**County of San Diego**
**Department of Environmental Health and Quality**
**Land and Water Quality Division**

# Local Agency Management Program (LAMP) for Onsite Wastewater Treatment Systems

~~February 24, 2015 Final~~

DRAFT UPDATE

## ~~TABLE OF CONTENTS~~



**TABLE OF CONTENTS**

# CHAPTER 1.0 ~~Onsite Wastewater Treatment Systems Permitting Process and Design Criteria~~INTRODUCTION

## 1.1 Introduction

The Local Agency Management Program (LAMP) is the culmination of the actions required by Assembly Bill 885 (AB 885). AB 885 was introduced to the California State Assembly on February 25, 1999 and approved on September 27, 2000. This legislation directed the State Water Resources Control Board (SWRCB) to develop regulations or standards for onsite wastewater treatment systems (OWTS) to be implemented by qualified local agencies. The SWRCB adopted the Water Quality Control Policy for Siting, Design, Operation, and Maintenance of Onsite Wastewater Treatment Systems on June 19, 2012 (OWTS Policy). The policy was subsequently approved by the Office of Administrative Law on November 13, 2012 and became effective on May 13, 2013. As required by the OWTS Policy, the OWTS Policy was subsequently adopted into the Water Quality Control Plans (Basin Plans) for the Colorado River Basin and San Diego Regional Water Quality Control Boards. In addition to local ordinance authority to permit the installation of OWTS to address health and safety concerns, t~~T~~he OWTS Policy ~~allows~~ provides the option for a local agenc~~y~~~~ies~~ to submit a LAMP (a Tier 2 program under the OWTS Policy) to ~~to approve OWTS, based on a local ordinance, after approval of a LAMP by~~ the Regional Water Quality Control Board (RWQCB) for approval, and, upon approval, manage the installation of new and replacement OWTS to the extent authorized under that program and local authority. LAMPs approved under Tier 2 of the OWTS Policy provide an alternative method from Tier 1 programs to achieve the same policy purpose, which is to protect water quality and public health. In order to address local conditions, LAMPs may include standards that differ from Tier 1 requirements contained in Sections 7 and 8 of the OWTS Policy for new and replacement OWTS.

The purpose of the LAMP is to allow the continued use of ~~onsite wastewater treatment systems (~~OWTS~~)~~ ~~within the jurisdiction of San Diego 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.~~ To address the diverse range of geological and climatic conditions in the region, the County of San Diego (COSD), Department of Environmental Health and Quality (DEHQ) developed a LAMP as an alternative method to the Tier 1 requirements for new and replacement OWTS. The COSD LAMP was approved by the San Diego Regional Water Quality Control Board (RWQCB) on April 27, 2015 and by the County Board of Supervisors on July 24, 2015.

The OWTS installation permitting process and the prescribed standards contained in the LAMP ~~is~~are designed to protect groundwater sources and surface water bodies from ~~contamination~~ pollution through the proper siting, design~~, placement,~~ installation, operation, and maintenance~~, and assessment~~ of individual new and replacement OWTS. ~~This plan develops minimum standards for the treatment and ultimate disposal of sewage though the use of OWTS in San Diego 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.~~

- ~~Any OWTS with a projected wastewater flow of over 10,000 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.~~

## 1.2 ~~STATE, COUNTY AND CITY ROLES~~State/County Coordination

~~OWTS 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 San Diego County authorizes the County of San Diego (County), Department of Environmental Health (DEH) to issue certain OWTS permits throughout the county including within incorporated cities. No city within San Diego County is authorized to issue these permits.~~

~~The RWQCB 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. DEH requires that at least a five-foot separation be maintained between the bottom of the OWTS disposal point and the highest anticipated groundwater level for conventional OWTS, and at least a two-foot separation be maintained for alternative OWTS with supplemental treatment.~~

~~The goal of DEH'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. The County concurs with the RWQCB that the separation requirements the RWQCB has imposed are appropriate minimum requirements necessary to protect groundwater quality and public health whenever OWTS are used for sewage disposal. These requirements are a condition of the State's authorization for the County to issue OWTS permits locally. These restrictions cannot be modified by the County on a case-by-case basis, and must be rigorously implemented. Chapter 2 of this LAMP describes in detail how the County ensures that these State-imposed requirements are met.~~ As OWTS discharge wastewater to the subsurface and may impact water quality, they are discharges regulated under California Water Code (CWC) Section 13260, the Waste Discharge Requirements program implemented by the SWRCB and the RWQCBs. The SWRCB's OWTS Policy is regulation that was required pursuant to CWC Section 13290 et seq. and provides statewide minimum standards for small OWTS. The OWTS Policy includes a conditional waiver from the requirement for waste discharge requirements for OWTS owners when their OWTS meet the requirements and conditions contained within the OWTS Policy. OWTS are also typically regulated and permitted by local agencies under local ordinance authority derived from the California Constitution. CWC section 13002 provides that the provisions of CWC Division 7, the Porter-Cologne Water Quality Control Act (Section 13000-16104), and any ruling of the SWRCB, does not impose limitations on a county to adopt and enforce regulations not in conflict with these rules, or to declare, prohibit, and abate nuisances.

The OWTS Policy provides a tiered approach: Tier 0-Existing OWTS. No action needed except for those OWTS requiring Tier 3 or Tier 4 corrective actions; Tier 1-Statewide minimum siting, design, and construction standards for new and replacement OWTS; Tier 2-Allows for local agencies to implement alternative minimum standards to Tier 1 for new and replacement OWTS with an equivalent level of protection through a LAMP approved by the RWQCBs; Tier 3-Provisions for OWTS near impaired water bodies; and Tier 4-Requirements for OWTS needing corrective action.

The OWTS Policy and any OWTS provisions adopted in the RWQCB's Basin Plans provide the State's requirements for small OWTS regulation. State and Regional Boards are responsible for implementation of the OWTS Policy with local implementation of minimum standards contained in Tier 1 or Tier 2 for siting and design; minimum, interim actions in Tier 3 for OWTS near impaired water bodies; and minimum requirements for OWTS needing corrective actions in Tier 4. All actions by a local agency are limited to the extent of their local authority.

The COSD DEHQ implements a local OWTS permitting program for new and replacement OWTS under local ordinance and a OWTS Policy Tier 2 program LAMP approved by the Regional Board in 2015. The local program includes provisions for corrective action when an OWTS has defective components and OWTS that are no longer containing waste to the subsurface. Except for implementing the minimum standards in the LAMP for new and replacement OWTS, the local program does not contain special provisions for addressing OWTS near impaired water bodies. OWTS near impaired water bodies are best regulated under the Federal and State programs established for these water bodies, such as the Total Maximum Daily Load and Waste Discharge Requirements programs. The local program does provide for the interim regulation of new and replacement OWTS near impaired water bodies identified in Attachment 2 of the OWTS Policy, at such time any are listed, until a TMDL implementation plan is adopted by the water boards.

## 1.3 ~~DEFINITIONS~~Definitions

**"303 (d) list"** means the same as **"Impaired Water Bodies."**

**"Annual Operating Permit"** means an annual operating permit issued to an owner of an OWTS where ongoing maintenance monitoring and report submittal is required.

**"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/).

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

**"Cap/Cap depth"** means the depth measured from ~~depth below the~~ natural ground surface to the top

of the ~~horizontal or vertical seepage pit system where the~~rock gravel-fill~~ed infiltrative sidewall surface begins~~ in deep bed and vertical seepage pit dispersal systems.

**"CEDEN"** means California Environmental Data Exchange Network and information about it is available at the State Water Boards website or http://www.ceden.org/index.shtml.

**"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 are not authorized under this LAMP. 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.

**"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 natural slope greater than 60% or man-made contour that exposes the vertical soil profile. ~~Cuts and slopes require a 5 foot horizontal setback for every 1 foot of vertical height to any dispersal system.~~

**"Defective system"** (also referred to as a failing system) means an OWTS that allows sewage, human excrement, or other liquid wastes to be disposed of such that the waste is not confined underground, or which requires pumping of accumulated waste to in order to confine sewage underground.

**"Dispersal system"** means a leach field, deep bed, seepage pit, ~~mound~~, subsurface drip field, or other type of dispersal system for ~~final wastewater treatment and~~ subsurface discharge and final wastewater treatment.

**"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 ~~–~~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.

~~**"Dump station"** means a facility intended to receive the discharge of wastewater from a holding tank installed on a recreational vehicle. A dump station does not include a full hook-up sewer connection similar to those used at an individual space in a recreational vehicle park.~~

**"Domestic well"** means a groundwater well that provides water for human consumption and is not regulated by the ~~California Department of Public Health~~State Water Resources Control Board.

**"Drainage Course"** means a drainage consisting of native soils such as a natural swale or topographic depression which gathers or conveys runoff to a permanent or intermittent watercourse or water body.

~~**"Earthen material"** means a substance composed of the earth's crust (i.e. soil and rock).~~
**"Dump station"** means a facility intended to receive the discharge of wastewater from a holding tank installed on a RV. A dump station does not include a full hook-up sewer connection at an individual space in a recreational vehicle park.

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

**"Electronic deliverable format"** or **"EDF"** means the data standard adopted by the State Water Board for submittal of groundwater quality monitoring data to the State Water Board's internet-accessible database system GeoT~~t~~racker (http://geotracker.waterboards.ca.gov/).

**"Existing OWTS"** means an OWTS that was constructed and operating prior to the effective date of the~~is~~ OWTS Policy, May 13, 2013~~Policy~~, and OWTS for which a valid construction permit has been issued prior to the effective date of the OWTS Policy~~is 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.

**"~~Horizontal seepage pit~~Deep bed dispersal system"** means a gravel filled ~~dug~~ excavation, four to six feet wide, six to seven feet deep with a cap depth of two to five feet, and length determined by the percolation rate of the soil, that ~~and~~ receives the effluent discharge from a septic tank or other OWTS treatment unit for dispersal.

**"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.

**"Installation Permit"** means a document issued by a local agency that allows the installation, construction, reconstruction, repair, addition, modification, or abandonment of an OWTS.

**"Licensed installer"** means a licensed General Engineering Contractor (Class A), General Building Contractor (Class B). Sanitation System Contractor (Specialty Class C-42), or Plumbing Contractor (Class C-36). Such licensed installer shall install all new and replacement OWTS in accordance with California Business and Professional Code Sections 7056, 7057, and 7058 and Article 3, Division 8, Title 16 of the California Code of Regulations.

**"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.

**"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 the OWTS Policy, May 13. 2013.~~is~~ that is not a repair or a replacement.~~Policy.~~

**"Nonconforming OWTS"** means any existing, replaced, or repaired OWTS that does not conform to the current requirements related to system sizing, setbacks, groundwater separation, or allowable cover.

**"NSF"** means NSF International (a.k.a. National Sanitation Foundation), a not for profit, non-governmental organization that develops health and safety standards and performs product certification.

**"Oil/grease interceptor"** 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~~dispersal. The short form of the term may be singular or plural. OWTS includes a standard

system consisting of a septic tank with effluent discharging into a subsurface dispersal system of a leach trench dispersal system, a chamber dispersal system, or a seepage pit dispersal system. OWTS also includes an OWTS with supplemental treatment. OWTS do not include "gray water" systems pursuant to Health and Safety Code Section 17922.12.

**"Owner-Builder"** means an individual or group of individuals who own the property on which they plan to construct, alter, repair, improve, or remodel a building or structure or appurtenance thereto in accordance with the requirements and limitations set forth in the Business and Professions Code, Section 7044. Business and Professions Code, Section 7026.1 defines any person who acts as consultant to an owner-builder is a contractor.

**"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 taking into consideration differences between hydraulic loading rates and the infiltrative rates associated with wastewater, especially higher strength wastewater.

~~**"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~~LAMP.

**"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 is discharged~~falls~~.

**"Policy"** means the~~is~~ *State Water Resources Control Board's Water Quality Control Policy for Siting, Design, Operation and ~~Management~~ Maintenance of Onsite Wastewater Treatment Systems*.

**"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.

**"Potable water"** means water provided from a permitted public water system, as defined in Section 116275(h) of the California Health and Safety Code, that meets state and federal standards for consumption, a state small water system, as defined in Section 116275(n) of the California Health and Safety Code, that meets state standards for consumption, or groundwater from a permitted water well that is not part of a public water system or state small water system and that meets the following minimum water quality monitoring requirements: 1) at least one water sample obtained from the well within three months of submittal to DEHQ for review shall be negative for the presence of total coliform bacteria and fecal coliforms or *Escherichia coli* (E. coli); 2) at least one water sample obtained from the well and analyzed for Nitrate (as nitrogen) shall be less than the maximum contaminant level as specified in the California Code of Regulations, Section 64431 (10 mg/L); 3) other sampling that may be required by the Director of Environmental Health based on known or suspected sources of pollution

in the area that may affect the water quality of the well. The samples shall be analyzed by a laboratory certified by the State Water Resources Control Board for that analysis pursuant to California Health and Safety Code, Division 101, Part 1, Chapter 4, Article 3, commencing with Section 100825.

**"Projected flows"** means wastewater flows into the OWTS determined in accordance with provisions contained in this LAMP. ~~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 as defined in Section 116275 (h) of the California Health and Safety Code and regulated by the ~~California Department of Public Health~~State Water Resources Control Board or a Local Primacy Agency pursuant to the ~~Chapter 12, Part 4,~~ California Safe Drinking Water Act (California Health and Safety Code, Division 104, Part 12, Chapter 4), ~~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 and local requirements. The individual must also be certified and/or competently 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~~ LAMP 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~~ an ~~Septic Repair~~Installation Permit issued by the ~~County of San Diego Department of Environmental Health (~~DEHQ~~)~~ and must be inspected by DEHQ 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~~LAMP. Replacements require an

Installation Permit issued by the DEHQ and must be inspected by DEHQ staff.

**"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 using the USDA soil classification system.

**"Septic tank"** means a watertight, covered receptacle designed for primary treatment of wastewater and constructed to 1) ~~:~~

~~1.~~ Receive wastewater discharged from a building;
~~2.~~ 2) Separate settleable and floating solids ~~from the liquid~~;
~~3.~~ 3) Digest organic matter by ~~anaerobic~~ bacterial action; 4)
~~4.~~ Store undigested solids; and
~~5.~~ 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~~LAMP.

**"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 structure"** means the arrangement of primary soil particles into compound particles, peds, or clusters that are separated by natural planes of weakness from adjoining aggregates.

**"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~~see definition of "Soil").

**"Standard OWTS"** means an OWTS consisting of a septic tank with effluent discharging into a

subsurface dispersal system of a leach trench dispersal system, a chamber dispersal system, or a seepage pit dispersal system.

**"State Water Board"** is the State Water Resources Control Board.

**"STS"** is the acronym for Supplemental Treatment System and is used ~~in place~~to describe an ~~of~~ Onsite Wastewater Treatment System with Supplemental Treatment.

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

**"Supplemental treatment"** means 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.

**"SWAMP"** means Surface Water Ambient Monitoring Program and more information is available at: http://www.waterboards.ca.gov/water_issues/programs/swamp/

**"Telemetric"** means the ability to automatically measure and transmit OWTS data by wire, radio, or other means.

**"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.

**"Unstable land mass"** means areas showing evidence of mass downslope movement such as debris flow, landslides, rockfall, and hummock hill slopes with undrained depressions upslope. Examples are landforms exhibiting slip surfaces roughly parallel to the hillside; landslide scars and curving debris ridges; fences, trees, and telephone poles that appear tilted; and tree trunks that bend uniformly as they enter the ground. Active sand dunes are unstable landforms.

**"Vertical seepage pit"** means a drilled excavation~~, four feet in diameter,~~ that is gravel filled, and receives the effluent discharge from a septic tank or other OWTS treatment unit for dispersal.

**"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 2.0 ~~Groundwater Separation Requirements for Onsite Wastewater Treatment Systems~~LAMP SCOPE OF COVERAGE

## 2.1 Scope of Coverage

The scope of coverage under this LAMP encompasses the permitting of the installation of new and replacement OWTS, or one or more OWTS serving a single premise, up to a maximum of 3,500 gallons per day of low strength domestic wastewater only.

Any OWTS not regulated under the scope of the LAMP fall within the RWQCB jurisdiction for regulation. The DEHQ may issue an installation permit only after the siting and design have been approved by the RWQCB.

The scope of coverage under this LAMP for existing OWTS is limited to the permitting of OWTS for repairs to a septic tank, other structural repairs, defective component repairs, and for repairs to the dispersal system due to surfacing wastewater from the dispersal field and/or wastewater backup into plumbing fixtures because the dispersal system is not able to percolate the design flow of wastewater associated with the structure served.

2.1.1 The following OWTS are not included in the LAMP scope of coverage:

2.1.1.1 • OWTS with a projected wastewater flow of over ~~10,000~~3,500 gallons per day.

2.1.1.2 • OWTS that receives high strength wastewater unless the waste stream is from a commercial food service facility.

2.1.1.3 • 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.

2.1.1.4 OWTS receiving discharges of waste that are not domestic wastewater.

2.1.1.5 OWTS within an incorporated city or tribal jurisdictions, unless the authority has been delegated through specific municipal ordinance, memorandum of understanding, or another appropriate mechanism.

2.1.1.6 Existing OWTS where the RWQCB has determined the discharges are impacting groundwater to an extent requiring corrective actions.

2.1.1.7 OWTS where the RWQCB has determined that the discharges require effluent limitations and ongoing sampling, monitoring, and reporting.

2.1.1.8 OWTS proposed as the means of sewage disposal for subdivisions of land of four or fewer parcels that do not meet the minimum density allowed as shown in Table 3.7-1 (and where a standard nitrate loading study shows the potential for the resultant average of nitrate-nitrogen in recharge water to be over the water quality objectives established per the Basin Plan).

2.1.1.9 Review of OWTS proposed for subdivisions of land of five parcels or greater, or any development project, use permit, or building permit which may involve the discharge of wastewater from five-family units or five farm labor housing units or greater.

2.1.1.10 New OWTS proposed for any development project or building permit that does not meet the minimum requirements of this LAMP.

## 2.2 ~~CHAPTER 10 Onsite Wastewater Treatment System~~ Use Limitations

DEHQ '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 DEHQ and any such system or deviations can only be approved by the RWQCB.

2.2.1~~1.~~ Cesspools of any kind or size.

2.2.2~~2.~~ OWTS receiving a projected flow over ~~10,000~~3,500 gallons per day of any strength or type of wastewater.

~~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 DEH completed by a qualified professional that determines whether or not the discharge from the OWTS will adversely affect groundwater quality.~~

2.2.4~~4.~~ OWTS that utilize any form of effluent ~~disposal~~ dispersal that discharges on or above the post installation ground surface such as sprinklers, exposed drip lines, free-surface wetlands, or a pond.

2.2.5~~5.~~ Slopes greater than 25~~30~~ percent without a slope stability report approved by a ~~registered~~ qualified professional.

~~6. Decreased leaching area for IAPMO certified chamber dispersal systems using a multiplier less than 0.70.~~

2.2.7~~7.~~ OWTS utilizing supplemental treatment without requirements for periodic monitoring or inspections.

2.2.8~~8.~~ OWTS dedicated to receiving significant amounts of wastes dumped from RV holding tanks.

2.2.99. 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.

2.2.1010. Installation of new or replacement OWTS where public sewer is available. Public sewer availability is defined as follows:

2.2.10.1a. The property on which the structure is located abuts a public sewer, or a public sewer is located within 200 feet of the building.

2.2.10.2b. The property is within the boundaries of the sewer district or annexation has been approved by to the sewer district had been completed.

2.2.10.3c. No easements must be obtained to access the sewer line.

2.2.10.4 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,This provision does not apply to replacement OWTS where 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.

2.2.10.5 When a public sewer is not available, because one or more of the conditions above have not been satisfied, the drainage system of a building shall be connected to an approved and permitted OWTS.

2.2.1111. Except as provided for in Item 112.2.12 and 122.2.13, new or replacement OWTS with minimum horizontal setbacks less than any of the following:

2.2.11.1a. 150 feet from a public water well where the depth of the effluent dispersal system does not exceed 10 feet in depth.

2.2.11.2b. 200 feet from a public water well where the depth of the effluent dispersal system exceeds 10 feet in depth.

2.2.11.3c. 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.

2.2.11.4d. 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 waterhigh-water mark of the reservoir, lake or flowing water body.

2.2.11.5~~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.

2.2.12~~12.~~ For replacement OWTS that do not meet the horizontal separation requirements in Item 2.2.10 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.

2.2.13~~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 DEHQ.

## 2.3 Prohibited Discharges

Prohibited Discharges – Owners and ~~P~~/or those who maintain any OWTS shall prohibit any of the following to flow or enter into an OWTS:

2.3.1 **Automobile and Garage Waste.** Wastewater from automobile washing or garage/shop floors.

2.3.2 **Storm Drainage.** Roof drainage or drainage waste resulting from natural runoff or irrigation.

2.3.3 **Solvents and Toxics.** Gasoline, cleaning solvents, paints, thinners, oils, or greases other than normal residential kitchen wastes, from hazardous materials.

2.3.4 **Solids.** Cloth, rope, metals, and solids of any kind.

2.3.5 **Garbage.** Garbage and similar waste material except when processed by approved garbage disposal units.

2.3.6 **Kitchen Wastewater.** Wastewater from any restaurant, bar, or other kitchen where food is prepared for public consumption unless first directed through an approved grease trap, as required by the Uniform Plumbing Code and this LAMP.

2.3.7 **Air Conditioners.** Waste drainage from water cooled refrigeration air conditioning.

2.3.8 **Backwash.** Backwash from water softeners, iron filters, and swimming pools.

2.3.9 **Truck Terminal Wastes.** Oil, grease, grit, and miscellaneous waste from operation of truck terminal, including wash water from trucks and garage floors.

2.3.10 **Recreational Vehicle Holding Tank Waste.** Wastes dumped from recreational vehicle holding tanks.

2.3.11 **Industrial and Manufacturing Wastes.** Wastes from non-domestic sources, including from industrial or manufacturing processes.

2.3.12 **Food Processing Wastes.** Wastes from commercial food manufacturing or food production processes, excluding retail food facilities.

## 2.4 Basin Plan Special Provisions for OWTS

The State Water Resources Control Board and Regional Water Quality Control Board are responsible for adopting water quality policy, and any local ordinance and this LAMP must be consistent with these policies. This section reviews any special provisions contained in an applicable basin plan relating to OWTS within the scope of coverage of this LAMP.

### 2.4.1 Water Quality Control Plan for the Colorado River Region

The current version (including amendments effective on or before January 8, 2019) of the Water Quality Control Plan for the Colorado River Region (Colorado River Basin Plan) addresses OWTS in serval areas.

In Chapter 4-Implementation, Section II-Point Source Controls, Subsection H-Septic Systems, the Colorado River Basin Plan provides for OWTS to be regulated pursuant to the OWTS Policy and includes OWTS prohibitions and exceptions for three specific areas. None of these prohibition areas are located in San Diego County. The reference in this section to the Colorado River Basin Regional Board's 1979 *Guidelines for Sewage Disposal from Land Developments* was deleted in September of 2013 when the OWTS Policy was incorporated into the Colorado River Basin Plan (R7-2013-0049).

In Chapter 5-Plans, Policies, and Issues, Section II-Regional Water Board Policies, Subsection B-Sewage Disposal from Land Developments, there is a reference to the Colorado River Basin Regional Board's 1979 *Guidelines for Sewage Disposal from Land Developments* which had been deleted from Chapter 4-Implemenation as noted above. This section does not include a discussion on how this guidance is implemented within the scope and requirements of the OWTS Policy and its continued reference may be an oversight.

In Chapter 5-Plans, Policies, and Issues, Section III-Regional Board Issues, Subsection A-Septic System Impacts to Ground Water Basins, the Colorado River Basin Plan identifies seven areas where unsewered communities with high densities of OWTS have the potential to negatively impact groundwater. Of the seven communities identified, only one, Borrego Springs, lies within San Diego

County. This section provides, as staffing and finances permit, for the Regional Water Board to conduct investigations to determine the relative priority for sewering these identified communities.

### 2.4.2 Water Quality Control Plan for the San Diego Region

The current version (including amendments effective on or before September 1, 2021) of the Water Quality Control Plan for the San Diego Region (San Diego Basin Plan) addresses OWTS in several areas.

In Chapter 4-Implementation, OWTS is identified as a point source category (page 4-4, which is controlled by the Regional Board under the Waste Discharge Requirements (WDRs) permitting program (page 4-2). OWTS is also listed as an example of waste discharges subject to WDRs (page 4-11). In the section *Nitrogen in Interconnected Ground Waters and Surface Waters* (page 4-16), OWTS are listed as discharges with significant total nitrogen loads that may require total nitrogen effluents limits for projects or facilities that discharge to land near surface water bodies. The control mechanism included in this section is that the Regional Board may and most likely will adopt WDRs that require a reduced concentration in the proposed discharge effluents, reduction in total nitrogen loads, and or compliance with more stringent water quality objectives in receiving waters for the protection of beneficial uses of water resources.

This section identifies the OWTS Policy conditional waiver of WDRs for smaller OWTS that meet minimum design and siting conditions, including setbacks to surface water bodies, which allow for diffusion, dilution, and dispersion of an effluent plume before the affected ground water discharges to a surface stream. This section provides for OWTS that do not qualify for the waiver must be regulated with WDRs and includes as examples OWTS located at rural parks, schools, campgrounds, mobile home parks, roadside rest stops, small commercial or residential subdivisions, restaurants, resort hotels/lodges, small correctional facilities, temporary fire-fighting camps, and RV dump locations, including RV parks. For OWTS that pose a threat to surface water quality due to their size or proximity to a surface water body, the Regional Board will most likely require a Report of Waste Discharge (ROWD) to include a nitrate study.

OWTS are specifically addressed in the San Diego Basin Plan in the section *Onsite Wastewater Treatment Systems* (page 4-46). This section provides guidelines for new or replacement OWTS to proponents of projects involving new discharges of wastes to individual OWTS and also provides certain actions by local agencies to minimize water quality problems resulting from new OWTS. These include prohibiting OWTS where existing community sewerage collection systems are reasonably available, prohibiting use of new OWTS for any subdivision of land unless the governing body having jurisdiction determines that the use of individual OWTS will be in the best public interest, assuring individual OWTS are maintained to the satisfaction of the responsible health officer through local ordinances, and considering the cumulative impacts of individua OWTS discharges as part of the approval process for development.

This section also provides information on the OWTS Policy and its conditional waiver (page 4-49). It provides that the Regional Board will review specific proposals for OWTS that do not meet waiver conditions specified in the OWTS Policy or conditions specified in the applicable LAMP at the request of the local agency. For such OWTS proposals, a ROWD must be filed with the Regional Board and

WDRs must be obtained or waived by the Regional Board prior to recordation of the final map and/or issuance of a building permit (page 4-51).

In the section *Control of Nonpoint Source Pollution* (page 4-131), OWTS are included in a list of examples of categories of nonpoint source pollution. This section provides that the Regional Board will generally refrain from imposing effluent requirements on dischargers who are implementing Best Management Practices (BMP) in accordance with a waiver of waste discharge requirements. The BMPs become the primary mechanism for meeting water quality standards.

The Total Maximum Daily Loads (TMDL) section (page 4-185) of the San Diego Basin Plan provides information on the TMDL program regulating the amount of a pollutant that can be discharged into a water body and still maintain its water quality standards. Pollutant loadings in excess of the TMDL are expected to have an adverse effect on water quality by causing exceedances of the applicable water quality standards. Allowable pollutant loadings are calculated and assigned to all point source (as waste loading allocations) and nonpoint source (as load allocations) discharges to ensure that the applicable water quality standards are not exceeded in the receiving water. The TMDL for a pollutant in the receiving water, and the waste loading and loading allocations for a pollutant discharged from different sources into a water body are calculated at levels that, when each are met, are expected to result in the attainment of the associated water quality objectives for the pollutant and protection of the applicable beneficial uses in the receiving water. TMDLs are programs for the implementation of existing water quality standards and are incorporated into the Basin Plan. TMDLs are not self-implementing or directly enforceable for sources in the watershed but are implemented through the programs and authorities of the San Diego Water Board, including incorporating discharge prohibitions in the Basin Plan, issuing individual or general WDRs, or conditional waivers of WDRs.

In Chapter 5-Plans and Policies, the OWTS Policy is referenced but provides no additional details (page 5-13). In the Regional Board Resolutions section describing San Diego Regional Board resolutions important to the implementation of the Basin Plan, the following resolutions are referenced that have a nexus to OWTS:

- Resolution 79-44: *A Resolution Concerning 'Guidelines for New Community and Individual Sewerage Facilities.'*
- Resolution No. R9-2005-0036: A Resolution Adopting an Amendment to the Water Quality Control Plan for the San Diego Region (9) to Incorporate Total Maximum Daily Loads (TMDLs) for Total Nitrogen and Total Phosphorus in the Rainbow Creek Watershed, San Diego County.
- Resolution No. R9-2010-0001: A Resolution Amending the Water Quality Control Plan for the San Diego Basin (9) to Incorporate Revised Total Maximum Daily Loads for Indicator Bacteria, Project I – Twenty Beaches and Creeks in the San Diego Region (Including Tecolote Creek).

Chapter 7 of the San Diego Basin Plan provides information on TMDLs adopted into the Basin Plan. OWTS have been identified as a source or a potential source in the following TMDLs.

- TMDLs for Total Nitrogen and Total Phosphorus in the Rainbow Creek Watershed (2005)
    - Identifies OWTS, along with agricultural operations, as a source of total nitrogen to Rainbow Creek through the groundwater pathway (groundwater/surface water

interface at Rainbow Creek.

- Establishes numeric targets of 10 mg $NO_3$-N/L for Nitrate (as Nitrogen) and 1.0 mg/L for Total Nitrogen.
- Establishes a Total Nitrogen Mass Load of 3,834 kg N/yr to Rainbow Creek, including 200 kg N/yr assigned to OWTS. It should be noted that although agricultural operations were also identified as contributing to this total nitrogen mass load through the groundwater pathway, they were omitted as a source for the total nitrogen mass load allocation.
- Establishes an Annual Nutrient Loading Capacity for Total Nitrogen of 1,658 kg/yr for Rainbow Creek with a compliance date for attainment set at December 31, 2021.
- Provides for OWTS owners, as nonpoint source dischargers, to implement pollution prevention methods and increase the use of applicable management measures and practices where needed to control and reduce nutrient discharges to Rainbow Creek.
- Provides for the Regional Board to incorporate the OWTS Policy into the Basin Plan to address OWTS.
- Provides for NPS dischargers to be subject to Regional Board enforcement action for failing to comply with applicable waiver conditions, WDRs, discharge prohibitions.

- Revised TMDLs for Indicator Bacteria, Project 1-Twenty Beaches and Creeks in the San Diego Region (including Tecolote Creek) (2010)
  - Identifies persons as responsible for controllable nonpoint sources bacteria discharges causing or contributing to the impairments at beaches and creeks to include the owners and operators of individual OWTS.
  - Does not assign a Load Allocation to individual OWTS, which is equivalent to being assigned a load allocation of zero (not expected to or allowed to discharge a pollutant load as part of the TMDL).
  - Provides that nonpoint sources are or can be regulated under WDRs or conditional waivers of WDRs and for the San Diego Regional Board to utilize their regulatory tools and work with the nonpoint source dischargers and/or stakeholders when developing the WDRs.

It is important to note that the San Diego Basin Plan water quality objectives for nitrate in groundwater for the municipal beneficial use is typically 45 mg/L. However, the water quality objective for municipal beneficial use for nitrate in groundwater in the Rainbow Creek watershed is 10 mg/L and in the Warner Valley Hydrologic Area is 5 mg/L. These water quality objectives may impact OWTS usage in these areas.

## 2.5 LAMP Water Quality Assessment Program

The OWTS Policy Section 9.3.2 requires the local agency with an approved LAMP to maintain a Water Quality Assessment Program (WQAP). The WQAP's purpose is to determine the general operation status of OWTS, to evaluate the impact of OWTS discharges, and to assess the extent to which groundwater and local surface water quality may be adversely impacted.

2.5.1 The focus of the WQAP are the areas with characteristics or conditions listed below:

2.5.1.1 Degree of vulnerability to pollution from OWTS due to hydrogeological conditions.

DEHQ has identified two conditions that fall within this focus category and that are not address under a specific focus category, shallow groundwater and steep slopes. The areas identified with periods of shallow groundwater include the Rainbow Valley area in Fallbrook, the Citrus Avenue area in Escondido, the Valley Center and Woods Valley Roads area in Valley Center, the Granite Hills area in El Cajon, and in the Ramona Basin. Slopes, including steep slopes, are found in most areas of San Diego County.

The current site evaluation process in the LAMP ensures new and replacement OWTS meet the current standards relating to shallow groundwater and steep slopes, providing protection to ground and surface waters equivalent to the OWTS Policy for these focus conditions.

2.5.1.2 High Quality waters or other environmental conditions requiring enhanced protection from the effects of OWTS.

For this focus category, DEHQ has identified the following 24 reservoirs that store local and imported water supplies and that require protection from the effects of OWTS.

| **Table 2.5-1: San Diego County Reservoirs** | |
|---|---|
| Barrett - City of San Diego | Cuyamaca - Helix Water District |
| Dixon - City of Escondido | El Capitan - City of San Diego |
| Henshaw - Vista Irrigation District | Hodges - City of San Diego |
| Jennings- Helix Water District | Loveland - Sweetwater Authority |
| Lower Otay - City of San Diego | Maerkle - Carlsbad Municipal Water District |
| Miramar - City of San Diego | Morena - City of San Diego |
| Morro Hill - Rainbow Municipal Water District | Murray - City of San Diego |
| Olivenhain - San Diego County Water Authority | Poway - City of Poway |
| Ramona - Ramona Municipal Water District | Red Mountain- Fallbrook Public Utility District |
| San Vicente - City of San Diego | Sutherland - City of San Diego |
| San Dieguito - Santa Fe Irrigation District | Sweetwater - Sweetwater Authority |
| Turner - Valley Center Municipal Water District | Wohlford - City of Escondido |

The current LAMP includes protective siting and design standards for new and replacement OWTS in areas near streams and reservoirs to provide protection to these reservoirs equivalent to the OWTS Policy for this focus condition.

2.5.1.3 Shallow soils requiring a dispersal system installation that is closer to ground surface than is standard.

The current site evaluation process in the LAMP ensures new and replacement OWTS meet the current standards relating to shallow soils, providing protection to ground and surface waters equivalent to the OWTS Policy for this focus condition.

2.5.1.4 OWTS is located in area with high domestic well usage.

San Diego County imports about 80% of its water. According to the State Water Board, Division of Drinking Water's *Drinking Water Watch* database, most of the population within the county (3,413,684) is within the service boundaries of a public water system, with 98% of this population being provided drinking water from a surface water source. Those areas not served by a surface water source have drinking water supplied by domestic and public water wells.

The current site evaluation process and setback standards in the LAMP ensure new and replacement OWTS are located to protect water quality in areas where groundwater is utilized to provide drinking water through water wells, providing protection equivalent to the OWTS Policy for this focus condition.

2.5.1.5 Dispersal system is located in an area with fractured bedrock.

Although fractured rock generally comprises about 73% of the unincorporated areas of the county, varying characteristics and depths of soil overlay much of the fractured rock. The current site evaluation process and setback standards in the LAMP ensure new and replacement OWTS are located to prevent surfacing effluent and to protect water quality, providing protection equivalent to the OWTS Policy for this focus condition.

2.5.1.6 Dispersal system is located in an area with poorly drained soils.

Most soils maps show generalized areas of soil categories, but they do show that soils in San Diego County vary greatly. This demonstrates the purpose of the site evaluation process, including the requirement for percolation testing. The current site evaluation process and percolation test and soil evaluation requirements in the LAMP ensure new and replacement OWTS are located to prevent surfacing effluent and to protect water quality, providing protection equivalent to the OWTS Policy for this focus condition.

2.5.1.7 Surface water is vulnerable to pollution from OWTS.

DEHQ works closely with other county departments to implement local ordinance aimed at reducing pollution to vulnerable surface water bodies. These include ordinance related to the permitting of new and replacement OWTS, ordinance addressing the response to reports of surfacing sewage and effluent, ordinance implementing watershed protection requirements, including those to minimize or eliminate polluted surface water runoff discharges into a county-maintained stormwater conveyance system. The County of San Diego has developed several programs to protect vulnerable surface

waters, including a successful OWTS training and pumping rebate program.

These ordinances and programs, along with the current standards contained in the LAMP, minimize or eliminate surface water vulnerability to pollution from OWTS, providing protection equivalent to the OWTS Policy for this focus condition.

2.5.1.8 Surface water within the watershed is listed as impaired for nitrogen or pathogens.

This condition focuses on surface water within a watershed that is listed as impaired for nitrogen or pathogens. Data from the *California 2010 Clean Water Act Section 303(d) and 305(b) Integrated Report* for the San Diego and Colorado River Basin Regions show three listed water bodies with OWTS as a potential source to the impairment. These three water bodies are Rainbow Creek (impairment due to nutrients), the Lower San Diego River (impairment due to pathogens), and the Tijuana River (impairment due to pathogens). The data also show the Santa Margarita Lagoon and River as impaired for nitrogen and pathogens, but with unknown sources.

Of these water bodies, Rainbow Creek and the Lower San Diego River have adopted TMDLs to address the impairments. TMDLs or alternative projects are under development by the RWQCB to address the impairments for the Santa Margarita Lagoon and River and the Tijuana River.

2.5.1.8.1 The OWTS Policy addresses impaired water bodies in Tier 3 of the policy as follows.

2.5.1.8.1.1 The OWTS Policy provides discretion for local agencies to incorporate special provisions for OWTS near impaired water bodes as part of a LAMP. The County of San Diego LAMP does not contain special provisions for OWTS near impaired water bodies and the other provisions in Tier 3 of the policy are applicable for OWTS near impaired water bodies.

2.5.1.8.1.2 For areas where there is an adopted TMDL, the TMDL implementation plan must be used to address the impairment and this implementation plan supersedes all other requirements in Tier 3. Currently, except for a specified load reduction for OWTS in the Rainbow Creek TMDL, there are no special requirements in the San Diego Basin Plan for the siting, design, or permitting of OWTS in areas of impaired water bodies, beyond those approved in this LAMP.

2.5.1.8.1.3 For areas where there is no TMDL, new and replacement OWTS within 600 feet of an impaired water body listed in Attachment 2 of the policy must meet specified supplemental treatment requirements. Currently there are no impaired water bodies listed in Attachment 2 of the OWTS Policy in San Diego County. However, these Tier 3 requirements would be implemented by DEHQ for new and replacement OWTS that are within the scope and coverage of the LAMP should a water body become listed in Attachment 2 in the future.

2.5.1.8.1.4 OWTS near impaired water bodies that are not listed in Attachment 2 of the policy, and do not have a TMDL, and are not covered by special provisions in a LAMP are not addressed by Tier 3.

As the State and Regional Boards are responsible for adopting water quality policies and regulations in California, any local agency OWTS program must be consistent with these State policies and

regulations. Currently, the LAMP contains provisions that are consistent with existing State policies and regulations. Should any future water quality policy or regulation be adopted by the RWQCB to address impaired water bodies in San Diego County, DEHQ will implement those requirements for new and replacement OWTS that fall under the scope and coverage of the LAMP.

2.5.1.9 OWTS is located within an area of high OWTS density.

DEHQ looked at this condition by reviewing the density of OWTS in locations of parcels with areas equal to or less than 0.5 acres. Many of these areas are also located within public water system boundaries and are served by public water. The current subdivision of land, site evaluation process, and minimum siting and design requirements in the LAMP ensure new and replacement OWTS are located to protect water quality, providing protection equivalent to the OWTS Policy for this focus condition.

2.5.1.10 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.

The current subdivision of land, site evaluation process, and minimum siting and design requirements in the LAMP ensure new and replacement OWTS are located to protect water quality, providing protection equivalent to the OWTS Policy for this focus condition.

2.5.1.11 Geographic areas that are known to have multiple, existing OWTS predating any adopted standards of design and construction including cesspools.

Although there may be some individual OWTS that meet this condition, there are no known geographical areas meeting this description. DEHQ has no information of any existing cesspools at this time. The County of San Diego has had adopted standards in ordinance for the design and construction of OWTS since at least the early 1960s. These standards have been updated at least twice since that time.

The current site evaluation process and minimum siting and design requirements in the LAMP ensure new and replacement OWTS are located to protect water quality, providing protection equivalent to the OWTS Policy for this focus condition.

2.5.1.12 Geographic areas that are known to have multiple, existing OWTS located within current setback standards or those setbacks DEHQ finds appropriate for that area.

Although there may be individual OWTS that meet this condition, there are no known geographical areas that meet this description. Existing OWTS requiring repair that cannot meet a current standard must be issued a variance. Typically, a reduction in the size of the required dispersal field will be proposed rather than a reduction to a setback adopted to protect water quality. Variances for repairs to OWTS are only issued when necessary and only in substantial conformance, to the greatest extent practicable, with the provisions of the LAMP, consistent with the OWTS Policy. All new OWTS and OWTS for new development projects must meet the minimum requirements of the LAMP.

2.5.2 The WQAP also includes the monitoring and analysis of the following:

2.5.2.1 Water Quality Data to include data for nitrates and pathogens from OWTS. As water quality data is not collected as part of the local OWTS permitting program, DEHQ may review the following data sources to meet this requirement.

2.5.2.1.1 Any domestic well or public water system sampling reports available to DEHQ.

2.5.2.1.2 Any water quality testing reports performed as part of a National Pollutant Discharge Elimination System (NPDES) permit.

2.5.2.1.3 Data contained in the California Water Quality Assessment database.

2.5.2.1.4 Groundwater sampling performed as part of Waste Discharge Requirements.

2.5.2.1.5 Groundwater data collected as part of the Groundwater Ambient Monitoring and Assessment Program and available in the GeoTracker database.

2.5.2.2 A review of complaints, variances, failures and other inspection data compiled in accordance with Section 2.6.1.

~~CHAPTER 11~~

~~Data Collection/Reporting/Notifications~~

## 2.6 LAMP Reporting

~~As a condition of DEH oversight of OWTS within San Diego County,~~Consistent with the OWTS Policy, DEHQ will perform the following ~~DEH has certain responsibilities related to~~ data collection, ~~and~~ reporting, and notifications. ~~to the San Diego and Colorado River Basin 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~~

2.6.1 Annual Report

2.6.1.1 Pursuant to the OWTS Policy Section 3.3, as a local agency permitting OWTS, ~~On an annual basis,~~ DEHQ will ~~collect data for and report in tabular spreadsheet format the following information.~~report annually to the San Diego Regional Water Board with a copy to the Colorado River Basin Regional Water Board. The annual report shall include the following information. ~~A copy of the report will be provided to both the San Diego and Colorado River Basin RWQCB.~~

~~1.~~2.6.1.1.1 ~~———~~The number and location of complaints pertaining to OWTS operation and maintenance, and identification of those which were investigated and how they were resolved.

~~4.~~2.6.1.1.2 The applications and registrations issued ~~for sewage haulers~~ as part of the local septic tank cleaning registration program pursuant to Section 117400 et seq. of the California Health and Safety Code.

~~2.~~2.6.1.1.3 The number, location and description of permits issued for new and replacement OWTS and ~~under~~ which Tier the permit was issued. ~~Also include the design flow of the OWTS. The~~ Tier designations can be found in the State Water Board's OWTS Policy.

2.6.1.1.4 All groundwater and surface water data generated by DEHQ, submitted in the format prescribed in the OWTS Policy.

2.6.1.2 In addition to the reporting requirements in Section 2.6.1.1, OWTS Policy Section 9.3.3 requires a local agency with an approved LAMP to also annually report a summary of the status of the following items.

~~3.~~2.6.1.2.1 The number, location and description of permits issued for OWTS where a variance from the approved LAMP was granted.

~~2.5.1.4 The applications and registrations issued for sewage haulers as part of the local septic tank cleaning registration program.~~2.6.1.2.2 A summary of the status of the Water Quality Assessment Program (WQAP).

2.6.2 Five-Year Evaluation Report

OWTS Policy Section 9.3.3 requires a local agency with an approved LAMP to submit, every fifth year after approval, an evaluation of the monitoring program and an assessment of whether water quality is being impacted by OWTS. The evaluation report shall identify any changes to the LAMP to address impacts from OWTS for those OWTS within the scope and coverage of the LAMP. ~~In addition, DEH 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 flowing sources:~~

~~2.5.2.1 Random well samples.~~
~~2.5.2.2 Well samples taken to establish a well as a "potable source".~~
~~2.5.2.3 Routine water samples taken by community water systems.~~
~~2.5.2.4 Beach and bay water quality testing.~~
~~2.5.2.5 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.~~

## 2.7 Notifications

~~NOTIFICATIONS TO OWNERS OF WATER SYSTEMS AND SWRCB~~
~~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 replacement~~d~~ 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, and~~or~~ located such that it may impact water quality at the intake point, DEHQ will notify the owner of the public~~to allow the~~ water system ~~owner to provide comments to DEH. Notification will be done~~ electronically or in writing of the proposed OWTS permit installation and request any recommendations or comments to be provided to DEHQ within 15 days of receipt of the notification. If the owner of the public water system cannot be identified, this notice will be provided to the State Water Resources Control Board, Division of Drinking Water program. The notification will include~~by DEH with~~ a copy of the permit application that includes the following information~~:~~.

2.7.1~~a.~~ A topographical plot plan for the parcel showing the OWTS components, property boundaries, proposed structures, physical address, and name of property owner.

2.7.2~~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 DEH.~~

~~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 3.0 ~~Percolation Test Procedure~~GENERAL REQUIREMENTS

~~Percolation Test Procedure~~

## 3.2.1 General Description

A Qualified Professional is an individual licensed or certified by the State of California to design OWTS and practice as professionals for other associated reports, to the extent allowed under their license or registration and their education and experience. A Qualified Professional shall be a Professional Engineer licensed under Business and Professions Code, Division 3, Chapter 7, a Professional Geologist licensed under Business and Professions Code, Division 3, Chapter 12.5, or a Registered Environmental Health Specialist licensed under Health and Safety Code, Division 104, Part 1, Chapter 4, or other persons as authorized in the Business and Professions Code.

Qualified Professionals shall prepare plans and reports in accordance with accepted industry standards, including the provision of complete and accurate minimum information as required and specified in this LAMP or as requested by DEHQ. All plans, specifications, reports, and other documents shall be prepared by, or under the responsible charge of, a licensed Qualified Professional and shall include his or her name and license number. All plans, specifications, and reports shall bear the signature and seal or stamp of the licensee and the date of signing and sealing or stamping, if appropriate.

### 3.2.1.1 Professional Engineer Scope of Service

Business and Professions Code Section 6731 defines civil engineering to include activities in connection with fixed works for sewerage, including the preparation or submittal of designs, plans and specifications and engineering reports and the coordination of the work of professional, technical, or special consultants.

According to the California Department of Consumer Affairs, Board for Professional Engineers, Land Surveyors, and Geologists guidance, civil engineers prepare design and repair recommendations for drainage systems, septic systems, foundations, and retaining walls. They also prepare grading plans and topographic maps of the elevations and contours of the land. Geotechnical engineers are civil engineers who have obtained additional experience and passed a specialized geotechnical engineering examination which authorizes them to use the titles “Geotechnical Engineer,” “Soil Engineer,” or “Soils Engineer.” Geotechnical engineering includes the investigation and engineering evaluation of earth materials including soil, rock, groundwater, and man-made materials and their interaction with earth retention systems, foundations, and other civil engineering works. Geotechnical engineers apply the principles of soil mechanics and the earth sciences and are knowledgeable about engineering laws, formulas, construction techniques, and performance evaluation of civil engineering works influenced by earth materials.

### 3.2.1.2 Certified Engineering Geologist and Certified Hydrogeologist Scope of Practice

The Business and Professions Code, Division 3, Section 12.5 provides for licensing for persons engaged in the practice of geology. Section 7802 defines geology as that science which treats of the earth in general; investigation of the earth's crust and the rocks and other materials which compose it; and the applied science of utilizing knowledge of the earth and its constituent rocks, minerals, liquids, gases and other materials for the benefit of mankind.

According to the California Department of Consumer Affairs, Board for Professional Engineers, Land Surveyors, and Geologists guidance, geologists conduct surface and underground investigations of the earth materials, history and structure of sites and provide interpretations of what they see. Certified Engineering Geologist and Certified Hydrogeologists are the two current licensed specialties. Certified Engineering Geologists apply geologic principles to the safe development and grading of land, building of structures, search for groundwater resources, cleanup of underground contamination and repairing of geologic hazards. They investigate geologic constraints such as landslides, ground subsidence, earthquake faults and erosion and have special training in geology for working on civil engineering problems. Certified Engineering Geologists evaluate the underground conditions of properties in a variety of ways to aid in finding out the engineering and environmental aspects of a project or site. They are also familiar with regulations pertaining to land use and repair that require permits from various governmental agencies. Certified Hydrogeologists apply geologic principles to the search for and cleanup of subsurface contamination and the discovery and development of groundwater resources. They complete Phase I, II and III environmental investigations. Certified Hydrogeologists evaluate the underground conditions at sites in a variety of ways to find out the environmental aspects of a project.

Business and Professions Code, Section 7839 specifically prohibits Certified Engineering Geologists or Certified Hydrogeologists from offering or practicing civil engineering in any of its various recognized branches.

3.2.1.3 Registered Environmental Health Specialist

Health and Safety Code Section 106615€ provides the scope of practice in environmental health to mean the practice of environmental health by Registered Environmental Health Specialists in the public and private sector and includes, but is not limited to, organization, management, education, enforcement, consultation, and emergency response for the purpose of prevention of environmental health hazards. The promotion and protection of the public health and the environment in several areas, including housing, land use, solid, liquid, and hazardous materials management, and onsite septic systems. Section 106620 provides an exemption to Section 6731 of the Business and Professions Code and authorizes a Registered Environmental Health Specialist to design OWTS. Except for the design of OWTS, this exemption does authorize a Registered Environmental Health Specialist to design any of the other fixed works defined in Section 6731.

3.2.2 Professional Standards and Practice within Area of Competence

Qualified Professionals shall act in accordance with the provisions of their respective licensing laws and regulations, including Health and Safety Code Section 106715, and California Code of Regulations, Title 16, Sections 475 and 3065, including the following.

3.2.2.1 Qualified Professionals shall practice and perform work only in the field or fields in which they are by education and/or experience fully competent and proficient.

3.2.2.2 Qualified Professional shall provide professional services for a project in a manner that is consistent with the laws, codes, ordinances, rules, and regulations applicable to that project, and may obtain and rely upon the advice of other professionals (e.g., architects, attorneys, professional engineers, professional land surveyors, and other qualified persons) as to the intent and meaning of such laws, codes, and regulations.

3.2.2.3 Qualified Professionals (together with those whom the professional may engage as consultants) shall perform, or offer to perform, only those professional services for which they are qualified by education, training, experience, and licensure as required by law, in the specific technical and scientific areas involved.

3.2.2.4 Qualified Professionals shall act with competence and reasonable care and shall apply the technical knowledge and skill which is ordinarily practiced by professionals in good standing, practicing in this state under similar circumstances and conditions.

3.2.2.5 Qualified Professionals shall only express professional opinions that have a basis in fact, are within the scope of the professional's own experience or knowledge and are generally accepted principles.

3.2.2.6 Qualified Professionals shall not misrepresent data and/or its relative significance in any technical report.

3.2.2.7 Qualified Professionals shall not misrepresent the completeness of the professional documents submitted to a government agency.

3.2.3. A Qualified Professional who fails to provide plans, specifications, reports, and other documents that meet the minimum required information as specified in this LAMP or as requested by DEHQ, or who provide incomplete, false, or misrepresented information, including actions as described in Business and Professions Code Section 6775 and 7860, Health and Safety Code Section 106715, and California Code of Regulations, Title 16, Sections 475 and 3065 may be subject to referral to the appropriate licensing Board or Committee for investigation.

## 3.3 Licensed Installers

3.3.1 General Description

Licensed Installers shall be a General Engineering Contractor (Class A), General Building Contractor (Class B). Sanitation System Contractor (Specialty Class C-42), or Plumbing Contractor (Class C-36). Such licensed installer shall install all new and replacement OWTS in accordance with California Business and Professional Code Sections 7056, 7057, and 7058 and Article 3, Division 8, Title 16 of the California Code of Regulations.

3.3.2 Minimum Standards

OWTS shall be installed, constructed, reconstructed, repaired, added to, modified, or abandoned as follows.

3.3.2.1 Under a valid permit issued by DEHQ, the standards provided by state and local laws and regulations, and this LAMP.

3.3.2.2 Using appropriate materials and accepted trade standards for good and workmanlike construction.

3.3.2.3 In accordance with plans or specifications as approved by DEHQ. All changes to approved plans or specifications must be submitted to DEHQ for review and receive approval prior to the commencement of any work.

3.3.3 Any person who commences work to install, construct, and/or repair an OWTS without first obtaining a permit, or without first ensuring a valid permit was obtained by another qualified person, is in violation of San Diego County Regulatory Code Section 68.325. Any person who fails to meet the minimum standards in this LAMP, local ordinance or State law, including but not limited to, the Business and Professions Code Division 3, Chapter 9, may be subject to enforcement action and/or referral to the California Contractor's State Licensing Board for investigation.

3.3.4 Unlicensed individuals who commence work to install, construct, and/or repair an OWTS in violation of the requirements of local ordinance, this LAMP, and Business and Professions Code Division 3, Chapter 9 shall be subject to referral to the California Contractor's State Licensing Board for investigation.

## 3.4 Qualified Service Provider

3.4.1 A Qualified Service Provider must be certified and/or competently trained by the manufacturer of an OWTS with supplemental treatment to install, maintain, service, and repair the specific model/type of OWTS.

## 3.5 Owner-Builder

A property owner who intends to obtain a permit to install all or part of an OWTS must first review, initial and sign an Owner-Builder Declaration and Notice to Property Owner form provided by DEHQ and complete a consultation with DEHQ demonstrating sufficient knowledge and skill to effectively install an OWTS that meets the minimum requirements of this LAMP.

## 3.6 Mandatory Public Sewer Connection Requirements

3.6.1 Installation of new or replacement OWTS where public sewer is available. Public sewer

availability is defined when all the following applies:

3.6.1.1 The property on which the structure is located abuts a public sewer, or a public sewer is located within 200 feet of the building.

3.6.1.2 The property is within the boundaries of the sewer district or annexation to the sewer district has been completed.

3.6.1.3 No easements must be obtained to access the sewer line.

3.6.2 Section 3.3.1 does not apply to replacement OWTS where 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.

3.6.3 When a public sewer is not available, because one or more of the conditions above have not been satisfied, the drainage system of a building shall be connected to an approved and permitted OWTS.

## 3.7 ~~THE PERMIT PROCESS"Certifications" are not OWTS Permits~~ Land Use and Development Requirements

3.7.1 County DEHQ and Local Land Use Agency Coordination

Most development and building standards require the approval of an OWTS by the agency having jurisdiction either as part of the permitting process or before certain permits can be issued or are considered finalized. Although separate processes, DEHQ coordinates the review and permitting of OWTS with other local land use agencies to the extent practical. This coordination is important as the siting and design of an OWTS is dependent on many factors, including the location, scope and extent of a specific project. A DEHQ OWTS approval or permit is never a substitute for a required local grading, land use, or building permit. Similarly, no local land use approval or permit is a substitute for an OWTS approval or permit, or a guarantee that such a permit can be issued. This section discusses requirements in the San Diego Regulatory Code for projects where OWTS usage is proposed.

Whenever an application for a land use project requires DEHQ's review (i.e. proposes OWTS as a means of sewage disposal), the applicant shall submit an application requesting such a review on a form provided by DEHQ and shall submit any additional documents requested, including an OWTS Layout Report. DEHQ shall notify the applicant in writing that the OWTS Layout Report is approved, or, if it is disapproved, the notice shall state the reasons for the disapproval.

~~County DEH OWTS review procedures provide documents that applicants may need to take to land use agencies to secure other required local permits. County DEH 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 DEH 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 DEH OWTS permit or related approval is never a substitute for a required local grading, 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 DEH), is a substitute for a County DEH OWTS permit, or a guarantee that such a permit can be issued.~~

### 3.7.2 OWTS on Existing Lots

The process for obtaining an OWTS Installation P~~p~~ermit for development on a legal lot in the County of San Diego is described in this section. This process must be completed even if a lot has previously been found suitable for OWTS usage~~"certified"~~ by the County at that time ~~for a septic system~~. Typically, any such prior ~~certification~~ determination 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. However, ~~No matter how detailed and final they appear to be,~~ these map and plan notations and certificates of compliance were issued based on conditions and/or standards at that time, may not reflect current minimum requirements, and may exceed the limits of DEHQ's current permitting authority. ~~are not OWTS permits, and they do not assure that an OWTS permit can be issued.~~ Proposed OWTS must meet the requirements at the time of application for an OWTS Installation Permit.

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~~ DEHQ is ~~can~~ only ~~issue OWTS permits as~~ authorized to issue OWTS Installation Permits pursuant to the OWTS Policy, this approved LAMP, and local ordinance. ~~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 practice ~~that could have been done~~ at the time (e.g., in a period of below normal rainfall), but may ~~nevertheless~~ be inadequate to support a~~n~~ current OWTS Installation P~~p~~ermit. 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 but were based on a general determination that the lot was suitable for OWTS usage. ~~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,~~The information used to determine a lot was suitable for OWTS usage may still be relevant at many sites. This is more likely when the information relied on for the certification is recent, ~~of high quality~~meets current requirements, and was collected during a normal average rainfall year.

### 3.7.3 Subdivisions of Land and Lot Line Adjustments

3.7.3.1 Basin Plan Requirements.

The Implementation Chapter of the Basin Plan for the San Diego Region provides guidelines for OWTS usage that includes assumptions for local agencies noted below.

3.7.3.1.1 Prohibit the use of new community and individual OWTS where existing community sewerage collection systems are reasonably available. The determination of whether or not existing systems are reasonably available should be the responsibility of the local agency or agencies having jurisdiction over the project.

3.7.3.1.2 Prohibit the use of new individual OWTS for any subdivision of land unless the governing body having jurisdiction determines that the use of individual disposal systems will be in the best public interest.

3.7.3.1.3 Assure that individual OWTS are maintained to the satisfaction of the responsible health officer. This could be accomplished through establishment of special maintenance districts, by the amendment of existing ordinances to assure adequate maintenance documented through periodic inspections, or other alternatives as deemed appropriate by the local health officer.

3.7.3.1.4 Consider the cumulative impacts of individual OWTS discharges as a part of the approval process for development.

3.7.3.2 Local Requirements.

3.7.3.2.1 OWTS proposed as the means of sewage disposal for subdivisions of land of five parcels or greater shall be evaluated by the appropriate RWQCB. Subdivisions of land of four or fewer parcels shall meet the following requirements.

3.7.3.2.2 Local requirements for subdivisions of land must be consistent with the OWTS Policy and any requirements provided in applicable Basin Plans. All proposed individual lots must be documented as suitable for OWTS usage and that can support an OWTS that meets all current requirements in this LAMP. The maximum

3.7.3.2.3 A person applying to subdivide property or for a lot line adjustment shall submit an OWTS Layout Report to demonstrate that there is an adequate area for an OWTS and adequate area reserved for OWTS equal to 100% of the area required for the system on each proposed lot that complies with the minimum requirements for OWTS in local ordinance and this LAMP. This demonstration shall be made as part of the application process.

3.7.3.2.4 Where more than one structure is being served by an OWTS are proposed for a subdivision of land or lot line adjustment and where the structures will be on separate lots or where the OWTS will cross proposed property lines, these OWTS must be repaired and replaced such that each OWTS is contained in whole on the lot and meets all setback requirements for the structure being served.

3.7.3.3 ~~LOT SIZE REQUIREMENTS~~Lot Size/Density Requirements

3.7.3.3.1 ~~DEH does not have a minimum lot size requirement for lots proposed to be created and developed based on the use of an OWTS.~~ The average density for any subdivision of property made pursuant to the Subdivision Map Act proposing to use OWTS as a means of sewage disposal shall not exceed the allowable density values of OWTS in Table 3.7-1~~the table below~~ for a single-family dwelling (SFD), or its equivalent.

~~, without additional studies completed by a qualified professional demonstrating no adverse impacts to groundwater quality will occur. Lots created for commercial developments with flows that exceed those of a SFD will also require such studies. Where those studies show there will be impacts to groundwater quality that exceed the RWQCB Basin Plan standards, any proposed development must utilize an OWTS with supplemental treatment as per Chapter 8 of this LAMP to mitigate those impacts or lot sizes shall be increased to eliminate any adverse groundwater impacts. Where zoning regulations require greater lot sizes, those regulations shall take precedent.~~

**Table 3.7-1: ~~AVERAGE ALLOWABLE DENSITIES FOR~~Average Allowable Densities for Subdivision Lots ~~SUBDIVISION LOTS~~[1]**

| Average Annual Rainfall (in/yr) | Allowable Density (acres/SFD unit) |
|---|---|
| 0 – 15 | 2.5 |
| >15 – 20 | 2.0 |
| >20 – 25 | 1.5 |
| >25 – 35 | 1.0 |
| >35 | 0.75 |

[1] The allowable densities specified in this table do not apply in the Warner Valley groundwater basin because the *Water Quality Control Plan for the San Diego Basin (*Basin Plan) establishes a groundwater quality objective of 5 milligrams per liter as nitrate for the Warner Valley Hydrologic Area~~basin to facilitate replenishment of Lake Henshaw with groundwater~~. Larger lot densities may be required in the Warner Valley basin, ~~Use~~use of ~~alternative~~ OWTS with supplemental treatment~~, systems~~ and the submittal of a nitrate study may ~~also~~ be required for projects proposing use of OWTS to ensure ~~protection of this beneficial use~~compliance with this water quality objective.

3.7.3.3.2 Adjustments to these densities may be allowed when additional studies, including but not limited to a nitrate loading study, completed by a qualified professional demonstrate no adverse impacts to groundwater or surface water above water quality objectives will occur. Lots created for commercial developments with the potential for flows that exceed 1,000 gallons per day will also require such studies. Where those studies show there will be impacts to groundwater or surface water quality that exceed applicable RWQCB Basin Plan water quality objectives, an applicant may propose the use of OWTS with supplemental treatment to its design certification as per of the requirements of this LAMP to mitigate those impacts, if appropriate, or may increase lot sizes to eliminate any adverse groundwater or surface water impacts. Where zoning regulations require greater lot sizes, those regulations shall take precedent.

3.7.3.3.3 Additional or Multiple Dwellings on Parcels.

3.7.3.3.3.1 A proposal for additional dwelling unit or units (single detached, duplex, semi-

detached, triplex, stacked, attached, multi-dwelling) utilizing OWTS on existing parcels with a proposed or existing primary dwelling, or other proposed or existing dwellings, shall conform to the average allowable densities in Table 3.7-1, unless a different density was addressed and approved as part of the subdivision of land, other development permit or process, or building permit process. These additional dwelling units may include, but are not limited to, accessory dwelling units, granny flats, casitas, farm labor camps, farm labor housing, and employee housing.

3.7.3.3.3.2 Where additional dwelling units were not evaluated as part of the subdivision of land, other development process, or building permit process, additional evaluation shall be required to ensure the OWTS can meet all LAMP requirements and the density of the OWTS usage will not impact water quality over established water quality objectives. The additional evaluation shall be submitted to the DEHQ in an OWTS Layout Report and shall include, but is not limited to, a site investigation to determine the site is suitable for the proposed OWTS usage and a Nitrate Loading Study to evaluate potential nitrogen loading impacts from the proposal. An approved OWTS Layout Report is required before a building permit is issued. OWTS for proposed additional dwelling units on a parcel that cannot meet LAMP requirements or show a potential to impart water quality are outside the scope of this LAMP and cannot be approved by DEHQ.

### 3.7.4 Land Use Development Permit Review

Any person making an application for a land use project, such as a minor or major use permit or land development project, or to modify or expand an existing land use permit, shall submit an OWTS Layout Report and any other required information or studies as requested to DEHQ for review and approval as part of the application process.

### 3.7.5 ~~BUILDING PLAN REVIEW~~Building Permit and Change of Occupancy Review

3.7.5.1 No permit to install an OWTS shall be issued unless the applicant provides proof of the submittal of an application for a building permit. A property owner with an OWTS who is required to obtain a building permit for a building addition or other remodeling of an existing building or to add another stand-alone building, or for other construction which requires a building permit on the property shall obtain an OWTS Layout Report approval before a building permit or other approval is issued.

3.7.5.2 The site evaluation and other studies shall address the minimum density of dwelling units allowed for the parcel. Proposed dwelling units above the minimum in Table 3.7-1 shall be address in a Nitrate Loading Study prior to the issuance of a building permit.

3.7.5.3 A property owner with an OWTS who is required to obtain the building official's approval for a change of use or occupancy of an existing building, shall also obtain DEHQ's approval before a building permit or other approval is issued. This approval may require an OWTS Layout Report.

3.7.5.4 Because of the many factors that determine if a specific parcel is suitable for OWTS usage, it is recommended property owners complete the OWTS Layout Report and confirm the site can support

the use of an OWTS before a significant investment is made towards building or architectural plans. ~~The DEH 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 PDS, Building Division for processing and approval. Upon submittal of the plans, the owner/agent may hand carry the plans to the DEH counter at any of the DEH field offices 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.~~

3.7.6 ~~GRADING PLAN REVIEW~~Grading Permit Review

3.7.6.1 An applicant for a grading permit to grade property where there is an existing OWTS or approved OWTS Layout Report but not installed OWTS shall obtain approval from DEHQ as part of the grading permit approval process and shall demonstrate that the proposed grading will not interfere with the area where the OWTS has been installed or has been approved to be installed, including the areas designated for reserve.

3.7.6.2 The ~~Upon approval of a layout by DEH, the Specialist will indicate on the~~OWTS L~~l~~ayout Report approval will indicate if ~~form whether~~ a field check of completed grading is required prior to issuance of the OWTS permit. This field check ~~Keep in mind that DEH grading approval~~ is not the same as local land use agency grading approval. ~~For the unincorporated parts of the County, some small projects may not require grading permits. For other projects, County land use agencies issue major and minor grading permits~~It is the responsibility of the owner/applicant to ensure all required permits are obtained from the local land use agency.

3.7.6.3 Major and minor grading plans will be reviewed by DEHQ prior to grading to determine impacts to nearby ~~the approved~~ OWTS ~~and adjacent properties~~. After completion of the grading, notice must be provided to DEHQ to schedule ~~must be contacted to arrange for~~ a field check, unless the field check of completed grading is waived as part of the OWTS L~~on the l~~ayout Report approval.

3.7.7 ~~POTABLE WATER SUPPLY~~Potable Water Supply

~~Before a permit to construct the OWTS can be issued, the applicant must provide County DEH proof that a potable water supply is available for the project. Potable water in this context is water that meets bacteriological and nitrate water quality standards as defined in the California Safe Drinking Water Act for a private residence. In some situations, additional water quality testing may be required.~~ An applicant for an OWTS Installation Permit must provide proof of potable water from a public water purveyor or from an approved well. ~~DEH will require proof of a potable water supply that will serve the proposed development.~~

3.7.7.1 Proof of potable water from a public water purveyor ~~A public water supply should be confirmed with proof~~ is met with the submittal ~~-~~of a service availability letter from the water purveyor.

3.7.7.2 Proof of potable water from ~~The use of~~ a domestic water well ~~will require proof of potability.~~is met with the submittal of a ~~A copy of the Well~~ ~~L~~laboratory r~~R~~eports that meets the following minimum water quality monitoring requirements: 1) at least one water sample obtained from the well within one year of submittal to DEHQ for review shall be negative for the presence of total coliform bacteria and fecal coliforms or *Escherichia coli* (E. coli); 2) at least one water sample obtained from the well and analyzed for Nitrate (as nitrogen) shall be less than the maximum contaminant level as specified in the California Code of Regulations, Section 64431 (10 mg/L); 3) other sampling that may be required by the Director of Environmental Health based on known or suspected sources of pollution in the area that may affect the water quality of the well. The samples shall be analyzed by a laboratory certified by the State Water Resources Control Board for that analysis pursuant to California Health and Safety Code, Division 101, Part 1, Chapter 4, Article 3, commencing with Section 100825.

3.7.7.3 An application for an OWTS will not be approved for a water supply that does not meet the provisions of this section.

~~that indicates the absence of bacteria and nitrate contamination of less than 10 mg/l of Nitrate-N or 45 mg/l of nitrate 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 by DEH for bacteriological and nitrate levels. Hand-dug water wells will not be accepted as a potable water supply.~~

~~DEH staff will collect water samples from private wells, which will be tested at the County of San Diego Public Health Lab. A fee is required for the water sample analysis.~~

## ~~3.8 ONSITE WASTEWATER TREATEMENT SYSTEMS PERMITTING PROCESS AND DESIGN CRITERIA~~General OWTS Permitting Process

Th~~e~~is general ~~Chapter describes how~~process for the permitting of OWTS includes the completion and submittal of an OWTS Layout Report, which provides information relating to the project description, wastewater flow and characteristics, site evaluation elements, and OWTS design and, once approved, the issuance of a Permit to Install an OWTS ~~are reviewed and permits issued in San Diego County~~is presented in this section. This process is consistent with the requirements of the San Diego Regulatory Code, Title 6, Division 8, Chapter 3 (County Code sections 68.301 et seq.), the OWTS Policy, and this LAMP. ~~The document also summarizes key design criteria for these systems. This document relies on and should be read together with Chapter 2 of this LAMP "Groundwater Separation Requirements for Onsite Wastewater Treatment Systems."~~

Persons seeking a ~~OWTS P~~permit~~s~~ to Install an OWTS from the County should ~~also~~ review these documents as well as ~~Chapter 3 [Onsite Wastewater Treatment Systems and Improper Disposal of Sewage] of Division 8 of Title 6 of the County Code of Regulatory Ordinances (County Code sections 68.301 et seq.), and~~ applicable grading, building, and land use rules from~~or~~ the ~~relevant~~ appropriate municipal jurisdiction.~~The County DEH OWTS permitting process includes the steps set out below:~~

### 3.8.2 Submittal of the OWTS Layout Report

The OWTS Layout Report provides information to ensure the area of the lot or parcel proposed for the siting and installation of an OWTS suitable for the proposed system and meets all minimum requirements, including setback distances. The OWTS Layout report must provide all the minimum required information to be considered complete and must be signed, dated, and stamped (if applicable) by the appropriate Qualified Professional. In accordance with San Diego Regulatory Code, Section 68.382, Qualified Professionals may be required to demonstrate their knowledge of County of San Diego ordinances and policies related to the design of OWTS.

~~Building plans, bearing the appropriate stamp which documents plan submittal to the local land use agency, must be submitted to County DEH. The plans need not be approved by the local land use agency before being submitted to County DEH, but any significant plan amendments should be provided to DEH. County DEH will review these plans to ensure that they correspond to the project described in the approved Layout Design.~~

The OWTS Layout Report includes the following minimum information:

- Project description
- Wastewater sources, flows and characteristics description
- Site evaluation and percolation testing results, and other information as required by the LAMP or Director of Environmental Health
- Proposed OWTS type (conventional, supplemental) and design specifications
- Verification that all setback distances are met

3.8.2.1 Project Description

At a minimum, the project description must include the type and scope of the land use project/permit or building permit being applied for, the location and extent of any grading is proposed at the site, public sewer provider information (name of the sewer district the parcel is within and/or the distance to the nearest public sewer to the site), the water source approved for the site (proof of water well potable water, public water provider name), the location of all public water lines on or within 20 feet of the property, and the sign-off of the OWTS Layout by the local water district or company, if required (Vista Irrigation District, Rincon del Diablo, Yuima, County Service Areas).

The OWTS Layout Report must include accurate, to-scale maps and plot plans showing required information, as determined by the Director of Environmental Health.

3.8.2.2 Wastewater Sources, Flows and Characteristics Description

The sources of wastewater generated at the site are provided, including a description of the number and types of buildings (residential/commercial) and the uses of these buildings. The projected and peak wastewater flows are calculated and provided, with the source of the flow information included. The characteristics of the wastewater generated at the site is described, to include at a minimum biological oxygen demand (BOD), total suspended solids (TSS), fats, oils and grease (FOG), and total nitrogen (TN), with the source of the information included.

3.8.2.3 Site Evaluation and Percolation Testing

Each element of the site evaluation and percolation testing described below must be performed by an appropriate Qualified Professional. In addition to this information, a determination as to the nature and extent of nitrogen loading from the proposed OWTS may be required.

3.8.2.3.1 Soil Depth and Characteristics and Percolation Testing

These elements provide information as to the degree the soil in the proposed OWTS dispersal area can accept wastewater discharge over a period of time.

Soil structure and texture are determined by evaluation of site soils from borings or excavations. Borings over 20 feet in depth or that extend into groundwater require a boring permit. It is the applicant's responsibility to ensure any required permits are obtained prior to the start of work.

Percolation testing, with results in minutes per inch (MPI), is conducted as a means to estimate water absorption capacity of the soil. The test is conducted with clean water (wastewater will typically percolate slower than clean water) and test results can be used to establish the dispersal system design. The minimum number of percolations tests must be performed in accordance with the specifications and methods described in this LAMP. A Percolation Test Permit is required for all percolation testing. It is the applicant's responsibility to ensure any required permits are obtained prior to the start of work.
~~DEH approval of a percolation test design expires after one year, however the test data remains valid and may be used later to design and size an OWTS for a project.~~

~~Note: Grading or clearing of brush for the purposes of completing a percolation test may require approval Planning and Development Services (PDS) and requires the implementation of storm water best management practices.~~

Percolation testing is required for all OWTS design and installation areas. Additional percolation testing may be required as conditions warrant, including for areas where grading or other soil disturbance has occurred in the proposed OWTS location, the OWTS dispersal system is being shifted out of the previously tested area, or an OWTS other than the system previously considered is being proposed. DEHQ may require the submittal of a percolation design plan for approval prior to percolation testing. The approval of a percolation test design plan expires after one year. However, unless site conditions change, percolation test results typically remain valid for the specific area tested.

Note: Grading or clearing of brush for the purposes of completing a percolation test may require the implementation of storm water best management practices and/or Planning and Development Services (PDS) approval. It is the applicant's responsibility to meet all other local, state or federal requirements.

3.8.2.3.2 Unsaturated Soil Interval

This element determines the amount of unsaturated soil available to treat wastewater in the proposed dispersal area. This is the distance between the bottom of the infiltrative layer of the dispersal system

and the highest anticipated groundwater level or the shallowest impervious subsurface layer at a site.

Details of the unsaturated soil interval and minimum depth to groundwater from the bottom of the dispersal field can be found in Chapter 4.0, Section 4.1.

3.8.2.3.3 Limiting Geological Features

This element determines any geological features that may limit the suitability of the site for OWTS usage, including, but not limited to, grading areas, fill areas, degree of slope, slope stability, unstable land masses, and rock outcropping areas.

3.8.2.3.4 OWTS Design Specifications

The scope and extent of the proposed project, the wastewater amounts and characteristics, and the site evaluation information are used to determine the appropriate siting and design criteria for the OWTS in accordance with the provisions of this LAMP. The information on the design criteria for the OWTS are provided in greater detail in Chapter 4.0.

3.8.2.3.5 Siting of OWTS on Lot/Net Usable Land Area

~~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 are provided below.~~This element ensures there is sufficient area available for the original OWTS installation and for the required 100% replacement area that meets all setback requirements to water wells, structures, easements, watercourses, or geologic limiting factors. Site plans must be to-scale, accurate and provide sufficient information to enable DEHQ to complete a review of the proposal to determine the OWTS meets all required provisions of this LAMP.

3.8.2.3.6 Other Information as Required

Additional information or studies may be required based on the proposed project, the potential for cumulative effects on ground and surface waters, and site-specific conditions. OWTS proposed for areas with steep slopes, shallow groundwater, subdivision developments, commercial establishments, or OWTS that receive greater than 1,500 gallons per day of sewage are examples of conditions where additional studies may be required. The following are examples of additional information that may be requested as part of an OWTS Layout Report review.

3.8.2.3.6.1 Groundwater Level Study. This study will assess the probable rise in the water table underlying the site, including effects of rainfall, OWTS recharge, landscape irrigation and groundwater pumpage. The study must follow the procedures as outlined in this LAMP.

3.8.2.3.6.2 Nitrate Loading Study. A nitrate loading study, with the minimum required information pursuant to Section 4.4 and Appendix II, looks at the cumulative nitrate load, using an acceptable mass balance method, to determine whether the nitrate load from the project has the potential to cause the concentration of nitrate in ground water to exceed applicable groundwater quality

objectives. This study is required for development projects where the average allowable density of dwelling units specified in Table 3.7-1 cannot be met. A study may be required where the use and occupancy of a project has the potential to impact water quality over established water quality objectives.

3.8.2.3.6.3 Slope Stability Study. A slope stability study with the minimum required information pursuant to Section 4.5 is required for proposed OWTS and dispersal fields in slopes exceeding 25% to determine the potential impact of the dispersal field to slope stability and to identify any mitigating actions, if applicable, to maintain slope stability with dispersal field usage.

3.8.2.3.6.4 Microbiological Travel Time Study. This study is required for dispersal systems located within 600' of public well and where the dispersal field depth exceeds 20' (Policy 9.4.10.3).

~~SYSTEM DESIGN CONSIDERATIONS~~

~~The most common type of OWTS found in San Diego County consists of a septic tank connected to leach lines. Variations in this system may include a septic tank connected to wither a horizontal or vertical seepage pit. In some applications, the disposal field is at a higher elevation than the building site. In this instance, a pressure 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 soilszones for treatment of the sewage underground. These systems are designed to operate in all weather conditions with minimumal 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 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 sispersal system. All alternative OWTS must be certified by the National Sanitation Foundation or othe approved third party tester. Due to the complexity of these systems, ongoing maintenance contracts and annual operating permits are also required.~~

~~The size and type of OWT 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 of 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.~~

~~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 San Diego 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 tremendously with the amount of rainfall for many areas in San Diego County. Therefore, the highest anticipated groundwater levels must be established for any OWTS design in order to meet this separation requirement. Details are provided in the Chapter 2 of this LAMP.~~

~~At sites affected by a shallow impervious layer of rock or clay, a minimum five-foot unsaturated soil interval is required between the bottom of the disposal system and the shallowest impervious layer.~~

~~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.~~

~~If a percolation test is needed, the applicant must submit a percolation test and design as performed by a registered civil engineer, registered geologist or registered environmental health specialist, certified by DEH for testing within San Diego County, for County DEH approval. The certification process for qualified professionals is an orientation process provided by staff to the industry of the Department's design criteria. 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.~~

~~A percolation test may be required when:~~

- ~~No previous County DEH certification was provided for the lot or parcel;~~
- ~~The previous certification was issued without a percolation test;~~
- ~~Grading or other soil disturbance has occurred in the proposed OWTS location;~~
- ~~The system is being shifted out of the previously tested area; or~~
- ~~An OWTS other than the system previously considered is being proposed.~~

~~DEH approval of a percolation test design expires after one year, however the test data remains valid and may be used later to design and size an OWTS for a project.~~

~~Note: Grading or clearing of brush for the purposes of completing a percolation test may require approval Planning and Development Services (PDS) and requires the implementation of storm water best management practices.~~

### 3.8.3 OWTS Layout Report Approval~~———~~

#### 3.8.3.1 Completeness Review

DEHQ will review the OWTS Layout Report for completeness, along with any required plans or other requested information. Submitters of OWTS Layout Reports that do not provide the minimum required information in sufficient detail to enable the review of the proposed OWTS will be notified of the missing or insufficient items. The review of the OWTS Layout Report will be suspended until such time all required information is submitted. If the required information is not submitted within 60 days from date of the letter requesting such information, then the OWTS Layout Report submittal will be considered withdrawn. The applicant may submit a request in writing proposing an alternative date to submit the required information, but should be no more than 120 days from the date of the letter.

3.8.3.2 Standards Compliance Review

Once a complete report is submitted, DEHQ will review the information for compliance with the requirements of the San Diego Regulatory Code, the OWTS Policy, and this LAMP. ~~After review, if it appears likely that the proposed OWTS can be permitted at the site, County DEH will provide an approval for the Layout Design. The County may require additional testing before providing this approval.~~ DEHQ may require additional testing or information, if needed to be able to complete the standards review. In some cases, this additional testing may~~will~~ include depth to groundwater measurements during a normal average rainfall year. This additional testing may delay an OWTS Layout Report approval~~County DEH approval~~ for a year or more.

3.8.3.3 OWTS Layout Report Approval

3.8.3.3.1 OWTS Layout Reports that meet the prescribed minimum requirements will be approved. The approval may include a requirement for a field inspection by DEHQ after the completion of any grading at the site to ensure consistency with the approved OWTS Layout Report.

3.8.3.3.2 OWTS that fail to meet the prescribed minimum requirements in this LAMP will not be approved as proposed. For those proposals which are outside the coverage of this LAMP, applicants may submit the proposal to the appropriate Regional Board for consideration. ~~In some cases, DEH may conclude that a conventional or alternative OWTS cannot be safely used on the lot.~~ Because of the potential for delays or disapproval, ~~DEH~~it is recommend~~ed~~s~~s~~ that applicants submit an OWTS Layout Report~~Design~~ and obtain approval before incurring costs for detailed building plans and architectural fees. ~~The approved layout will state whether a field check of completed grading by County DEH is required. The Approval Sheet expires after one year.~~

3.8.3.3.3 Approval of the OWTS Layout Report remains valid for one year. DEHQ may approve the use of elements or data included in a previously approved but expired OWTS Layout Report where appropriate. This approval may be withdrawn if it is determined the approval was issued in error or on the basis of incorrect, inaccurate, or incomplete information, or in violation of the San Diego Regulatory Code, the OWTS Policy, and this LAMP, or when there is a change in regulatory requirements, or other circumstances, or a change to the conditions of the property since the date of approval, which would cause the proposed OWTS to fail to meet minimum requirements.

~~2. With percolation test data and other data in hand, the applicant must develop and submit a~~

~~Layout Design for the proposed building project and specific OWTS, for County DEH review. The Layout Design must take percolation test data and this guidance into account. See below, "The Layout Design" for additional information on submission requirements.~~

~~3. After review, if it appears likely that the proposed OWTS can be permitted at the site, County DEH will provide an approval for the Layout Design. 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 DEH approval for a year or more. In some cases, DEH may conclude that a conventional or alternative OWTS cannot be safely used on the lot. Because of the potential for delays or disapproval, DEH recommends that applicants submit a Layout Design and obtain an approval before incurring costs for detailed building plans and architectural fees. The approved layout will state whether a field check of completed grading by County DEH is required. The Approval Sheet expires after one year.~~

3.8.4 Approved OWTS Layout Report Related to Other Permits

~~Typically~~Where OWTS is proposed as the means of sewage disposal, local land use agencies ~~will~~ may require the submission of ~~the DEH~~ proof of a parcel's suitability for OWTS usage ~~Approval Sheet~~ before issuing related permits, such as ~~any~~ grading or building permits. ~~are issued.~~ The approval of the OWTS Layout Report is typically used to provide this documentation.

3.8.4.1 In the unincorporated parts of the County, , if a building permit relies on an OWTS, County land use agencies ~~will~~may require an approved OWTS Layout Report~~DEH approval of a layout design~~ and a valid ~~permit to construct the~~ OWTS Installation Permit before building plans are approved or a building permit is issued. Other local land use agencies also typically require that an ~~permit to construct the~~ OWTS Installation Permit be issued before building plans will be approved or a building permit issued.

3.8.4.2 Local land use agencies typically require that all~~the~~ OWTS installation inspections be completed and the OWTS Installation P~~p~~ermit ~~be made~~is finaled by DEHQ before occupancy permits are issued.

3.8.5 OWTS Installation Permit~~Some projects will require local grading permits and some will not. Requirements for grading permits in the unincorporated area of the County are discussed briefly below. Approved layouts and OWTS permits are not grading permits.~~

3.8.5.1 Application. An application for installation of the OWTS must be submitted on a form by DEHQ and may be submitted at the time of the OWTS Layout Report or at any time prior to the permit issuance. The permit to install an OWTS shall be issued to a Licensed Installer or an Owner-Builder after an OWTS Layout Report has been approved, and any other information or grading requirements, including any field inspections, have been submitted and DEHQ review has been completed. A separate application is required for each OWTS installation.

3.8.5.2 For repairs to an existing OWTS that meets the minimum requirements in Section 6.7, the application shall made on an Authorization to Repair form. The repair permit shall be issued to a Licensed Installer or an Owner-Builder.

3.8.5.3 The application shall be made on a form or forms provided by the DEHQ and shall include the following minimum information:

| **3.8-1: Minimum Site Plan Elements** |
|---|
| Professional's name, mailing address, email address, and phone number |
| Type of proposed construction (Ex: Residential, Commercial, Industrial) |
| Scope of work: Residential: Type of Construction # Bedrooms |
| Scope of work: Commercial: Business Type Volume of Wastewater Character and Strength of Wastewater |
| Commercial Food Service-location, design, and size of oil/grease interceptor |
| Legal Basis of parcel (map and lot number, plat number, etc.) |
| Vicinity Map; Scale (engineer scale not to exceed 1"=60'); North arrow; Layout does not exceed 11" x 17" paper |
| Property Lines and lot dimensions (provide an over sheet (larger scale allowed) and detail sheet(s) for large parcels) |
| Topographic lines and elevation points (include pad grade, finished floor, septic tank, leach lines, slope arrows, slope range, etc.). |
| Existing and proposed primary and reserve Onsite Wastewater Treatment System (OWTS) tank and dispersal design detail |
| All setback distances are shown on layout |
| All proposed and existing grading; Rock outcroppings; Slopes in excess of 20% |
| All known, recorded easements on or within 20 feet of lot boundaries (open-space, utility, road, waterline, etc.) |
| Identify source of potable water; Location of all public waterlines on or within 20 feet of property and signed water line statement |
| Location of all wells on or within 150 of feet of property line; Location of all Public wells within 600 feet of property line |
| Location of drinking water reservoir within 2,500' of property line |
| Location of drainage ways; location of streams, springs, ponds, flood plains, lakes within 200 feet of property line |
| All soils testing information (deep borings, test holes, and/or percolation tests) plotted on the design (matched to flagged locations in field) |
| Depth to groundwater data and specific method used to determine depth to groundwater |
| Location of all stormwater treatment and retention features |
| Sign-off of layout by local water district or company, if required (Vista Irrigation District, Rincon del Diablo, Yuima, County Service Areas) |

3.8.5.4 It is recommended the applicant/permittee maintain all ~~In order to make the OWTS permit processing as smooth and efficient as possible, it is recommended that you maintain a~~ OWTS related records and ~~of all~~ paperwork, including ~~and~~ project control numbers, obtained from each Department

or agency so information that may be requested is readily available.

3.8.5.2 Issuance of Permit. An OWTS Installation Permit will be issued after all required information has been submitted and DEHQ finds the proposal meet all minimum requirements. The Director of Environmental Health may deny an OWTS Installation Permit for an OWTS that meets the requirements if it is determined that the OWTS will have any adverse effects on an underground source of water or on the public health and safety. Applications for OWTS installation that do not meet the minimum requirements will be denied.

~~5. Before a permit to construct the OWTS can be issued, the applicant must provide County DEH 5roof that a potable water supply is available for the project. Potable water in this context is water that meets bacteriological and nitrate water quality standards as defined in the California Safe Drinking Water Act for a private residence. In some situations, additional water quality testing may be required.~~

~~6. Building plans, bearing the appropriate stamp which documents plan submittal to the local land use agency, must be submitted to County DEH. The plans need not be approved by the local land use agency before being submitted to County DEH, but any significant plan amendments should be provided to DEH. County DEH will review these plans to ensure that they correspond to the project described in the approved Layout Design.~~

~~7. If the local land use agency does not require a grading permit, and the requirements set out above have been met, a permit to construct the OWTS will be issued. This permit expires after one year.~~

~~8. If the local land use agency requires submission of a grading plan, and that plan was not submitted to DEH with the Layout Design, the grading plan must be submitted to DEH for review and approval before grading actually begins. DEH will review the grading plan to verify that it is in agreement with the approved Layout Design.~~

~~9. If the Approval Sheet for the Layout Design indicates that a field check of complete grading is required, that field check must be completed before a permit to construct the OWTS is issued. If the completed grading is checked and corresponds to the approved layout and the other requirements above have been met, a permit to construct the OWTS will be issued. This permit expires after one year.~~

3.8.5.3 Installation Work. Work may commence to ~~Once the permit to construct the OWTS, has been obtained, the OWTS can be in~~install ~~ed~~the OWTS in accordance with the approved permit only after an OWTS Installation Permit has been issued. As soon as the installation work is completed, the permittee shall provide a minimum 48-hours advance notice to DEHQ that the system is ready for an inspection. No person shall backfill, or cause another person to backfill, an OWTS installation before DEHQ inspects and approves the work. ~~The system must be inspected by County DEH before the system is backfilled. Appropriate best management storm water practices must be implemented as needed.~~

3.8.5.4 Finalization of OWTS Installation Permit. The OWTS Installation Permit will be noted as competed or "finaled" only after ~~If~~ the~~at~~ inspection ~~is satisfactory~~verifies the OWTS was installed as approved and permitted and that the OWTS meets all minimum requirements~~, DEH will sign off on ("final") the OWTS permi.t.~~

3.8.5.4.1 Notice will be provided to the permittee of any ~~Occasionally, DEH will hold final approval on the OWTS permit pending specific conditions to be met.~~components of the installation that do not conform to the approved permit or to applicable minimum standards. Corrections shall be made as specified and a request for a reinspection must be made within seven (10) business days. If the permittee fails to correct the deficiency as specified or fails to request a reinspection, the OWTS Installation Permit may be revoked and/or other appropriate enforcement actions may be taken.

~~11. In the unincorporated parts of the County, if a building permit relies on an OWTS, County land use agencies will require DEH approval of a layout design and a valid permit to construct the OWTS before building plans are approved or a building permit is issued. Other local land use agencies also typically require that a permit to construct the OWTS be issued before building plans will be approved or a building permit issued.~~

~~12. Local land use agencies typically require that the OWTS inspection be completed and the OWTS permit be made final by DEH before occupancy permits are issued.~~

~~When all applicable items above have been completed to the satisfaction of DEH, an OWTS installation permit can be issued to the owner/agent or to a contractor with the required license(s) from any of the DEH offices. The permit is valid for one year and allows for the inspection of the completed OWTS installation by DEH 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.~~

3.8.6 OWTS Destruction Permit

3.8.6.1 A permit is required to destroy a cesspool, septic or other tank, or seepage pit. A person may apply for an OWTS Destruction Permit by submitting an application on a form provided by the DEHQ.

3.8.6.2 Any component of an OWTS shall not be considered properly destroyed until a permit has been obtained and the destruction inspected and approved by DEHQ.

3.8.6.3 A cesspool, septic or other tank, and seepage pit that has been abandoned or has been discontinued otherwise from further use, or to which no waste or soil pipe from a plumbing fixture is connected, shall have the sewage removed therefrom and be completely filled with earth, sand, gravel, concrete, or other approved material.

3.8.6.4 The top cover or arch over the cesspool, septic or other tank, or seepage pit shall be removed before filling, and the filling shall not extend above the top of the vertical portions of the sidewalls or above the level of the outlet pipe until inspection has been called and the cesspool, septic or other

tank, or seepage pit has been inspected. After such inspection, the cesspool, septic tank, or seepage pit shall be filled to the level of the top of the ground.

3.8.6.5 No person owning or controlling a cesspool, septic tank, or seepage pit on the premises of such person or in that portion of a public street, alley, or other public property abutting such premises, shall fail, refuse, or neglect to comply with the provisions of this section or upon receipt of notice so to comply from the DEHQ.

3.8.6.6 Where disposal facilities are abandoned consequent to connecting premises with the public sewer, the permittee making the connection shall fill abandoned facilities under permit and inspection by DEHQ within 30 days from the time of connecting to the public sewer.

## 3.9 General Operation and Maintenance Requirements

3.9.1 All OWTS shall be operated and maintained pursuant to the minimum requirements of this section, or pursuant to an Operations and Maintenance Plan compiled by the qualified professional.

3.9.2 All standard OWTS shall be operated and maintained pursuant to the following:

3.9.2.1 Septic tanks shall be pumped on a regular basis, but at least once every three years. The frequency of pumping may be modified based on actual measured scum and sludge accumulation rates.

3.9.2.2 All septic tank pumping records shall be maintained by the property owner for a minimum of six years and shall be provided to the DEHQ upon request.

3.9.2.3 Effluent filters shall be cleaned or replaced in accordance with the manufacturer's recommendations.

3.9.2.4 All at grade risers shall be maintained safe and secure at all times.

3.9.2.5 All OWTS with supplemental treatment and OWTS with lift stations and alarm systems shall have a written OWTS Operations and Maintenance Plan developed by a qualified professional and approved by DEHQ at the time of installation. The property owner shall ensure that the OWTS Operations and Maintenance Plan is implemented as written. Changes to the plan must be submitted in writing to DEHQ for approval.

# CHAPTER 4.0 ~~Septic Tanks~~SITE EVALUATION REQUIREMENTS

This chapter provides the minimum requirements for the evaluation of a site or parcel to determine if the site or parcel is suitable for the usage of an OWTS for sewage disposal for the described proposed activity, including a proposed building permit or development project. As the hydrology, geology, topography, and climate vary in the San Diego County region, this site evaluation is integral to determine if a parcel is suitable for OWTS usage.

## 4.1 ~~Groundwater Separation Requirements for Onsite Wastewater Treatment Systems~~ Groundwater Information and Testing Requirements

This section~~Chapter~~ provides the method ~~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~~maximizing treatment of the sewage effluent prior to its entering into the groundwater.
- Protect the public health from ~~failing OWTS~~surfacing sewage or effluent caused by high groundwater.
- Provide a methodology for the evaluation of groundwater depths to determine ~~potential building sites using OWTS with regards to maintaining~~ minimum groundwater separation requirements at sites using or proposing to ~~with the~~ use ~~of~~ an OWTS.

~~The Department of Environmental Health requires that at least~~ A~~a~~ minimum five-foot separation is required to be maintained between the bottom of a ~~conventional~~ standard OWTS ~~disposal~~dispersal system and the highest anticipated groundwater level. Additional separation may be required depending on the percolation test results for the site in accordance with Table 6.3-1. For OWTS with supplemental treatment, the required separation may~~can~~ be reduced to no less than two feet. This reduction may be ~~is~~ allowed based ~~due to~~on the level of additional ~~pre~~treatment provided by the supplemental treatment system.

Groundwater typically fluctuates seasonally depending on local geology and rainfall amounts. Rising groundwater levels have been documented ~~In~~ in certain areas ~~dependent on~~that use imported water ~~and OWTS~~, ~~DEH has observed rising groundwater levels~~. Groundwater levels fall in response to ~~drought~~ lack of rain and well extractions, and rise in response to rainfall and in some cases, increased irrigation return water from~~,~~ agriculture ~~and residential development~~operations. ~~DEH has observed F~~fluctuations in groundwater elevations from a few inches to greater than twenty feet have been documented. Major fluctuations have been ~~observed~~ documented in areas such as the Ramona and Valley Center basins.

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

~~As a result of~~ During the above normal rainfall periods in the late 1970's and early 1980's, ~~DEH~~

~~experienced situations where~~ previously approved lots were observed to have high groundwater impacting the proposed or existing OWTS. In 1980, a ~~groundwater policy was written~~ requirement~~ing that the~~ to determin~~eation the of~~ actual or potential groundwater levels be verified prior to issuing OWTS permits was implemented. The ~~policy~~ requirement~~d that~~ specifie~~d~~ depths of test holes be used based on the season and also specified that the presence or absence of groundwater in these holes would be adequate to determine if an OWTS ~~septic tank~~ permit could be issued.

Since 1980, ~~the County has seen~~ several wide fluctuations in the quantity of rainfall have been documented. Over periods of time, there have been drought cycles followed by cycles of normal to above normal rainfall. During periods of normal or above normal rainfall, the 1980 groundwater requirement~~policy~~ was generally sufficient to determine if high groundwater was a concern prior to issuing a OWTS permit. 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. A~~i~~n OWTS Installation Permit cannot be issued in areas where~~f~~ groundwater has been documented to rise to a level that would violate the dispersal field separation requirements of this LAMP or in low lying areas with a potential for flooding.~~e RWQCB, a permit for the OWTS will not be issued.~~

~~This Chapter 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 Department of Environmental Health 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 supplemental treatment.~~

~~Groundwater typically fluctuates seasonally depending on local geology and rainfall amounts. In certain areas dependent on imported water and OWTS, DEH has observed rising groundwater levels. 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. DEH has observed fluctuations in groundwater elevations from a few inches to greater than twenty feet. Major fluctuations have been observed in areas such as the Ramona and Valley Center basins.~~

~~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.~~

~~As a result of above normal rainfall periods in the late 1970's and early 1980's, DEH experienced situations where previously approved lots were observed to have high groundwater impacting the proposed or existing OWTS. In 1980 a groundwater policy was written requiring that the determination of actual or potential groundwater levels be verified prior to issuing OWTS permits. The policy required that specific depths of test holes be used based on the season and also specified that the presence or absence of groundwater in these holes would be adequate to determine if a septic tank permit could be issued.~~

~~Since 1980, the County has seen several wide fluctuations in the quantity of rainfall. Over periods of time, there have been drought cycles followed by cycles of normal to above normal rainfall. During periods of normal or above normal rainfall, the 1980 groundwater policy was generally sufficient to determine if high groundwater was a concern prior to issuing a OWTS permit. 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.~~

### 4.1.1 ~~PROCEDURE FOR GROUNDWATER DETERMINATION FOR DISCRETIONARY PROJECTS~~Development Projects

Subdivisions, parcel maps, boundary adjustments, certificates of compliance, and other development ~~and percolation tests are all~~ projects that propose to utilize OWTS as the means of sewage disposal are ~~may~~ required to submit documentation ~~DEH to certify~~ that the project site or each lot can support an OWTS that ~~will not violate the RWQCB mandates~~meets the minimum requirements of this LAMP. Documentation of soil testing results to show groundwater separation requirements have been met is a part of the site evaluation process and is included in the OWTS Layout Report.

To meet this requirement for soil evaluation and groundwater separation, test borings and/or piezometers for monitoring groundwater ~~in conformance with this policy~~ shall be installed under permit from DEHQ, if required. Maps showing the location of the borings and their logs shall be included in the OWTS Layout Report. ~~submitted to DEH.~~ The ~~project engineer, geologist or environmental health specialist (qualified professional)~~qualified professional must determine the actual and potential high groundwater levels in the area of the proposed OWTS at the time of the OWTS Layout Report submittal to~~for review by~~ DEHQ for review.

The qualified professional ~~,~~ must include sufficient documentation and sources to support any~~their expressed~~ conclusions, including the ~~that it is unlikely~~likelihood that seeps or springs would develop as a result~~s~~ of the OWTS ~~and~~discharge and that the ~~high~~ historic high groundwater elevation will not

encroach upon the minimum separation required between the bottom of the proposed OWTS and the highest anticipated groundwater level. The supporting data may include, but not be limited to, data on the site topography, soils, geology, basin studies, hydro-geologic studies, and groundwater monitoring data from the on-site observation wells through an above normal rainfall year.

Transient high groundwater conditions (spikes) must be documented thoroughly if encountered. A written discussion by the qualified professional must be ~~submitted to DEH~~included in the OWTS Layout Report 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.~~

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

4.1.2 ~~EXISTING LOT OWTS DESIGN REVIEW~~Existing Lots

4.1.2.1~~1.~~ If a groundwater investigation has been completed for an existing lot, additional test borings may be required if ~~If~~ a~~this~~ 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 borings may be required~~. DEHQ staff will specify the depth and the locations of the additional test borings in consultation with the qualified professional in charge of the project.

4.1.2.2~~2.~~ When groundwater is observed in the borings and DEHQ 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 above average annual rainfall year and/or when full groundwater recharge has occurred.

4.1.2.3~~3.~~ When groundwater is not observed in the boring but there is evidence of past high groundwater levels, such as soil mottling or documentation of groundwater rise on adjacent properties, monitoring may be required.

4.1.2.4~~4.~~ The groundwater separation requirements will be met ~~—~~when~~If~~ the test results, including no groundwater observed in the test ~~re is a dry~~ borings, indicate the minimum soil depth and groundwater separation requirements can be met, and ~~,~~ there is no~~t a~~ known history of rising groundwater, ~~and there is~~ no evidence of groundwater changes, as noted in section 4.1.3.1 ~~including but not limited to; plant growth, ponding water, or OWTS failures in the area the project will be able to move forward~~.

4.1.2.5~~5.~~ The qualified professional must include sufficient documentation and sources to support any conclusions, including the likelihood that seeps or springs would develop as a result of the

OWTS discharge and that the historic high groundwater elevation will not encroach upon the minimum separation required between the bottom of the proposed OWTS and the highest anticipated groundwater level.

~~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.~~ 4.1.2.6 The supporting data shall include, but not be limited to, data on the site~~s~~ topography, soils, geology, basin studies, hydro-geologic studies, and groundwater ~~-~~monitoring data from the on-site observation wells through an above normal rainfall year.

4.1.3 ~~TESTING PROCEDURES FOR GROUNDWATER~~Procedure for Groundwater Determination

4.1.3.1 Number of Test Borings. Test borings and/or piezometers must be installed in the area of the proposed OWTS dispersal field to demonstrate area can meet groundwater separation requirements. The minimum number of test boring shall be one boring. Additional test borings may be required depending on the areal extent of the dispersal area and site-specific conditions. A boring or monitoring well permit is required for borings over 20 feet in depth, when groundwater is present, or when installing a well or piezometer.

4.1.3.2~~1.~~ Minimum Depth of Test Borings. Test borings in the area of an OWTS shall extend to a minimum of 15 feet or to 10 feet below the depth of the required soil separation based on the percolation rate, as shown in Table 6.3-1, whichever is greater,~~of 15 feet~~ unless refusal is reached. In no case shall there be less than 5 feet of unsaturated, permeable soil below the bottom of the leach line trench. Deeper depths may be required depending on site-specific conditions as determined by DEHQ 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, 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. Test borings in the area of a vertical seepage pit or horizontal seepage pit system shall extend to at least 10 feet deeper than the bottom of the proposed pit(s).~~

4.1.3.3~~3.~~ To allow time for ~~Since~~ groundwater ~~does not always immediately~~to flow into the~~a~~ test boring, the groundwater measurement must be taken after ~~DEH requires~~ a minimum of 72 hours from boring completion ~~pass before an accurate groundwater measurement is taken~~. Forty-eight (48) hour's notice must be provided to DEHQ for staff to observe the boring after the 72 hour time period. The qualified professional and/or the property owner shall be~~maintain full~~ responsible~~ity~~ for securing open borehole or other excavations to protect~~ing~~ the public from any hazards related to the test borings. ~~It is recommended that all~~ For locations that will need ongoing groundwater monitoring, the test borings that encounter groundwater may be converted to observation wells ~~so the groundwater conditions can be monitored over time~~.

~~4.If the qualified professional does not wish to complete the test borings as observation wells, they can cover the test boring, place safeguards around the borings to prevent unauthorized access and~~

~~make an appointment for DEH staff to observe the boring at least 72 hours after the boring has been completed.~~

4.1.3.4~~5.~~ 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 borings in areas where groundwater is suspected may not satisfy the groundwater separation testing requirements ~~mean that approval to issue a septic tank permit can be granted~~. It may be necessary for ongoing~~DEH and the qualified professional to~~ monitoring of the test borings for a sufficient period of time to determine ~~where~~ groundwater levels ~~will rise to~~ during normal to above normal rainfall.

## 4.2 Soil Information and Testing

The following soil testing requirements are designed to characterize the soil, including structure and texture, underlying the proposed dispersal field to determine the suitability for OWTS usage. The 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 are anticipated to be 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 reserve area, as viewed in soil borings or excavations in representative areas.

A boring or monitoring well permit is required for borings over 20 feet in depth, when groundwater is present, or when installing a well or piezometer. All boring results are to be reported, including any results not indicating area is suitable for OWTS usage and test holes which encountered groundwater or refusal.

4.2.1 All test holes and deep borings shall have the soil class that describes the relative amount of sand, clay, silt and combinations thereof as defined by the soil textural triangle developed by the United States Department of Agriculture (USDA) as the Soil Survey Manual, Handbook 18).

4.2.2 Rock fragment content of native soil surrounding the dispersal system shall not exceed 50% by volume for rock fragments sized as cobbles or larger and shall be estimated using either the point-count or line-intercept methods.

4.2.3 Leach Line System Minimum Soil Testing Requirements

4.2.3.1 At least one deep boring should extend to a depth of at least 10 feet below the bottom of the leach trench~~15 feet~~, or a minimum of 10’ below the required vertical separation to groundwater as found in Table 6.3-1, or to impermeable material. ~~but in no case shall there be less than 5 foot of unsaturated, permeable soil below the bottom of the leach line trench.~~Additional borings may be required to document uniformity of soil conditions in the dispersal and reserve areas.~~ high groundwater, deep borings are recommended to be 20’-25’ to help determine gradients during varying rainfall periods. See Chapter 2 for more information on groundwater separation requirements.~~

4.2.3.2 Backhoe excavations may be required to demonstrate uniformity of soil throughout the leach field area(s).

4.2.3.3 Leach lines in steep slopes: ~~d.~~A minimum of~~t least~~ two soil profile borings shall be installed to a depth of 10 feet below the proposed trench depth, or a minimum of 10 feet below the required vertical separation as found in Table 6.3-1, to demonstrate~~ing~~ uniform conditions throughout the disposal area ~~to a depth of 10 feet below the proposed trench depth~~.

4.2.4 Deep Bed Systems Minimum Soil Testing Requirements

4.2.4.1~~3.~~ At least one~~1~~ deep boring should extend to a depth of at least 10 feet below the bottom of the ~~seepage pit~~deep bed, or a minimum of 10 feet below the required vertical separation as found in Table 6.3-1, or to impermeable material. ~~In no case shall less than 5 feet of unsaturated permeable soil exist below the bottom of the seepage pit.~~

4.2.4.2~~4.~~ Backhoe excavations may be required to demonstrate uniformity of soil throughout the seepage pit area~~. This would be necessary~~ when the pit is proposed in an area of variable soil conditions.

4.2.5 Vertical Seepage Pit System Minimum Soil Testing Requirements

4.2.5.1 Vertical seepage pits are restricted to coastal, sedimentary basins where the groundwater has been excepted from the water quality objectives as provided in the Water Quality Control Plans.

4.2.5.2 At least one deep boring should extend to a depth of at least 10 feet below the bottom of the seepage pit or to the minimum vertical separation from groundwater, whichever is greater.

4.2.6 Drip Dispersal System Minimum Soil Requirements

4.2.6.1 At least one boring to a minimum of 5' below infiltrative depth or to refusal to determine adequate soil interval.

## 4.3 ~~Percolation Test Procedures~~Percolation Testing Requirements

This section~~Chapter~~ ~~is~~ provides a consistent method ~~to be used to establish clear direction and methodology~~ for percolation testing in San Diego County. The objective is to determine the absorption capacity of the soils in the dispersal system and reserve areas 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.

The length of time needed for percolation tests will vary in different types of soil. Percolation rates must be determined on the basis of the test data obtained after the soil has had opportunity to become saturated and to swell for at least 24-hours. Saturation means that the void spaces between the soil particles are full of water. This can be accomplished in a relatively short period of time. Swelling

is caused by intrusion of water into the individual soil particles. This is a slow process, especially in clay-type soil, and is the reason for requiring a prolonged soaking period. After the 24-hour presoak, the percolation testing proceeds based on the conditions resulting from the presoak, in accordance with the procedures in this LAMP.

Percolation testing performed under permit and inspection from DEHQ is required for all site evaluations. However, previous percolation test data using test methods approved since 1978 may be valid and may be used at a later time to design and size an OWTS for a project. The percolation test record (percolation test form or other record with parcel or subdivision maps) shall be included in the OWTS Layout Report.

Sufficient tests must be made in separate holes to assure that the results are valid and represent the extent of the proposed dispersal areas.

4.3.1 All percolation testing for dispersal systems ~~except vertical seepage pits in San Diego County~~ shall be conducted under permit and inspection from DEHQ and through the use of the ~~following~~ procedures in Appendix I-Percolation Testing Procedures. Qualified professional shall provide DEHQ with 24-hour notice prior to conducting a percolation test.

4.3.2 The test shall be performed by or under the direct supervision of a ~~California registered professional engineer, geologist or environmental health specialist (qualified professional)~~ qualified professional who has completed ~~attended~~ a ~~n~~ consultation ~~orientation session conducted by~~with the ~~Department of Environmental Health (~~DEHQ~~)~~ and demonstrated knowledge of San Diego County ordinances ~~laws and policies~~ relating to OWTS and the requirements of this LAMP. ~~Any deviation shall be authorized only after receiving written approval by DEH. For testing requirements for horizontal and vertical seepage pits and subsurface drip systems, see the Chapters in this LAMP covering those types of dispersal systems.~~

4.3.3 Areas that are within the minimum setback distances established to protect public health and/or water quality shall not be used for waste disposal or percolation testing. The following areas are considered unsuitable for the location of the dispersal system or designated reserve area:

4.3.3.1 Areas within any easement which is dedicated for surface or subsurface improvement.

4.3.3.2 Paved areas or areas proposed for paving or areas occupied by or proposed to be occupied by structures or other surface features.

4.3.3.3 Areas not owned or under the control of the property owner unless the area is dedicated as a recorded easement for waste disposal purposes.

4.3.3.4 Low-lying areas subject to flooding or with a potential for flooding.

4.3.3.5~~Note:~~ Grading or clearing of brush for the purposes of completing a percolation test may require approval from other agencies, including County of San Diego Planning and Development

Services and Department of Public Works, and may require~~s~~ the implementation of stormwater best management practices.

4.3.3.6 Percolation rates in excess of 120 minutes per inch demonstrate impermeable soil that is not considered suitable for an OWTS.

~~TEST HOLES~~

4.3.4 Number of Percolation Test Holes

4.3.4.1~~1.~~ A minimum of ~~four~~ six percolation test holes located within the primary and designated reserve areas is required at sites where the average ~~when~~ percolation rates ~~are less than~~ 60 minutes per inch (~~mpi~~MPI) or ~~.~~less.

4.3.4.2~~2.~~ An additional two (for a minimum of eight~~six~~ percolation test holes) is required when the average percolation rate is more than 60 ~~mpi~~MPI. ~~(For those soils having an average percolation rate greater than 60 mpiMPI, see Appendix II).~~

4.3.4.3 Percolation test holes shall be representative of the ~~dispersal area demonstrating~~ site conditions throughout the entire dispersal systems with equal consideration of the primary and designated reserve dispersal areas.

4.3.4.4~~3.~~ Additional test holes may be necessary on a site specific basis for reasons that include, but are not limited to the following:

4.3.4.4.1 Unacceptable percolation test results, including percolation tests not performed in accordance with the procedures set forth in Appendix I-Percolation Test Procedures of this LAMP.

4.3.4.4.2~~a.~~ ~~Unacceptable or failed tests~~Failed percolation test results or rates that do not meet the minimum rates for the dispersal system proposed for use.~~.~~

4.3.4.4.3~~b.~~ Areas of the dispersal field require additional testing to define limits for exclusion of unsuitable areas.~~Areas of the disposaldispersal field requiring defined limits for exclusion.~~

4.3.4.4.4~~c.~~ The dispersal system is located out of a concentrated area or is of larger areal extent than typical single residential unit installation.~~The disposaldispersal system is located out of a concentrated area.~~

4.3.4.4.5~~d.~~ Soil conditions are variable or inconsistent.~~Soil conditions are variable or inconsistent.~~

4.3.5 Depth of ~~Testing~~Percolation Test Holes

4.3.5.1~~1.~~ Test holes shall be representative of the dispersal system installation depth.

4.3.5.2~~2.~~ Conditions which may require testing deeper than the ~~leach line~~dispersal system depth:

4.3.5.2.1~~a.~~ ~~Shallow consolidated rock or~~Areas of potential impervious soil layers to a minimum of five feet below bottom of infiltrative surface if dispersal field.

4.3.5.2.2~~b.~~ Slopes exceeding 25%.

4.3.5.2.3~~c.~~ Other factors as might be determined by ~~sound~~ accepted ~~geotechnical~~ engineering practices.

4.3.6 Soil Classification

4.3.6.1~~1.~~ All test holes and deep borings shall have ~~soil types described according to the American Society for Testing and Materials (ASTM) Soil Classification System (Unified~~the soil class that describes the relative amount of sand, clay, silt and combinations thereof as defined by the soil textural triangle developed by the United States Department of Agriculture (USDA) as the Soil Survey Manual, Handbook 18).

4.3.6.2~~2.~~ All percolation testing results~~borings~~ are to be reported, including any results not meeting minimum rates suitable for OWTS usage~~,~~ and test holes which encountered groundwater or refusal. ~~Comments about consolidation and friable characteristics are encouraged.~~

4.3.7 Location of ~~Test Holes~~ and Identification of Percolation Test Holes

4.3.7.1 Test holes shall be staked and flagged so the test holes can be easily located.~~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.~~

4.3.7.2 The test holes must be identified with all of the following:~~Test holes shall be sStaked and flagged so the test holes can be easily located.~~

~~2. Identified with:~~

4.3.7.2.1~~a.~~ A test hole number or letter

4.3.7.2.2~~b.~~ The depth of the test boring

4.3.7.2.3~~c.~~ Lot/parcel number or letter if associated with a subdivision or lot line adjustment.

4.3.8 Drilling of Borings for Percolation Test Holes

4.3.8.1~~1.~~ Diameter of each test hole shall be a minimum of 6 inches and a maximum of 12 inches.

4.3.8.2~~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.

4.3.9 Preparation of Percolation Test Holes

4.3.9.1~~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.

4.3.9~~2.~~ All loose material ~~should~~ shall be removed from the hole.

4.3.10 Percolation Test Procedures

Percolation testing shall be performed in accordance with the procedures provided in Appendix I - Percolation Test Procedures of this LAMP.

4.3.11 Leach Line Dispersal Systems

4.3.11.1 Percolation testing shall be performed in accordance with the requirements of this Chapter and ~~the DEH percolation test procedures found in Chapter 3~~ the procedures in Appendix I-Percolation Test Procedures of this LAMP. Percolation tests, along with d~~D~~eep borings, and backhoe excavations~~, and percolation tests~~ are used to demonstrate that the primary dispersal a~~site~~ and reserve locations are~~is~~ located in ~~an~~ areas of uniform soil, and that no site conditions exist which could adversely affect the performance of the system or result in surfacing sewage or groundwater degradation.

4.3.11.2~~1.~~ Leach line systems are limited to soils with percolation rates of 120 minutes per inch or less. Percolation rates in excess of 120 minutes per inch are unsuitable for the installation of an OWTS dispersal system.

~~2. At least four percolation test holes at each leach field location should be provided to represent soil types at the depth of the proposed leach lines.~~

~~LEACH LINES ON STEEP SLOPES in Steep Slopes.~~

~~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 120 minutes per inch or less.~~
~~d.~~

4.3.12 ~~Horizontal Seepage Pit~~Deep Bed ~~-~~Dispersal Systems

4.3.12.1 Percolation testing shall be performed in accordance with the requirements of this Chapter and the procedures in Appendix I-Percolation Test Procedures of this LAMP. Percolation tests, along with deep borings, and backhoe excavations are used to demonstrate that the primary dispersal and designated reserve locations are located in areas of uniform soil, and that no site conditions exist

which could adversely affect the performance of the system or result in surfacing sewage or groundwater degradation.~~Percolation tests are to be performed in accordance with the test procedures found in Chapter 3 of this LAMP. Deep borings, backhoe excavations, and percolation tests are used to demonstrate that the dispersal field is located in an area of uniform soil with excellent permeability, and that no conditions exist which could adversely affect the performance of the system or result in groundwater degradation.~~

4.3.12.2~~1.~~ The ~~average~~ percolation rates shall not exceed 30 minutes per inch in any portion of the ~~horizontal seepage pit~~deep bed dispersal areas. Individual rates exceeding 30 minutes per inch may be considered with additional soil testing.

~~2. At least 4 percolation test holes at each pit location should be provided to represent soil types within the infiltrative surface area of the seepage pit. This profile should represent the entire sidewall depth of the pit.~~

4.3.12.3 Depth of percolation test must be representative of the bottom infiltrative depth of the pit.

4.3.12.4~~5.~~ Any percolation tests for ~~horizontal seepage pits~~deep bed dispersal systems, which were approved based on testing prior to November 1978, will require additional percolation testing unless the previous testing meets current requirements.

4.3.13 Vertical Seepage Pit Dispersal Systems

4.3.13.1 Percolation testing shall be performed in accordance with the requirements of this Chapter and the procedures in Appendix I-Percolation Test Procedures of this LAMP. Percolation tests, along with deep borings, and backhoe excavations are used to demonstrate that the primary dispersal and designated reserve locations are located in areas of uniform soil, and that no site conditions exist which could adversely affect the performance of the system or result in surfacing sewage or groundwater degradation.

4.3.14 Drip Dispersal Systems

4.3.14.1 Percolation testing shall be performed in accordance with the requirements of this Chapter and the procedures in Appendix I-Percolation Test Procedures of this LAMP. Percolation tests, along with deep borings, and backhoe excavations are used to demonstrate that the primary dispersal and designated reserve locations are located in areas of uniform soil, and that no site conditions exist which could adversely affect the performance of the system or result in surfacing sewage or groundwater degradation.

4.3.15 Dispersal systems ~~LEACH LINES ON~~in Steep Slopes – over 25% to maximum 40%.

4.3.15.1 Testing must provide data representative of the entire primary and designated reserve dispersal areas to demonstrate that conditions are uniform below the entire disposal areas. The

minimum testing required is the same as above for regular dispersal.

4.3.16 ~~REPORTS~~Percolation Test Results Reporting

4.3.16.1~~1.~~ Percolation testing is only one critical factor in the site evaluation process. All test data and required information shall be submitted as part of a comprehensive OWTS Layout Report on approved ~~DEH~~DEHQ forms with appended data or information as needed. ~~A minimum of three copies is required.~~

4.3.16.2~~2.~~ Reports shall be signed and stamped, if appropriate, with an original signature by the ~~consultant~~ qualified professional who either performed or supervised the testing.

~~3. San Diego County Code, Section 68.328 requires all percolation testing to be done by a civil engineer, geologist, or environmental health specialist, registered in the State of California. These qualified professional are required to be on an approved list on file with DEHDEHQ.~~

~~4. The percolation test is only one critical factor in siting an OWTS. Site considerations may require special evaluation by a qualified professional to technically address issues such as high groundwater, steep slope, nitrate impacts, cumulative impacts, (mounding, and horizontal transmissibility).~~

~~5. Qualified professionals who employ technicians are responsible for the work performed by the technician. It is incumbent upon the qualified professional to properly train, equip, and supervise anyone performing work under his or her direction and license.~~

## 4.4 Nitrate Loading Study

A nitrate loading study, using an acceptable mass balance method, must demonstrate that the proposed project will not cause the concentrations of wastewater constituents in ground water to exceed applicable ground water quality objectives for nitrate. The study must look at the existing impacts to groundwater and surface water along with the potential impacts from the proposed project to address the cumulative impacts to water resources.

### 4.4.1 General Requirements

4.4.1.1 A Nitrate Loading study may be required, as determined by DEHQ, where conditions exist such that a proposed OWTS usage or replacement/repair OWTS may have the potential to impact groundwater to levels above the water quality objectives provided in the Water Quality Control Plan (Basin Plan) for that area.

4.4.1.2 A Nitrate Loading Study shall be required for all subdivisions of land proposed for OWTS usage that do not meet the minimum density requirements in Table 3.7-1.

4.4.1.3 A Nitrate Loading Study shall be required for building permits for an additional dwelling unit on a lot that will not meet the density requirements in Table 3.7-1.

4.4.2 The nitrate loading study shall provide the minimum information provided in Appendix II.

## 4.5 Soil Stability Study

Natural slopes and cut slopes from 25% to 40% in areas proposed for OWTS usage require additional study as to the stability and suitability for OWTS usage. Cut slopes are excavated along natural hillsides, through ridges and mesas, and into existing embankment. The stability of slopes can be assessed through appropriate geotechnical investigation, analysis, and design thereby preventing landslides, slip outs, slumps, severe erosion, and safety issues.

4.5.1 A Soil Stability study completed by a qualified professional shall be required for OWTS usage proposed on slopes with grades of 25% or greater.

4.5.2 A Soil Stability study shall be required for OWTS usage proposed where site conditions exist that may indicate unstable landforms including, but not limited to, unconsolidated fill, significant erosion rills, tension cracks, evidence of prior earth movement or slides, and leaning trees. Areas with evidence of unstable landforms are not appropriate for OWTS usage.

The study shall also address any potential risk to the slope stability from the use of an OWTS at that location.

4.5.3 The Soils Stability Study must assess the risk of slope failure, creep, or other movement which could damage the OWTS or endanger life or property. The Report shall include data, calculations, and assumptions used in formulating the opinion and any recommendations. The OWTS design shall incorporate the recommendations of the assessment report.

4.5.4 The qualified professional shall propose additional site investigation, borings, and/or testing, as needed, to provide sufficient data to complete the slope stability evaluation.

4.5.5 Minimum report information

The Soil Stability Report must contain the following minimum information:

4.5.5.1 Description of project and site including proposed location of OWTS dispersal system.

4.5.5.2 Description of any proposed or completed grading for the project at the site.

4.5.5.3 Description of the evaluation and investigation completed at the site.

4.5.5.4 Site specific topography map scaled to two (2) foot contours, cross section(s) of hillside soil profiles.

4.5.5.5 Results of site evaluation, including observed slope conditions and geotechnical investigation results.

4.5.5.6 Specific recommendations for grading actions, if warranted.

4.5.5.7 OWTS dispersal design recommendations to include scaled dispersal system layouts and profiled designs based on accurate topography.

# CHAPTER 5.0 ~~Leach Line Systems~~SITE EVALUATION AND OWTS LAYOUT REPORT REQUIREMENTS

## 5.1 ~~REPORTS~~General

5.1.1~~1.~~ All test data and required information shall be submitted on approved DEHQ forms with appended data or information ~~as needed~~. ~~A minimum of three copies is required.~~

5.1.2~~2.~~ Reports shall be signed with an original signature and stamp, if applicable, by ~~the~~ each ~~consultant~~ qualified professional who either performed or supervised the testing or otherwise contributed to the report.

5.1.3~~3.~~ San Diego County Code, Section 68.328 requires all percolation testing to be done by a civil engineer, geologist, or environmental health specialist, registered in the State of California. These qualified professionals are required to be ~~on an approved list on file~~registered with DEHQ.

5.1.4~~4.~~ The percolation test is only one critical factor in siting an OWTS. Site considerations may require special evaluation by a qualified professional to technically address issues such as high groundwater, steep slope, nitrate impacts, cumulative impacts, ~~(~~mounding, and horizontal transmissibility~~)~~.

5.1.5~~5.~~ Qualified professionals who employ technicians are responsible for the work performed by the technician. It is incumbent upon the qualified professional to properly train, equip, and supervise anyone performing work under his or her direction and license.

## 5.2 ~~THE LAYOUT DESIGN~~OWTS Layout Report Information

An OWTS L~~l~~ayout Report~~design~~ of the proposed project, building construction, and OWTS is required. All maps and schematics ~~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.~~

5.2.1 The OWTS L~~l~~ayout ~~design~~ Report sh~~ould~~all contain the ~~following~~ minimum information listed in Table 5.2-1:

| **Table 5.2-1: Minimum Information Requirements for OWTS Layout Reports** |
|---|
| Site address |
| Assessor's Parcel Number |
| Owner's Name, mailing address, and phone number |
| Qualified Professional's name, mailing address, and phone number |

| |
|---|
| Type and scope of project (e.g. new dwelling, new structure, guesthouse, an addition, use permit, subdivision of land) |
| Number of existing bedrooms, number of proposed bedrooms |
| Sources of wastewater to proposed OWTS |
| Volume, character, and strength of wastewater with supporting calculations, data and sources of information |
| Commercial Food Service-location, design, and sizing of oil/grease interceptor |
| Number of existing or proposed bedrooms (as determined by Section 6.5.1) |
| Legal Basis of parcel (e.g. map and lot number, plat number |
| Vicinity Map, Scale (Engineer scale not to exceed 1" = 60'), North arrow, Map does not exceed 11" x 17" paper~~Thomas Bros. Map coordinates;~~ |
| Property Lines and lot dimensions (provide an over sheet (larger scale allowed) and detail sheet(s) for large parcels |
| Topographical lines and elevation points (include pad grade, finished floor, septic tank, leach lines, slope arrows, percent slope and direction of fall, slope range, etc.) |
| Locations of existing and proposed primary and designated reserve dispersal areas |
| Septic tank and dispersal areas sizing calculations and design details |
| All setback distances shown on layout |
| All existing and proposed grading, rock outcroppings, slopes in excess of 20%~~Proposed grading with 5:1 setbacks shown along with any impacts to the site and/or adjacent property. Include energy dissipaters for pad drainage;~~ |
| All known, recorded easements on or within 20 feet of lot boundaries (open-space, utility, road, waterline, etc.) |
| Identify source of potable water, location of all public waterlines on or within 20 feet of property and signed water line statement |
| Location of all public waterlines on or within 20 feet of property and signed water line statement; |
| Location of all wells on or within 150 feet of property, location of all public wells within 600 feet of property line |
| Location of drinking water reservoirs within 2,500 feet of property line |
| Location of drainage ways within 50 feet of property line |
| Location of streams, springs, ponds, flood plains, lakes within 200 feet of property line |
| Location of all stormwater treatment and retention facilities |
| Location and discussion of any impaired water bodies, Basin Plan special provisions or exception areas, or other special conditions in proximity to site. |
| Methods and results of all soils testing, including soil profile test holes and percolation tests, plotted on the design (matches flagged locations in the field) |
| Methods and results of depth to groundwater analysis and testing, if required |
| Methods and results of nitrate loading analysis, if required |
| Methods and results of soil stability study, if required |
| Methods and results of other required studies/information |
| Sign off of proposed layout by local water district or company, if required |

- ~~Site Address;~~
- ~~Tax Assessor's Parcel Number;~~

- ~~Owner's Name, mailing address, and phone number;~~
- ~~Consultant's name, mailing address, and phone number;~~
- ~~Type of proposed construction (residential vs. commercial);~~
- ~~Number of existing or proposed bedrooms;~~
- ~~Purpose of project (e.g. new dwelling, new structure, guesthouse, an addition, etc.) Specify scope of work;~~
    - ~~Legal Basis of parcel (map and lot number);~~
    - ~~Vicinity Map, Scale, North arrow, Thomas Bros. Map coordinates;~~
    - ~~Property Lines and lot dimensions;~~
    - ~~Topographical lines and elevation points (pad, floor, top leach line, etc);~~
    - ~~Percent slope and direction of fall;~~
    - ~~Proposed OWTS design detail;~~
    - ~~Proposed grading with 5:1 setbacks shown along with any impacts to the site and/or adjacent property. Include energy dissipaters for pad drainage;~~
    - ~~All known, recorded easements on or within 20 feet of lot boundaries (open space, utility, road, waterline, etc.);~~
    - ~~Identify source of potable water;~~
    - ~~Location of all public waterlines on or within 20 feet of property and signed water line statement;~~
    - ~~Location of all wells on or within 150 feet of property;~~
    - ~~Any soils testing information, such as deep borings or percolation tests, plotted on the design.~~

5.2.2 The additional information is required for OWTS with Supplemental Treatment

| **Table 5.2-2: Minimum Information Requirements for OWTS Layout Reports with Supplemental Treatment** |
|---|
| All items listed in Section 5.2.1 |
| A list of all supplemental treatment components |
| A map showing all supplemental treatment components on the parcel |
| The OWTS design specifications and configuration for the primary dispersal area |
| The OWTS design specifications and configuration for the designated reserve area |
| Sizing calculations from the qualified professional |
| GeoFlow worksheet for drip dispersal line (if used) |
| Pump(s) specifications and pump curve(s), friction and head loss calculations |
| Control or alarm box with telemetric reporting specifications |
| Documentation of the 24-hour emergency storage above the alarm on float(s) |

~~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.~~

~~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~~

## 5.3 Minimum Nitrate Loading Study Information

Applicant shall provide the minimum information required pursuant to Section 4.4 and Appendix II for sites where a nitrate loading study is required.

## 5.4 Minimum Steep Slope/Slope Stability Study Information

Applicant shall provide the minimum information required pursuant to Section 4.5 for sites where a slope stability study is required.

~~7,3,5. Steep Slope Leach Line Designs must include the following:~~

~~a. Cross section(s) hillside soil profile(s).~~
~~b. Detailed boring logs of all test holes and borings.~~
~~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.~~

~~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.~~

~~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.~~

# CHAPTER 6.0 ~~Vertical Seepage Pit Systems~~SITING AND DESIGN CRITERIA

## 6.1 General

The most common type of OWTS found in San Diego County consists of a septic tank connected to a dispersal field consisting of rock or chamber filled leach lines. Variations of this system may include a septic tank connected to either a horizontal or vertical seepage pit dispersal system.

In some ~~applications~~areas, the ~~disposal~~ dispersal field may be~~is~~ located at a higher elevation than the building site. In this instance, a pump~~pressure~~-system is used to deliver the ~~sewage~~ wastewater from the location of the septic tank or building site to the ~~a standard disposal~~ dispersal field location where it is then distributed by gravity flow. ~~All of~~T~~t~~hese OWTS~~examples would~~ are ~~be~~ considered standard~~a conventional~~ OWTS because no further sewage treatment is performed between the septic tank and the ~~disposal~~ dispersal field. In all cases, the septic tank provides the initial treatment of the sewage with the resultant ~~sewage~~ effluent wastewater~~is~~ discharged below the ground surface, where it ~~and~~ undergoes further treatment processes, including~~is~~ digestion~~ed~~ by bacteria, in the unsaturated soil zones ~~for treatment of the sewage underground~~underlying the dispersal field. When sited and designed properly, t~~T~~hese ~~systems~~ OWTS are designed to operate in all normal weather conditions with minimal maintenance, ~~other than~~including cleaning of effluent filters and periodic septic tank pumping to remove accumulated scum and sludge from the septic tank. Areas subject to flooding or low lying areas that have a potential of flooding or are not suitable for OWTS usage.

In addition to ~~conventional~~ standard OWTS, ~~the County also allows the use of alternative~~ OWTS with supplemental treatment that meet the minimum requirements of this LAMP are allowed for use where additional treatment of wastewater is needed. OWTS with supplemental treatment must be certified by the National Sanitation Foundation or other approved third-party tester and are designed to reduce nitrogen or pathogen concentrations in wastewater prior to discharge to the dispersal field. This additional treatment may be required to mitigate for shallow groundwater or inadequate soil interval depth, or to meet any other requirement to prevent or minimize impacts to groundwater or surface waters. OWTS with supplemental treatment typically use drip dispersal as the method for effluent disposal. ~~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 certified by the National Sanitation Foundation or other approved third party tester.~~ Due to the complexity of these systems, ongoing maintenance contracts and annual operating permits are also required.

This chapter provides general siting and design criteria. Specific septic tank and subsurface dispersal field requirements are provided in Chapters 7.0 and 8.0.

6.1.1 The siting, design, operation and maintenance of all new OWTS must meet the provisions of the site evaluation and other required studies for that specific parcel and these standards.

~~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 San Diego 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 tremendously with the amount of rainfall for many areas in San Diego County. Therefore, the highest anticipated groundwater levels must be established for any OWTS design in order to meet this separation requirement. Details are provided in the Chapter 2 of this LAMP.~~

~~At sites affected by a shallow impervious layer of rock or clay, a minimum five foot unsaturated soil interval is required between the bottom of the disposal system and the shallowest impervious layer.~~

~~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.~~6.1.2 No person shall connect any dwelling, structure or other source of sewage or wastewater to an existing OWTS without first obtaining approval from DEHQ.

## 6.2 ~~PRIMARY AND RESERVE AREA REQUIREMENTS~~Primary and Designated Reserve Dispersal Area Requirements

6.2.1 In addition to primary system design criteria, all OWTS design proposals, for both new construction and additions to an existing structure, must show a designated reserve area sufficient to accommodate 100% ~~reserve area for the~~of the design of the active OWTS. P~~Any p~~arcels ~~once certified~~previously approved with a reserve area smaller than the current standards must meet current design standards.

6.2.2 The designated reserve area shall not be built on or used for any other purposes that conflicts with or prevents the use of the area for OWTS.

6.2.3 To ensure the designated reserve area is sufficiently sized for potential repairs to the primary OWTS, and because costs to install OWTS with supplemental treatment may be prohibitive to some property owners, the design of the dispersal system that determines the extent of the 100% designated reserve area shall be consistent with the dispersal system design of the primary OWTS. A proposed 100% designated reserve area based on a dispersal system for OWTS with Supplemental Treatment shall only be allowed if the primary system is an OWTS with supplemental treatment. ~~Percolation rates in excess of 120 minutes per inch demonstrate impermeable soil that should not be considered suitable for an OWTS, as this will have a high probability of premature failure.~~

## 6.3 Groundwater Separation Requirements

6.3.1 The minimum depths from the highest known groundwater to the bottom of the dispersal system are noted in Table 6.3-1. The minimum separation of the bottom of dispersal system to groundwater for vertical seepage pits is 10 feet.

6.3.2 The groundwater separation depth (minimum soil depth) for sites where an OWTS with Supplemental Treatment for nitrogen reduction are used may be reduced to a minimum of two (2) feet, where appropriate.

6.3.3 The groundwater separation depth (minimum soil depth) for sites where an OWTS with Supplemental Treatment for pathogen reduction are used may be reduced to a minimum of three (3) feet, where appropriate.

6.3.4 A reduction of the minimum separation may be approved where percolation rates are less than five (5) minutes per inch if the site does not overlie groundwater protected for drinking water supplies or is located more than 2,500 feet from an impaired water body or drinking water reservoir or tributary but shall be no less than eight (8) feet for a leach line and ten (10) feet for a seepage pit.

**Table 6.3-1: Minimum Depths to Groundwater and Minimum Soil Depth from the Bottom of the Dispersal System**

| Percolation Rate | Minimum Depth |
|---|---|
| Percolation Rate ≤1 MPI | Twenty (20) feet |
| 1 MPI< Percolation Rate ≤ 5 MPI | Twenty (20) feet |
| 5 MPI< Percolation Rate ≤ 30 MPI | Eight (8) feet |
| 30 MPI< Percolation Rate ≤ 120 MPI | Five (5) feet |
| Percolation Rate > 120 MPI | Not suitable for OWTS Usage |
| MPI = minutes per inch | |

Notes: 1) Minimum depth for seepage pits is ten (10) feet. 2) Minimum depth for OWTS with Supplemental Treatment designed for nitrogen reduction is two (2) feet.3) Minimum depth for OWTS with Supplemental Treatment designed to reduce pathogens is three (3) feet. 4) Percolation rates for leach lines shall be 120 MPI or faster. 5) Percolation rates for deep bed dispersal systems shall be 30 MPI or faster. Individual rates exceeding 30 MPI may be considered for deep bed dispersal systems with additional soil testing.

6.3.5 Testing procedures to determine the groundwater separation are found in Chapter 4.0, Section 4.1.

~~**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 4 of this LAMP.~~

~~1. Septic tanks must be certified by the International Association of Plumbing and Mechanical Officials (IAPMO).~~

~~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.~~

~~6.Septic tank location must take into account maintenance and pumping requirements including vehicle access; and distance and elevation lift to pumper truck.~~

~~7.All tanks must have a capped tee or a 90 degree elbow fitting on the inlet to prevent gas exchange between the tank and the house plumbing. Inlet tees 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 that ensures the outlet pipe is 4 inches higher than the top of the first siphon in a serial system or 4 inches above the top of the leach rock or other components used in the~~

~~dispersal system on a level system.~~

~~11.Septic tanks with greater than 6 inches of cover must have 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 DEH 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.Effluent filters must be IAPMO approved if they are to be installed as part of the outlet tee.~~

~~14.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.~~

~~15.Minimum tank size is 1000 gallons.~~

~~16.Septic tanks shall be sized according to anticipated wastewater flows from the structure(s). The following standard sizes will shall apply:~~

~~a. 1-3 bedroom single family dwelling (0-450 GPD) 1000 gallons~~
~~b. 4 bedroom single family dwelling (451-600 GPD) 1200 gallons~~
~~c. 5-6 bedroom single family dwelling (601-900GPD) 1500 gallons~~
~~d. Flows greater than 900 GPD must utilize the following formula to determine minimum tank sizing: 1125 gallons + (.75)(Flow in GPD~~

## 6.4 Wastewater Characterization

Accurate characterization of the pollutant load in wastewater is necessary to determine coverage under this LAMP. The scope of coverage and prescribed standards in this LAMP are limited to OWTS treating low strength domestic wastewater. Low strength wastewater is wastewater having a 30-day average concentration of biochemical oxygen demand (BOD) of 300 mg/L or less, total suspended solids (TSS) of 330 mg/L or less, or fats, oil, and grease (FOG) concentration of 100 mg/L or less prior to the septic tank or other OWTS treatment unit.

Wastewater with pollutant loads above the concentrations listed above are considered high strength and are not permitting through the local permitting program, with the exception of high strength wastewater from a commercial food service building up to 900 mg/L BOD and has a properly sized and functioning oil/grease interceptor. Proposed projects generating high strength wastewater must make application with the appropriate Regional Board.

The main constituents of concern to groundwater are nitrogen and pathogens. Protection of groundwater quality is achieved by implementing the minimum vertical separation distance between

the dispersal system and the highest expected rise of the water table. This provides an unsaturated zone wherein high degrees of physical, biological, and chemical treatment occur. Surface waters are similarly protected by the implementation of lateral setback requirements. The buildup of nitrogen in groundwater is potentially the most significant long-term consequence of OWTS usage.

6.4.1 Residential Wastewater Characterization

Mass loadings and concentrations of constituents in typical domestic wastewater are available in various publication, including the EPA Design Manual, 1980 and 2002 versions. Total nitrogen concentrations in effluent have been reported to vary from 25 mg/L to as much as 100 mg/L, with the average generally being in the range of 35 to 45 mg/L (US EPA 1980).

The OWTS Layout Report shall include a description of any activity within a residential structure that may affect the characteristics of the wastewater generated. These activities shall include home-based food preparation for non-residents such as cottage food operations or micro home kitchens.

6.4.2 Nonresidential Wastewater Characterization

Nonresidential establishments can have significant variation in wastewater characteristics. The wastewater stream from existing facilities should be sampled to determine the pollutant loads. New proposed projects can be estimated based on available data, including charts in the EPA Design Manuals relating to per fixture mass loading or contributions. Characterization data from existing facilities with similar use and occupancies can also provide this information.

## 6.5 Wastewater Flow Determinations

The required hydraulic capacity for an OWTS is determined initially form the estimated wastewater flow. Accurate characterization of raw wastewater, including daily volumes and peak flows are critical for effective system design.

6.5.1 Residential Wastewater Flows

For the purposes of designing a dispersal system, residential dwelling projected flows are based on the number of bedrooms in the dwelling unit, as determined below, and a minimum volume of 75 gallons per day per person water usage and a minimum occupancy of two persons per bedroom. The number of bedrooms is calculated in accordance with the following guidelines.

6.5.1.1 The living room, dining room, family room, kitchen, bathrooms, and utility rooms are not considered bedrooms. All other rooms shall be considered as potential sleeping rooms. 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. Dens, libraries, studies, weight rooms, sewing rooms, workshops, etc., shall be considered bedrooms, unless they conform to the criteria listed below.

6.5.1.1.1 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.

6.5.1.1.2 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.

6.5.1.2 Plans for proposals where it is not clear if a specific room is to be considered a bedroom may be rereviewed on a case-by-case basis by DEHQ.

6.5.1.6 Projects proposing 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 prior to approval or sign-off by DEHQ.

6.5.2 Commercial Wastewater Flow

6.5.2.1 If there is no actual data available to determine the wastewater flow from the commercial facility, data from the following water use computation table may be used. Other data sources may be used as approved by the DEHQ (EPA Design Manual, CA Plumbing Code App. H).

**Table 6.5-1: Commercial Minimum Wastewater Flow Guidelines**

| Type of Establishment | Gallons Per Person Per Day (Unless otherwise indicated) |
|---|---|
| Rooming Houses | 50 gal |
| Boarding Houses | 60 gal |
| Motels/Hotels | 50 gal |
| Restaurant and cocktails lounges | 100 gal/seat or 35 per |
| Bars or cocktail lounges | 20 gal |
| Campgrounds with bathhouse | 35 gal |
| Recreational Vehicle Camps | 100 gal/per space |
| Tourist Camps with individual bath units | 75 gal |
| Retail Markets with public toilets | 150 gal/per fixture |
| Retail Markets without public toilets | 0.1 gal/sq ft |
| Day Camps (no meals served) | 15 gal |
| Day Schools and Day Care facilities with no cafeteria or showers | 15 gal |
| Boarding Schools | 25 gal |
| Day Workers at schools/offices (per shift) | 100 gal |
| Institutions other than hospitals (involuntary) | 175 gal |
| Industrial Buildings (gallons/person/shift, exclusive of industrial waste) with food cafeteria | 25 gal |
| Industrial Building no food cafeteria | 15 gal |
| Picnic Parks (toilet waste only gallon/picnicker) | 5 gal |
| Swimming Pools and Bathhouses | 10 gal |
| Country Clubs (per resident member) | 100 gal |

| | |
|---|---|
| Drive-In Theaters (per car space) with snack bar | 10 gal |
| Movie Theaters (per seat) with snack bar | 10 gal |
| Airports (per passenger) | 5 gal |
| Self-service Laundries | 1000 gal/machine |
| Stores (per toilet fixture per employees/public use | 150 gal /fixture |
| Service Stations (per vehicle served) | 10 gal |
| Public Gatherings (auctions, ball games, fairs, etc.) | 10 gal |
| Food preparation wholesale | 250 gal/employee/shift |
| Churches-no kitchen | 5 gal/seat |
| Churches-with kitchen | 10 gal/seat |
| Kennels | 10 gal/dog |
| Note: Structure occupancies not classified above shall base their sewage flows on one-year actual water use of a similar occupancy supplied by the applicant. Other flows may be proposed based on approved criteria, such as Manual of Septic Tank Practice or the EPA Design Manual-Onsite Wastewater and Disposal Systems or other acceptable publication. | |

~~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 PDS to address any structural considerations such as load bearing walls. This is to be done prior to approval or sign-off by the DEH.~~

## 6.6 ~~SETBACKS~~Minimum Setbacks

Setbacks in layout designs 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~~Table 6.6-1.

| Table 6.6-1: OWTS Minimum Setback Requirements | | | |
|---|---|---|---|
| **Setback Descriptions** | **Septic Tank** | **Leach lines and Seepage (depth <10')** | **Seepage Pits (depth > 10')** |
| Water Well – Private[1] | 100' | 100' | 150' |
| Water Well – Public[1] | 150' | 150' | 200' |
| Property Line | 5' | 5' | 10' |
| Structures, driveways, swimming pools, trees | 5' | 8' | 10' |
| Water Mains (public) | -- | 25' | 25' |
| Private Utility Trenches[5] | -- | 10' | 10' |
| Road Easements[3] | -- | 10' from edge of ultimate easement width | 10' from edge of ultimate easement width |
| Septic Tank | -- | 5' | 10' |
| Leach Lines | 5' | 10' center to center | 15' |
| Seepage Pits | 10' | 15' | 20' from edge of excavation |
| Cut Slope[4] | 10' | 5' horizontal distance for every 1' in rise setback from top of cut slope to maximum of 100' | 5' horizontal distance for every 1' in rise setback from top of cut slope |
| Unstable Land Mass | -- | 100' | 100' |
| Drainage Course[5] | -- | 50' from centerline or top of bank | 50' from centerline or top of bank |
| Stormwater retention features, lined ponds | 25' | 25' | 25' |
| Springs, Flowing Surface Water Bodies, Streams, Creeks, Rivers | -- | 100' from edge of flow line or top of bank | 100' from edge of flow line or top of bank |
| Pond, Lake, Reservoir, Vernal Pools, Wetlands, Other Surface Water Bodies | -- | 200' from spillway elevation or from where the edge of that water body is the high-water mark, whichever is greater | 200' from spillway elevation or from where the edge of that water body is the high-water mark, whichever is greater |
| Aqueduct[2] | -- | 100' to pipeline | 100' to pipeline |
| Lake, Reservoir, Flowing Water Body for OWTS located >1,200 feet of Surface Water Intake of Public Water System | -- | 400' | 400' |

| | | | |
|---|---|---|---|
| Lake, Reservoir, Flowing Water Body for OWTS located 1,200'-2,500' of Surface Water Intake of Public Water System | -- | 200' | 200' |

1-The minimum setback required to a public well is 150 feet and increases to 200 feet where the depth of the dispersal system exceeds 10 feet in depth. The minimum setback may be increased if site conditions show the minimum setback is insufficient to protect groundwater supplies. Setback includes hand dug wells.
2-A reduction to 50' may be considered with engineering to demonstrate no risk of sewage moving laterally to pipeline trench.
3-The setback may increase if the 5:1 (5' horizontal distance for every 1' vertical distance setback to a road cut is greater than the minimum setback.
4-The maximum 100' setback would also be applied to the top of an eroded bank or natural slope in excess of 60%. A reduction in setback to 50' may be considered with engineering to demonstrate no risk of sewage surfacing on the face of the bank or slope.
5-Setback increases to a 5:1 (5' horizontal distance for every 1' vertical distances) setback if drainage is greater than 10' in depth.

| ~~System Component~~ | ~~Setback~~ | ~~Minimum Distance~~ |
|---|---|---|
| ~~Septic Tank~~ | ~~Structure~~ | ~~5 feet~~ |
| ~~Septic Tank~~ | ~~Property Line~~ | ~~5 feet~~ |
| ~~Septic Tank~~ | ~~Water Well~~ | ~~100 feet~~ |
| ~~Septic Tank~~ | ~~Leach Lines~~ | ~~5 feet~~ |
| ~~Septic Tank~~ | ~~Seepage Pits~~ | ~~10 feet~~ |
| ~~Leach Lines~~ | ~~Structure~~ | ~~8 feet~~ |
| ~~Leach Lines~~ | ~~Property Line~~ | ~~5 feet~~ |
| ~~Leach Lines~~ | ~~Water Well~~ | ~~100 feet [1]~~ |
| ~~Leach Lines~~ | ~~Leach Lines~~ | ~~10 feet center to center distance~~ |
| ~~Leach Lines~~ | ~~Seepage Pits~~ | ~~15 feet~~ |
| ~~Leach Lines~~ | ~~Water Mains (Public)~~ | ~~25 feet or 10 feet from edge of easement~~ |
| ~~Leach Lines~~ | ~~Drainage Course~~ | ~~50 feet from centerline or top of bank [7]~~ |
| ~~Leach Lines~~ | ~~Flowing Stream/Creek~~ | ~~100 feet from edge of flow line or top of bank~~ |
| ~~Leach Lines~~ | ~~Pond or Lake~~ | ~~100 feet from spillway elevation~~ |
| ~~Leach Lines~~ | ~~Water Supply Reservoir~~ | ~~200 to 400 feet from the high water line [2]~~ |
| ~~Leach Lines~~ | ~~Aqueduct~~ | ~~5:1 setback to pipeline [3]~~ |
| ~~Leach Lines~~ | ~~Road Easements~~ | ~~10 feet from edge of ultimate easement width [4]~~ |
| ~~Leach Lines~~ | ~~Cut Slopes~~ | ~~5:1 setback from top of cut slope [5]~~ |
| ~~Leach Lines~~ | ~~Private Utility Trenches~~ | ~~10 feet [6]~~ |
| ~~Seepage Pits~~ | ~~Structure~~ | ~~10 feet~~ |
| ~~Seepage Pits~~ | ~~Property Line~~ | ~~10 feet~~ |
| ~~Seepage Pits~~ | ~~Water Well~~ | ~~150 feet [1]~~ |
| ~~Seepage Pits~~ | ~~Seepage Pits~~ | ~~20 feet from edge of excavation~~ |
| ~~Seepage Pits~~ | ~~Water Mains (Public)~~ | ~~25 feet or 10 feet from edge of easement~~ |
| ~~Seepage Pits~~ | ~~Drainage Course~~ | ~~50 feet from centerline or top of bank [7]~~ |

| | | |
|---|---|---|
| ~~Seepage Pits~~ | ~~Flowing Stream/Creek~~ | ~~100 feet from edge of flow line or top of bank~~ |
| ~~Seepage Pits~~ | ~~Pond or Lake~~ | ~~100 feet from spillway elevation~~ |
| ~~Seepage Pits~~ | ~~Water Supply Reservoir~~ | ~~200 to 400 feet from the high water line [2]~~ |
| ~~Seepage Pits~~ | ~~Aqueduct~~ | ~~5:1 setback to pipeline [3]~~ |
| ~~Seepage Pits~~ | ~~Road Easements~~ | ~~10 feet from edge of ultimate easement width [4]~~ |
| ~~Seepage Pits~~ | ~~Cut Slopes~~ | ~~5:1 setback from top of cut slope [5]~~ |
| ~~Seepage Pits~~ | ~~Private Utility Trenches~~ | ~~10 feet [6]~~ |

~~1. The minimum setback required to a public water well is 150 feet and increases to 200 feet where the depth of the dispersal system exceeds 10 feet in depth. The minimum setback may be increased if site conditions show the minimum setback is insufficient to protect groundwater supplies.~~

~~1. Where the dispersal system is within 1200 feet of surface water intake point, the setback shall be 400 feet. Where the dispersal system is greater than 1200 feet of the surface water intake point, the setback shall be 200 feet.~~

~~1. Maximum setback of 100 feet. A reduction in setback to 50 feet may be considered with engineering to demonstrate no risk of sewage moving laterally to pipeline trench.~~

~~1. The setback may increase if the 5:1 setback to a road cut is greater than the minimum setback.~~

~~1. This maximum 100 foot setback would also be applied to the top of an eroded bank or natural slope in excess of 60%. A reduction in setback to 50 feet may be considered with engineering to demonstrate no risk of sewage surfacing on the face of the bank or slope.~~

~~1. For trenches less than 2 feet in depth, a 5:1 setback based on the trench depth can be used.~~

~~1. Setback increases to a 5:1 setback if drainage is greater than 10 foot in depth.~~

## 6.7 Minimum Repairs

This section provides the minimum requirements for permitting the repair of defective OWTS components and/or defective dispersal field.

6.7.1 All metal, fiberglass, or cement septic tanks or treatment units that are in a state of disrepair, are showing signs of deterioration, or are no longer watertight must be replaced with a septic tank that meets the requirements of this LAMP. All wood septic tanks shall be replaced at the time of an OWTS repair.

6.7.2 All existing brick-lined or open seepage pits shall be properly destroyed by backfilling with approved material or completely rock filled if intended for future use.

6.7.3 All repairs to OWTS or replacements shall meet existing standards of construction and design, including setbacks.

6.7.4 All OWTS experiencing reduced or slower dispersal field absorption rates under normal design parameters and require pumping to keep sewage from seeping or surfacing is considered a defective system and shall be repaired.

6.7.5 All sewage or wastewater must be prevented from surfacing from an OWTS by pumping as needed by a business licensed pursuant to the California Health and Safety Code Section 117415.

6.7.6 A minimum OWTS repair shall be as previously approved by DEHQ for the parcel.

6.7.7 For OWTS serving a residential structure(s) where no repair design has been previously approved, the equivalent of leach line length for one bedroom as provided in Table 8.2-1 shall be added to an existing OWTS dispersal system to provide opportunity for the existing infiltrative surface to recover some functionality.

6.7.8 For OWTS serving a commercial structure where no repair design has been previously approved, a minimum infiltrative surface of 50% of the leach line requirement for the current peak use or equivalent shall be added to the exiting OWTS dispersal system to provide opportunity for the existing infiltrative surface to recover some functionality

6.7.9 Where the entire dispersal field is not functional and no recovery of adsorption infiltrative surface is expected, as in extensive root intrusion, the dispersal field shall be replaced.

6.7.10 Any OWTS which has had more than one repair due to dispersal field failures in the previous ten (10) year period, shall install a full replacement dispersal field. A site evaluation may be required to determine the siting and design requirements for the OWTS to prevent future defective conditions in the replacement installation.

6.7.11 A site evaluation and OWTS Layout Report shall be required where changes are proposed to the use or occupancy of the residence, facility or site, or where there will be changes to the approved wastewater characteristics or volumes, or where modifications to the OWTS is required.

# CHAPTER 7.0 ~~Horizontal Seepage Pit Systems~~SEPTIC TANK REQUIREMENTS

All new and replacement septic tanks must meet the ~~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 sizing and design specifications and requirements for septic tanks provided in this chapter.

## 7.1 Construction

7.1.1 New and replacement s~~S~~eptic tanks must be approved~~certified~~ by the International Association of Plumbing and Mechanical Officials (IAPMO) or stamped by a California registered civil engineer as meeting the requirements of the 2019 California Code of Regulations (CCR), Title 24, Part 5, Appendix H. All materials used in constructing a concrete septic tank shall be in accordance with CCR, Title 24, Part 5, Chapter 14, Table 14-1. Metal and wooden septic tanks are prohibited. The building sewer from house cleanout to septic tank must meet local jurisdiction plumbing code requirements.

7.1.2 Septic tanks shall be designed to produce adequate clarified effluent and space for sludge and scum accumulations.

7.1.3 Septic tanks must be constructed of solid and durable materials and not subject to excessive corrosion or decay and ~~The tank~~ shall be watertight and possess two ~~chambers~~compartments. The inlet compartment shall be no less than two thirds the total capacity, and the second compartment at least one third of the total capacity.

7.1.4 Septic tanks must be anchored to counter any potential buoyant forces. 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.

7.1.5 Septic tanks shall be installed per the manufacturer's instructions.

7.1.6 The bottom of the excavation for the tank shall extend into native or compacted soils to eliminate potential settling issues.

7.1.7 Septic tank location must take into account maintenance and pumping requirements including vehicle access; and distance and elevation lift to pumper truck.

7.1.8 All tanks must have a uncapped tee or a 90 degree elbow fitting on the inlet ~~to prevent gas exchange between the tank and the house plumbing~~. Inlet tees must extend at least 14 inches below the liquid level.

7.1.9 Outlet tees must be uncapped and must extend at least 12 inches below the liquid level.

7.1.10 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.

7.1.11 Fall between the outlet of the septic tank and the dispersal field shall be continuous with a minimum fall that that ensures the outlet pipe is 4 inches higher than the top of the first siphon in a serial system or 4 inches above the top of the leach rock or other components used in the dispersal system on a uniform or level distribution system.

7.1.12 Septic tanks shall have access to the tank by at least two access openings or manholes. For inlet compartments over 12 feet in length, an additional manhole is required over the baffle wall. Septic tank access openings with greater than 6 inches of cover must have 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.

7.1.13 Septic tank risers must have a current IAPMO certification or must be reviewed and approved by DEHQ 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.

7.1.14 New and replacement OWTS septic tanks shall be designed to prevent solids in excess of three-sixteenths (3/16) of an inch in diameter from passing to the dispersal system. Septic tanks that use a National Sanitation Foundation/American National Standard Institute (NSF/ANSI) Standard 46 certified septic tank filter at the final point of effluent discharge from the OWTS and prior to the dispersal system shall be deemed in compliance with this requirement. ~~Effluent filters must be IAPMO approved if they are to be installed as part of the outlet tee.~~

7.1.15 Septic tanks shall be designed to withstand all anticipated earth or other loads. 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.

## 7.2 Minimum Septic Tank Sizing

7.2.1 Minimum septic tank size is ~~1000~~ 1200 gallons.

7.2.2 Septic tanks shall be sized according to anticipated wastewater flows from the structure(s). The following standard sizes ~~will~~ shall apply:

| Table 7.2-1: Minimum Septic Tank Volume Requirements | |
|---|---|
| 1-3 bedroom single family dwelling (0-450 GPD) | ~~1000~~ 1200 gallons |
| 4 bedroom single family dwelling (451-600 GPD) | ~~1200~~ 1500 gallons |

| | |
|---|---|
| 5-6 bedroom single family dwelling (601-900 GPD) | ~~1500~~2000 gallons |
| Duplex – 2-4 Bedrooms | 2000 |
| Triplex – 5-6 Bedrooms | 2400 |
| Fourplex – 7-8 Bedrooms | 3000 |
| ~~Flows greater than 900 GPD must utilize the following formula to determine minimum tank sizing~~ For commercial applications | 1125 gallons + (.75)(Peak Flow in GPD) |

7.2.3 Second Dwelling Unit Tank Sizing: Since each dwelling unit can have a kitchen, dishwasher, garbage disposer, and laundry facilities, the septic tank sizing shall be calculated as separate flows, even if a common tank is used.

## 7.3 Oil/Water Separator Requirements

7.3.1 OWTS receiving FOG concentrations greater than 100 mg/L prior to the septic tank or other OWTS treatment component are not within the scope of coverage of this LAMP and local authority. Proposals for these OWTS must be submitted to the appropriate Regional Board for approval. Waste streams from a commercial food service building with a maximum BOD 900 mg/L and a properly sized and functioning oil/greased interceptor may be permitted under the LAMP and local authority.~~Commercial food service buildings utilizing OWTS must have a properly sized and functioning oil/grease interceptor (grease trap). Those commercial food service buildings that do not have a properly sized and functioning oil/grease interceptor are not covered under the conditional waiver contained in the OWTS Policy.~~

7.3.2 Commercial food service buildings with a maximum BOD concentration of 900 mg/L utilizing OWTS must have a properly sized and functioning oil/grease interceptor (grease trap). Those commercial food service buildings that do not have a properly sized and functioning oil/grease interceptor are not covered under the conditional waiver contained in the OWTS Policy.

7.3.2 All oil/grease interceptors installed with an OWTS shall be maintained in good working order and shall be pumped at a frequency that prevents fats and grease from surfacing or entering into the OWTS and dispersal field.

## 7.4 Sewage Effluent Pump Systems

Gravity flow of effluent from the septic tank to the dispersal field is required. However, when gravity flow is not an option, the use of a sewage effluent pump system is allowed.

The following requirements apply to all OWTS where a sewage effluent pump is proposed to move effluent from the septic tank to the dispersal field.

7.4.1 Only clarified septic tank effluent shall be allowed to be pumped to the dispersal field of the OWTS. The requirement for effluent filters per section xx of this LAMP shall satisfy this requirement.

7.4.2 The effluent pump system shall be designed by a qualified professional. The qualified professional shall provide an operating manual to the property owner. Instructions should be provided to allow periodic testing of the alarm system along with contact information for maintenance or repairs.

7.4.3 The general design shall include the following information:

7.4.3.1 Percolation or capacity data for the dispersal system as needed.

7.4.3.2 A detailed layout drawn to scale which includes elevations.

7.4.4 Pump tank design to include the following:

7.4.4.1 A cross-section complete with elevations of control switches, measured in inches, from the bottom of the chamber.

7.4.4.2 Emergency storage volume to allow for a 24-hour holding capacity after the alarm sounds. This is the volume between the invert bottom of the inlet "tee" and the high water alarm float in the on position.

7.4.4.3 The pump "off switch" is to be set per the manufacturer's specifications. It is recommended that the pump remain submerged to allow for cooling and to prevent contact with sewer gases.

7.4.4.4 Float control switches are to be set to allow for a pump cycle batch size of approximately 100 to 200 gallons to allow the pumps to cycle two or three times per day.

7.4.4.4 Maintenance ports (manholes) with a minimum diameter of 22 inches are to be provided and shall extend at least two inches above finished grade. The final grade is to allow for drainage away from the maintenance ports.

7.4.4.5 Pump and surge tanks shall meet the same requirements as a septic tank.

7.4.5 All pump system data and alarm system data, including make, model, and description of pump, alarms, switches and switch box, are to include the following:

7.4.5.1 Pump type shall be for sewage effluent and data is to include the pump curve, U.L. approval and other test certifications.

7.4.5.2 Any potential air space connections through conduit between the pump tank and the electrical panel shall be sealed to prevent sewer gases from corroding exposed electrical connections.

7.4.5.3 The alarm system is to contain an audio and visual alarm that will remain on until turned off by the owner or maintenance person. The alarm shall be installed on a separate circuit from the pump.

7.4.5.4 The pump system for commercial installations shall be based on alternating duplex pumps.

7.4.5.5 A single family dwelling may use the duplex pumps or a single pump. When using a single pump, the following criteria shall be met:

7.4.5.5.1 The single pump is to be a commercially engineered pump suitable for continuous duty.

7.4.5.5.2 The pump must be capable of handling total flow, with minimum flow of 15 gallons per minute as measured at the discharge point of the forced main.

7.4.6 The design of the force main and venting system is to include the following:

7.4.6.1 Provide head-loss calculation addressing all fittings and elevations from pump to surge chamber.

7.4.6.2 The force main is to be two inches to three inches in diameter, rated for the head-loss calculated pressure, velocity, and be of approved material.

7.4.6.3 The connection between the force main and pumps shall allow for ease of pump removal and maintenance.

7.4.6.4 A check valve is required unless the qualified professional determines that the amount of backflow will be insignificant to the system design. The qualified professional should account for the volume of the effluent within the force main, when sizing the pump chamber and pump cycle.

7.4.6.5 The pump tank and surge tank shall be cross-vented to each other to avoid venting to the atmosphere.

7.4.7 The design of the surge tank that allows for the simulation of gravity flow to the dispersal field shall include the following:

7.4.7.1 The surge tank shall have a capacity equal to or greater than the volume of effluent being pumped during one batch cycle to prevent overflow with a minimum volume of 200 gallons.

7.4.7.2 The inlet pipe shall have an air gap separation between the inlet and highest effluent level (outlet) that is equal to or greater than two times the inlet pipe diameter, to prevent a siphon effect.

7.4.7.3 The outlet drain of the surge tank shall be constructed of approved ABS or PVC Schedule 35 or 40 PVC four (4) inch drain pipe with one-half (1/2) inch holes drilled every four (4) inches along the pipe length. The outlet drain pipe shall protrude from the surge tank drain opening vertically into the surge chamber at an elevation that extends beyond the typical fill level of the surge tank based on the batch cycle volume.

7.4.8 Pumps, venting, and electrical components shall be installed by licensed installers in accordance with all applicable plumbing, electrical, and mechanical codes and as per installation specifications/instructions.

7.4.9 All required building permits shall be obtained prior to the initiation of work.

7.4.10 An OWTS Installation Permit is required for the installation of a sewage effluent pump system. The pump system shall be inspected and hydraulically tested for proper operation by the system installer in the presence of DEHQ staff.

# CHAPTER 8.0 ~~Onsite Wastewater Treatment Systems with Supplemental Treatment~~ SUBSURFACE DISPERSAL FIELD REQUIREMENTS

## 8.1 General

Many different designs and configurations are used for the subsurface dispersal of wastewater effluent but all incorporate soil infiltrative surfaces that are located in buried excavations. The primary infiltrative surface is the bottom of the excavation but the sidewalls also may be used for infiltration. Perforated pipe is installed to distribute the wastewater over the infiltrative surface. A porous medium, typically gravel or crushed rock, is placed in the excavation below and around the distribution pipe to support the pipe and spread the localized flow from the distribution pipes across the excavation cavity. Other gravelless or chamber-type system components may be substituted for the rock and pipe. The porous medium maintains the structure of the excavation, exposes the applied wastewater to more infiltrative surface, and provides storage space for the wastewater within its void fractions (interstitial space, typically 30-40% or the volume) during peak flows with gravity systems. Untreated building paper or geotextile fabric is placed over the porous medium before backfill with native soil to prevent the introduction of backfill material into the porous medium.

Most standard OWTS disperse wastewater either through a uniform distribution or serial distribution system. Uniform distribution is mostly used in flat, level areas and distributes wastewater flow equally among all trenches using a distribution box. Uniform distribution aids in maintaining unsaturated flow below the infiltrative surface, which results in wastewater retention times in the soil that are sufficiently long to effect treatment and promote subsoil reaeration. Uniform distribution design also results in more complete utilization of the infiltrative surface. A serial distribution system is commonly used on a sloping site. Rather than dividing the flow equally among all trenches, serial distribution provides for the first trench in the dispersal field to receive all the effluent from septic tank. When this first trench fills, an overflow box sends the effluent overflows into the next trench. In this manner, each trench in the system is used successively to its full capacity. This method of distribution makes full hydraulic use of all bottom and sidewall infiltration surfaces, creates the maximum hydrostatic head over the infiltration surfaces to force the water into the surrounding soil, and eliminates the problem of dividing flows evenly among independent trenches. However, because continuous ponding of the infiltrative surfaces is necessary for the system to function, the trenches suffer hydraulic failure more rapidly and progressively because the infiltrative surfaces cannot regenerate their infiltrative capacity. Thus, only the portion of the system required to absorb the wastewater is used. During periods of high flow or low absorptive capacity of the soil, more trenches will be used. When flows are low or during the hot dry summer months, the lower trenches may not be needed, so they may drain and dry out, automatically resting more trenches, which rejuvenates their infiltrative surfaces.

8.1.1 No new or replacement dispersal systems shall be covered by an impermeable surface, such as paving, building foundation slabs, plastic sheeting, or other material that may damage integrity of OWTS and/or prevents oxygen transfer to the soil limiting treatment.

8.1.2 The primary and designated reserve dispersal areas shall be installed within areas of

undisturbed soil that is not used or proposed for use for other purposes, unless that use is consistent with the intent of these standards, such as use of vegetation in a dispersal area. Drip dispersal proposed for areas used for an existing dispersal is prohibited.

8.1.3 A dispersal field design shall meet the minimum distance requirements to its dispersal field components or to other dispersal field components and shall not be placed or proposed for placement over an existing dispersal area.

8.1.4 Areas that are within the minimum setback distances established to protect public health and/or water quality shall not be used for waste disposal or percolation testing. The following areas are considered unsuitable for the location of the dispersal system or designated reserve area:

8.1.4.1 Areas within any easement which is dedicated for surface or subsurface improvement.

8.1.4.2 Paved areas or areas proposed for paving or areas occupied by or proposed to be occupied by structures or other surface features.

8.1.4.3 Areas not owned or under the control of the property owner unless the area is dedicated as a recorded easement for waste disposal purposes.

8.1.4.4 Low-lying areas subject to flooding or with a potential for flooding.

## 8.2 Minimum Residential Wastewater Infiltrative Areas

8.2.1 ~~Leach lines are to be installed according to the qualified professional's specifications for location, length, width, and depth.~~ Residential leach line systems shall be sized based on the ~~chart located at the end of this policy which shows the length of~~ leach line requirement provided in Table 8.2-1. Table 8.2-1 is based on the maximum four-square feet per linear foot of infiltrative surface allowed pursuant to the OWTS Policy and ~~–~~as a function of percolation rate and the number of bedrooms for a single-family dwelling.

**Table 8.2-1: Minimum Residential Leach Line Length Based on Percolation Test Rate**

| Perc Rate | Number of Bedrooms | | | | | | | Perc Rate | Number of Bedrooms | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MPI | 1 | 2 | 3 | 4 | 5 | 6 | | MPI | 1 | 2 | 3 | 4 | 5 | 6 |
| 1 | 200 | 200 | 240 | 270 | 280 | 300 | | ~~61~~31 | 370~~2~~80 | 460~~3~~50 | 571~~4~~20 | 761~~4~~80 | 952~~5~~35 | 1142~~5~~95 |
| 2 | 200 | 200 | 240 | 270 | 280 | 300 | | ~~62~~32 | 380~~2~~80 | 470~~3~~55 | 580~~4~~30 | 773~~4~~80 | 966~~5~~35 | 1160~~5~~95 |
| 3 | 200 | 200 | 240 | 270 | 280 | 300 | | ~~63~~33 | 390~~2~~90 | 480~~3~~60 | 592~~4~~30 | 789~~4~~90 | 987~~5~~45 | 1184~~5~~05 |
| 4 | 200 | 220 | 260 | 290 | 300 | 310 | | ~~64~~34 | 400~~2~~90 | 490~~3~~60 | 602~~4~~40 | 802~~4~~90 | 1003~~5~~45 | 1203~~5~~05 |
| 5 | 200 | 240 | 290 | 320 | 320 | 340 | | ~~65~~35 | 420~~2~~ | 500~~3~~ | 611~~4~~ | 815~~5~~ | 1019 | 1223 |

| Table 8.2-1: Minimum Residential Leach Line Length Based on Percolation Test Rate | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Perc Rate | Number of Bedrooms | | | | | | | Perc Rate | Number of Bedrooms | | | | | |
| MPI | 1 | 2 | 3 | 4 | 5 | 6 | | MPI | 1 | 2 | 3 | 4 | 5 | 6 |
| | | | | | | | | | 90 | 65 | 40 | 00 | 555 | 615 |
| 6 | 200 | 250 | 300 | 340 | 350 | 360 | | 6636 | 420300 | 510R | 625440 | 833500 | 1042555 | 1250615 |
| 7 | 210 | 260 | 310 | 350 | 370 | 380 | | 6737 | 430300 | 520370 | 636450 | 847500 | 1059555 | 1271615 |
| 8 | 210 | 265 | 320 | 360 | 390 | 400 | | 6838 | 440300 | 530375 | 647450 | 862510 | 1078565 | 1293625 |
| 9 | 220 | 270 | 320 | 360 | 400 | 410 | | 6939 | 450300 | 540380 | 662460 | 882510 | 1103565 | 1324625 |
| 10 | 220 | 275 | 330 | 370 | 410 | 420 | | 7040 | 460300 | 550380 | 674460 | 898520 | 1123575 | 1347635 |
| 11 | 220 | 280 | 340 | 380 | 420 | 430 | | 7141 | 470310 | 560385 | 686460 | 915520 | 1143575 | 1372635 |
| 12 | 230 | 285 | 340 | 380 | 430 | 440 | | 7242 | 480310 | 570390 | 703470 | 938530 | 1172585 | 1406645 |
| 13 | 230 | 290 | 350 | 390 | 430 | 450 | | 7343 | 490310 | 580390 | 717470 | 955530 | 1194585 | 1433645 |
| 14 | 235 | 295 | 350 | 400 | 440 | 460 | | 7444 | 500310 | 590395 | 731480 | 974540 | 1218595 | 1461655 |
| 15 | 240 | 300 | 360 | 400 | 450 | 470 | | 7545 | 510320 | 600400 | 750480 | 1000540 | 1250595 | 1500655 |
| 16 | 240 | 300 | 360 | 410 | 450 | 490 | | 7646 | 520320 | 610400 | 765480 | 1020540 | 1276595 | 1531655 |
| 17 | 240 | 305 | 370 | 410 | 460 | 500 | | 7747 | 530320 | 620405 | 781490 | 1042550 | 1302605 | 1563665 |
| 18 | 250 | 310 | 370 | 420 | 460 | 510 | | 7848 | 540330 | 630410 | 804490 | 1071550 | 1339605 | 1607665 |
| 19 | 250 | 310 | 380 | 420 | 470 | 520 | | 7949 | 550330 | 640410 | 821500 | 1095560 | 1369615 | 1642675 |
| 20 | 250 | 315 | 380 | 430 | 470 | 520 | | 8050 | 560330 | 650415 | 846500 | 1128560 | 1410615 | 1692675 |
| 21 | 260 | 320 | 380 | 430 | 480 | 530 | | 8151 | 570340 | 660420 | 865500 | 1154560 | 1442615 | 1731675 |
| 22 | 260 | 320 | 390 | 440 | 480 | 530 | | 8252 | 580340 | 670420 | 886510 | 1181570 | 1476625 | 1772685 |
| 23 | 260 | 325 | 390 | 440 | 490 | 550 | | 8353 | 590340 | 680425 | 915510 | 1220580 | 1524635 | 1829695 |
| 24 | 260 | 330 | 400 | 450 | 500 | 560 | | 8454 | 600340 | 690430 | 938520 | 1250580 | 1563635 | 1875695 |
| 25 | 260 | 330 | 400 | 450 | 500 | 560 | | 8555 | 6103 | 7004 | 9625 | 1282 | 1603 | 1923 |

| Table 8.2-1: Minimum Residential Leach Line Length Based on Percolation Test Rate | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Perc Rate | Number of Bedrooms | | | | | | | Perc Rate | Number of Bedrooms | | | | | |
| MPI | 1 | 2 | 3 | 4 | 5 | 6 | | MPI | 1 | 2 | 3 | 4 | 5 | 6 |
| | | | | | | | | | ~~40~~ | ~~30~~ | ~~20~~ | ~~580~~ | ~~635~~ | ~~695~~ |
| 26 | 270 | 335 | 400 | 450 | 510 | 570 | | ~~8656~~ | 6203 ~~50~~ | 7104 ~~35~~ | 9965 ~~20~~ | 1327 ~~590~~ | 1659 ~~645~~ | 1991 ~~705~~ |
| 27 | 270 | 340 | 410 | 460 | 515 | 575 | | ~~8757~~ | 6303 ~~50~~ | 7204 ~~40~~ | 1023 ~~530~~ | 1364 ~~590~~ | 1705 ~~645~~ | 2045 ~~705~~ |
| 28 | 270 | 340 | 410 | 460 | 515 | 575 | | ~~8858~~ | 6403 ~~50~~ | 7304 ~~40~~ | 1051 ~~530~~ | 1402 ~~600~~ | 1752 ~~655~~ | 2103 ~~715~~ |
| 29 | 270 | 345 | 420 | 470 | 525 | 585 | | ~~8959~~ | 6503 ~~50~~ | 7404 ~~45~~ | 1092 ~~540~~ | 1456 ~~600~~ | 1820 ~~655~~ | 2184 ~~715~~ |
| 30 | 280 | 350 | 420 | 470 | 525 | 585 | | ~~9060~~ | 6653 ~~60~~ | 7554 ~~50~~ | 1125 ~~540~~ | 1500 ~~610~~ | 1875 ~~665~~ | 2250 ~~725~~ |
| 31 | 280 | 350 | 420 | 480 | 535 | 595 | | 91 | 680 | 770 | 1125 | 1500 | 1875 | 2250 |
| 32 | 280 | 355 | 430 | 480 | 535 | 595 | | 92 | 695 | 785 | 1125 | 1500 | 1875 | 2250 |
| 33 | 290 | 360 | 430 | 490 | 545 | 605 | | 93 | 710 | 800 | 1125 | 1500 | 1875 | 2250 |
| 34 | 290 | 360 | 440 | 490 | 545 | 605 | | 94 | 725 | 815 | 1125 | 1500 | 1875 | 2250 |
| 35 | 290 | 365 | 440 | 500 | 555 | 615 | | 95 | 740 | 830 | 1125 | 1500 | 1875 | 2250 |
| 36 | 300 | 370 | 440 | 500 | 555 | 615 | | 96 | 755 | 845 | 1125 | 1500 | 1875 | 2250 |
| 37 | 300 | 370 | 450 | 500 | 555 | 615 | | 97 | 770 | 860 | 1125 | 1500 | 1875 | 2250 |
| 38 | 300 | 375 | 450 | 510 | 565 | 625 | | 98 | 785 | 875 | 1125 | 1500 | 1875 | 2250 |
| 39 | 300 | 380 | 460 | 510 | 565 | 625 | | 99 | 800 | 890 | 1125 | 1500 | 1875 | 2250 |
| 40 | 300 | 380 | 460 | 520 | 575 | 635 | | 100 | 815 | 905 | 1125 | 1500 | 1875 | 2250 |
| 41 | 310 | 385 | 460 | 520 | 575 | 635 | | 101 | 830 | 920 | 1125 | 1500 | 1875 | 2250 |
| 42 | 310 | 390 | 470 | 530 | 585 | 645 | | 102 | 845 | 935 | 1125 | 1500 | 1875 | 2250 |
| 43 | 310 | 390 | 470 | 530 | 585 | 645 | | 103 | 860 | 950 | 1125 | 1500 | 1875 | 2250 |
| 44 | 310 | 395 | 480 | 540 | 595 | 655 | | 104 | 875 | 965 | 1125 | 1500 | 1875 | 2250 |
| 45 | 320 | 400 | 480 | 540 | 595 | 655 | | 105 | 890 | 980 | 1125 | 1500 | 1875 | 2250 |
| 46 | 320 | 400 | 480 | 540 | 595 | 655 | | 106 | 905 | 995 | 1125 | 1500 | 1875 | 2250 |
| 47 | 320 | 405 | 490 | 550 | 605 | 665 | | 107 | 920 | 1010 | 1125 | 1500 | 1875 | 2250 |
| 48 | 330 | 410 | 490 | 550 | 605 | 674 | | 108 | 935 | 1025 | 1125 | 1500 | 1875 | 2250 |
| 49 | 330 | 410 | 500 | 560 | 615 | 697 | | 109 | 950 | 1040 | 1125 | 1500 | 1875 | 2250 |
| 50 | 330 | 415 | 500 | 560 | 615 | 723 | | 110 | 965 | 1055 | 1125 | 1500 | 1875 | 2250 |
| 51 | 340 | 420 | 500 | 560 | 635 | 750 | | 111 | 980 | 1070 | 1125 | 1500 | 1875 | 2250 |
| 52 | 340 | 420 | 510 | 570 | 649 | 779 | | 112 | 995 | 1085 | 1125 | 1500 | 1875 | 2250 |
| 53 | 340 | 425 | 510 | 580 | 674 | 809 | | 113 | 1010 | 1100 | 1125 | 1500 | 1875 | 2250 |
| 54 | 340 | 430 | 520 | 580 | 702 | 843 | | 114 | 1025 | 1115 | 1125 | 1500 | 1875 | 2250 |
| 55 | 340 | 430 | 520 | 586 | 732 | 879 | | 115 | 1040 | 1130 | 1125 | 1500 | 1875 | 2250 |

| Table 8.2-1: Minimum Residential Leach Line Length Based on Percolation Test Rate | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Perc Rate | Number of Bedrooms | | | | | | | Perc Rate | Number of Bedrooms | | | | | |
| MPI | 1 | 2 | 3 | 4 | 5 | 6 | | MPI | 1 | 2 | 3 | 4 | 5 | 6 |
| 56 | 350 | 435 | 520 | 612 | 765 | 918 | | 116 | 1055 | 1145 | 1125 | 1500 | 1875 | 2250 |
| 57 | 350 | 440 | 530 | 641 | 801 | 962 | | 117 | 1070 | 1160 | 1125 | 1500 | 1875 | 2250 |
| 58 | 350 | 440 | 530 | 673 | 841 | 1009 | | 118 | 1085 | 1175 | 1125 | 1500 | 1875 | 2250 |
| 59 | 350 | 445 | 540 | 708 | 884 | 1061 | | 119 | 1100 | 1190 | 1125 | 1500 | 1875 | 2250 |
| 60 | 360 | 450 | 563 | 750 | 938 | 1125 | | 120 | 1120 | 1210 | 1125 | 1500 | 1875 | 2250 |

| ~~LEACH LINE TRENCH LENGTH BASED ON PERCOLATION TEST RATE~~ | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ~~Perc Rate~~ | ~~Number of Bedrooms~~ | | | | | | | ~~Perc Rate~~ | ~~Number of Bedrooms~~ | | | | | |
| ~~MPI~~ | ~~1~~ | ~~2~~ | ~~3~~ | ~~4~~ | ~~5~~ | ~~6~~ | | ~~MPI~~ | ~~1~~ | ~~2~~ | ~~3~~ | ~~4~~ | ~~5~~ | ~~6~~ |
| ~~1~~ | ~~200~~ | ~~200~~ | ~~240~~ | ~~270~~ | ~~280~~ | ~~300~~ | | ~~31~~ | ~~280~~ | ~~350~~ | ~~420~~ | ~~480~~ | ~~535~~ | ~~595~~ |
| ~~2~~ | ~~200~~ | ~~200~~ | ~~240~~ | ~~270~~ | ~~280~~ | ~~300~~ | | ~~32~~ | ~~280~~ | ~~355~~ | ~~430~~ | ~~480~~ | ~~535~~ | ~~595~~ |
| ~~3~~ | ~~200~~ | ~~200~~ | ~~240~~ | ~~270~~ | ~~280~~ | ~~300~~ | | ~~33~~ | ~~290~~ | ~~360~~ | ~~430~~ | ~~490~~ | ~~545~~ | ~~605~~ |
| ~~4~~ | ~~200~~ | ~~220~~ | ~~260~~ | ~~290~~ | ~~300~~ | ~~310~~ | | ~~34~~ | ~~290~~ | ~~360~~ | ~~440~~ | ~~490~~ | ~~545~~ | ~~605~~ |
| ~~5~~ | ~~200~~ | ~~240~~ | ~~290~~ | ~~320~~ | ~~320~~ | ~~340~~ | | ~~35~~ | ~~290~~ | ~~365~~ | ~~440~~ | ~~500~~ | ~~555~~ | ~~615~~ |
| ~~6~~ | ~~200~~ | ~~250~~ | ~~300~~ | ~~340~~ | ~~350~~ | ~~360~~ | | ~~36~~ | ~~300~~ | ~~R~~ | ~~440~~ | ~~500~~ | ~~555~~ | ~~615~~ |
| ~~7~~ | ~~210~~ | ~~260~~ | ~~310~~ | ~~350~~ | ~~370~~ | ~~380~~ | | ~~37~~ | ~~300~~ | ~~370~~ | ~~450~~ | ~~500~~ | ~~555~~ | ~~615~~ |
| ~~8~~ | ~~210~~ | ~~265~~ | ~~320~~ | ~~360~~ | ~~390~~ | ~~400~~ | | ~~38~~ | ~~300~~ | ~~375~~ | ~~450~~ | ~~510~~ | ~~565~~ | ~~625~~ |
| ~~9~~ | ~~220~~ | ~~270~~ | ~~320~~ | ~~360~~ | ~~400~~ | ~~410~~ | | ~~39~~ | ~~300~~ | ~~380~~ | ~~460~~ | ~~510~~ | ~~565~~ | ~~625~~ |
| ~~10~~ | ~~220~~ | ~~275~~ | ~~330~~ | ~~370~~ | ~~410~~ | ~~420~~ | | ~~40~~ | ~~300~~ | ~~380~~ | ~~460~~ | ~~520~~ | ~~575~~ | ~~635~~ |
| ~~11~~ | ~~220~~ | ~~280~~ | ~~340~~ | ~~380~~ | ~~420~~ | ~~430~~ | | ~~41~~ | ~~310~~ | ~~385~~ | ~~460~~ | ~~520~~ | ~~575~~ | ~~635~~ |
| ~~12~~ | ~~230~~ | ~~285~~ | ~~340~~ | ~~380~~ | ~~430~~ | ~~440~~ | | ~~42~~ | ~~310~~ | ~~390~~ | ~~470~~ | ~~530~~ | ~~585~~ | ~~645~~ |
| ~~13~~ | ~~230~~ | ~~290~~ | ~~350~~ | ~~390~~ | ~~430~~ | ~~450~~ | | ~~43~~ | ~~310~~ | ~~390~~ | ~~470~~ | ~~530~~ | ~~585~~ | ~~645~~ |
| ~~14~~ | ~~235~~ | ~~295~~ | ~~350~~ | ~~400~~ | ~~440~~ | ~~460~~ | | ~~44~~ | ~~310~~ | ~~395~~ | ~~480~~ | ~~540~~ | ~~595~~ | ~~655~~ |
| ~~15~~ | ~~240~~ | ~~300~~ | ~~360~~ | ~~400~~ | ~~450~~ | ~~470~~ | | ~~45~~ | ~~320~~ | ~~400~~ | ~~480~~ | ~~540~~ | ~~595~~ | ~~655~~ |
| ~~16~~ | ~~240~~ | ~~300~~ | ~~360~~ | ~~410~~ | ~~450~~ | ~~490~~ | | ~~46~~ | ~~320~~ | ~~400~~ | ~~480~~ | ~~540~~ | ~~595~~ | ~~655~~ |
| ~~17~~ | ~~240~~ | ~~305~~ | ~~370~~ | ~~410~~ | ~~460~~ | ~~500~~ | | ~~47~~ | ~~320~~ | ~~405~~ | ~~490~~ | ~~550~~ | ~~605~~ | ~~665~~ |
| ~~18~~ | ~~250~~ | ~~310~~ | ~~370~~ | ~~420~~ | ~~460~~ | ~~510~~ | | ~~48~~ | ~~330~~ | ~~410~~ | ~~490~~ | ~~550~~ | ~~605~~ | ~~665~~ |
| ~~19~~ | ~~250~~ | ~~310~~ | ~~380~~ | ~~420~~ | ~~470~~ | ~~520~~ | | ~~49~~ | ~~330~~ | ~~410~~ | ~~500~~ | ~~560~~ | ~~615~~ | ~~675~~ |
| ~~20~~ | ~~250~~ | ~~315~~ | ~~380~~ | ~~430~~ | ~~470~~ | ~~520~~ | | ~~50~~ | ~~330~~ | ~~415~~ | ~~500~~ | ~~560~~ | ~~615~~ | ~~675~~ |
| ~~21~~ | ~~260~~ | ~~320~~ | ~~380~~ | ~~430~~ | ~~480~~ | ~~530~~ | | ~~51~~ | ~~340~~ | ~~420~~ | ~~500~~ | ~~560~~ | ~~615~~ | ~~675~~ |
| ~~22~~ | ~~260~~ | ~~320~~ | ~~390~~ | ~~440~~ | ~~480~~ | ~~530~~ | | ~~52~~ | ~~340~~ | ~~420~~ | ~~510~~ | ~~570~~ | ~~625~~ | ~~685~~ |
| ~~23~~ | ~~260~~ | ~~325~~ | ~~390~~ | ~~440~~ | ~~490~~ | ~~550~~ | | ~~53~~ | ~~340~~ | ~~425~~ | ~~510~~ | ~~580~~ | ~~635~~ | ~~695~~ |
| ~~24~~ | ~~260~~ | ~~330~~ | ~~400~~ | ~~450~~ | ~~500~~ | ~~560~~ | | ~~54~~ | ~~340~~ | ~~430~~ | ~~520~~ | ~~580~~ | ~~635~~ | ~~695~~ |

| LEACH LINE TRENCH LENGTH BASED ON PERCOLATION TEST RATE | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **25** | 260 | 330 | 400 | 450 | 500 | 560 | | **55** | 340 | 430 | 520 | 580 | 635 | 695 |
| **26** | 270 | 335 | 400 | 450 | 510 | 570 | | **56** | 350 | 435 | 520 | 590 | 645 | 705 |
| **27** | 270 | 340 | 410 | 460 | 515 | 575 | | **57** | 350 | 440 | 530 | 590 | 645 | 705 |
| **28** | 270 | 340 | 410 | 460 | 515 | 575 | | **58** | 350 | 440 | 530 | 600 | 655 | 715 |
| **29** | 270 | 345 | 420 | 470 | 525 | 585 | | **59** | 350 | 445 | 540 | 600 | 655 | 715 |
| **30** | 280 | 350 | 420 | 470 | 525 | 585 | | **60** | 360 | 450 | 540 | 610 | 665 | 725 |

| LEACH LINE TRENCH LENGTH BASED ON PERCOLATION TEST RATE | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Perc Rate** | **Number of Bedrooms** | | | | | | | **Perc Rate** | **Number of Bedrooms** | | | | | |
| **MPI** | **1** | **2** | **3** | **4** | **5** | **6** | | **MPI** | **1** | **2** | **3** | **4** | **5** | **6** |
| **61** | 370 | 460 | 550 | 620 | 690 | 740 | | **91** | 680 | 770 | 860 | 930 | 980 | 1020 |
| **62** | 380 | 470 | 560 | 630 | 680 | 720 | | **92** | 695 | 785 | 875 | 945 | 995 | 1035 |
| **63** | 390 | 480 | 570 | 640 | 690 | 730 | | **93** | 710 | 800 | 890 | 960 | 1010 | 1050 |
| **64** | 400 | 490 | 580 | 650 | 700 | 740 | | **94** | 725 | 815 | 905 | 975 | 1025 | 1065 |
| **65** | 420 | 500 | 580 | 660 | 710 | 750 | | **95** | 740 | 830 | 920 | 990 | 1040 | 1080 |
| **66** | 420 | 510 | 600 | 670 | 720 | 760 | | **96** | 755 | 845 | 935 | 1005 | 1055 | 1095 |
| **67** | 430 | 520 | 610 | 680 | 730 | 770 | | **97** | 770 | 860 | 950 | 1020 | 1070 | 1110 |
| **68** | 440 | 530 | 620 | 690 | 740 | 780 | | **98** | 785 | 875 | 965 | 1035 | 1085 | 1125 |
| **69** | 450 | 540 | 630 | 700 | 750 | 790 | | **99** | 800 | 890 | 980 | 1050 | 1100 | 1140 |
| **70** | 460 | 550 | 640 | 710 | 760 | 800 | | **100** | 815 | 905 | 995 | 1065 | 1115 | 1155 |
| **71** | 470 | 560 | 650 | 720 | 770 | 810 | | **101** | 830 | 920 | 1010 | 1080 | 1130 | 1170 |
| **72** | 480 | 570 | 660 | 730 | 780 | 820 | | **102** | 845 | 935 | 1025 | 1095 | 1145 | 1185 |
| **73** | 490 | 580 | 670 | 740 | 790 | 830 | | **103** | 860 | 950 | 1040 | 1110 | 1160 | 1200 |
| **74** | 500 | 590 | 680 | 750 | 800 | 840 | | **104** | 875 | 965 | 1055 | 1125 | 1175 | 1215 |
| **75** | 510 | 600 | 690 | 760 | 810 | 850 | | **105** | 890 | 980 | 1070 | 1140 | 1190 | 1230 |
| **76** | 520 | 610 | 700 | 770 | 820 | 860 | | **106** | 905 | 995 | 1085 | 1155 | 1205 | 1245 |
| **77** | 530 | 620 | 710 | 780 | 830 | 870 | | **107** | 920 | 1010 | 1100 | 1170 | 1220 | 1260 |
| **78** | 540 | 630 | 720 | 790 | 840 | 880 | | **108** | 935 | 1025 | 1115 | 1185 | 1230 | 1270 |
| **79** | 550 | 640 | 730 | 800 | 850 | 890 | | **109** | 950 | 1040 | 1130 | 1200 | 1250 | 1290 |
| **80** | 560 | 650 | 740 | 810 | 860 | 900 | | **110** | 965 | 1055 | 1145 | 1215 | 1265 | 1305 |
| **81** | 570 | 660 | 750 | 820 | 870 | 910 | | **111** | 980 | 1070 | 1160 | 1230 | 1280 | 1320 |
| **82** | 580 | 670 | 760 | 830 | 880 | 920 | | **112** | 995 | 1085 | 1175 | 1245 | 1295 | 1335 |
| **83** | 590 | 680 | 770 | 840 | 890 | 930 | | **113** | 1010 | 1100 | 1190 | 1260 | 1310 | 1350 |
| **84** | 600 | 690 | 780 | 850 | 900 | 940 | | **114** | 1025 | 1115 | 1205 | 1275 | 1325 | 1365 |
| **85** | 610 | 700 | 790 | 860 | 910 | 950 | | **115** | 1040 | 1130 | 1220 | 1290 | 1340 | 1380 |
| **86** | 620 | 710 | 800 | 870 | 920 | 960 | | **116** | 1055 | 1145 | 1235 | 1305 | 1355 | 1395 |
| **87** | 630 | 720 | 810 | 880 | 930 | 970 | | **117** | 1070 | 1160 | 1250 | 1320 | 1370 | 1410 |

| | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ~~88~~ | ~~640~~ | ~~730~~ | ~~820~~ | ~~890~~ | ~~940~~ | ~~980~~ | | ~~118~~ | ~~1085~~ | ~~1175~~ | ~~1265~~ | ~~1335~~ | ~~1385~~ | ~~1425~~ |
| ~~89~~ | ~~650~~ | ~~740~~ | ~~830~~ | ~~900~~ | ~~950~~ | ~~990~~ | | ~~119~~ | ~~1100~~ | ~~1190~~ | ~~1280~~ | ~~1350~~ | ~~1390~~ | ~~1440~~ |
| ~~90~~ | ~~665~~ | ~~755~~ | ~~845~~ | ~~915~~ | ~~965~~ | ~~1005~~ | | ~~120~~ | ~~1120~~ | ~~1210~~ | ~~1300~~ | ~~1370~~ | ~~1420~~ | ~~1460~~ |

8.2.2 Second Dwelling Units. Dispersal fields for second dwelling units can be designed as a separate system serving only the second dwelling unit or can be a common system serving both the existing dwelling and the second dwelling unit. Dispersal fields shall be sized based on independent dwelling units, even if a common dispersal field is proposed. The dispersal system size shall be equal to the sum of the two individual system sizes. It is recommended that second dwelling units that may be subject to a subdivision of land in the future be served by its own OWTS.

EXAMPLE - For a 3-bedroom main dwelling and a 2-bedroom second dwelling unit and assuming a 16 MPI percolation rate:

Separate Systems:

3-bedroom main dwelling requires 360 feet of leach line and 100% reserve area
2-bedroom second dwelling requires 300 feet of leach line and 100% reserve area

Common System:

3-bedroom main dwelling plus 2-bedroom second dwelling requires 660 feet of leach line and 100% reserve area.

8.2.3 The minimum total leach line requirement for accessory structures with plumbing fixtures shall be 200 feet, regardless of the projected wastewater flows.

## 8.3 Minimum Commercial Wastewater Infiltrative Areas

8.3.1 Non-residential ~~leach line systems~~infiltrative surface area shall be calculated by a qualified professional using ~~expected peak~~projected average daily wastewater flows~~ and safety/surge factor of 2 unless a reduction is allowed by DEH~~ and t~~.~~he maximum application rates as determined from stabilized percolation rate provided in Table 8.3-1. The minimum total infiltrative surface area shall be equal to 200 feet of leach line (800 square feet of infiltrative surface), regardless of flow.

**TABLE 8.3-1: APPLICATION RATES AS DETERMINED FROM STABILIZED PERCOLATION RATES**

| Percolation Rate (min/inch) | Application Rate (gal/day/ft$^2$) | | Percolation Rate (min/inch) | Application Rate (gal/day/ft$^2$) | | Percolation Rate (min/inch) | Application Rate (gal/day/ft$^2$) |
|---|---|---|---|---|---|---|---|

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 1 | 1.2 | | 31 | 0.522 | | 61 | 0.197 |
| 2 | 1.2 | | 32 | 0.511 | | 62 | 0.194 |
| 3 | 1.2 | | 33 | 0.5 | | 63 | 0.19 |
| 4 | 1.2 | | 34 | 0.489 | | 64 | 0.187 |
| 5 | 1.2 | | 35 | 0.478 | | 65 | 0.184 |
| 6 | 0.8 | | 36 | 0.467 | | 66 | 0.18 |
| 7 | 0.8 | | 37 | 0.456 | | 67 | 0.177 |
| 8 | 0.8 | | 38 | 0.445 | | 68 | 0.174 |
| 9 | 0.8 | | 39 | 0.434 | | 69 | 0.17 |
| 10 | 0.8 | | 40 | 0.422 | | 70 | 0.167 |
| 11 | 0.786 | | 41 | 0.411 | | 71 | 0.164 |
| 12 | 0.771 | | 42 | 0.4 | | 72 | 0.16 |
| 13 | 0.757 | | 43 | 0.389 | | 73 | 0.157 |
| 14 | 0.743 | | 44 | 0.378 | | 74 | 0.154 |
| 15 | 0.729 | | 45 | 0.367 | | 75 | 0.15 |
| 16 | 0.714 | | 46 | 0.356 | | 76 | 0.147 |
| 17 | 0.7 | | 47 | 0.345 | | 77 | 0.144 |
| 18 | 0.686 | | 48 | 0.334 | | 78 | 0.14 |
| 19 | 0.671 | | 49 | 0.323 | | 79 | 0.137 |
| 20 | 0.657 | | 50 | 0.311 | | 80 | 0.133 |
| 21 | 0.643 | | 51 | 0.3 | | 81 | 0.13 |
| 22 | 0.629 | | 52 | 0.289 | | 82 | 0.127 |
| 23 | 0.614 | | 53 | 0.278 | | 83 | 0.123 |
| 24 | 0.6 | | 54 | 0.267 | | 84 | 0.12 |
| 25 | 0.589 | | 55 | 0.256 | | 85 | 0.117 |
| 26 | 0.578 | | 56 | 0.245 | | 86 | 0.113 |
| 27 | 0.567 | | 57 | 0.234 | | 87 | 0.11 |
| 28 | 0.556 | | 58 | 0.223 | | 88 | 0.107 |
| 29 | 0.545 | | 59 | 0.212 | | 89 | 0.103 |
| 30 | 0.533 | | 60 | 0.2 | | 90-120 | 0.1 |

## 8.4 Wastewater Infiltrative Area Equivalency Charts

8.4.1 Deep bed dispersal system infiltrative areas shall have an equivalent infiltrative surface area as required for residential leach lines provided in Table 8.2-1. Table 8.6-2 provides infiltrative surface areas for deep bed dispersal systems.

8.4.2 Vertical seepage pit infiltrative surface areas shall have an equivalent infiltrative surface area as required for residential leach lines provided in Table 8.2-1. Appendix III provides equivalent infiltrative surface areas for residential leach lines and Appendix IV provides the infiltrative surface areas for vertical seepage pits

8.4.2.2 The sizing of commercial dispersal fields utilizing leach lines or deep beds shall have the design and length equivalent to the infiltrative surface area as calculated per 8.3.1.

## 8.5 Minimum Leach Line Requirements

Leach lines systems are the primary means of effluent dispersal for the majority of OWTS within San Diego County.

A leach line consists of a trench, rock or other approved filter material, such as rock-less chambers, a perforated pipe, filter protecting fabric or paper, and soil cover. ~~and this Chapter will establish procedures for the design and construction of leach line dispersal systems. The procedures are specific for leach lines, and do not apply to other types of dispersal systems. For leach lines on slopes exceeding 25% slope, refer to the Steep Slope section of this Chapter~~.

8.5.1 Dispersal fields proposing to use leaching chambers or binded expanded polystyrene synthetic aggregate units must comply with IAMPO must comply with IMAPO PS 63 and IGC 276, respectively, and must be installed in accordance with the manufacturer's specifications.

8.5.2 Leach lines in the dispersal field shall meet the following:

| **Table 8.5-1: Leach Line Dispersal System Dimensions and Specifications** | |
|---|---|
| Minimum length of individual leach line | See Note |
| Maximum length of individual leach line | 100' |
| Minimum width of trench | 18" |
| Maximum width of trench | 36" |
| Maximum grade of clean, washed rock | 1.0' to 1.5" |
| Minimum depth of rock below perforated pipe | 12" |
| Minimum depth of rock over perforated pipe | 4" |
| Minimum total rock in trench (12" under, 4" around perforated pipe, and 2" above pipe) | 20" |
| Minimum soil cover over rock[1] | 12" |
| Maximum soil cover over rock[1] | 48" or 4' |
| Minimum depth of trench (20" rock + 12" soil cover) | 32"' |
| Maximum depth of trench (20" rock + 48" soil cover) | 68" (5.7') |
| Minimum grade of trench | level |
| Maximum grade of trench | 2" per 100' |
| Distance between leach lines | 10', center to center |
| Maximum slope | 25% |
| Maximum slope with Slope Stability Study | 40% |

[1]Soil cover requirements must also conform to the requirements of the manufacturer of any gravel-less/chamber design. [2]Minimum length of individual leach line dependent on design.

~~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.~~

~~3. Soil cover requirements must also conform to those allowed by the manufacturer of any gravel-less/chamber design.~~

~~DIMENSIONS~~

~~1. Leach lines are to be installed according to the qualified professional's specifications for location, length, width, and depth.~~

~~2. Leach lines are to be spaced at least 10 feet apart, measured center to center.~~

~~3. Leach lines shall be installed with a width of no less than 18 inches and no more than 36 inches. Regardless of trench width or materials used, dispersal systems using leach lines shall be designed using not more than 1.5 square feet of infiltrative area per liner foot of trench as the infiltrative surface. No reduction in sizing is allowed for the use of chambers.~~

~~4. The minimum length of leach trench for a new OWTS using leach lines as the dispersal system shall be 200 feet regardless of the projected wastewater flows.~~

~~5. A 100% reserve area shall be required for all leach line systems. Properties that previously were required to maintain areas of 200% or 300% reserve shall now have a 100% reserve area requirement in place of the previous requirement.~~

8.5.3 ~~MATERIALS AND CONSTRUCTION CONSIDERATION~~Materials and Construction

8.5.3.1~~1.~~ All piping and materials used in leach line systems including gravel-less/chamber systems must have IAPMO approval and must be approved by DEHQ prior to installation. No reduction in sizing is allowed for the use of chambers.

8.5.3.2~~2.~~ Leach lines that utilize gravel shall be filled with clean, washed ~~leach line rock to a point at least 4 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 1.5 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.

8.5.3.3 Where leach lines are installed, an approved watertight distribution box, of sufficient size to accommodate the expected wastewater volume and necessary field lateral lines, shall be constructed at the head of each dispersal field with watertight inlet and outlets.

8.5.3.3.1 Each field lateral shall be connected separately to a distribution box, shall not be

subdivided, and shall provide equal distribution.

8.5.3.3.2 Equal distribution is not required for repairs when infeasible to install or where site conditions warrant a different distribution method, such as serial distribution system (sloping sites or when trench length variability is necessary), or pressure dosed systems.

8.5.3.43. Where multiple leach lines are proposed on sloping ground, or where variable trench lengths are necessary, a serial dam and siphon maymust be used to connect the leach lines.

8.5.3.54. No leach line shall be placed under concrete, blacktop, roadway or structure. If necessary to cross under such construction, watertight lines of ASB Schedule 40 or other approved materials shall be used. Leach lines must be maintained in an open area and may not be compacted or driven over. Barricades may be required to maintain this area. 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 being level to within 2 inches per 100 feet.

8.5.6 LEACH LINES ON STEEP SLOPESLeach Lines on Steep Slopes

8.5.6.1 Leach line dispersal systems are limited to slopes of 25 percent or less unless the site evaluation and a Soil Stability Study indicate the area is suitable for leach line dispersal system.the requirements under the section titled Leach Lines on Steep Slopes found later in this chapter are met The maximum slope allowed for leach line trenches is 40 percent.

8.5.6.2 Trenches shall follow the surface contours to minimize variations in trench depth and shall only be installed perpendicular to the slope.

8.5.6.3 The following requirements must be met for the installation of leach line trenches on slopes exceeding 25 percent without necessitating the grading of terraces. The design parameters are applicable only to slopes exceeding 25 percent and are not intended to be used in any other situation.

8.5.6.3.12. All leach lines on steep slopes shall be installed in five (5) foot deep trenches with 12 inches of leach rock below the leach pipe or with approved chambers or other gravel-less system.

8.5.6.3.23. 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.

8.5.6.3.36. Any grading, proposed to create a stable work area for leach line trench installation, may be subject to review for conflict with Planning and Development Services (PDS). It is strongly

~~recommended that contact be made with PDS before any grading occurs.~~required to obtain a grading permit. It is the responsibility of the applicant to ensure all required permits have been obtained prior to initiating any work.

## 8.6 Minimum ~~Horizontal Seepage Pit~~Deep Bed Dispersal Requirements

8.6.1 ~~Horizontal seepage pits~~Deep bed dispersal systems ~~are a type of dispersal system than can~~may be used throughout San Diego County if specific soil and site conditions exist. The use of the horizontal seepage pit is generally only considered for sites where adequate area does not exist for a leach line system. These dispersal systems are also used in certain Borrego Springs areas where coarse sand is uniformly present and overlies a deep groundwater basin. ~~This Chapter will provide the procedures for the design and construction of horizontal seepage pits.~~Deep beds are approved for use only in soils with percolation rates of 30 minutes per inch or less.

8.6.2 The minimum depth to groundwater from the bottom of the deep bed dispersal shall meet the requirements of Table 3.7-1 or 10 feet, whichever is greater.

8.6.3 ~~The procedures are specific for horizontal seepage pits~~Deep bed dispersal systems ~~and do not apply to vertical seepage pits~~shall meet the requirements as shown in Table 8.6-1.

| **Table 8.6-1: Deep Bed Dispersal System Dimensions and Specifications** | |
|---|---|
| Minimum length of individual deep beds | Per Section 8.6.4 |
| Maximum length of individual deep beds | 100’ |
| Minimum width of deep bed | 4’ |
| Maximum width of deep bed | 6’ |
| Range of grade of clean, washed rock | 1.0” to 3.0 “ |
| Minimum depth of rock over perforated pipe manifold | 4” |
| Minimum total rock in deep bed | 6’ |
| Minimum soil cover over rock[1] (Soil Cap) | 2’ |
| Maximum soil cover over rock[1] (Soil Cap) | 5’ |
| Minimum depth of deep bed (6’ rock + 2’ soil cover) | 8’ |
| Maximum depth of deep bed (7’ rock + 5’ soil cover) | 12’ |
| Minimum grade of deep bed | level |
| Maximum grade of deep bed | 2” per 100’ |
| Distance between deep bed | 20’, edge to edge |
| Maximum slope | 25% |
| Maximum slope with Slope Stability Study | 40% |

8.6.4 Deep Bed Dispersal System Infiltrative Surface Areas

8.6.4.1 The sizing of residential dispersal fields utilizing deep bed dispersal systems shall have the equivalent infiltrative surface area required for residential leach lines provided in Table 8.2-1. Appendix III provides tables showing equivalent infiltrative surface areas for residential leach lines. The minimum infiltrative surface area for residential deep beds in the certain Borrego Springs areas

with uniform coarse sands overlying a deep groundwater basin shall be calculated from Table 8.3-1 using percolation rates of 1-5 minutes per inch.

8.6.4.2 The sizing of commercial dispersal fields utilizing deep bed dispersal systems shall have the equivalent infiltrative surface area as calculated pursuant to Section 8.3.

**Table 8.6-2: Deep Bed Dispersal Systems Infiltrative Surface Areas**

| Horizontal Seepage Pit Dimensions | 4' Wide | | | 5' Wide | | | 6' Wide | | |
|---|---|---|---|---|---|---|---|---|---|
| | 6' Rock Depth | 7' Rock Depth | 8' Rock Depth | 6' Rock Depth | 7' Rock Depth | 8' Rock Depth | 6' Rock Depth | 7' Rock Depth | 8' Rock Depth |
| Length Linear Feet | Infiltrative Surface Area Square Feet | | | | | | | | |
| 1 | 16 | 17 | 20 | 17 | 19 | 21 | 18 | 20 | 22 |
| 10 | 160 | 170 | 200 | 170 | 190 | 210 | 180 | 200 | 220 |
| 15 | 240 | 255 | 300 | 255 | 285 | 315 | 270 | 300 | 330 |
| 20 | 320 | 340 | 400 | 340 | 380 | 420 | 360 | 400 | 440 |
| 25 | 400 | 425 | 500 | 425 | 475 | 525 | 450 | 500 | 550 |
| 30 | 480 | 510 | 600 | 510 | 570 | 630 | 540 | 600 | 660 |
| 35 | 560 | 595 | 700 | 595 | 665 | 735 | 630 | 700 | 770 |
| 40 | 640 | 680 | 800 | 680 | 760 | 840 | 720 | 800 | 880 |
| 45 | 720 | 765 | 900 | 765 | 855 | 945 | 810 | 900 | 990 |
| 50 | 800 | 850 | 1000 | 850 | 950 | 1050 | 900 | 1000 | 1100 |
| 55 | 880 | 935 | 1100 | 935 | 1045 | 1155 | 990 | 1100 | 1210 |
| 60 | 960 | 1020 | 1200 | 1020 | 1140 | 1260 | 1080 | 1200 | 1320 |
| 65 | 1040 | 1105 | 1300 | 1105 | 1235 | 1365 | 1170 | 1300 | 1430 |
| 70 | 1120 | 1190 | 1400 | 1190 | 1330 | 1470 | 1260 | 1400 | 1540 |
| 75 | 1200 | 1275 | 1500 | 1275 | 1425 | 1575 | 1350 | 1500 | 1650 |
| 80 | 1280 | 1360 | 1600 | 1360 | 1520 | 1680 | 1440 | 1600 | 1760 |
| 85 | 1360 | 1445 | 1700 | 1445 | 1615 | 1785 | 1530 | 1700 | 1870 |
| 90 | 1440 | 1530 | 1800 | 1530 | 1710 | 1890 | 1620 | 1800 | 1980 |
| 100 | 1600 | 1700 | 2000 | 1700 | 1900 | 2100 | 1800 | 2000 | 2200 |

~~DIMENSIONS AND CONSTRUCTION REQUIREMENTS~~

~~1. Horizontal seepage pits are to be installed according to the qualified professional's specifications for location, length, width, and depth.~~

~~2. Horizontal seepage pits are to be spaced 20 feet apart measured edge to edge.~~

8.6.4.3~~3.~~ Primary and reserve ~~horizontal seepage pits~~deep bed dispersal systems cannot be combined in one common pit.

~~4. The pit excavation must be at least 4 feet in width, but not greater than 6 feet in width.~~

~~5. The top of the infiltrative surface shall be at least 2 feet below the natural grade but no more~~

~~than 5 feet. This depth is also known as the cap depth. Additional soil can be placed over the top of the installed horizontal seepage pit at the discretion of the qualified professional.~~

~~6. The sidewall depth below the cap shall be at least 6 feet but cannot exceed 7 feet.~~

~~7.~~

8.6.4.4 Deep bed dispersal systems shall follow the surface contours to minimize variations in bed depth and shall only be installed perpendicular to the slope. The pit excavations may arc or bend under the following conditions:

8.6.4.4.1 ~~a.~~ The maximum deflection cannot exceed a total of 45 degrees in any direction without increasing the pit length to compensate for loss of sidewall area.

8.6.4.4.2 ~~b.~~ Bends or arcs totaling greater than 45 degrees may be accepted on a case-by-case basis. A correction factor will be required, increasing the total length, due to sidewall loss.

8.6.4.4.3~~c. U-~~ U-shaped and H-shaped bends ~~will not be accepted~~are not allowed.

8.6.5 Materials and Construction

~~8. The maximum slope for the use of horizontal seepage pits is 25%. Exceptions to this slope limit may be considered up to 50%, on a case-by-case basis, where the soil and slope are uniform, extending 100 feet beyond the seepage pit. Additional testing, and design detail may be required to address the risk of effluent surfacing on the slope recognizable as sewage as well as slope stability issues. Slopes that exceed 25% will, in most cases, require a terrace design. Any grading to create terraces should be in accordance with any permit requirements for brushing, clearing, and grading from any other agency.~~

8.6.5.1~~9.~~ The use of concrete pit liners is allowed. If used, the concrete pit liners shall meet the testing standards established by the International Association of Plumbing and Mechanical Officials (IAPMO) or otherwise approved by DEHQ.

8.6.5.2~~10.~~ All pits must be filled with clean leach line rock to the cap depth. If pit liners are used, the interior of the liners must also be filled with rock. The rock should be graded at 1 to ~~1.5~~3.0 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.

8.6.5.3~~11.~~ A manifold system constructed of a four (4) inch loop of Schedule 40 perforated pipe shall be installed in the pit to allow for distribution of the effluent throughout the entire pit. The manifold shall be placed one (1) foot from the sidewall of the ~~horizontal seepage pit~~deep bed and shall run the length and width of the ~~pit~~ deep bed in a rectangular pattern. A minimum of four (4) inches of rock shall be placed over the manifold piping.

8.6.5.4~~12. Where more than one horizontal seepage pit is proposed for the primary or reserve system, a serial dam and siphon must be used to connect the pits.~~ Where more than one deep bed is installed, a watertight distribution box of sufficient size to accommodate the necessary field lateral

lines shall be constructed at the head of each dispersal field with watertight inlet and outlets.

8.6.5.4.1 Each field lateral shall be connected separately to a distribution box, shall not be subdivided, and shall provide equal distribution.

8.6.5.4.2 Equal distribution is not required for repairs when infeasible to install or where site conditions warrant a different distribution method, such as serial distribution system (sloping sites or when trench length variability is necessary), or pressure dosed systems.

8.6.5.5~~13.~~ A hybrid system combining a ~~horizontal seepage pit~~deep bed dispersal for the primary or reserve design, and leach lines for the other system is allowed. However, a combination of the two types of systems, used for a single primary or reserve design, ~~will not be considered~~is not allowed. The determination of the design to be installed as the primary dispersal and the reserve dispersal system~~s design identified as~~shall be based on the feasibility of installation, taking into consideration ~~the most difficult installation shall be installed as the primary system. This is to be based on~~ access, grading, or other obstacles to install the system once the house and any other structures or appurtenances are~~is~~ constructed. The design with the most installation restrictions shall be installed as the primary dispersal system.

8.6.5.6~~14.~~ It is the responsibility of the applicant to ensure any work involving excavations or open borings meets all applicable state and local laws and regulations, including the requirements of the ~~The~~ California ~~Occupational Health and Safety Act (COHSA~~Labor Code and associated regulations.~~) requires shoring for excavations exceeding 5 feet when persons will be working in them. All work done installing horizontal seepage pits must comply with COHSA for the purpose of construction and inspection.~~

~~CALCULATIONS~~

~~The calculations for sizing a horizontal seepage pit are done to provide an equivalent amount of sidewall area in the seepage pit as found in a standard 3 foot deep leach line trench using the same percolation rate.~~

~~Seepage pit length = $\frac{3LL - 2wd}{2d}$~~

~~3 = sq. ft. of absorptive sidewall area per lineal foot of 3 foot deep leach line trench~~
~~LL = leach line length as a function of percolation rate~~
~~w = seepage pit width~~
~~d = seepage pit sidewall depth below cap~~

~~Example: A percolation test yields a 15 minutes per inch average rate and a 3-bedroom house is proposed. The corresponding leach line footage for 15 min/inch is 360 linear feet. The seepage pit will have a 6 foot sidewall depth and a 4 foot width.~~

~~Length of horizontal seepage pit = 3(360 ft) – 2(4 ft x 6 ft)~~
~~2 x 6 ft~~

~~= 1080 ft$^2$ – 48 ft$^2$~~
~~12 ft~~

~~= 86 ft~~

## 8.7 ~~Vertical Seepage Pit Systems~~Minimum Vertical Seepage Pit Requirements

8.7.1 Vertical seepage pits are a type of dispersal system allowed in limited areas of San Diego County with specific requirements on their use. Vertical seepage pits are only allowed in areas where beneficial uses have been excepted from the sources of drinking water policy in the San Diego Basin Plan. Vertical seepage pits are not permitted in areas with interior granitic formations or fractured rock. Interactive map of beneficial uses is found at the following link: https://gispublic.waterboards.ca.gov/portal/apps/webappviewer/index.html?id=1f58bd97fdcd45329a5e16e373ede24d
~~This Chapter will provide the requirements to allow for the use of vertical seepage pits as well as the procedures for their design and construction.~~

~~LOCATIONS ALLOWED~~

~~1. Existing Lots – Any lot previously approved for the use of a vertical seepage pit must meet all current requirements found in this LAMP to be considered for development based on the use of a vertical seepage pit.~~

~~2. New Lots – Any lot not previously approved for the use of a vertical seepage pit will not be approved unless it is located in an area of sedimentary soils, whose ground waters have experienced salt water intrusion with salinity levels in excess of 1000 ppm or have total dissolved solids (TDS) levels exceeding 1500 ppm. A hydrology map outlining those areas of known poor ground water quality was prepared by the San Diego Regional Water Quality Control Board and is on file with DEH. Vertical seepage pits proposed in the fringe areas of this map may require groundwater data from the qualified professional to demonstrate the acceptability of the site for the use of a vertical seepage pit.~~

~~3. Vertical seepage pits will not be approved for use in areas with interior granitic formations. The presence of fractured rock aquifers makes the use of vertical seepage pits in these areas potentially deleterious to know beneficial water quality.~~

8.7.2 Vertical seepage pits shall meet the dimensions and specifications as shown in Table 8.7-1.

| Table 8.7-1: Vertical Seepage Pit Dispersal System Dimensions and Specifications | |
|---|---|
| Minimum diameter of seepage pit | 3’ |
| Maximum diameter of seepage pit | 4’ |
| Range of grade of clean, washed rock | 1.0” to 3.0” |

| | |
|---|---|
| Minimum depth of rock below soil cover (soil cap) | 10’ |
| Maximum depth of rock below soil cover (soil cap) | See Table 6.3-1 |
| Minimum soil cover over rock[1] (Soil Cap) | 2’ |
| Maximum soil cover over rock[2] (Soil Cap) | 5’ |
| Minimum total depth of seepage pit | 12’ |
| Maximum total depth of seepage pit | See Table 6.3-1 |
| Distance between pits | 20’, edge to edge |
| Maximum slope | 25% |
| Maximum slope with Slope Stability Study | 40% |

[1] Soil cover (cap depth) over 5’ may be permitted with documentation of justification.

~~DIMENSIONS AND CONSTRUCTION REQUIREMENTS~~

~~1. Vertical seepage pits shall be installed according to the qualified professional’s specifications for location, depth and cap depth.~~

~~2. The pit excavation shall be four feet in diameter.~~

~~3. The sidewall depth below the cap shall not be less than 10 feet.~~

~~4. The minimum depth to the top of the infiltrative surface allowed is 2 feet. This depth is also known as the cap depth. There is no maximum cap depth but documentation must be provided to justify any cap depth greater than 5 feet.~~

~~5. The maximum slope allowed for the use of vertical seepage pits is 40 percent. Slopes that exceed 25% will require additional engineering and design detail as required to address the risk of effluent surfacing on the slope recognizable as sewage as well as slope stability issues. Slopes that exceed 25% will, in most cases, require a terrace design or grading to allow for drilling access. Any grading shall be in accordance with any permit requirements for brushing, clearing, and grading from any other agency.~~

8.7.3 Depth and Sizing of Vertical Seepage Pits

8.7.3.1 The total depth of the seepage pit shall be based on the location, type of soil, and groundwater level as determined by the site investigation, soil profile, and percolation testing.

8.7.3.2 The minimum infiltrative surface shall be an equivalent to the leach line infiltrative surface area requirement shown in Appendix III.

8.7.4 Materials and Construction

8.7.4.1~~6.~~ All pits must be filled with clean washed leach line rock to the cap depth. The rock shall be graded at 1 to 3.0~~1.5~~ 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.

8.7.4.27. A 4 inch ABS or PVC Schedule 40 pipe shall be installed from the ground surface to the bottom of each seepage pit for clean-out, pumping and verification of the total pit depth. The pipe shall have perforations from the cap depth to the bottom of the pit and be of solid construction from the cap depth to the ground surface. A screw fit cap must be placed on top of the riser to allow access.

8.7.4.38. Where more than one vertical seepage pit is proposed for the primary or reserve system, a watertight distribution box of sufficient size to accommodate the necessary field lateral lines shall be constructed at the head of each dispersal field with watertight inlet and outlets.

8.7.4.3.1 Each seepage pit shall be connected separately to a distribution box, shall not be subdivided, and shall provide equal distribution.

8.7.4.3.2 Equal distribution is not required for repairs when infeasible to install or where site conditions warrant a different distribution method, such as serial dam and siphon or pressure dosed systems.

## 8.8 ~~CONSTRUCTION REQUIREMENTS FOR DRIP DISPERSAL SYSTEMS~~Minimum Drip Dispersal Requirements

~~The construction requirements for dispersal systems consisting of leach line, horizontal seepage pit and vertical seepage pit systems can be found in the specific Chapters in this LAMP for to those systems.~~ The construction requirements for pressurized drip dispersal systems shall be as follows.

### 8.8.1 General Requirements

~~1. An STS must be installed by a licensed qualified service provider certified to install the specific STS proposed and the system must be installed according to the qualified professional's specifications for location, components, size and depth.~~

~~2. The natural soil cover over a drip dispersal system shall be at least 6 inches but no greater than 12 inches.~~

8.8.1.13. The area of the drip dispersal system shall be planted with appropriate vegetation to allow for uptake of nutrients from the wastewater.

8.8.1.24. The drip dispersal system shall be designed and maintained as necessary to reduce orifice clogging and root intrusion.

8.8.1.35. The drip dispersal system shall be designed, located and maintained to prevent vehicular traffic over it.

8.8.1.46. The setbacks required between drip dispersal systems and other components of the OWTS as well as structures, property lines, easements, watercourses, wells, or grading shall be the

same as required for leach ~~lines with the exception that the setback to structures and property lines can be reduced to 2 feet~~. See the setback table found in Chapter 6.0~~1~~ of this LAMP for the complete list of setbacks.

~~7. The maximum slope allowed for the installation of a drip dispersal system shall be 40 percent.~~

8.8.1.5~~8.~~ Drip dispersal systems are pressure distribution systems and head loss calculations shall be provided to ensure proper hydraulic pressure at the emitter.

8.8.1.6~~17.~~ All components of the STS shall be certified in writing by the qualified professional who designed the STS that the installation was completed per the approved design.

8.8.2 Drip dispersal systems shall meet the dimensions and specifications as shown in Table 8.8-1.

| **Table 8.8-1: Drip Dispersal System Dimensions and Specifications** | |
|---|---|
| Minimum area | Per Table 8.3-1 |
| Minimum depth of soil cover * | 6” |
| Maximum depth of soil cover | 12” |
| Minimum emitter longitudinal spacing on emitter line | 2’ |
| Distance between emitter lines | 2’ |
| Maximum slope | 25% |
| Maximum slope with Slope Stability Study | 40% |

*Minimum soil cover for OWTS designed to reduce pathogens shall be 12 inches.

8.8.3 Design and Sizing

8.8.3.1~~1.~~ Pressurized drip dispersal systems shall be designed by a qualified professional and installed per the manufacturer’s recommendations. Calculations to size the drip dispersal infiltrative area shall use the peak daily flow and the application rates provided Table 8.3-1.

8.8.4 Materials and Construction

8.8.4.1~~9.~~ Drip dispersal system emitter lines shall be designed as a continuous loop circuit with no dead-ends.

8.8.4.2~~10.~~ Vacuum release valves shall be installed at the highpoint of the emitter lines.

~~11. The maximum emitter longitudinal spacing on an emitter line shall be 2 feet. The maximum spacing between adjacent emitter lines in an absorption bed configuration shall be 2 feet.~~

8.8.4.3~~12.~~ Drip dispersal systems shall be time dosed over a 24-hour period. Demand control dosing shall override timed dosing in periods of flow where timed dosing cannot accommodate the excessive flow.

8.8.4.4~~13.~~ Drip dispersal systems shall be designed to have a minimum operating pressure at the emitter head of 10 pounds per square inch (psi, a maximum operating pressure of 45 psi, a maximum system operation pressure of 60 psi, and a maximum discharge rate per emitter of 1.5 gallons per hour.

8.8.4.5~~14.~~ All drip dispersal systems shall incorporate an automatic mechanism for backwashing or flushing the drip lines and filters.

~~15. Septic tanks, pump chambers or other related components of an STS including risers shall undergo a water tightness test at the site of the installation. Anti-floatation devices shall be utilized as needed.~~

~~16. The STS shall include a petcock on the dosing pump discharge line or other suitable location as agreed upon by DEH for effluent sampling.~~

## 8.9 Other Dispersal Fields

Other dispersal field designs may be proposed for use and will be evaluated on a case by case basis.

# CHAPTER 9.0 ~~Onsite Wastewater Treatment Systems Requiring Corrective Ation~~ONSITE WASTEWATER TREATMENT SYSTEMS WITH SUPPLEMENTAL TREATMENT

## 9.1 General

OWTS with supplemental treatment ~~(STS), also known as alternative OWTS,~~ are OWTS that includes some type of advanced or supplemental treatment in addition to the primary treatment that occurs in a septic tank used with a ~~conventional~~ standard OWTS. OWTS with s~~S~~upplemental ~~T~~treatment ~~S~~ are designed to reduce nitrogen or pathogens and may be ~~are~~ used to overcome specific site constraints generally having to do with high groundwater or shallow soils and provide the additional treatment necessary that will not be provided in the soil. ~~Examples include aerobic treatment units, sand or textile filters and mound systems. This Chapter will provide the procedures for the design, construction, operation and maintenance of STS within San Diego. In addition, a mound system must follow the design and construction criteria found in the "County of San Diego Department of Environmental Health Bulletin SAN D-16 Design, Construction and Monitoring of Mound Systems."~~

## 9.2 ~~DESIGN CRITERIA~~Design Criteria

### 9.2.1 Supplemental Treatment Requirements for Nitrogen

9.2.1.1~~1.~~ Supplemental treatment components for residential use designed to reduce nitrogen shall be NSF/ANSI 245 certified, or certified by a third party tester approved by DEHQ, to meet a 50 percent (50%) reduction in total nitrogen when comparing the 30-day average influent to the 30-day average effluent. As the NSF/ANSI 245ncertification is limited to residential use up to 1500 gallons per day, any OWTS with supplemental treatment proposed for residential uses with higher flows or for commercial uses must be designed by a California licensed Civil Engineer to address the specific wastewater characteristics and flows from the proposed use.~~All supplemental treatment components of a STS must be certified by the National Sanitation Foundation (NSF) to meet the minimum requirements of NSF Standard 40 or must meet standards approved by DEH and the RWQCB. STS utilizing nitrogen reduction components shall achieve a minimum 50 percent nitrogen reduction, when comparing the 30-day average influent concentration to the 30-day average effluent concentration.~~

### 9.2.2 Supplemental Treatment Requirements for Pathogens

9.2.2.1~~2.~~ Supplemental treatment ~~-~~components designed to perform disinfection shall provide sufficient pretreatment of the wastewater so that effluent from the supplemental treatment components does not exceed a 30-day average total suspended solids of 30 milligrams per liter and shall further achieve an effluent fecal coliform bacteria concentration less than or equal to 200 Most Probable Number (MPN) per 100 milliliters.

9.2.2.2 OWTS with supplemental treatment designed for the reduction of pathogens shall have a

minimum soil depth and minimum depth to the anticipated highest level of groundwater below the bottom of the dispersal system of three (3) feet.

9.2.2.3 All dispersal system for OWTS with supplemental treatment designed for the reduction of pathogens shall have a minimum soil cover of twelve (12) inches.

9.2.2.4 For OWTS with supplemental treatment designed for pathogen reduction, the minimum soil depth to high groundwater shall not be less than three (3) feet.

9.2.2.5 For OWTS with supplemental treatment designed for pathogen reduction, all dispersal systems shall have at least 12" of cover.

9.2.3~~1.~~ An STS must be installed by a licensed ~~qualified service provider~~installer certified to install the specific STS proposed and the system must be installed according to the ~~qualified professional's specifications for location, components, size and depth~~design approved in the OWTs Layout Report.

~~3. Percolation testing, soil depth evaluations and groundwater elevation determinations shall be performed by a qualified professional. Percolation testing will be performed at the proposed installation depth of the dispersal field and shall follow the procedures stated in Chapter 3 of this LAMP.~~

9.2.4~~4.~~ Treated effluent from all STS shall be discharged to a subsurface dispersal system consisting of leach lines, vertical seepage pits, horizontal seepage pits, or pressurized drip dispersal systems.

9.2.5~~5.~~ System sizing for dispersal systems that utilize leach lines, vertical seepage pits, and horizontal seepage pits shall be the same as those used for conventional OWTS.

9.2.6~~6.~~ Pressurized drip dispersal systems shall be designed by a qualified professional and installed per the manufacturer's recommendations~~ and the guidelines in the following sections~~. Calculations to size the drip dispersal system shall use the peak daily flow and the application rates provided~~found in the t~~Table 8.3-1~~at the end of this Chapter~~.

9.2.7~~7.~~ A minimum two (2) foot separation between the bottom of the dispersal system to the highest anticipated level to which groundwater could be expected to rise is required for OWTS with supplemental treatment~~STS~~. For STS designed for pathogen reduction, a minimum three (3) foot separation is required.

9.2.8~~8.~~ A minimum of two (2) foot of permeable soil must exist below the bottom of the STS dispersal system.

9.2.9~~9.~~ The STS shall be equipped with a visual and audible alarm as well as a two-~~-~~way telemetric alarm that alerts the owner, qualified service provider ~~and DEH~~ of system malfunctions. The telemetric alarm requirement shall not apply to cases where ~~shall only be waived if the property owner demonstrates to the satisfaction of DEH~~ it is demonstrated that a telemetric alarm is impracticable.

9.2.10~~16.~~ The STS design shall include a petcock for sample collection on the dosing pump discharge line or other suitable location representative of effluent quality.

9.2.11~~15.~~ Septic tanks, pump chambers or other related components of an STS including risers shall undergo a water tightness test at the site of the installation. Anti-floatation devices shall be utilized as needed.

## 9.3 ~~OPERATION AND MAINTENANCE~~Operation and Maintenance Requirements, Annual Operating Permit

9.3.1~~1.~~ All STS require an annual operating permit~~,~~ issued by DEHQ. The annual operating permit will define the monitoring and maintenance requirements as specified by the manufacturer and/or qualified professional who designed the system.

9.3.2~~2.~~ An operation and maintenance manual shall be provided by the manufacturer or qualified professional that includes the qualified professionals name, address, telephone number, and business and professional license number. A copy shall be maintained at the site and shall be available to the qualified service provider and to DEHQ upon request.

9.3.3~~3.~~ All STS must be maintained by a qualified service provider and a maintenance contract must be ~~kept in place throughout the life of the STS~~maintained at all times.

9.3.4~~4.~~ All STS require, at a minimum, biannual inspections by the qualified service provider to ensure proper operation and maintenance of the system. The property owner is responsible for ensuring c~~C~~opies of the inspection results are~~shall be~~ provided to the DEHQ within 30 days of the inspection being completed.

9.3.5~~5.~~ The drip dispersal system shall be flushed once every three months for the first year or until vegetation is established, whichever occurs first. Flushing shall occur every six months thereafter.

9.3.6~~6.~~ The qualified service provider shall be responsible for the following:

9.3.6.1~~a.~~ Assessing the STS to determine operational status.

9.3.6.2~~b.~~ Performing routine activities required to keep the system operational.

9.3.6.3~~c.~~ Responding to emergencies in a timely manner.

9.3.6.4~~d.~~ Collecting and recording information regarding operational status of treatment components and recommending timely maintenance, replacement, or pumping of various components as required.

9.3.6.5~~e.~~ Monitoring system performance through collection and analysis of effluent samples when appropriate.

9.3.6.6~~f.~~ Reporting system operational status/or system performance to the property owner and ~~County DEH.~~DEHQ.

9.3.6.7~~g.~~ Serving as an informational resource for the property owner.

9.3.7~~7.~~ The property owner is responsible for reporting a~~A~~ll failures, malfunctions, service requests, alarms, or other instances where an STS requires the attention of a qualified service provider ~~shall be reported~~ to DEHQ within 72 hours of the incident occurring.

9.3.8~~8.~~ Failure of a property owner to maintain an annual operating permit, ~~or~~to provide the biannual inspection results, or to provide notifications of STS issues ~~results~~ to DEHQ ~~will~~ may result in enforcement action. Failure to comply with requested corrective actions or enforcement orders may impact eligibility under the OWTS Policy conditional waiver ~~and may result in condemnation of the structure~~ and the OWTS discharge may be referred to the Regional Water Quality Control Board for oversight.

# CHAPTER 10.0 ~~Onsite Wastewater Treatment System Use Limitations~~ONSITE WASTEWATER TREATMENT SYSTEMS REQUIRING CORRECTIVE ACTION

All OWTS have the potential to result in surfacing effluent or sewage to ground surface or backing up into plumbing fixtures~~fail~~ due to age, misuse or improper design. ~~and the failure may result in surfacing effluent, wastewater being discharged to the ground surface or wastewater backing up into plumbing fixtures.~~ These OWTS~~failures~~ will require corrective action to mitigate any risk to public health or contamination of the environment. ~~This Chapter will detail the corrective action that will be required in the event an OWTS fails and enforcement actions that will be taken if the corrective action is not completed within acceptable time frames.~~

## 10.1 ~~SUBSTANDARD SYSTEMS~~Defective and Existing Nonconforming OWTS

10.1.1 An OWTS that allows sewage, human excrement or other liquid wastes to be disposed of so that the waste is not confined underground is a defective system. The property owner shall promptly repair a defective OWTS by connection to a public sewer system or by repair or replacement of the OWTS under permit and inspection by DEHQ. The OWTS shall be pumped by a permitted hauler as necessary to keep the sewage confined to underground until the corrective action has been completed.

10.1.2 An~~ll~~ existing OWTS ~~within San Diego County~~ that do not meet the minimum siting and design requirements of this LAMP ~~shall be deemed substandard~~are considered existing, nonconforming OWTS. Sites with existing, nonconforming ~~substandard~~ OWTS that propose changes in construction, use or occupancy, or land use or development which may cause expansion of the nonconforming conditions of the OWTS shall ~~be prohibited~~not be approved. ~~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.~~

10.1.3 Existing OWTS where the RWQCB is requiring corrective actions for nitrate reduction or pathogen reduction with ongoing monitoring and reporting, including as part of a TMDL implementation plan, a TMDL restoration plan or other actions, are not covered by the local permitting program or LAMP and are under the purview of the RWQCB. Permit applications received for OWTS not covered under the LAMP scope of coverage will be referred to the appropriate RWQCB.

## 10.2 ~~CORRECTIVE ACTION REQUIREMENTS~~Corrective Action Requirements

10.2.1~~1.~~ DEHQ will complete an investigation within 24 hours to determine the validity of the complaint or other notification of a ~~failing~~ defective OWTS.

10.2.2~~2.~~ Any OWTS that is found to be ~~failing~~ defective shall have a notice of violation issued to the property owner requiring action to eliminate the immediate health hazard through pumping of the septic tank by a licensed sewage hauler or elimination of wastewater flows to the failing OWTS.

The notice of violation will also require a repair to be completed to the OWTS as needed within a reasonable time frame.

10.2.3~~3.~~ The proposed repair shall be evaluated by DEHQ to ensure it meets the minimum design requirements of this LAMP or is in substantial conformance to the greatest extent practicable.

10.2.4~~4.~~ Groundwater separation requirements to the bottom of the dispersal system and the highest anticipated groundwater level for repairs shall be as provided in Table 6.3-1~~follows~~:

~~a. 5 foot for conventional OWTS~~
~~b. 2 foot for alternative OWTS with supplemental treatment~~
~~c. Less than 2 foot separation cannot be allowed through this LAMP and will require a waste discharge permit through the RWQCB.~~

10.2.5~~5.~~ The repair shall be completed under permit and inspection by DEHQ.

~~6. Failure to complete the required corrective action within the time frames given will result in additional enforcement action which may include condemnation of the structure for immediate health hazards.~~

## 10.3 Variances

10.3.1 All new and replacement OWTS shall meet the minimum requirements of this LAMP and local ordinance.

10.3.2 A property owner may submit a written request for a waiver of a specific standard or requirement where area is limited for the proposed repair or a replacement of an existing OWTS and shall propose an alternative OWTS design that maintains substantial conformance to the minimum requirements in this LAMP.

10.3.3 DEHQ shall consider the waiver request to determine if the alternative repair or replacement siting and design proposal is in substantial conformance, to the greatest extent practicable, with the OWTS Policy and this LAMP, is adequate to accommodate the sewage flows from the buildings being served by the OWTS, is able to achieve the same practical effect as the requirements by modification of leach trench dimensions, and is able to minimize any impacts to groundwater.

10.3.4 DEHQ may approve a waiver request upon determination that the proposed alternative will not result in any adverse effects on an underground source of water or on public health or safety.

10.3.5 Property owners with waiver requests not approved by DEHQ shall notify the RWQCB that the OWTS does not meet the requirements of the approved LAMP and is not covered by the local permitting program.

10.3.6 Repairs may be approved between individual leach lines if it is demonstrated that the parcel has no other applicable area to repair the dispersal system.

## 10.4 Denial of Coverage under the OWTS Policy/Conditional Waiver

10.4.1 An owner of a new or replacement OWTS that does not meet the conditions and requirements set forth in this approved LAMP shall notify the appropriate RWQCB by submitting any required documentation, such as a report of waste discharge (OWTS Policy, Section 2.6). DEHQ shall make a referral to the appropriate RWQCB when an OWTS is identified under this subsection.

10.4.2 DEHQ may deny coverage under the OWTS Policy to any OWTS that is not in compliance with Section 6.1 of the OWTS Policy, or not able to adequately protect the water quality of the waters of the State. DEHQ shall make a referral to the appropriate RWQCB when an OWTS is identified under this subsection.

## 10.5 Appeals

A property owner may submit a written request for an appeal on a form provided by DEHQ within fourteen (14) days of the issuance of a Notice of Intent to Record a Notice of Violation issued for a violation of San Diego County Code of Regulatory Ordinances, Title 6, Division 8, Chapter 3, in accordance with the procedures in Title 1, Division 8 , or of notice of an administrative decision by the Department, in accordance with the procedures in Title 1, Division 6.

# CHAPTER 11.0 ~~Data Collection/Reporting/Notifications~~ONSITE WASTEWATER TREATEMENT SYSTEMS NEAR IMPAIRED WATER BODIES

## 11.1 OWTS Policy Requirements

The OWTS Policy Tier 3 provides regulation of OWTS near impaired water bodies. Although local agencies are authorized under the OWTS Policy to implement provisions of Tier 3 to the extent of their local authority, implementation of Tier 3, including notifications and enforcement requirements for OWTS determined to be in Tier 3, is the responsibility of the RWQCBs.

OWTS Policy Tier 3 is not designed to supersede other state policy created to address impaired water bodies but is designed to provide interim measures until state policy or actions can be adopted or approved to address the impairment.

The OWTS Policy Tier 3 requires an Advanced Protection Management Program (APMP) to address impaired water bodies. The APMP may be implemented through three specific methods (1) an adopted TMDL, (2) special provisions incorporated into an approved LAMP, or (3) for those water bodies listed in Attachment 2 of the OWTS Policy, in accordance with OWTS Policy Sections 10.8, 10.8, and 10.0.

OWTS near impaired water bodies that are not listed in Attachment 2, and do not have a TMDL, and are not covered by special provisions in an approved LAMP, are not addressed by Tier 3 of the OWTS Policy.

## 11.2 Adopted TMDL

If there is an adopted TMDL, the geographical area is defined by the TMDL and the APMP is in accordance with the TMDL Implementation Plan. The TMDL implementation plan supersedes all other requirements in Tier 3.

If an impaired water body has an adopted TMDL, property owners of existing, new and replacement OWTS must comply with the TMDL implementation plan requirements. A local agency permitting program may include permitting requirements for these OWTS, if within the scope of coverage of the LAMP and local ordinance. If these OWTS fall outside of a local permitting program, the RWQCB is responsible for implementation through the prohibitions, WDRs, or waivers of WDRs.

Some OWTS within a TMDL geographical may not be covered under the scope of coverage of the LAMP and the extent of the local permitting program authority. These include existing OWTS and OWTS with supplemental treatment where ongoing effluent sampling and reporting are required. Owners of OWTS that are not covered under the LAMP or local permitting program or who cannot meet the minimum requirements provided in Section 10.8 will be referred to the RWQCB.

### 11.2.1 TMDL for the Rainbow Creek Watershed

This TMDL was adopted in 2005 (Resolution R9-2005-0036) and identified the Rainbow Creek watershed as the geographical area to address excessive nutrients in Rainbow Creek contributing to excessive algal growth.

While the TMDL mainly addresses surface runoff sources, the TMDL identified owners of OWTS and agricultural operations as controllable sources via the groundwater pathway. However, since the contribution from the agricultural operations could not be calculated at that time, the entire total nitrogen load of 200 kg/year via the groundwater pathway was assigned to the OWTS source.

The TMDL implementation plan included using waste discharge requirements, waiver, or prohibitions as necessary to control the discharges. To address OWTS, the TMDL implementation plan provided to incorporate the regulations developed by the SWRCB, which is the OWTS Policy. The OWTS Policy was adopted into the San Diego Basin Plan by the RWQCB in 2015. As no other provisions for OWTS were adopted as part of the adoption of the OWTS Policy or were including with the adoption of this TMDL, the conditional waiver contained in the OWTS Policy remains the effective process for OWTS covered under this policy.

11.2.2 TMDL for Indicator Bacteria, Project 1-Twenty Beaches and Creeks in the San Diego Region (including Tecolote Creek)

This TMDL was adopted in 2010 (Resolution R9-2010-0001) to address bacteria with the geographical areas identified as the Pacific Ocean shoreline, Tecolote Creek, Forester Creek, Lower San Diego River, and Chollas Creek.

The TMDL identified the owners of individual OWTS as responsible for controllable nonpoint source bacteria discharges causing or contributing to the impairment at the beaches and creeks but were not assigned a load allocation. Any controllable nonpoint source that has not been assigned a load allocation or has a load allocation of zero is not expected or allowed to discharge a pollutant load as part of the TMDL. The TMDL implementation plan included the use of waste discharge requirements, waivers, or prohibitions to control discharges. As no other provisions for OWTS were adopted as part of this TMDL, the conditional waiver contained in the OWTS Policy remains the effective process for OWTS covered under this policy.

In 2019, the RWQCB issued Investigative Order R9-2019-0014 to existing MS4 dischargers to investigate to identify the sources, pathways and amounts of human fecal material discharges in the Lower San Diego River watershed, including from OWTS. A final report is due in 2024. Based on the results of the Investigative Order, the RWQCB may elect to revise the TMDL and/or existing waste discharge requirements or waivers, or adopt new prohibitions or waste discharge requirements or waivers.

11.2.3 Other Impaired Water Bodies with OWTS Implications

11.2.3.1 Santa Margarita River TMDL Restoration Plan Project

The Santa Margarita River was added to the Clean Water Act section 303(d) Impaired Waters list for nutrients (nitrogen and phosphorus) in 2012. Excessive nutrient loading to the Santa Margarita River and its tributaries causes and/or contributes to exceedances of Water Quality Objectives and adversely impacts the Cold Freshwater Habitat (COLD), Warm Freshwater Habitat (WARM), and Rare, Threatened, or Endangered Species (RARE) beneficial uses designated to the river. Excessive discharge of nutrients also has the potential to adversely impact the Municipal and Domestic Supply (MUN) beneficial use through impact to large groundwater basins in the Santa Margarita watershed (Watershed). Furthermore, nutrients discharged to the surface waters and groundwater in the Watershed have been shown to contribute to the eutrophication impairment of the Santa Margarita River Estuary (Estuary). Major sources of nutrients to the river include Municipal Separate Storm Sewer Systems (MS4s) and agricultural land uses in San Diego and Riverside counties.

To address the impairment, the objective of the Santa Margarita River Water Quality Restoration Plan (River Restoration Plan) is to reduce nutrient loads entering the river and achieve numeric targets in order to restore and maintain the chemical, physical, and biological integrity of the river as well as the downstream Estuary.

To achieve this, the RWQCB is developing the River Restoration Plan to address impairments for nutrients and eutrophication in the river consistent with the Impaired Waters Policy. The River Restoration Plan relies on implementing existing permits, policies, and plans and tracking the effectiveness of the permits, policies, and plans in achieving nutrient load reductions, numeric targets, and beneficial uses through monitoring.

The River Restoration Plan would address the impairment and restore beneficial uses consistent with a 2015 memorandum from the United Stated Environmental Protection Agency on alternative responses to impaired waters that retain more flexibility and efficiency than the traditional approach to setting total maximum daily loads (TMDLs). Should the San Diego Water Board approve the River Restoration Plan, the County of San Diego and County of Riverside, as stormwater permit Copermittees, and enrollees to agricultural waste discharge requirements (WDRs) in the watershed will be required to track the progress of the River Restoration Plan through monitoring.

Although OWTS discharges to the subsurface have not been directly addressed in the technical reports associated with this project, the RWQCB have indicated that implementation may include additional requirements for owners of OWTS in the area through the local permitting program or LAMP. However, no details have been provided and no formal request for changes to the approved LAMP have been received by the RWQCB in accordance with the OWTS Policy Section 4.4. The River Restoration Plan process will be monitored to identify additional information as it becomes available.

Currently, as there is no TMDL for this water body, no special provisions in the LAMP, and it is not listed in the OWTS Policy Attachment 2, pursuant to the OWTS Policy, this water body is not addressed by Tier 3 of the OWTS Policy.

11.2.3.2 Tijuana River TMDL Development Project

The lower six miles of the Tijuana River and the Tijuana River Estuary (the Tijuana River Valley) have

been listed as Clean Water Act 303(d) impaired water body segment due to excessive bacteria and trash resulting in the impairment of numerous beneficial uses, primarily those associated with aquatic life (e.g., warm freshwater, estuarine, and marine habitat, rare and endangered species, etc.), and human health (e.g., contact and noncontact water recreation, fishing, shellfishing, etc.). OWTS have been listed as a potential source as part of this listing.

Currently, the San Diego RWQCB is developing a TMDL to address these impaired waters with a draft TMDL staff report undergoing internal review. Following internal review, the staff report will be submitted for external scientific review and will then be available for public review. A Basin Plan amendment will also be prepared for adoption by the San Diego RWQCB and for approval by the State Water Resources Control Board, Office of Administrative Law, and the U.S. Environmental Protection Agency.

No information is available at this time related to any proposed load allocations or requirements for owners of OWTS above that already required in the LAMP. This process will be monitored to identify any additional information as it becomes available.

Currently, as there is no TMDL for this water body, no special provisions in the LAMP, and it is not listed in the OWTS Policy Attachment 2, pursuant to the OWTS Policy, this water body is not addressed by Tier 3 of the OWTS Policy.

### 11.3 Special APMP Provisions if Contained in the Approved LAMP

The OWTS Policy provides that if there is no TMDL adopted for the impaired water body, but the local permitting program has elected to include special APMP provisions to address specific OWTS near impaired water bodies in the approved LAMP, then the impairment is addressed through this APMP to the scope and extent provided by these special provisions. The special provisions may be substantive and/or procedural.

This LAMP does not contain any special provisions specifically related to the siting and design of OWTS near impaired water bodies but implements the minimum standards in the LAMP as applied to all new and replacement OWTS. Some OWTS near impaired water bodies may fall outside the scope of coverage of this LAMP or the extent of the local permitting program authority. New and replacement permit applications received by DEHQ for OWTS that fall outside the scope of coverage of this LAMP are referred to the appropriate RWQCB.

### 11.4 Local Implementation of OWTS Policy Attachment 2 APMP for New and Replacement OWTS

The OWTS Policy provides interim APMP requirements for impaired water bodies listed in Attachment 2 of the policy. As the TMDL program and process is the Federal and State required approach to address impaired water bodies, the Attachment 2 APMP requirements are intended to be interim measures until such time the TMDL is completed.

Currently, there are no water bodies listed in Attachment 2 within the jurisdiction of the local permitting program. Should a water body be listed in a future OWTS Policy update to Attachment 2,

DEHQ will implement the Section 10.8 requirements for new and replacement permit applications for OWTS within the scope of coverage of the LAMP and to the extent of local permitting program authority. OWTS owners that are not covered under the LAMP or local permitting program or who cannot meet the minimum requirements provided in Section 10.8 will be referred to the appropriate RWQCB.

~~Existing, new and replacement OWTS that are near impaired water bodies may be addressed by a TMDL and its implementation program, or special provisions contained in a LAMP. If there is no TMDL or special provisions, new or replacement OWTS within 600 feet of impaired water bodies listed in Attachment 2 of the State's OWTS Policy must meet the applicable specific requirements found in Tier 3 of the State's OWTS Policy.~~

~~Currently, there are no impaired water bodies in San Diego County listed in Attachment 2 of the State's OWTS Policy. At such time as an impaired water body is listed, DEH will follow the applicable specific requirements found in Tier 3 of the State's OWTS Policy or develop and obtain approval from the RWQCB of its own Advanced Protection Management Program.~~

# APPENDIX I

# PERCOLATION TEST PROCEDURE

This Chapter is to be used to establish clear direction and methodology for percolation testing in San Diego 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 except vertical seepage pits in San Diego 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, geologist or environmental health specialist (qualified professional) who has attended an orientation session conducted by the Department of Environmental Health (DEH) and demonstrated knowledge of San Diego County laws and policies relating to OWTS. Any deviation shall be authorized only after receiving written approval by DEH. For testing requirements for horizontal and vertical seepage pits and subsurface drip systems, see the Chapters in this LAMP covering those types of dispersal systems.

Note: Grading or clearing of brush for the purposes of completing a percolation test may require approval from Planning and Development Services and requires the implementation of stormwater best management practices.

TEST HOLES

**Number of Test Holes**

1. A minimum of ~~four~~ six test holes is required when percolation rates are less than 60 minutes per inch (mpi).

2. A minimum of six test holes is required when the average percolation rate is more than 60 mpi. ~~(For those soils having an average percolation rate greater than 60 mpi, see Appendix II).~~

3. 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.
    d. Soil conditions are variable or inconsistent.

Depth of Testing

1. Test holes shall be representative of the dispersal system installation depth.

2. Conditions which may require testing deeper than leach line depth:
    a. Shallow consolidated rock or impervious soil layers.
    b. Slope exceeds 25%.

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

Soil Classification

1. All test holes and deep borings shall have soil types described according to the American Society for Testing and Materials (ASTM) Soil Classification System (Unified).

2. All borings are to be reported, including any, which encountered groundwater or refusal. Comments about consolidation and friable characteristics are encouraged.

Location of 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.

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.

<u>PRESOAKING THE TEST HOLES</u>

**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 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 into 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 Appendix I~~)

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.

~~1.~~ Take two (2) readings at thirty (30) minute intervals and report percolation rate as the slower of

the two readings.

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 $1/16^{th}$ 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 $1/16^{th}$ 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 $1/16^{th}$ 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.

CALULATIONS 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 minutes ¸ 3/4 inch = 40 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 1/16$^{th}$ 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: ~~Appendix I~~

REPORTS

1. All test data and required information shall be submitted on approved DEH 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.

3. San Diego County Code, Section 68.328 requires all percolation testing to be done by a civil engineer, geologist, or environmental health specialist, registered in the State of California. These qualified professional are required to be on an approved list on file with DEH.

4. The percolation test is only one critical factor in siting an OWTS. Site considerations may require special evaluation by a qualified professional to technically address issues such as high groundwater, steep slope, nitrate impacts, cumulative impacts, (mounding, and horizontal transmissibility).

5. Qualified professionals who employ technicians are responsible for the work performed by the technician. It is incumbent upon the qualified professional to properly train, equip, and supervise anyone performing work under his or her direction and license.

# ~~APPENDIX I~~

## 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).

~~APPENDIX II~~

## Standard and Requirements for Design and Installation of OWTS in Soils with Poor Percolations Rates

In soils having percolation rates in excess of 60 mpi, the following criteria shall apply:

1. Percolation tests shall be conducted at a minimum of six (6) different locations on the site within the proposed area of the subsurface sewage disposal field.

2. There shall be a minimum of ten (10) feet of soil above any impervious formation such as rock, clay, adobe and/or water table. Fractured rock and consolidated granites will not be considered as soil. Deep testing can be required to ensure uniform conditions exist below the disposal field.

### Vertical Seepage Pit Dispersal Systems Percolation Test Procedures~~PERCOLATION TEST PROCEDURES~~

All vertical seepage pits for new construction will require percolation testing by a qualified professional certified to perform percolation tests in San Diego County. A waiver of testing can be considered where adequate information exists as to soil types, depth and permeability. Percolation testing for vertical seepage pits shall be completed per the following guidelines.

1. A 12 to 48 inch diameter test hole shall be excavated to a depth of at least 10 feet deeper than the proposed installation depth.

2. A minimum 10 foot separation between the bottom of the vertical seepage pit and the anticipated high groundwater level is required.

3. Boring logs shall be recorded and included with all test reports indicating soil strata depths and types and visual classification according to the unified soil classification system along with any groundwater encountered.

~~4.~~ The overdrill must be checked for the presence of groundwater a minimum of 24 hours after the completion of the test boring to allow time for groundwater to stabilize in the hole.

~~5.~~4. After the groundwater reading is recorded, the test hole shall be backfilled to a depth 10 feet above the bottom of the test hole or the groundwater level whichever is shallower.

~~6.~~5. The pit shall be filled with water to the cap depth and a continuous pre-soak shall be maintained at the proposed cap level for a minimum 8-hour period. In highly permeable soils when cap levels cannot be maintained during pre-soak, the test shall be conducted at a depth no higher than the pre-soak level which was attained. Document the pre-soak attempt with gallons of water used. In no case shall less than 5,000 gallons of water be used within a 1 hour period in the attempted pre-soak when the cap level cannot be maintained. The depth of the test shall be noted on the boring log and in no case shall the sidewall of permeable soil below the cap level be less than ten foot.

~~7.~~6. Upon completion of the pre-soak period, fill the pit to cap level and determine uniformity of soil by measuring the falling head. Distance to the water level shall be measured at 15 minute intervals, or more frequently if needed, until the drop stops or the pit empties. A graph of the drop in water level shall be attached to all proposals submitted by the qualified professional. If non-uniform rates persist, the soil will not be considered uniform and the tests discontinued as they will not be approved by DEH.

~~8.~~7. If the procedure in Item no. 4 demonstrates uniform soil, proceed with a two-hour static head or falling head capacity test.

a. Static Head – The pit shall be filled with water to the cap depth and the water column shall be maintained at that level for two hours. The amount of water added to maintain this level must be documented. The 24-hour capacity is determined by multiplying by 12. Adjustment to a four foot diameter pit is made if a lesser size test hole is used.

b. Falling Head – The pit shall be filled with water to the cap depth and the column of water shall be allowed to drop for a two hour period. The distance dropped shall be measured and the amount of water absorbed determined. This amount is multiplied by 12 to determine the 24-hour capacity. Adjustment to a four foot diameter pit is made if a lesser size test hole is used.

~~9.~~8. The minimum capacity for a new OWTS using vertical seepage pits as the dispersal system shall be 5 times the volume of the required septic tank or 5000 gallons per day whichever is greater. All individual vertical seepage pit shall have a minimum capacity of 1,667 gallons per day.

~~10.~~9. Each pit must meet these minimum criteria to be acceptable. The qualified professional may include safety factors as he feels the situation warrants.

~~11.~~10. It shall be the responsibility of the qualified professional to maintain all test holes or pits in a safe manner prior to backfill or capping to prevent a hazard or accident.

# APPENDIX II

# NITRATE LOADING STUDY MINIMUM REQUIREMENTS

## 1.0 Project Description

1.1 Description of the site and proposed project. This description should be consistent with the project description as provided in OWTS Layout and in any planning project application.

1.2 Description and location of special environmental conditions or features (303(d) water bodies impaired for nitrogen or nutrients within 600 feet of project location, shallow water table areas, TMDL geographical areas, Basin Plan exception areas, areas of known groundwater-surface water interface, areas where groundwater is the source of drinking water, drinking water reservoirs, etc.)

## 2.0 Wastewater Characteristics

2.1 Description of the wastewater constituents to include at a minimum TSS, BOD, FOG, and nitrogen as nitrate. If any wastewater is being diverted from the OWTS, as with the use of conservation fixtures or gray water systems, a discussion of the impacts to the constituents in the wastewater must be provided (more concentrated). Discussion of reduction of constituents based on any proposed supplemental treatment in accordance with the specific certification or design.

2.2 Description of projected daily flow and peak daily flow based on the proposed use and occupancy.

## 3.0 Chemical and Physical Properties of Soil

3.1 Description of the chemical and physical properties of the soils underlying the dispersal fields in relation to the potential for mass transport of nitrogen.

3.2 Description and location of potential conduits for pollution or contamination to migrate through subsurface (abandoned wells, stormwater features, former stream bed locations, etc.)

## 4.0 Groundwater Analysis

4.1 Description of: Depth to groundwater, seasonal fluctuations of groundwater depth, general directional flow and gradient.

4.2 Description of the current use of groundwater in the general location of the site, at the site, and of the future expected use of groundwater as related to the proposed project.

## 5.0 Denitrification/Nitrogen Reduction

5.1 Discussion of the potential for denitrification: denitrification in the soil column as the effluent percolates to the water table.

5.2 Description of any nitrogen uptake by plants or other vegetation, if any, in the discharge area.

## 6.0 Cumulative Impacts

6.1 Description of OWTS density within the township range section.

6.2 Description of all current off-site sources of nitrogen to soil and groundwater in the general up gradient area and the contribution of nitrogen load from these sources to the project site.

6.3 Description of all current on-site sources of nitrogen to soil and groundwater and the contribution of nitrogen load from these sources.

6.4 Description of all proposed future on-site sources of nitrogen to soil and groundwater and the contribution of nitrogen load from these sources.

6.5 Discussion of cumulative impact from all sources.

## 7.0 The Hantzsche and Finnemore Mass Balance Equation

$$\frac{I*Nw(1-d) + RNb}{(I + R)}$$

$$I = \frac{Q*365*12}{A*7.48*43560}$$

Q = Volume of wastewater generated, in gallons per day.
Nw = Total nitrogen concentration of wastewater from development, in milligrams per liter.
A = Parcel size, in acres.
d =Fraction of nitrate-nitrogen loss due to denitrification in the soil.
R = Average recharge rate of rainfall, in inches per year.
Nb = Background nitrate-nitrogen concentration of rainfall recharge at the water table, exclusive of waste-water influences, in milligrams per liter.
I = Volume rate of wastewater entering the soil averaged over the gross developed area for dwelling unit, in inches per year.

7.1 Standardized Equation Inputs:

7.1.1 Volume of wastewater generated (Q), in gallons per day. Use 150 gpd per bedroom for residential, use actual flows from similar use, or Table 6.5-1 for commercial. Maximum flows allowed under LAMP is 3.500 gallons per day.

7.1.2 Total nitrogen concentration of wastewater from project, in mg/L (Nw). Use 45 mg/L for residential use and occupancies. For residential uses up to 1,500 gallons per day flow proposing an NSF/ANSI 245 certified residential OWTS with Supplemental Treatment, the value of 22.5 mg/L may be used (50% reduction). The specific proposed certified OWTS with Supplemental Treatment must be appropriate for the project description and flows. For commercial uses, the concentration must be derived from actual sample results from a similar commercial use or calculated from fixture contributions using data provided in the EPA Design Manual or other approved source. As the NSF/ANSI 245 certification is limited to residential uses up to 1,500 gallons per day, any OWTS with supplemental treatment proposed for commercial uses must be designed by a qualified professional to address the specific wastewater characteristics and flows from the proposed use. The calculated total nitrogen in the treated effluent identified in this design may be used for this input parameter.

7.1.3 Parcel size (A), in acres. Use actual size of project.

7.1.4 Fraction of nitrate-nitrogen loss due to denitrification (d) in the soil. Range 0% to 30%. Use 0 for coarse sand or perc rates <1 MPI. Use 0.1 for sandy soils; 0.2 for sandy loam, loam, silt loam; use 0.3 for clay loam, clay or silty clay soils.

7.1.5 Average recharge rate of rainfall (R), in inches per year. Use last 10 year average or historic from San Diego County Flood Control District source. May use another source (CIMIS, Western States) if no other data is available. Average recharge rate of rainfall is rainfall less surface runoff and loss from evapotranspiration.

7.1.6 Background nitrate-nitrogen concentration of rainfall recharge (Nb) at the water table, in mg/L. Use 1.0 mg/L.

7.1.7 Volume rate of wastewater entering the soil (I) averaged over the gross developed area, in inches per year. Must include all sources of wastewater on parcel.

7.2 Resultant average concentration (Nr) – result must be less than the applicable WQO for that area: MUN-10 mg/L (Warner Springs 5 mg/L), Rainbow Creek Watershed 1 mg/L receiving water limit??, SMR Watershed??

7.3 Other site-specific considerations:

A discussion of other site-specific conditions which may have an impact on the nitrate loading from the OWTS should be provided. Conditions may include the following:

Within 1-mile of an area of localized recharge
Within 1-mile of gaining stream gw/sw interface
Nearby 303d waters, TMDL geographical areas, reservoirs
Seasonal high depth to groundwater/
Thickness (in feet) of vadose zone
Total thickness (in feet) of clay in vadose zone and % clay in vadose zone

Number of OWTS in 1-mile radius of site, location and distance of municipal supply wells
Nitrate concentration in onsite well, nearby water wells, public well
Other sources of nitrate in 1-mile radius
Number of water wells in 1-mile radius of site, or service by public water system
Date of water well installations at the site, in area
Depth of wells, depth of grout seals
Within a city Sphere of Influence
Number of sewered homes within 1-mile radius of site

## 8.0 Conclusions and Recommendations

8.1 Discussion of Nitrogen Loading Results Relative to Proposed Method of Wastewater Disposal

8.2 Discussion of total nitrogen impact from proposed project.

8.6 Discussion of any mitigating site conditions: See above …Effects of dilution of the effluent along the flow path to the surface water body.

8.3 Description of the methods proposed to mitigate any known or future impact to soil and groundwater from nitrogen at or around the project site.

8.4 Report signed, dated and stamped by qualified professional.

8.5 Attachments/appendices contain sufficient documentation and data, with sources, to support claims/conclusions made in report.

# APPENDIX III

## Minimum Leach Line Length and Equivalent Infiltrative Surface Area

**Table III-1: Minimum Leach Line Length and Infiltrative Surface Area Equivalents Based on Percolation Rate, Number of Bedrooms, and Allowance of Four Square Feet per Linear Foot Infiltrative Surface Area**

| Perc Rate MPI | Number of Bedrooms | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1 | | 2 | | 3 | | 4 | | 5 | | 6 | |
| | Leach Line Feet | Equivalent Square Feet | Leach Line Feet | Equivalent Square Feet | Leach Line Feet | Equivalent Square Feet | Leach Line Feet | Equivalent Square Feet | Leach Line Feet | Equivalent Square Feet | Leach Line Feet | Equivalent Square Feet |
| 1 | 200 | 800 | 200 | 800 | 240 | 960 | 270 | 1080 | 280 | 1120 | 300 | 1200 |
| 2 | 200 | 800 | 200 | 800 | 240 | 960 | 270 | 1080 | 280 | 1120 | 300 | 1200 |
| 3 | 200 | 800 | 200 | 800 | 240 | 960 | 270 | 1080 | 280 | 1120 | 300 | 1200 |
| 4 | 200 | 800 | 220 | 880 | 260 | 1040 | 290 | 1160 | 300 | 1200 | 310 | 1240 |
| 5 | 200 | 800 | 240 | 960 | 290 | 1160 | 320 | 1280 | 320 | 1280 | 340 | 1360 |
| 6 | 200 | 800 | 250 | 1000 | 300 | 1200 | 340 | 1360 | 350 | 1400 | 360 | 1440 |
| 7 | 210 | 840 | 260 | 1040 | 310 | 1240 | 350 | 1400 | 370 | 1480 | 380 | 1520 |
| 8 | 210 | 840 | 265 | 1060 | 320 | 1280 | 360 | 1440 | 390 | 1560 | 400 | 1600 |
| 9 | 220 | 880 | 270 | 1080 | 320 | 1280 | 360 | 1440 | 400 | 1600 | 410 | 1640 |
| 10 | 220 | 880 | 275 | 1100 | 330 | 1320 | 370 | 1480 | 410 | 1640 | 420 | 1680 |
| 11 | 220 | 880 | 280 | 1120 | 340 | 1360 | 380 | 1520 | 420 | 1680 | 430 | 1720 |
| 12 | 230 | 920 | 285 | 1140 | 340 | 1360 | 380 | 1520 | 430 | 1720 | 440 | 1760 |
| 13 | 230 | 920 | 290 | 1160 | 350 | 1400 | 390 | 1560 | 430 | 1720 | 450 | 1800 |
| 14 | 235 | 940 | 295 | 1180 | 350 | 1400 | 400 | 1600 | 440 | 1760 | 460 | 1840 |
| 15 | 240 | 960 | 300 | 1200 | 360 | 1440 | 400 | 1600 | 450 | 1800 | 470 | 1880 |
| 16 | 240 | 960 | 300 | 1200 | 360 | 1440 | 410 | 1640 | 450 | 1800 | 490 | 1960 |
| 17 | 240 | 960 | 305 | 1220 | 370 | 1480 | 410 | 1640 | 460 | 1840 | 500 | 2000 |
| 18 | 250 | 1000 | 310 | 1240 | 370 | 1480 | 420 | 1680 | 460 | 1840 | 510 | 2040 |
| 19 | 250 | 1000 | 310 | 1240 | 380 | 1520 | 420 | 1680 | 470 | 1880 | 520 | 2080 |
| 20 | 250 | 1000 | 315 | 1260 | 380 | 1520 | 430 | 1720 | 470 | 1880 | 520 | 2080 |
| 21 | 260 | 1040 | 320 | 1280 | 380 | 1520 | 430 | 1720 | 480 | 1920 | 530 | 2120 |
| 22 | 260 | 1040 | 320 | 1280 | 390 | 1560 | 440 | 1760 | 480 | 1920 | 530 | 2120 |
| 23 | 260 | 1040 | 325 | 1300 | 390 | 1560 | 440 | 1760 | 490 | 1960 | 550 | 2200 |
| 24 | 260 | 1040 | 330 | 1320 | 400 | 1600 | 450 | 1800 | 500 | 2000 | 560 | 2240 |
| 25 | 260 | 1040 | 330 | 1320 | 400 | 1600 | 450 | 1800 | 500 | 2000 | 560 | 2240 |
| 26 | 270 | 1080 | 335 | 1340 | 400 | 1600 | 450 | 1800 | 510 | 2040 | 570 | 2280 |

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 27 | 270 | 1080 | 340 | 1360 | 410 | 1640 | 460 | 1840 | 515 | 2060 | 575 | 2300 |
| 28 | 270 | 1080 | 340 | 1360 | 410 | 1640 | 460 | 1840 | 515 | 2060 | 575 | 2300 |
| 29 | 270 | 1080 | 345 | 1380 | 420 | 1680 | 470 | 1880 | 525 | 2100 | 585 | 2340 |
| 30 | 280 | 1120 | 350 | 1400 | 420 | 1680 | 470 | 1880 | 525 | 2100 | 585 | 2340 |
| | | | | | | | | | | | | |
| | Number of Bedrooms | | | | | | | | | | | |
| Perc Rate MPI | 1 | | 2 | | 3 | | 4 | | 5 | | 6 | |
| | Leach Line Feet | Equivalent Square Feet | Leach Line Feet | Equivalent Square Feet | Leach Line Feet | Equivalent Square Feet | Leach Line Feet | Equivalent Square Feet | Leach Line Feet | Equivalent Square Feet | Leach Line Feet | Equivalent Square Feet |
| 31 | 280 | 1120 | 350 | 1400 | 420 | 1680 | 480 | 1920 | 535 | 2140 | 595 | 2380 |
| 32 | 280 | 1120 | 355 | 1420 | 430 | 1720 | 480 | 1920 | 535 | 2140 | 595 | 2380 |
| 33 | 290 | 1160 | 360 | 1440 | 430 | 1720 | 490 | 1960 | 545 | 2180 | 605 | 2420 |
| 34 | 290 | 1160 | 360 | 1440 | 440 | 1760 | 490 | 1960 | 545 | 2180 | 605 | 2420 |
| 35 | 290 | 1160 | 365 | 1460 | 440 | 1760 | 500 | 2000 | 555 | 2220 | 615 | 2460 |
| 36 | 300 | 1200 | 370 | 1480 | 440 | 1760 | 500 | 2000 | 555 | 2220 | 615 | 2460 |
| 37 | 300 | 1200 | 370 | 1480 | 450 | 1800 | 500 | 2000 | 555 | 2220 | 615 | 2460 |
| 38 | 300 | 1200 | 375 | 1500 | 450 | 1800 | 510 | 2040 | 565 | 2260 | 625 | 2500 |
| 39 | 300 | 1200 | 380 | 1520 | 460 | 1840 | 510 | 2040 | 565 | 2260 | 625 | 2500 |
| 40 | 300 | 1200 | 380 | 1520 | 460 | 1840 | 520 | 2080 | 575 | 2300 | 635 | 2540 |
| 41 | 310 | 1240 | 385 | 1540 | 460 | 1840 | 520 | 2080 | 575 | 2300 | 635 | 2540 |
| 42 | 310 | 1240 | 390 | 1560 | 470 | 1880 | 530 | 2120 | 585 | 2340 | 645 | 2580 |
| 43 | 310 | 1240 | 390 | 1560 | 470 | 1880 | 530 | 2120 | 585 | 2340 | 645 | 2580 |
| 44 | 310 | 1240 | 395 | 1580 | 480 | 1920 | 540 | 2160 | 595 | 2380 | 655 | 2620 |
| 45 | 320 | 1280 | 400 | 1600 | 480 | 1920 | 540 | 2160 | 595 | 2380 | 655 | 2620 |
| 46 | 320 | 1280 | 400 | 1600 | 480 | 1920 | 540 | 2160 | 595 | 2380 | 655 | 2620 |
| 47 | 320 | 1280 | 405 | 1620 | 490 | 1960 | 550 | 2200 | 605 | 2420 | 665 | 2660 |
| 48 | 330 | 1320 | 410 | 1640 | 490 | 1960 | 550 | 2200 | 605 | 2420 | 674 | 2696 |
| 49 | 330 | 1320 | 410 | 1640 | 500 | 2000 | 560 | 2240 | 615 | 2460 | 697 | 2788 |
| 50 | 330 | 1320 | 415 | 1660 | 500 | 2000 | 560 | 2240 | 615 | 2460 | 723 | 2892 |
| 51 | 340 | 1360 | 420 | 1680 | 500 | 2000 | 560 | 2240 | 635 | 2540 | 750 | 3000 |
| 52 | 340 | 1360 | 420 | 1680 | 510 | 2040 | 570 | 2280 | 649 | 2596 | 779 | 3116 |
| 53 | 340 | 1360 | 425 | 1700 | 510 | 2040 | 580 | 2320 | 674 | 2696 | 809 | 3236 |
| 54 | 340 | 1360 | 430 | 1720 | 520 | 2080 | 580 | 2320 | 702 | 2808 | 843 | 3372 |
| 55 | 340 | 1360 | 430 | 1720 | 520 | 2080 | 586 | 2344 | 732 | 2928 | 879 | 3516 |

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 56 | 350 | 1400 | 435 | 1740 | 520 | 2080 | 612 | 2448 | 765 | 3060 | 918 | 3672 |
| 57 | 350 | 1400 | 440 | 1760 | 530 | 2120 | 641 | 2564 | 801 | 3204 | 962 | 3848 |
| 58 | 350 | 1400 | 440 | 1760 | 530 | 2120 | 673 | 2692 | 841 | 3364 | 1009 | 4036 |
| 59 | 350 | 1400 | 445 | 1780 | 540 | 2160 | 708 | 2832 | 884 | 3536 | 1061 | 4244 |
| 60 | 360 | 1440 | 450 | 1800 | 563 | 2252 | 750 | 3000 | 938 | 3752 | 1125 | 4500 |
| | | | | | | | | | | | | |
| | Number of Bedrooms | | | | | | | | | | | |
| Perc Rate MPI | 1 | | 2 | | 3 | | 4 | | 5 | | 6 | |
| | Leach Line Feet | Equivalent Square Feet | Leach Line Feet | Equivalent Square Feet | Leach Line Feet | Equivalent Square Feet | Leach Line Feet | Equivalent Square Feet | Leach Line Feet | Equivalent Square Feet | Leach Line Feet | Equivalent Square Feet |
| 61 | 370 | 1480 | 460 | 1840 | 571 | 2284 | 761 | 3044 | 952 | 3808 | 1142 | 4568 |
| 62 | 380 | 1520 | 470 | 1880 | 580 | 2320 | 773 | 3092 | 966 | 3864 | 1160 | 4640 |
| 63 | 390 | 1560 | 480 | 1920 | 592 | 2368 | 789 | 3156 | 987 | 3948 | 1184 | 4736 |
| 64 | 400 | 1600 | 490 | 1960 | 602 | 2408 | 802 | 3208 | 1003 | 4012 | 1203 | 4812 |
| 65 | 420 | 1680 | 500 | 2000 | 611 | 2444 | 815 | 3260 | 1019 | 4076 | 1223 | 4892 |
| 66 | 420 | 1680 | 510 | 2040 | 625 | 2500 | 833 | 3332 | 1042 | 4168 | 1250 | 5000 |
| 67 | 430 | 1720 | 520 | 2080 | 636 | 2544 | 847 | 3388 | 1059 | 4236 | 1271 | 5084 |
| 68 | 440 | 1760 | 530 | 2120 | 647 | 2588 | 862 | 3448 | 1078 | 4312 | 1293 | 5172 |
| 69 | 450 | 1800 | 540 | 2160 | 662 | 2648 | 882 | 3528 | 1103 | 4412 | 1324 | 5296 |
| 70 | 460 | 1840 | 550 | 2200 | 674 | 2696 | 898 | 3592 | 1123 | 4492 | 1347 | 5388 |
| 71 | 470 | 1880 | 560 | 2240 | 686 | 2744 | 915 | 3660 | 1143 | 4572 | 1372 | 5488 |
| 72 | 480 | 1920 | 570 | 2280 | 703 | 2812 | 938 | 3752 | 1172 | 4688 | 1406 | 5624 |
| 73 | 490 | 1960 | 580 | 2320 | 717 | 2868 | 955 | 3820 | 1194 | 4776 | 1433 | 5732 |
| 74 | 500 | 2000 | 590 | 2360 | 731 | 2924 | 974 | 3896 | 1218 | 4872 | 1461 | 5844 |
| 75 | 510 | 2040 | 600 | 2400 | 750 | 3000 | 1000 | 4000 | 1250 | 5000 | 1500 | 6000 |
| 76 | 520 | 2080 | 610 | 2440 | 765 | 3060 | 1020 | 4080 | 1276 | 5104 | 1531 | 6124 |
| 77 | 530 | 2120 | 620 | 2480 | 781 | 3124 | 1042 | 4168 | 1302 | 5208 | 1563 | 6252 |
| 78 | 540 | 2160 | 630 | 2520 | 804 | 3216 | 1071 | 4284 | 1339 | 5356 | 1607 | 6428 |
| 79 | 550 | 2200 | 640 | 2560 | 821 | 3284 | 1095 | 4380 | 1369 | 5476 | 1642 | 6568 |
| 80 | 560 | 2240 | 650 | 2600 | 846 | 3384 | 1128 | 4512 | 1410 | 5640 | 1692 | 6768 |
| 81 | 570 | 2280 | 660 | 2640 | 865 | 3460 | 1154 | 4616 | 1442 | 5768 | 1731 | 6924 |
| 82 | 580 | 2320 | 670 | 2680 | 886 | 3544 | 1181 | 4724 | 1476 | 5904 | 1772 | 7088 |
| 83 | 590 | 2360 | 680 | 2720 | 915 | 3660 | 1220 | 4880 | 1524 | 6096 | 1829 | 7316 |
| 84 | 600 | 2400 | 690 | 2760 | 938 | 3752 | 1250 | 5000 | 1563 | 6252 | 1875 | 7500 |

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **85** | 610 | 2440 | 700 | 2800 | 962 | 3848 | 1282 | 5128 | 1603 | 6412 | 1923 | 7692 |
| **86** | 620 | 2480 | 710 | 2840 | 996 | 3984 | 1327 | 5308 | 1659 | 6636 | 1991 | 7964 |
| **87** | 630 | 2520 | 720 | 2880 | 1023 | 4092 | 1364 | 5456 | 1705 | 6820 | 2045 | 8180 |
| **88** | 640 | 2560 | 730 | 2920 | 1051 | 4204 | 1402 | 5608 | 1752 | 7008 | 2103 | 8412 |
| **89** | 650 | 2600 | 740 | 2960 | 1092 | 4368 | 1456 | 5824 | 1820 | 7280 | 2184 | 8736 |
| **90** | 665 | 2660 | 755 | 3020 | 1125 | 4500 | 1500 | 6000 | 1875 | 7500 | 2250 | 9000 |
| | | | | | | | | | | | | |
| | **Number of Bedrooms** | | | | | | | | | | | |
| **Perc Rate MPI** | **1** | | **2** | | **3** | | **4** | | **5** | | **6** | |
| | **Leach Line Feet** | **Equivalent Square Feet** | **Leach Line Feet** | **Equivalent Square Feet** | **Leach Line Feet** | **Equivalent Square Feet** | **Leach Line Feet** | **Equivalent Square Feet** | **Leach Line Feet** | **Equivalent Square Feet** | **Leach Line Feet** | **Equivalent Square Feet** |
| **91** | 680 | 2720 | 770 | 3080 | 1125 | 4500 | 1500 | 6000 | 1875 | 7500 | 2250 | 9000 |
| **92** | 695 | 2780 | 785 | 3140 | 1125 | 4500 | 1500 | 6000 | 1875 | 7500 | 2250 | 9000 |
| **93** | 710 | 2840 | 800 | 3200 | 1125 | 4500 | 1500 | 6000 | 1875 | 7500 | 2250 | 9000 |
| **94** | 725 | 2900 | 815 | 3260 | 1125 | 4500 | 1500 | 6000 | 1875 | 7500 | 2250 | 9000 |
| **95** | 740 | 2960 | 830 | 3320 | 1125 | 4500 | 1500 | 6000 | 1875 | 7500 | 2250 | 9000 |
| **96** | 755 | 3020 | 845 | 3380 | 1125 | 4500 | 1500 | 6000 | 1875 | 7500 | 2250 | 9000 |
| **97** | 770 | 3080 | 860 | 3440 | 1125 | 4500 | 1500 | 6000 | 1875 | 7500 | 2250 | 9000 |
| **98** | 785 | 3140 | 875 | 3500 | 1125 | 4500 | 1500 | 6000 | 1875 | 7500 | 2250 | 9000 |
| **99** | 800 | 3200 | 890 | 3560 | 1125 | 4500 | 1500 | 6000 | 1875 | 7500 | 2250 | 9000 |
| **100** | 815 | 3260 | 905 | 3620 | 1125 | 4500 | 1500 | 6000 | 1875 | 7500 | 2250 | 9000 |
| **101** | 830 | 3320 | 920 | 3680 | 1125 | 4500 | 1500 | 6000 | 1875 | 7500 | 2250 | 9000 |
| **102** | 845 | 3380 | 935 | 3740 | 1125 | 4500 | 1500 | 6000 | 1875 | 7500 | 2250 | 9000 |
| **103** | 860 | 3440 | 950 | 3800 | 1125 | 4500 | 1500 | 6000 | 1875 | 7500 | 2250 | 9000 |
| **104** | 875 | 3500 | 965 | 3860 | 1125 | 4500 | 1500 | 6000 | 1875 | 7500 | 2250 | 9000 |
| **105** | 890 | 3560 | 980 | 3920 | 1125 | 4500 | 1500 | 6000 | 1875 | 7500 | 2250 | 9000 |
| **106** | 905 | 3620 | 995 | 3980 | 1125 | 4500 | 1500 | 6000 | 1875 | 7500 | 2250 | 9000 |
| **107** | 920 | 3680 | 1010 | 4040 | 1125 | 4500 | 1500 | 6000 | 1875 | 7500 | 2250 | 9000 |
| **108** | 935 | 3740 | 1025 | 4100 | 1125 | 4500 | 1500 | 6000 | 1875 | 7500 | 2250 | 9000 |
| **109** | 950 | 3800 | 1040 | 4160 | 1125 | 4500 | 1500 | 6000 | 1875 | 7500 | 2250 | 9000 |
| **110** | 965 | 3860 | 1055 | 4220 | 1125 | 4500 | 1500 | 6000 | 1875 | 7500 | 2250 | 9000 |
| **111** | 980 | 3920 | 1070 | 4280 | 1125 | 4500 | 1500 | 6000 | 1875 | 7500 | 2250 | 9000 |
| **112** | 995 | 3980 | 1085 | 4340 | 1125 | 4500 | 1500 | 6000 | 1875 | 7500 | 2250 | 9000 |
| **113** | 1010 | 4040 | 1100 | 4400 | 1125 | 4500 | 1500 | 6000 | 1875 | 7500 | 2250 | 9000 |

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **114** | 1025 | 4100 | 1115 | 4460 | 1125 | 4500 | 1500 | 6000 | 1875 | 7500 | 2250 | 9000 |
| **115** | 1040 | 4160 | 1130 | 4520 | 1125 | 4500 | 1500 | 6000 | 1875 | 7500 | 2250 | 9000 |
| **116** | 1055 | 4220 | 1145 | 4580 | 1125 | 4500 | 1500 | 6000 | 1875 | 7500 | 2250 | 9000 |
| **117** | 1070 | 4280 | 1160 | 4640 | 1125 | 4500 | 1500 | 6000 | 1875 | 7500 | 2250 | 9000 |
| **118** | 1085 | 4340 | 1175 | 4700 | 1125 | 4500 | 1500 | 6000 | 1875 | 7500 | 2250 | 9000 |
| **119** | 1100 | 4400 | 1190 | 4760 | 1125 | 4500 | 1500 | 6000 | 1875 | 7500 | 2250 | 9000 |
| **120** | 1120 | 4480 | 1210 | 4840 | 1125 | 4500 | 1500 | 6000 | 1875 | 7500 | 2250 | 9000 |

# APPENDIX IV

## IINFILTRATIVE SURFACE AREA OF VERTICAL SEEPAGE PITS

| Table IV-1: Infiltrative Surface Area of Vertical Seepage Pits | | | |
|---|---|---|---|
| 4’ Diameter Seepage Pit | | 5’ Diameter Seepage Pit | |
| Rock Depth (Feet) | Infiltrative Surface Area (Square Feet) | Rock Depth (Feet) | Infiltrative Surface Area (Square Feet) |
| 10 | 151 | 10 | 196 |
| 15 | 214 | 15 | 275 |
| 20 | 276 | 20 | 353 |
| 25 | 339 | 25 | 432 |
| 30 | 402 | 30 | 511 |
| 35 | 465 | 35 | 589 |
| 40 | 528 | 40 | 668 |
| 45 | 591 | 45 | 746 |
| 50 | 654 | 50 | 825 |
| 55 | 716 | 55 | 903 |
| 60 | 779 | 60 | 982 |
| 65 | 842 | 65 | 1060 |
| 70 | 905 | 70 | 1139 |
| 75 | 968 | 75 | 1218 |
| 80 | 1031 | 80 | 1296 |