relevant data as determined by the registered professional.

#### **EXISTING LOT OWTS DESIGN REVIEW**

1. If the site review reveals any evidence of groundwater changes, including but not limited to; plant growth, ponding water, or OWTS failures in the area, additional groundwater test soil profile excavations may be required. EHD staff will specify the depth and the locations of the additional test soil profile excavations in consultation with the qualified professional in charge of the project.
2. When groundwater is observed in the soil profile excavations and EHD has reason to believe that groundwater could rise to an unacceptable level during the course of a normal rainfall season, monitoring may be required to determine that groundwater will not rise to an elevation that will not provide the minimum separation required from the bottom of the proposed OWTS. Monitoring, if required, must be conducted during the course of an average or above average annual rainfall year and during the months of the highest anticipated groundwater (usually April, May, June) (Wet Weather Testing).
3. When groundwater is not observed in the boring but there is evidence of past high groundwater levels, such as documentation of groundwater rise on adjacent properties, or soil mottling, monitoring may be required.
4. If there is a dry boring, there is not a known history of rising groundwater and there is no evidence of groundwater changes, including but not limited to; plant growth, ponding water, soil mottling, or OWTS failures in the area the project monitoring will not be required.
5. The qualified professional conducting the groundwater study must support their express conclusion it is unlikely that seeps or springs would develop as a result of the OWTS and the anticipated high groundwater elevation will not encroach upon the minimum separation required to the bottom of the proposed OWTS. The supporting data shall include, but not be limited to, data on the sites topography, soils, geology, basin studies, hydro-geologic studies, and groundwater-monitoring data from the on-site observation wells through an above normal rainfall year.

#### **TESTING PROCEDURES FOR GROUNDWATER**

1. A site evaluation shall determine that adequate soil depth is present in the dispersal area. Soil depth is measured vertically to the point where bedrock, hardpan, impermeable soils, or saturated soils are encountered or an adequate depth has been determined. Soil depth shall be determined through the use of soil profile(s) in the dispersal area and the designated dispersal system



replacement area, as viewed in excavations exposing the soil profiles in representative areas, unless the local agency has determined through historical or regional information that a specific site soil profile evaluation is unwarranted.

The profiles shall be a minimum of 8 feet in depth. Deeper depths may be required depending on site-specific conditions as determined by EHD or the project qualified professional. Site-specific conditions may include, but not be limited to; the proposed depth of the system, local geology, soil types encountered, percolation rates, elevation and terrain, features on site, evidence and/or knowledge of historic ground water levels in the area, and the anticipated fluctuation of the groundwater table in times of normal to above normal annual rainfall.

2. Since groundwater does not always immediately flow into a test boring, EHD requires a minimum of 72 hours pass before an accurate groundwater measurement is taken. The qualified professional and/or the property owner maintain full responsibility for protecting the public from any hazards related to the test soil profile excavations. It is recommended that all test soil profile excavations that encounter groundwater be converted to observation wells so the groundwater conditions can be monitored over time.
3. If the qualified professional does not wish to complete the test soil profile excavations as observation wells, they can cover the test boring, place safeguards around the soil profile excavations to prevent unauthorized access and make an appointment for EHD staff to observe the boring at least 72-hours after the boring has been completed.
4. During periods of below normal average rainfall, or after periods of drought where there has not yet been sufficient ground water recharge, the absence of groundwater in test soil profile excavations in areas where groundwater is suspect may not mean that approval to issue a septic tank permit can be granted. It may be necessary for EHD and the qualified professional to monitor the test soil profile excavations for a sufficient period of time to determine where groundwater will rise to during normal to above normal rainfall.

## **SPECIAL CONDITIONS**

Certain conditions such as building in a flood plain, high ground water, less permeable soils (perc rates slower than 60 MPI), limited parcel size, or excessive rock may necessitate that the septic system be designed by a Professional Engineer. NOTE: Use of an engineer does not guarantee Environmental Health acceptance or approval of any engineered sewage disposal design submitted. Some existing properties may be unsuitable for the use of individual onsite sewage disposal systems for a variety of reasons.

## Chapter 8

### Minimum OWTS Design and Construction Standards (Tier 2)

A Licensed General Engineering Contractor (Class A), General Building Contractor (Class B), Sanitation System Contractor (Specialty Class C42), or Plumbing Contractor (Specialty Class C-36) shall install all new OWTS and replacement OWTS in accordance with California Business and Professions Code Sections 7056, 7057, and 7058 and Article 3, Division 8, Title 16 of the California Code of Regulations (Plumbing Code). A property owner may also install his/her own OWTS if the as-built diagram and the installation are inspected and approved by the EHD at a time when the OWTS is in an open condition (not covered by soil and exposed for inspection).

#### Septic Tanks

All conventional OWTS require the use of a septic tank to allow for the removal of solids in the wastewater prior to being discharged to the dispersal field. Alternative OWTS also require a septic tank unless a settling chamber is a component of the treatment unit. This Chapter will provide the minimum design specifications and requirements for septic tanks.

1. Septic tanks must be certified by the International Association of Plumbing and Mechanical Officials (IAPMO) or stamped and certified by a California registered civil engineer as meeting the industry standards, and their installation shall be according to the manufacturer's instructions. All new or replacement septic tanks and new or replacement oil/grease interceptor tanks shall comply with the standards contained in Sections K5(b), K5(c), K5(d), K5(e), K5(k), K5(m)(1), and K5(m)(3)(ii) of Appendix K, of Part 5, Title 24 of the 2007 California Code of Regulations (Plumbing Code).
2. The tank shall be watertight and possess two chambers.
3. Septic tanks shall be certified by the manufacturer to allow for burial without being water filled to allow for routine maintenance or to be used as a holding tank as needed.
4. Septic tanks shall be installed per the manufacturer's instructions.
5. The bottom of the excavation for the tank shall extend into native or compacted soils to eliminate potential settling issues and shall be level.
6. Septic tank location must take into account maintenance and pumping requirements including vehicle access; and distance and elevation lift to pumper truck.
7. Inlet tees must be uncapped and must extend at least 14 inches below the liquid level.
8. Outlet tees must be uncapped and must extend at least 12 inches below the liquid level.

9. The outlet elevation shall be between 2 and 6 inches lower than the inlet elevation to ensure proper fall without a significant loss of volume.
10. Fall between the outlet of the septic tank and the dispersal field shall be continuous with a minimum fall that ensures the outlet pipe is 4 inches higher than the leach rock or other components used in the dispersal system on a level system. Septic tank to leaching trenches shall be a distance of at least 5 feet.
11. Septic tanks with greater than 6 inches of cover must have water tight risers to within 6 inches of finished grade. Risers and lids that are at or above grade must be watertight and lockable or require tools to be opened.
12. Septic tank risers must have a current IAPMO certification or must be reviewed and approved by EHD prior to use. Concrete risers and lids must be constructed of Type V concrete or be protected from corrosion from sewer gases. The interior diameter of the riser shall be a minimum of eighteen (18) inches.
13. Septic tanks installed in areas of vehicular traffic must be certified to withstand the proposed loads or have an engineered traffic slab installed to accommodate the proposed loads.
14. Minimum tank size is 1000 gallons.
15. Septic tanks shall be sized according to anticipated wastewater flows from the structure(s). The following standard sizes shall apply:
  - a. 1-3 bedroom single family dwelling (0-400 GPD) 1000 gallons
  - b. 4 bedroom single family dwelling (401-500 GPD) 1200 gallons
  - c. 5-6 bedroom single family dwelling (501-700 GPD) 1500 gallons
  - d. Flows greater than 700 GPD must utilize the following formula to determine minimum tank sizing:  $1125 \text{ gallons} + (.75)(\text{Flow in GPD})$ .
16. Minimum slope of the building sewer to the septic tank shall be  $\frac{1}{4}$  inch per foot. A two way clean out shall be installed within 2 to 5 feet of the house. Additional clean outs shall be required at intervals not to exceed 100 feet in straight runs and where changes in alignment or grade occur.

## Leach Line Systems

Leach lines systems are the primary means of effluent dispersal for the majority of OWTS within Lassen County and this Chapter will establish procedures for the design and construction of leach line dispersal systems. The amount and type of disposal field required will be determined by the County Environmental Health Specialist and will be based upon the percolation test data submitted by the applicant. The procedures are specific for leach lines, and do not apply to other types of dispersal systems. No system

shall be installed on filled ground unless the fill is designed, evaluated, and approved by a Licensed Civil Engineer. For leach lines on slopes exceeding 30% slope, refer to the Steep Slope section of this Chapter.

### **SOIL COVER REQUIREMENTS**

1. The maximum soil cover allowed over the top of the infiltrative surface is 48 inches, measured from the top of the leach rock/chamber/etc. to the ground surface.
2. The minimum cover required over the top of the infiltrative surface is 12 inches. Preferred depth of earth cover over leach lines is 18 inches.
3. Soil cover requirements must also conform to those allowed by the manufacturer of any gravel-less/chamber design.
4. The top of a new leaching trench shall be hand tamped (not by machine) and shall be over filled with 4 to 6 inches of earth to allow for settlement.

### **DIMENSIONS**

1. Leach lines are to be installed according to the permits specifications for location, length, width, and depth.
2. Leach lines will normally be 36 inches deep. Minimum depth will be 30 inches and maximum depth will be 10 feet. Deep trenches will only be approved in limited situations.
3. Leach lines are to be spaced at least 10 feet apart, measured center to center.
4. Leach lines shall be installed with a width of no less than 18 inches and no more than 36 inches. The standard width for residential systems in Lassen County is 36 inches. Systems utilizing chambers may be sized to no less than 0.70 of that prescribed below.
5. Maximum length of any leach line shall be 100 feet, and ALL LEACH LINES in a system MUST BE OF EQUAL LENGTH.
6. A 100% reserve area shall be required for all leach line systems.

### **MATERIALS AND CONSTRUCTION CONSIDERATIONS**

1. All piping and materials used in leach line systems including gravel-less/chamber systems must have UPC and IAPMO approval and must be approved by EHD prior to installation.
2. The standard size of chamber approved for use in Lassen County is twelve (12) inches high and thirty-four (34) to thirty-six (36) inches wide.
3. Leach lines that utilize gravel shall be filled with clean, washed leach line rock to a point at least 2 inches above the top of a 4 inch perforated pipe and shall have a minimum of 12 inches of gravel below the pipe. The rock shall be graded at 1 to 3 inches in size and shall be covered with straw, untreated building paper or a geotextile fabric prior to backfill to prevent the infiltration of soil into the rock. The ends of leach pipes must be capped.

4. Leach lines may not be placed under impermeable surfaces. Leach lines that are later covered by impermeable surfaces may not be considered as viable for purposes of determining primary and reserve area requirements.
5. Leach line trenches shall be installed with the trench bottom and materials used (perforated pipe, chambers) being level. Tolerances will be kept to within 2 inches per 100 feet.

#### **DISTRIBUTION BOXES**

Where two or more drain lines are installed, an approved distribution box of sufficient size to receive lateral lines shall be installed at the head of each disposal field. The distribution box outlets shall be level and the inlet shall be at least one inch above the outlets. Distribution boxes shall be designed to insure equal flow and shall be installed on a level concrete slab in natural or compacted soil. Five feet of natural or compact soil shall separate the distribution box from the leach trench.

#### **LEACH LINES ON STEEP SLOPES**

The following requirements must be met for the installation of leach line trenches on slopes exceeding 30 percent without necessitating the grading of terraces. The design parameters are applicable only to slopes exceeding 30 percent and are not intended to be used in any other situation.

1. The maximum slope allowed for leach line trenches is 40 percent.
2. All leach lines on steep slopes shall be installed in 5 foot deep trenches with 12 inches of leach rock below the leach pipe or with approved chambers or other gravel-less system.
3. The design of disposal systems on steep slopes requires the experience and expertise to address conditions relative to soil, slope stability, and subsurface conditions which require professional judgment and technical knowledge. Designs for steep slope systems will only be approved when submitted by a qualified professional registered in the State of California.
4. Testing must provide data representative of the entire disposal area and demonstrate that conditions are uniform below the entire disposal area. The minimum testing required is:
  - a. Six percolation tests at a depth equal to the proposed trench depth.
  - b. Two percolation tests five feet below the proposed trench depth.
  - c. Percolation testing must show rates of 60 minutes per inch or less.
  - d. At least two soil profile excavations demonstrating uniform conditions throughout the disposal area to a depth of 10 feet below the proposed trench depth.
5. Design reports must include the following:
  - a. Cross section(s) hillside soil profile(s).
  - b. Detailed boring logs of all test holes and soil profile excavations.

- c. Scaled layouts and profiled designs based on accurate topography.
- d. Any grading proposed on the site in the disposal area.
- e. A slope stability report or statement from a qualified professional.

**SIZING**

1. Residential leach line systems shall be sized based on the chart located below, which shows the length of leach line as a function of percolation rate and the number of bedrooms for a single-family dwelling.
2. Non-residential leach line systems shall be calculated by a qualified professional using expected peak wastewater flows and safety/surge factor of 2 unless a reduction is allowed by EHD. Application rates shall be as provided in the table below.
3. A conventional system shall be designed to receive all domestic sewage from the drainage system. No basement, floating or surface drainage, shall be permitted to enter any part of the system.

**Square Feet of Required Leach Line**

Percolation Rate	Application Rate	2 bdrm (300 gallons)	3 bdrm (400 gallons)	4 bdrm (500 gallons)	5 bdrm (600 gallons)
<1	1.2	Alternative/Supplemental Treatment Systems Only			
1-5*	1.2	250	333	417	500
10	0.8	375	500	625	750
15	0.73	411	548	685	822
20	0.66	454	606	758	909
25	0.59	508	678	847	1017
30	0.53	566	755	943	1132
35	0.48	625	833	1042	1250
40	0.42	714	952	1190	1429
45	0.37	811	1081	1351	1622
50	0.31	968	1290	1613	1935
55	0.26	1154	1538	1923	2308
60	0.2	1500	2000	2500	3000
65	0.18	Alternative/Supplemental Treatment Systems Only			
70	0.17				
75	0.15				
80	0.13				
85	0.12				
90-120	0.1				

\* 20 feet to groundwater or Alternative/Supplemental systems

Use of Chambers may use a multiplier of no less than .70 of required square footage.

### Square Feet of Required Leach Line Utilizing Chambers

	2 bdrm (300 gallons)	3 bdrm (400 gallons)	4 bdrm (500 gallons)	5 bdrm (600 gallons)
<1	Alternative/Supplemental Treatment Systems			
1 to 5	175	233	292	350
10	263	350	438	525
15	288	384	479	575
20	318	424	530	636
25	356	475	593	712
30	396	528	660	792
35	438	583	729	875
40	500	667	833	1000
45	568	757	946	1135
50	678	903	1129	1355
55	808	1077	1346	1615
60	1050	1400	1750	2100
65	Alternative/Supplemental Treatment Systems			
70				
75				
80				
85				
90-120				

### Seepage Beds

Seepage beds may be used when lot size and/or setbacks prohibit installation of standard leach lines. Seepage bed construction is similar to standard leach lines except for sizing and spacing of lateral piping.

Seepage beds will be sized with 1.5 times the absorption area as for leach lines calculating bottom area only.

Distribution piping will be spaced no more than 4 feet apart and will be looped (interconnected) at the far end.

### Low Pressure Distribution (Pressure Dosed System)

For cost considerations and simplicity the preferred method of wastewater dispersal is by gravity flow. However, when site conditions preclude the use of this method, effluent may be distributed to a dispersal field under pressure.

1. The pump chamber or tank shall meet industry accepted standards, have a capacity equal to six hours of peak flow or 375 gallons, whichever is greater.

2. Be equipped with an audible and visible high water alarm.
3. There must be at least six (6) inches of soil cover over the distribution system.

### **Alternative and/or Supplemental Treatment Systems (Variances)**

Other dispersal systems may only be authorized for existing parcels and for repairs or replacements where siting and design limitations require a variance. All such systems must be designed by a Qualified Professional in conformance with State guidelines. However, the Environmental Health Department may adopt local design standards after consultation with the Regional Water Quality Control Board.

#### **Subsurface Drip Systems**

Subsurface drip systems are a special category of pressure distribution. When site conditions warrant, a subsurface drip system may be utilized in lieu of a standard dispersal field.

All wastewater discharged to a drip system shall have supplemental treatment. The drip lines must be placed in native soil, as level as possible and parallel to elevation contours. Up to twelve inches of fill may be placed over the drip lines in order to meet the minimum cover requirements. The amount of soil cover may be reduced to six inches if the wastewater has been treated to a tertiary level.

#### **Alternative and Supplemental Treatment Wastewater Treatment Systems**

Alternative Wastewater Treatment Systems are onsite wastewater systems utilizing dispersal fields consisting of components other than a conventional system designed to address unfavorable site conditions such as high groundwater, impervious soil formations, unacceptable percolation rates, and disposal field size limitations. Examples include, but are not limited to, “mound”, “at grade”, “sand filters”, “evapotranspiration”, and “gray water systems”. All Alternative OWTS’s must be designed and installed according to approved standards.

Supplemental Treatment Wastewater Treatment Systems are any OWTS or component of an OWTS, except a septic tank or dosing tank, that performs additional wastewater treatment so that the effluent meets a predetermined performance requirement prior to discharge of effluent into the dispersal field. They are designed to address conditions in 303 (d) list “Impaired Water Bodies” designated areas (see Tier 3).

The Environmental Health Department must approve any proposed method of supplemental treatment prior to installation. All Supplemental Treatment systems must be tested and certified by an independent testing organization such as NSF. Part of the testing must include an evaluation of the system’s effectiveness in reducing Total Suspended Solids (TSS), Bio-chemical Oxygen Demand (BOD) and Total Nitrogen (TN). Any supplemental treatment system shall be listed by testing organization and treatment standard before being considered for permitting. Listing standards include but are not limited to:

- NSF Standard 40-Residential: Onsite Systems
- NSF Standard 41- Non-liquid Systems (composting toilets)
- NSF Standard 245- Nitrogen Reduction
- NSF Standard 350 & 350-1: Onsite Water Reuse



- NSF Standard 46: Components and Devices

The treatment objectives dictated by the site limitations determines which standard or standards may be applicable.

Because Alternative and Supplemental Treatment is usually provided as a mitigation factor, it is essential that the treatment system receive regular inspection, maintenance and servicing by a qualified technician to ensure that it is operating as designed. Therefore, Environmental Health Department requires that a maintenance agreement be signed and in place prior to the systems installation. This agreement is to remain in force for the life of the Alternative or Supplemental Treatment system.

Alternative and Supplemental Treatment onsite system owners shall be provided with an informational operation and maintenance document by the system designer or installer. This document shall provide the homeowner with clear and concise procedures to ensure operation and maintenance of the system and instructions for repair and/or replacement of critical items within 48 hours following failure.

### **Design Criteria for Alternative and Supplemental OWTS**

1. Alternative and supplemental systems may only be authorized for existing parcels and for repairs or replacements where siting and design limitations require a variance.
2. All systems must be designed by a registered civil engineer or qualified professional in conformance with State guidelines.
3. Treated effluent from all STS shall be discharged to a subsurface dispersal system consisting of leach lines, leach beds or pressurized dispersal systems.
4. Sizing for dispersal systems that utilize leach lines or leach beds shall be the same as those used for conventional OWTS.
5. A minimum 2 foot separation between the bottom of the dispersal system to the highest anticipated level of groundwater.
6. A minimum of 2 foot of permeable soil must exist below the bottom of the STS dispersal system.
7. The STS shall be equipped with a visual and audible alarm.
8. The system designer shall provide the property owner with a design, operations, monitoring and maintenance manual fully describing all components of the system and the proper and necessary operations, monitoring and maintenance of all components.
9. The owner shall be provided with an informational operation and maintenance document by the system designer or installer. This document shall provide the homeowner with clear and concise procedures to ensure operation and maintenance of the system.
10. To ensure that the system continues to function properly, it is to be inspected at least annually by a Qualified Inspector. Inspection reports shall be submitted to EHD detailing the findings of the inspection within thirty days. This agreement is to remain in effect for the life of the Alternative or Supplemental Treatment system.

**Special Permitting for Alternative and Supplemental Treatment Systems:**

1. An application for a permit to construct of an alternative or special design sewage disposal system shall include:
  - a. A report by a civil engineer that describes the proposed on-site sewage disposal system and the relevant physical conditions of the site, including all calculations, and
  - b. A written certification by the engineer stating: "I hereby certify that the design of the on-site sewage disposal system, based upon inspection of the site, including all tests and analyses, that in my professional judgement, are necessary or appropriate to determine that the system will function properly and treat and dispose of sewage in the manner described."
2. For the purpose of inspecting or monitoring any system, the county may enter any area of any property on which any system exists, without notice, during normal hours of operation, or based on reasonable cause to believe that there exists a condition related to the system that poses an imminent threat to public safety, health or welfare.
3. The county shall have the right to approve any consultants retained by the facility operator in connection with the management or operation of the on-site sewage facility. It is understood and agreed by and between the parties hereto that such right of approval shall in no way lessen, limit or otherwise affect the duties or obligations of the facility operator hereunder or the services to be performed by the county hereunder. Any changes or modifications to facility operator agreements or contracts shall be submitted to the county for review and compliance with the regulations contained herein.
4. Prior to final approval, the property owner shall record at the Lassen County Clerk-Recorder's office, a notice stating that an alternative or supplemental treatment system has been installed on the property. This "Notice to Property Owner" shall run with the land and will serve as constructive notice to any and all future property owners that the property is served by an alternative or supplemental treatment wastewater treatment system and is therefore subject to a contract for regular maintenance, monitoring and reporting requirements. A copy of the recorded document shall be provided to Environmental Health Department.

## Chapter 9

### Septage Management (OWTS Policy 9.2.6)

Septage management is difficult in Lassen County. No local sewage treatment plants have the capacity or permits to accept the material. Therefore, all septage goes to one local drying facility in Westwood, or to out of County sewage treatment plants. Dried septage is taken to an approved landfill. If 10 percent of all septic systems in the county were pumped annually for a 10 year pumping cycle, which is probably not the case but would be desirable, the estimated septage generated would be about 744,000 gallons per year or 62,000 gallons per month. The County continues to pursue approved alternatives or additional resources for septage disposal.

Lassen County has a septage truck registration program as provided below:

#### **Registration requirements for cleaning or disposal of the cleanings from septic tanks, chemical toilets, cesspools, holding tanks, and sewage seepage pits.**

Tanks shall be of metal construction, welded or riveted, and shall be water tight and splash proof. The capacity in gallons shall be shown conspicuously on each side of the tank in letters at least four inches high.

Pumps shall be constructed to prevent leakage, spillage, or splashing. On all diaphragm or similar open pump types, a tight metal hood shall be provided over the pump.

Discharge gates or valves shall be leak proof and so constructed as to discharge their contents in a manner that will not create a nuisance. All inlets and outlets shall be provided with a cap to prevent dripping.

Adequate hoses shall be provided to pump contents from septic tanks or cesspools to truck tanks without spillage on surface of the ground. Hoses are to be cleaned on premises without any spillage of contents on the ground. A ¾ inch hose at least 50 feet long shall be carried with the equipment for cleaning purposes.

Racks for carrying equipment on the truck shall be provided. All parts of the truck and equipment shall be easily cleanable, with no pockets which can accumulate waste.

Cleanings shall be disposed of only at an authorized area approved by the department of environmental health. All persons who are registered to clean septic tanks, chemical toilets, cesspools, holding tanks and seepage pits (or to dispose the cleanings thereof) are required to file a letter with this office stating that the wastes are being legally accepted. This letter must be signed by the owner(s)/operator(s) of the receiving facility.

Registration (operating permit) shall be carried in the vehicle at all times. Applications for renewal shall be made to the Department of Environmental Health.

Notifications of changes in equipment shall be made at the time of the change.

Notification of change in address shall be reported in writing within two days after said change of address.

To receive a permit to operate a septic pumper truck(s) in Lassen County, the Lassen County Environmental Health Department requires that:

All trucks permitted in Lassen County must be physically inspected, and must meet, at a minimum, the nine above mentioned registration requirements.

Documentation must be provided of acceptance of pumpings from all facilities accepting the disposal of the cleanings from septic tanks, chemical toilets, cesspools, holding tanks, and sewage seepage pits that you are currently utilizing.

All pumping receipts must indicate the size of the septic tank(s), the quantity in gallons pumped, the type of tank (plastic, concrete, steel, etc.), the number of compartments, the absence/presence of inlet and outlet sanitary tees and baffles and the conditions of the tank, baffles, and tees.

At the end of each quarter, the operator must submit the **Septic Pumper Quarterly Report** form to the Lassen County Environmental Health Department.

## Chapter 10

### Impaired Water Bodies (Tier 3)

There are currently no bodies of Water within Lassen County identified as impaired pursuant to Section 303(d) of the Clean Water Act.

#### Onsite Wastewater Treatment Systems in Degraded Basins

If the Water Board identifies a groundwater basin or sub-basin in the County where the use of OWTS is causing or contributing to exceedances of nitrate or pathogen maximum contaminant levels (MCLs), the County will develop an Advanced Groundwater Protection Management Program (AGPMP) in close consultation with and approved by the Water Board. The AGPMP shall provide the same level of protection as the Tier 3 standards in the Policy and may include but not be limited to: supplemental treatment for all new and replacement systems, mandatory, routine inspections and maintenance, connection to the public sewer, shallow groundwater monitoring or other appropriate actions.

The County will require conformance with current standards, including supplemental treatment standards, to the greatest extent practicable. The requirements for existing systems will be consistent with Tier 4 of the Policy. Supplemental treatment standards will be equivalent to those contained in Tier 3. Variances from the prohibitions specified in sections 9.4.1 – 9.4.9 of the Policy and Chapter 5 of this LAMP, are not allowed in areas covered by an APMP .

#### Advanced Protection Management Plan

The State Policy stipulates that existing, new and replacement OWTS that are located near a water body that has been listed as impaired due to Nitrogen or pathogens pursuant to Section 303(d) of the Clean Water Act may be addressed by a TMDL and its implementation program, by special provisions contained in a Local Agency Management Program or by the specific requirements of Tier 3.

If a water body in the county is designated by the Water Board as “impaired” or significantly degraded as a result of the use of OWTS, Lassen County will develop an Advanced Protection Management Program (APMP) in accordance with the established TMDL. In the absence of an approved TMDL, the APMP will be developed in close consultation with the Regional Water Quality Control Board and may include but not be limited to requirements for supplemental treatment for existing systems and mandatory, routine inspections as determined by the Water Board in order to be consistent with the Policy. In the absence of a TMDL or an APMP approved by the Water Board, the provisions of Tier 3 of the Policy shall apply to OWTS adjacent to water body segments listed in Attachment 2 of the State Policy.

# Chapter 11

## Repairs and Substandard Systems (Tier 4)

### Failed Onsite Wastewater Treatment Systems

All OWTS have the potential to fail due to age, misuse or improper design. The failure may result in wastewater being discharged to the surface of the ground or wastewater backing up into plumbing fixtures. These failures will require corrective action to mitigate any risk to public health or contamination of the environment.

As with the installation of a new system, all repairs to an existing OWTS must be performed by a Qualified Contractor, must meet current standards, and must be completed under permit and inspection by the EHD. In cases of a failure that creates a health & safety hazard or nuisance where effluent is discharging to the surface of the ground, repairs must be made immediately.

When it has been determined that a system is failing or has failed and EHS has a permit record, the replacement dispersal field is to be the same type, and the same size or larger than the existing field. All requirements of this LAMP will be met as practicable.

A replacement system that meets the requirements of this LAMP shall be installed in those instances when the OWTS has failed and where previously permitted or considered legal non-conforming but the site is severely constrained. If site conditions preclude the installation of a new dispersal field that meets the adopted standards, supplemental treatment or alternative systems may be required if necessary to provide treatment equivalent to the adopted standard.

### Substandard Systems

All OWTS within Lassen County that do not meet minimum design requirements of this LAMP shall be deemed substandard. Sites with substandard OWTS shall be prohibited from having future additions or modifications to the property that would potentially increase wastewater flow to the OWTS or decrease the amount of usable area available for the OWTS.

### Onsite Wastewater Treatment System Abandonment Standards

Unless properly abandoned, an OWTS that is no longer used may represent a safety hazard. The top and lids of a septic tank deteriorate over time and may collapse should a vehicle drive or an individual walk over it leading to a serious injury or death. Therefore, EHD makes it a priority to ensure that these structures are properly abandoned to prevent such accidents.

An existing OWTS or a portion thereof shall be properly abandoned, under the following conditions:

- Upon the discovery of a cesspool
- When the structure is connected to the public sewer or
- When the structure served by the OWTS is demolished unless the owner demonstrates their intention to use the system again.

The abandonment standards for a septic tank include:

- The tank or pit must be pumped to remove all contents.
- A tank may be removed entirely or
- If left in place, the top is removed, the bottom punctured or cracked to allow for drainage and the shell filled with inert material such as clean soil, sand, cement etc.

Standards for abandoning the dispersal field include:

- Leach lines composed of gravel and pipe may be abandoned in place.
- If hollow chambers were used, the chambers must be removed and the trench backfilled. Hollow leaching chambers may remain in place with EHD approval.

## **APPENDIX I**

### **Percolation Test Procedure**

This Appendix is to be used to establish clear direction and methodology for percolation testing in Lassen County. The objective is to determine the area necessary to properly treat and maintain sewage underground; to size the OWTS with adequate infiltration surface area based on an expected hydraulic conductivity of the soil and the rate of loading; and to provide for a system intended to allow for a long-term expectation of satisfactory performance.

All percolation testing for dispersal systems in Lassen County shall be conducted through the use of the following procedures. The test shall be performed by or under the direct supervision of a California registered professional engineer, engineering geologist or registered environmental health specialist (qualified professional), Certified Professional Soil Scientist, with experience in onsite sewage disposal. The percolation test results are to be submitted with the plot plan to the Environmental Health Specialist at the time of the onsite inspection of your property. Soil profiles (i.e. eight (8) foot deep backhoe excavations) are required to determine the depth and composition of the soil and the distance to ground water. Any deviation shall be authorized only after receiving written approval by EHD.

#### **TEST HOLES**

##### **Number of Test Holes**

1. A minimum of three test holes are required.
2. Additional test holes may be necessary on a site specific basis for reasons that include, but are not limited to the following:
  - a. Unacceptable or failed tests.
  - b. Areas of the disposal field requiring defined limits for exclusion.
  - c. The disposal system is located out of a concentrated area (i.e. limited historical data).
  - d. Soil conditions are variable or inconsistent.

##### **Depth of Testing**

1. Test holes shall be representative of the dispersal system installation depth, with the standard or most common at 36 inches.
2. Conditions which may require testing deeper than leach line depth:
  - a. Shallow consolidated rock or impervious soil layers.
  - b. Slope exceeds 30%.



- c. Other factors as might be determined by sound geotechnical engineering practices.

### **Soil Classification**

1. All test holes and excavations shall have soil types described according to the American Society for Testing and Materials (ASTM) or the USDA Soil Classification System (Unified).
2. All excavations are to be reported, including any, which encountered groundwater or refusal. Comments about consolidation and friable characteristics are encouraged.

### **Location of Percolation Test Holes**

Test holes shall be representative of the dispersal area demonstrating site conditions throughout the entire sewage disposal system with equal consideration of primary and reserve leach fields, and at least 30 feet apart.

### **Identification of Test Holes**

1. Staked and flagged so the test holes can be located.
2. Identified with:
  - a. A test hole number or letter
  - b. The depth of the test boring
  - c. Lot/parcel number or letter if associated with a subdivision or lot line adjustment.

### **Drilling of Borings for Test Holes**

1. Diameter of each test hole shall be a minimum of 6 inches.
2. If a backhoe excavation is used, a test hole at 12–14 inches in depth shall be excavated into the bottom of the trench.

### **Preparation of Test Holes**

1. The sides and bottom of the holes shall be scarified so as to remove the areas that became smeared by the auger or other tool used to develop the hole.
2. All loose material should be removed from the hole.
3. Two inches of fine gravel should be placed in the hole to prevent bottom scoring.

### **PRESOAKING THE TEST HOLES**

#### **Procedure**

1. Carefully fill the test hole with 12-14 inches of clear water.

2. Maintain 12-14 inches of clear water for a minimum of four (4) hours. After four hours, allow the water column to drop overnight. (Testing must be done within 15-30 hours after the initial four-hour presoak).
3. Overnight Option: If clay soils are present, it is recommended to maintain the 12-14 inch water overnight. A siphon can be used to maintain the supply at a constant level.
4. In highly permeable sandy soils with no clay and/or silt, the presoak procedure may be modified. If, after filling the hole twice with 12-14 inches of clear water, the water seeps completely away in less than 30 minutes, proceed immediately to Case 2, Item 3 (below) and refill to 6 inches above the pea gravel. If the test is done the following day, a presoak will be necessary for at least an hour in order to reestablish a wetted boundary.

### **Saturation and Swelling**

1. Saturation means that the void spaces between soil particles are full of water. This can be accomplished in a short period of time.
2. Swelling is caused by the intrusion of water until the individual soil particles are full of water. This is a slow process, especially in clay-type soil and is the reason for requiring a prolonged soaking.

### **Use of Inserts**

1. If sidewalls are not stable or sloughing results in changing depth, the test hole may be abandoned or retested after means are taken to shore up the sides. The holes shall be re-cleaned prior to resuming the test.
2. Options for shoring or maintaining test hole stability:
  - a. Hardware cloth (1/8 inch grid)
  - b. Perforated pipe or containers
  - c. Gravel pack

(NOTE: A correction factor is necessary if a gravel pack is used. Show all calculations on the test report. See Adjustment Factor for Gravel Packed Percolation Test Holes later in this Appendix)

### **DETERMINATION OF PERCOLATION RATES**

Depending on the soil type and permeability, and the results of the presoak, variations in the procedures used for determining percolation rates can be allowed. Testing shall proceed based on the conditions outlined in the following cases.

Case 1 – Water remains overnight in the test hole following the four-hour presoak. (Unless an overnight siphon is used.)

Case 2 – Soil with a fast percolation rate is encountered where two columns of 12-14 inches of water percolates in less than 30 minutes for each column during the presoak.

Case 3 – No water remains in the test hole 15 -30 hours after the four-hour presoak.

### **Case 1 Procedure**

1. Adjust depth of water to 6 inches in the hole.
2. Take two (2) readings at thirty (30) minute intervals and report percolation rate as the slower of the two readings. Until stabilized or for a period of 4 hours.

NOTE: When a minimum amount of water remains due to a damaged hole or silting, the hole may be cleaned out and tested under Case 3, starting with the presoak.

### **Case 2 Procedure**

1. Begin test 15-30 hours after presoak.
2. Fill the hole twice with 12-14 inches of water. Observe to see if each column of water seeps away in less than 30 minutes. If so, proceed with the percolation test. If not, go to Case 3.
3. Refill hole to 6 inches above the bottom.
4. Measure from a fixed reference point at ten (10) minute intervals over a period of one (1) hour to the nearest 1/16th inch. Add water at each 10-minute time interval.
5. Continue 10 minute readings as long as necessary to obtain a "stabilized" rate with the last 2 rate readings not varying more than 1/16th inch or for a duration of four (4) hours. The last water level drop will be considered in the percolation rate.

### **Case 3 Procedure**

1. Begin test 15-30 hours after presoak.
2. Clean out the silt and mud and add 2 inches of 3/8 inch pea gravel.
3. Adjust water depth to 6 inch above the pea gravel buffer and measure from a fixed reference point at 30 minute intervals to the nearest 1/16th inch.

NOTE: It is not necessary to record data points for the first hour as this is an adjustment period and a reestablishment of a wetted boundary.

4. Refill the hole as necessary between readings to maintain a 6-inch column of water over the pea gravel. If a fall of 1 inch or less is recorded, the test can continue without refilling until the next 30 minute reading interval.
5. Continue recording readings at 30 minute intervals for a minimum of four hours.

6. The last water level drop is used to calculate the percolation rate.

## **CALCULATIONS AND MEASUREMENTS**

### **Calculation Example**

The percolation rate is reported in minutes per inch. For example, a 30 minute time interval with a 3/4 inch fall would be as follows:

$$30 \text{ minutes} \div 3/4 \text{ inch} = 40 \text{ minutes per inch (mpi)}$$

### **Measurement Principles**

1. The time interval for readings are to reflect the actual times and are to be maintained as near as possible to the intervals outlined for the test. (10 or 30 minutes).
2. Measurements to the nearest 1/16th inch should be adjusted to the slowest rate, e.g., a reading observed between 3/8 inch and 5/16 inch (80 mpi and 96 mpi) would be reported as 96 mpi.
3. Measurements on an engineering scale (tenths of an inch) should follow the same principle, e.g., a reading observed between 0.4 inch and 0.3 inch (75 mpi and 100 mpi) would be reported as 100 mpi.

### **Measurements, Special Considerations**

1. Measurement from a fixed reference point shall be from a platform that is stable and represents the center of the test hole.
2. Percometer devices are encouraged and required when the depth of a test hole is greater than 60 inch in depth. Accurate measurement is vital and in cases of testing deeper than 60 inch, the report shall include a description of the measurement method and how the borings were cleaned out and prepared for testing.
3. Correction Factors
  - a. Void factor for gravel pack: See Below

## **REPORTS**

1. All test data and required information shall be submitted on approved EHD forms with appended data or information as needed. A minimum of three copies is required.
2. Reports shall be signed with an original signature by the consultant who either performed or supervised the testing.



## Adjustment Factor for Gravel Packed Percolation Test Holes

### Calculations

- X-Section Area of Test Hole,  $A_H = .25 \pi D_H^2$
- X-Section Area of Pipe,  $A_P = .25 \pi D_P^2$
- X-Section Area of Gravel Pack,  $A_G = A_H - A_P$
- Drainable Voids in Gravel Pack =  $n (A_G) *$
- Total Voids =  $A_P + n (A_G) = A_P + n (A_H - A_P)$
- Adjustment Factor, AF:

$$AF = \frac{A_H}{A_P + n (A_H - A_P)}$$

$$AF = \frac{.25 \pi D_H^2}{.25 \pi D_P^2 + n (.25 \pi D_H^2 - .25 \pi D_P^2)}$$

$$AF = \frac{D_H^2}{D_P^2 + n (D_H^2 - D_P^2)}$$

### Application

Adjusted Percolation Rate = MPI x AF

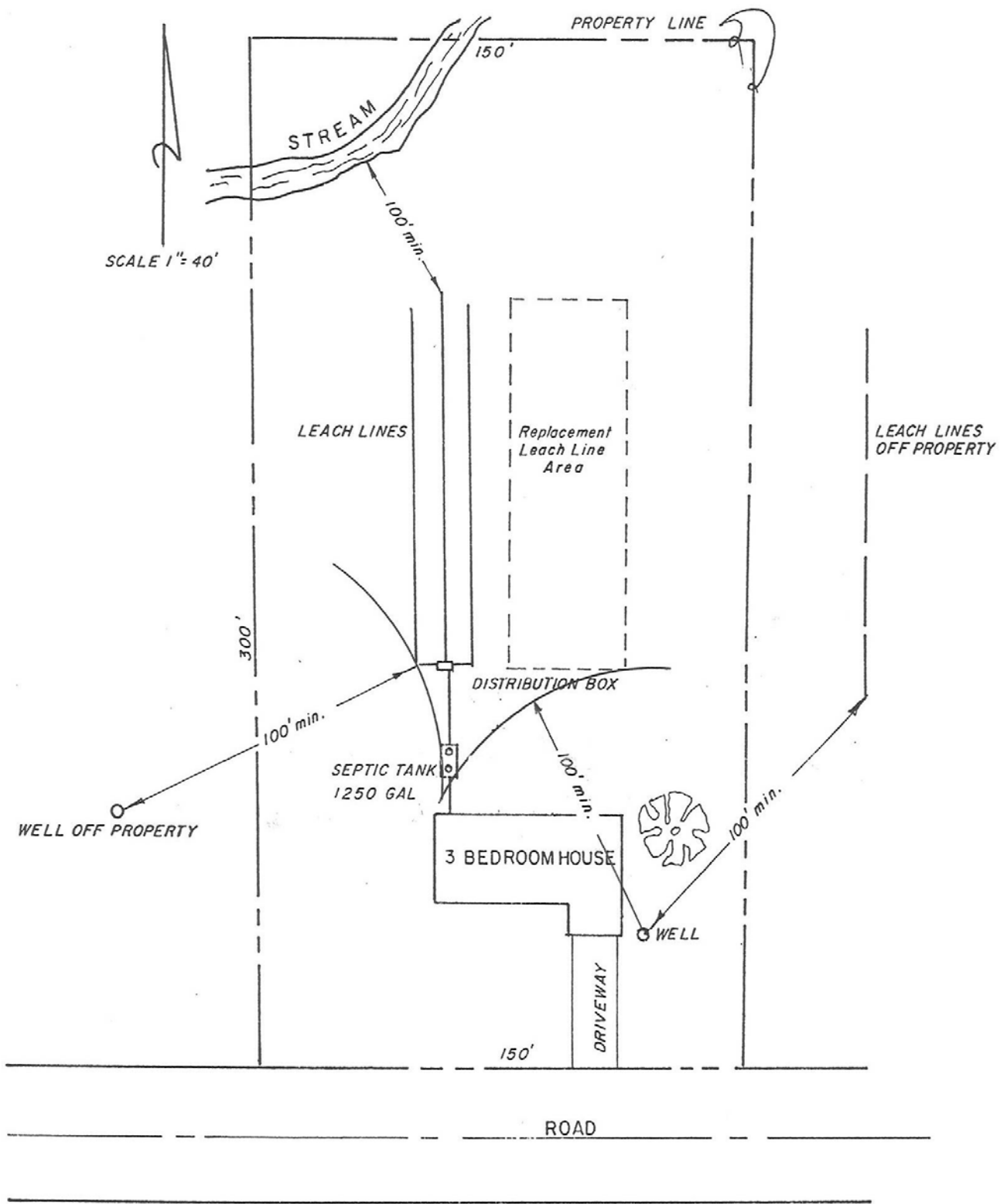
### Typical Values

For  $n = 0.35$

Pipe Diameter	Hole Diameter	Adjustment Factor
4"	6"	1.57
4"	8"	1.95
4"	10"	2.20
4"	12"	2.37

\* A test should be run on the actual rock used to establish the Void Ratio (n).

# Sample Plot Map



**APPENDIX II**  
**STATE OWTS POLICY**