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

Design Manual for Onsite Wastewater Treatment Systems

March 22, 2010 Edition

"Environmental and public health through leadership, partnership and science

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County of San Diego

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Dear Registered Environmental Health Specialist, Geologist or Engineer:

The requirements for certification to perform percolation testing in San Diego County are described in the enclosed Department of Environmental Health manual. A candidate for certification must submit proof of an appropriate California registration and a letter or resume describing education and/or experience related to percolation testing and onsite wastewater treatment system design. Attendance at an orientation session for discussion of San Diego County's laws and policies is also required.

An information package and orientation session outline has been attached. Read and review this material carefully. After you have become familiar with the contents of the information package, please contact one of the Environmental Health Specialists listed below to make arrangements for your orientation session. We hope this procedure will be beneficial to you and your clients in clarifying requirements and introducing you to our program.

San Diego	San Marcos
5201 Ruffin Rd., Suite C	151 E. Carmel St.
(858) 565-5173	(760) 471-0730
Llew Munter	Scott Weldon

If you have any questions or require additional information, please call any of the specialists listed above.

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CERTIFICATION FOR CONDUCTING PERCOLATION TESTING

BACKGROUND

On June 11, 1981, Section 68.328 of the San Diego County Code was revised enabling California Registered Engineers, California Registered Environmental Health Specialists and California Registered Geologists to perform percolation tests in San Diego County and submit them to the County of San Diego Department of Environmental Health for review and approval. The revision also stipulates that such individuals demonstrate knowledge of San Diego County laws and policies related to subsurface sewage disposal systems.

POLICY

A. The Land and Water Quality Division will maintain an ongoing Certification List of individuals approved by the Division to perform percolation testing in San Diego County.

B. Any engineer, environmental health specialist or geologist registered in California can be added to the Certification List by presenting the Land and Water Quality Division evidence of an appropriate California registration and letter or resume indicating experience and/or educational background relevant to percolation testing. The candidate must also attend an orientation session designed to introduce San Diego County laws and policies pertinent to onsite wastewater treatment systems. Topics covered in the orientation session include, but are not limited to the following:

1. Percolation testing for leach lines and horizontal seepage pits.
2. Capacity testing and policy applicable to vertical seepage pits.
3. Designing a complete layout.
4. Percolation test waiver procedures.
5. Submittal and processing procedures.

6. Minimum lot size requirements.

7. “No Building Areas” of San Diego County.

8. Groundwater in San Diego County.

9. Department of Environmental Health role in the Planning and Land Use process.

10. Projects requiring Regional Water Quality Control Board approval.

11. Community water systems.

C. The Land and Water Quality Division will review percolation tests performed only be individuals who appear on the Division’s Certification List.

ORIENTATION CHECKLIST

Percolation Test

1. Procedures - leach lines, horizontal and vertical pits.
2. Correct location of percolation test holes in primary vs. reserve area.
3. Place water observation boring at lowest elevation of proposed primary or reserve area.
4. Stabilized rates and uniformity of rates.
5. Poor percolation rates - reserve area and average requirements.
6. Capacity test.
7. Waiver processes.
8. Calculations for commercial systems.
9. Submittal and processing procedure.

Layouts

1. Indicate location of test hole in primary and reserve area.
2. Setbacks from property lines, structures, and water lines.
3. Setbacks from wells, watercourses, and drainage courses.
4. 100% reserve area.
5. Indicate location of water observation boring.

Groundwater Policy

1. Reasons for 5-foot separation.
2. Depth of observation boring.
3. 72 hr. waiting period and precautions for public safety.
4. RWQCB approval of hydrogeological study.
5. "No Building Area" - status quo until sewer.
6. Use of French drains.

Vertical Seepage Pits

1. RWQCB area of TDS 1500 PPM map.
2. No interior granite formation.
3. 12" minimum diameter capacity test hole.
4. 8-hour continuous pre-soak.
5. Soil uniformity graph.

New Land Development Projects

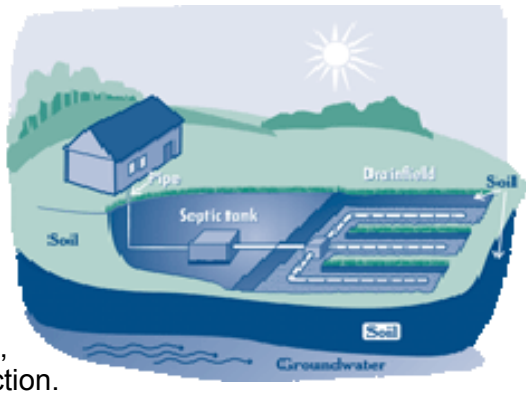
1. Minimum lot size for septic systems.
2. Minimum lot size for proposed wells. (EAD)
3. TM vs. TPM
4. Processing TMs and TPMs within PAPP guidelines.
5. Proposed public water systems: County and State requirements. DPLU handles proposed connections to existing water companies.

The items checked on the attached sheet have been introduced and discussed during this orientation session for certification to perform percolation tests in San Diego County. Please add my name to your certification list.

_____	_____
Signature	Registration Number R.C.E., R.E.H.S., R.G.
_____	_____
Instructor	Date

Onsite Wastewater Treatment Systems (Septic Systems) Permitting Process and Design Criteria

This document describes how onsite wastewater treatment systems (OWTS) are reviewed and permits issued in San Diego County. The document also summarizes key design criteria for these systems. This document relies on and should be read together with the County's "Onsite Wastewater System Groundwater Policy."



Persons seeking OWTS permits from the County should also review Chapter 3 [Septic Tanks and Seepage Pits] 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 for the relevant municipal jurisdiction.

State, County, and City Roles

State / County Coordination

Onsite wastewater treatment systems 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. The County is authorized to issue permits for conventional OWTS, e.g., for septic tank and leach line and seepage pit systems anywhere in the County. The County can issue permits for mound systems in the Valley Center area only. The County is not authorized at present to issue permits for any other kind of unconventional OWTS that will have a subsurface discharge, unless no other option is available as a repair to an existing dwelling. The County is considering seeking such authorization. However, at present, persons seeking discharge permits for types of OWTS that the County is not authorized to permit must apply directly to the RWQCB for a state permit.

The DEH enforces the RWQCB, Region 9, requirements of maintaining at least a five-foot separation between the bottom of the OWTS disposal point and the highest anticipated groundwater level. Projects within the Colorado Regional Water Quality Control Board, Region 7, located east of the coastal mountains (desert), are subject to greater separation requirements, due to the extreme permeability and transmissibility of some desert basin soils.

The goal of DEH's OWTS program is to ensure that installed onsite sewage disposal systems will last the life of the dwellings 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 septic tanks and leach lines or seepage pits are used as an OWTS. 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. The County's "Onsite Wastewater System Groundwater Policy" describes in detail how the County ensures that these State-imposed requirements are met.

County DEH / Local Land Use Agency Coordination

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.

System Design Considerations

The most common type of OWTS found in San Diego County consists of a septic tank connected to leach lines. Variations of this system may include a septic tank connected to either 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 were it is distributed by gravity flow. All of these examples would be considered a "conventional" onsite wastewater system because no further sewage treatment is performed between the septic tank and the disposal field. In all cases, the sewage effluent is discharged below the ground surface, and is digested by bacteria in unsaturated soil zones for treatment of the sewage underground. These systems are designed to operate in all weather conditions with minimal maintenance, other than periodic septic tank pumping to remove sludge from the septic tank.

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 leach field trenches 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 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 5 feet of unsaturated soil between the bottom of the sewage disposal system and the highest anticipated groundwater level for the site. 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 County's "Onsite Wastewater System Groundwater Policy."

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 set back requirements and net useable land areas requirements are provided below.

The Permit Process

"Certifications" are Not OWTS Permits

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

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

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

Steps in the Permitting Process

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

1. 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 design consultants 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 septic system location;
   - The system is being shifted out of the previously tested area; or
   - A disposal system 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 must be approved by the Department of Planning and Land Use and requires the implementation of stormwater best management practices.

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 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.

4. Typically, local land use agencies will require submission of the DEH Approval Sheet before any grading or building permits are issued. 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.

5. 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.

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.

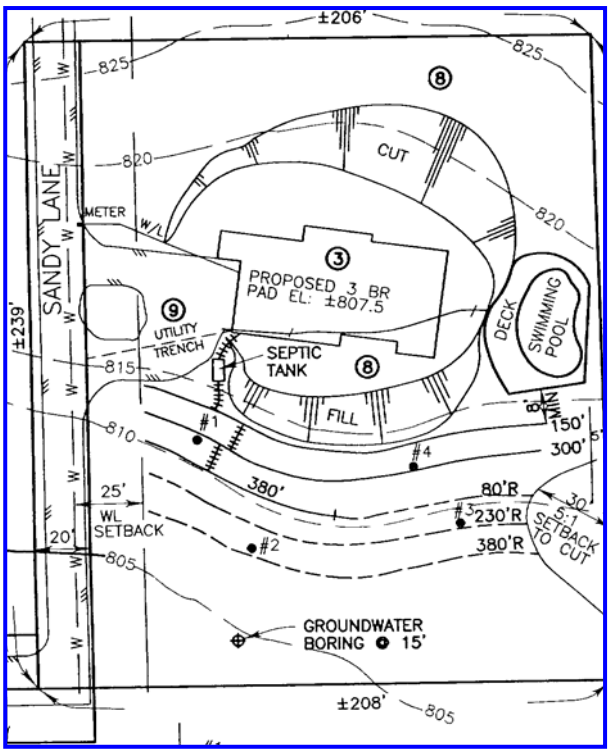
9. If the Approval Sheet for the Layout Design indicates that a field check of complete grading is required, that field check must be completed before a permit to construct the OWTS is issued. If the completed grading is checked and corresponds to the approved layout and the other requirements above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

10. Once the permit to construct the OWTS, has been obtained, the OWTS can be installed. The system must be inspected by County DEH before the system is backfilled. If that inspection is satisfactory, DEH will sign off on ("final") the OWTS permit (Occasionally, DEH will hold final approval on the OWTS permit pending specific conditions to be met.).

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.

The Layout Design



A layout design of the proposed building construction and onsite wastewater system is required. This drawing should be prepared using standard engineer's scale on 81/2" x 11" or 11"X17"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 onsite wastewater system is a function of the number of bedrooms or dwellings and the percolation rate of the soil on the site.

The layout design should contain the following information:

- 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 (number of bedrooms for home);
- 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.

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

additional test borings in consultation with project environmental health specialists, engineers and/or geologists.

- If groundwater is observed in the borings and/or DEH has reason to believe that groundwater could rise to an unacceptable level (within 5 feet of the disposal point) during the course of a normal rainfall season, a permit will not be issued and monitoring may be required. Monitoring must be conducted during the course of a normal rainfall year when full groundwater recharge has occurred.

- The environmental health specialist, engineer or geologist must support their express conclusion that the highest historic groundwater elevation will not encroach upon the 5-foot minimum separation from the bottom of the proposed OWTS. The supporting data shall include, but not be limited to, data on the sites topography, soils, geology, basin studies, hydro geologic studies, and groundwater-monitoring data from the onsite and off site observation wells through a normal rainfall year. [1]

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

Primary and Reserve Area Requirements

In addition to primary system design criteria, all OWTS design proposals, for both new construction and additions to an existing structure, must show 100% reserve area for the active OWTS unless the percolation rates require more than 100% reserve area. Refer to the leach line footage charts on accompanying pages.

1 to 60 MPI:	100% Reserve Area	no minimum lot size for existing lots
61 to 90 MPI:	200% Reserve Area	3.0 acre minimum lot size required
91 to 120 MPI:	300% Reserve Area	5.0 acre minimum lot size required

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.

Any parcels once certified with reserve area smaller than the current standards must meet current design standards.

Septic Tank Sizing Requirements for One Dwelling

DEH recommends that you always size your septic system to accommodate one additional bedroom and that a septic tank effluent filter be installed on the outlet side of the septic tank. The minimum size septic tank is 1,000 gallons for 1 to 3 bedrooms, 1,200 gallons for 4 bedrooms and 1,500 gallons for 5 or 6 bedrooms. This does not apply to second dwellings, which may require an

[1] For more information in regards to groundwater see DEH Onsite Wastewater System Groundwater Policy

additional septic tank and separate leach field. The layout approval is the approval of the design for the onsite wastewater system and is *not* the permit for the installation.

Second Dwelling Septic Tank Sizing

Since each dwelling can have a kitchen with a dishwasher and garbage disposal, along with a laundry facility, second dwellings are not comparable to an additional bedroom when calculating the size of an OWTS. If a common system is used for both the main house and the second dwelling, the tank size must be calculated as separate flows for each dwelling, even if a common septic tank is used.

The requirements will be as follows:

Main Dwelling	Second Dwelling	Minimum Tank Size
1 BR	1 BR	1000 Gallons
2 BR	1 BR	1200 Gallons
2 BR	2 BR	1500 Gallons
3 BR	1 BR	1500 Gallons
3 BR	2 BR	1500 Gallons
4 BR	1 BR	1500 Gallons
4 BR	2 BR	2000 Gallons

Dwellings that have more bedrooms than the above will require a design with oversized or a battery-type tank, if a common system is being proposed. Separate tanks for each dwelling could be used even if connected to a common disposal field.

Setbacks

Setbacks in layout designs refer to the required spacing in distance from components of the sewage disposal system 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. These are:

(See next page)

System Component	Setback To:	Minimum Distance
Septic Tank	Structure	5 feet
Septic Tank	Property Line	5 feet
Septic Tank	Water Well	100 feet
Leach Lines	Structure	8 feet
Leach Lines	Property Line	5 feet
Leach Lines	Water Lines (Public)	25 feet from edge of easement [1]
Leach Lines	Water Well	100 feet [2]
Leach Lines	Drainage Course	50 feet from top of bank
Leach Lines	Flowing Stream	100 feet from top of bank
Leach Lines	Pond	100 feet from spillway elev.
Leach Lines	Domestic Water Supply Reservoir	200 feet from the high water line [3]
Leach Lines	Aqueduct	100 feet from edge of easement [4]
Leach Lines	Road Easements	8 feet from edge of ultimate easement width [5]
Leach Lines	Cut Slopes	5:1 Setback from top of cut slope [6]
Leach Lines	Septic Tank	5 feet
Leach Lines	Leach Lines	10 feet
Leach Lines	Seepage Pits	15 feet
Seepage Pits	Structure	10 feet
Seepage Pits	Property Line	10 feet
Seepage Pits	Water Lines (Public)	25 feet from edge of easement [1]
Seepage Pits	Water Well	150 feet [2]
Seepage Pits	Drainage Course	50 feet from top of bank
Seepage Pits	Flowing Stream	100 feet from top of bank
Seepage Pits	Pond	100 feet from spillway elev.
Seepage Pits	Domestic Water Supply Reservoir	200 feet from the high water line [3]
Seepage Pits	Aqueduct	100 feet from edge of easement [4]
Seepage Pits	Road Easements	10 feet from edge of ultimate easement width [5]
Seepage Pits	Cut Slopes	5:1 Setback from top of cut slope [6]
Seepage Pits	Septic Tank	5 feet
Seepage Pits	Seepage Pits	20 feet

1. The setback to a domestic water line may increase if the 5:1 setback of the utility trench depth exceeds the 25-ft setback.
2. The minimum setback may be increased if site conditions show the minimum setback is insufficient to protect groundwater supplies.
3. The State Department of Public Health revised their setback criteria to reservoirs and this setback reflects the current recommendation.
4. Any reduction in the Aqueduct setback requires approval from the San Diego County Water Authority or other purveyor, if another district.
5. The setback may increase if the 5:1 setbacks to road cuts are greater than the minimum setback.
6. No part of an onsite wastewater system, with the exception of a septic tank, pump chamber, enclosed filter, or tight sewer pipe, shall be located closer than a 5:1 setback distance to the top of a cut bank, or the edge of an excavation. The horizontal distance would be five times the height of the cut or depth of the excavation. This setback would also be applied to the top of an eroded bank or natural slope in excess of 60%.

Leach Line Linear Footage Requirements

The charts located at the end of this policy show the corresponding length of leach line as a function of percolation rate and the number of bedrooms for a single-family dwelling. *The one-bedroom design lengths correspond to 2nd dwelling systems on a shared system with the main house or its own system.

Seepage Pits

Seepage Pits will require full percolation testing by a licensed civil engineer, registered geologist, or registered environmental health specialist.

- Horizontal seepage pits cannot be used if percolation rates exceed 30 minutes per inch.
- Vertical seepage pits are restricted to coastal sedimentary basins that have saltwater intrusion into the groundwater with TDS levels in excess of 1500 ppm.
- Desert seepage pits are used alluvial areas of the San Diego County desert areas, and percolation testing may be waived.

Grading Plan Review

Upon approval of a layout by DEH, the Specialist will write in the grading line on the approval form indicating whether a field check of completed grading is required prior to issuance of a septic tank permit. 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 the following kinds of grading permits:

- **Minor Grading**: Processed through the Department of Planning and Land Use (DPLU), Building Division. Please see the Grading Plan Checklist (DPLU: BLDG-009, Rev. 1-99). Phone: (858) 565-5920.

- **Major Grading**: Processed through the Department of Public Works, Land Development Division, Grading Improvements. Please see the Major Grading Plan Checklist. Phone: (858) 694-3281.

Minor and/or major grading plans will be reviewed by DEH prior to grading to determine impacts to the approved onsite wastewater system and adjacent properties. After completion of the grading, the appropriate DEH field office must be contacted to arrange for a field check, unless the field check is waived on the layout approval.

Building Plan Review

The DEH recommends that you obtain approval of your onsite wastewater system prior to expending funds for a final set of architectural plans for your home. Plans for a new or second dwelling must be submitted to the DPLU, Building Division at the Ruffin Road office for processing and approval. Upon approval 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. Libraries, dens, sewing rooms, recreation rooms and similar rooms may be counted as bedrooms unless the entrance wall is

greater than 50% open or other means which eliminate privacy. The presence of a closet is not a determining factor for a bedroom.

GUIDELINES

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 Department of Planning & Land Use to address any structural considerations such as load bearing walls. This is to be done prior to approval or sign-off by the Department of Environmental Health.

Potable Water Supply

DEH will require proof of potable water supply. A public water supply should be confirmed with proof of a service availability letter from the water purveyor. A domestic water well will require proof of potability. A copy of the Well Laboratory Report 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 1 year old. If a valid test does not exist, the well must be sampled 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.

When all applicable items above have been completed to the satisfaction of this Department, a septic tank permit can be issued to the owner/agent or to a contractor with the required license(s) from any of the above-listed DEH offices. The permit is valid for one year.

In order to make septic tank permit processing as smooth as possible, it is recommended that you maintain a record of all paperwork and project control numbers obtained from each Department.

Definitions

Absorption Area: The amount of land area required to treat a daily discharge of sewage based on percolation rate and design flow, described in square feet.

Aqueduct: A municipal water pipeline located in an easement for the San Diego County Water Authority and the Metropolitan Water Authority.

Bedroom: A habitable room totaling at least seventy (70) square feet in size, considered suitable for sleeping purposes, regardless of whether or not the room contains or has access to a closet and a full or ¾ bathroom, and does not directly open to a garage or other bedroom.

Chamber System: A leach field design that uses a plastic chamber instead of perforated pipe and rock in the excavation.

Circulation Element: A public road that has been designated by the Department of Public Works as a major traffic collector.

Cut Bank: The vertical distance across of the face of graded slope where soil has been removed.

Daily Sewage Flow: The amount of sewage generated in a 24-hr period,

Drainage Course: A seasonal stream, eroded channel, lined drainage channel, swale, gully, ravine, dry creek bed, etc.

Easement: A recorded section of land used for specific purpose or restricted from development such as utilities, roadways, water mains, open-space, drainage, etc.

5:1 Setback: A horizontal distance 5 times the height of a cut bank or depth of an excavation to an OWTS located up gradient.

Groundwater: Subsurface water present in the upper soil zones, in the void spaces between soil particles, between confining soil layers, and in aquifers.

Health Dept. Certification: The sizing requirements for an OWTS established by a previously approved percolation test, recorded land division plat, recorded parcel map, recorded subdivision, boundary adjustment, or certificate of compliance.

Holding Tank: A temporary sewage disposal system consisting of a 1500 gallon septic tank, alarm system, and maintenance contract; intended for a short duration until an approved sewer is installed.

Horizontal Seepage Pit: A component of a sewage disposal system that consist of pre-cast concrete rings within an excavation typically 5-feet wide, and 8-feet deep. Percolation rates cannot exceed 30 minutes per inch.

Leach Line: A component of a sewage disposal system that consist of an 18-inch wide trench, 3 to 5 feet deep, with perforated leach line pipe suspended over a bed of 1.5-inch diameter rock.

Percolation Rate: The amount of time it takes water to be absorbed into the soil within a test boring under controlled, saturated conditions and described in minutes per inch.

Pump Chamber: Typically a modified septic tank used to contain the pump system for a non-gravity sewage disposal system.

Reserve Area: It is an area available for replacement of the active disposal field design. Average percolation rates of 60 minutes per inch or less require 100% reserve area. Percolation rates from 61 to 90 minutes per inch require 200% reserve area. Percolation rates from 91 to 120 minutes per inch require 300% reserve area. Percolation rates greater than 120 minutes per inch are not considered permeable soil. Reserve areas must meet all of the design requirements of a primary system area.

Septic Tank: Used to settle and separate the solids and sewage effluent. Only partial sewage treatment occurs within the septic tank, and the sewage effluent leaving the tank still contains pathogens.

Surge Tank: Receives sewage effluent from the pump chamber to allow gravity-flow into the leach field or seepage pit in a non-gravity system.

Vertical Seepage Pit: A component of a sewage disposal system that is used in coastal, sedimentary basins that are degraded by salt water. Vertical seepage pits must maintain the same separation to groundwater as other conventional designs. Vertical seepage pits are restricted from inland, granitic basins where groundwater is used for a drinking water resource.

DISPOSAL TRENCH LENGTH BASED ON PERCOLATION TEST RESULTS

Percolation Rate Average Time in Minutes/Inch (MPI)

MPI	Number of Bedrooms 1*	2	3	4	5	6
1	200	200	240	270	280	300
2	200	200	240	270	280	300
3	200	200	240	270	280	300
4	200	220	260	290	300	310
5	200	240	290	320	320	340
6	200	250	300	340	350	360
7	210	260	310	350	370	380
8	210	265	320	360	390	400
9	220	270	320	360	400	410
10	220	275	330	370	410	420
11	220	280	340	380	420	430
12	230	285	340	380	430	440
13	230	290	350	390	430	450
14	235	295	350	400	440	460
15	240	300	360	400	450	470
16	240	300	360	410	450	490
17	240	305	370	410	460	500
18	250	310	370	420	460	510
19	250	310	380	420	470	520
20	250	315	380	430	470	520
21	260	320	380	430	480	530
22	260	320	390	440	480	530
23	260	325	390	440	490	550
24	260	330	400	450	500	560
25	260	330	400	450	500	560
26	270	335	400	450	510	570
27	270	340	410	460	515	575
28	270	340	410	460	515	575
29	270	345	420	470	525	585
30	280	350	420	470	525	585
31	280	350	420	480	535	595
32	280	355	430	480	535	595
33	290	360	430	490	545	605
34	290	360	440	490	545	605
35	290	365	440	500	555	615
36	300	370	440	500	555	615
37	300	370	450	500	555	615
38	300	375	450	510	565	625
39	300	380	460	510	565	625
40	300	380	460	520	575	635

Percolation Rate Average Time in Minutes/Inch (MPI)

MPI	Number of Bedrooms 1*	2	3	4	5	6
41	310	385	460	520	575	635
42	310	390	470	530	585	645
43	310	390	470	530	585	645
44	310	395	480	540	595	655
45	320	400	480	540	595	655
46	320	400	480	540	595	655
47	320	405	490	550	605	665
48	330	410	490	550	605	665
49	330	410	500	560	615	675
50	330	415	500	560	615	675
51	340	420	500	560	615	675
52	340	420	510	570	625	685
53	340	425	510	580	635	695
54	340	430	520	580	635	695
55	340	430	520	580	635	695
56	350	435	520	590	645	705
57	350	440	530	590	645	705
58	350	440	530	600	655	715
59	350	445	540	600	655	715
60	360	450	540	610	665	725
61	370	460	550	620	690	740
62	380	470	560	630	680	720
63	390	480	570	640	690	730
64	400	490	580	650	700	740
65	420	500	580	660	710	750
66	420	510	600	670	720	760
67	430	520	610	680	730	770
68	440	530	620	690	740	780
69	450	540	630	700	750	790
70	460	550	640	710	760	800
71	470	560	650	720	770	810
72	480	570	660	730	780	820
73	490	580	670	740	790	830
74	500	590	680	750	800	840
75	510	600	690	760	810	850
76	520	610	700	770	820	860
77	530	620	710	780	830	870
78	540	630	720	790	840	880
79	550	640	730	800	850	890
80	560	650	740	810	860	900

Percolation Rate Average
Time in Minutes/Inch (MPI)
Number of Bedrooms

PI	2	3	4	5	6
81	660	750	820	870	910
82	670	760	830	880	920
83	680	770	840	890	930
84	690	780	850	900	940
85	700	790	860	910	950
86	710	800	870	920	960
87	720	810	880	930	970
88	730	820	890	940	980
89	740	830	900	950	990
90	755	845	915	965	1005
91	770	860	930	980	1020
92	785	875	945	995	1035
93	800	890	960	1010	1050
94	815	905	975	1025	1065
95	830	920	990	1040	1080
96	845	935	1005	1055	1095
97	860	950	1020	1070	1110
98	875	965	1035	1085	1125
99	890	980	1050	1100	1140
100	905	995	1065	1115	1155
101	920	1010	1080	1130	1170
102	935	1025	1095	1145	1185
103	950	1040	1110	1160	1200
104	965	1055	1125	1175	1215
105	980	1070	1140	1190	1230
106	995	1085	1155	1205	1245
107	1010	1100	1170	1220	1260
108	1025	1115	1185	1230	1270
109	1040	1130	1200	1250	1290
110	1055	1145	1215	1265	1305
111	1070	1160	1230	1280	1320
112	1085	1175	1245	1295	1335
113	1100	1190	1260	1310	1350
114	1115	1205	1275	1325	1365
115	1130	1220	1290	1340	1380
116	1145	1235	1305	1355	1395
117	1160	1250	1320	1370	1410
118	1175	1265	1335	1385	1425
119	1190	1280	1350	1390	1440
120	1210	1300	1370	1420	1460

COUNTY OF SAN DIEGO

DEPARTMENT OF ENVIRONMENTAL HEALTH
PERCOLATION TEST REPORT

DEH Control #: _____
Date: _____
Activity Code: _____

Assessor's Parcel Number: _____ Map # _____ Lot # _____

Site Address _____Town: _____ Zip Code: _____

Owner: _____ Phone: _____

Mailing Address: _____

Test Hole #	Test Depth	Stabilized Rate	Test Hole #	Test Depth	Stabilized Rate	Average Perc Rate

Vertical seepage pits: Provide soils log, uniformity/capacity test results, and calculations on separate 8-1/2" x 11" sheets of paper

TYPE OF SOIL: (clay, silt, sand, decomposed granite, etc.)
Surface: _____
_____ ft. below surface: _____
_____ ft. below surface: _____
_____ ft. below surface: _____
_____ ft. below surface: _____
Depth to Refusal: _____ Depth to Groundwater: _____

RECOMMENDATIONS:

Septic Tank: _____ gal Pump Chamber: _____ gal Surge Tank: _____ gal
Leach Line Length: _____ ft Seepage Pit Type: _____ Number of Pits: _____
Trench Depth: _____ ft Length: _____ft Width: _____ft
Rock below Pipe: _____ in Total Depth: _____ft Cap Depth: _____ ft
Other: _____
Proposed Structure: _____

WATER SUPPLY:
Source of Potable Water: _____ Well Permit Number: _____

I have reviewed this percolation data and design of the subsurface sewage disposal system for this parcel and find the data and design to be accurate and in compliance with state and local regulations, and good engineering practice.

Registered CE, PE, Geologist, REHS: _____

Address: _____ Phone: _____ Date: _____

FOR DEPARTMENT USE ONLY

Approved: Yes ___ No ___ Date: _____ Final Map Required: Yes ___ No ___
Specialist: _____
Building Plan Review: _____ Date: _____
Grading Inspection: _____ Date: _____
Water Sample Analysis Results: _____ Date: _____

PERCOLATION TEST PROCEDURE

PURPOSE

To establish clear direction and methodology for percolation testing in San Diego County.

BACKGROUND

The previous policy of September 3, 1991 was written because "hybridization" of percolation test procedures became a concern regarding inconsistency in observed test methods. The solution was deemed to create a standardized method that can be performed easily and will have results that can be duplicated on the basis of a single, County-wide test. This updated policy is essentially the same procedure as the prior method except for minor changes in organization and preparation.

OBJECTIVE OF THE PERCOLATION TEST

Determine area necessary to properly treat and maintain sewage underground; to size the sewage disposal system with adequate infiltration surface 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.

POLICY

All percolation testing for conventional leach line systems 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 who has attended an orientation session conducted by the Department of Environmental Health and demonstrated knowledge of San Diego County laws and policies relating to onsite wastewater systems. Any deviation shall be authorized only after receiving written approval by this Department. For testing requirements for horizontal and vertical seepage pits, see the Horizontal Seepage Pit Policy and the Vertical Seepage Pit Policy.

Note: Grading or clearing of brush for the purposes of completing a percolation test must be approved by the Department of Planning and Land Use and requires the implementation of stormwater best management practices.

PROCEDURE

1.00 TEST HOLES

1.01 NUMBER OF TEST HOLES

1. A minimum of four 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.

1.02 DEPTH OF TESTING

1. Test holes shall be representative of the leach line 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.

1.03 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.

1.04 LOCATION OF TEST HOLES

Test holes shall be representative of the disposal area demonstrating:

1. Site conditions throughout the entire sewage disposal system.

2. Equal consideration of primary and reserve leach fields.

1.05 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 and (c) lot or parcel number or letter.

1.06 DRILLING OF BORING OF 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 should be excavated into the bottom of the trench.

1.07 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. If a backhoe excavation is used, a test hole at 12-14 inches in depth should be excavated into the bottom of the trench.

2.00 PRESOAKING

2.01 FILLING OF TEST HOLE

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

2.02 TIME AND DURATION OF PRESOAK

1. 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).

2. 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.

3. 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 II, 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.

2.03 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.

2.04 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)

3.00 DETERMINATION OF THE PERCOLATION RATE

CASE I	Water remains overnight following the four-hour presoak. (Unless an overnight siphon is used)
CASE II	Fast soil with two columns of 12-14 inches of water percolating in less than 30 minutes during second presoak period.
CASE III	No water remains 15-30 hours after four-hour presoak.

3.01 CASE Water remains overnight following the 4-hour presoak. (Unless a siphon method is used.)

PROCEDURE

1. Adjust depth of water to 6 inches over the gravel.

2. 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 III, starting with the presoak.

3.02 CASE II Two columns of 12-14 inches of water seeps away in less than 30 minutes.

PROCEDURE

1. Begin test 15-30 hours after presoak.

2. After filling the hole twice with 12-14 inches of clear water, observe to see if the water seeps away in less than 30 minutes. If so, proceed with the percolation test. If not, go to Case III.

3. Refill hole to 6 inches above the pea gravel.

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. (See Section 4) 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.

3.03 CASE III No water remains 15-30 hours after 4-hour presoak or the soil texture indicates clay, silt or fines.

PROCEDURE

1. Begin test 15-30 hours after presoak.

2. (OPTIONAL): Observe to see if after filling the hole twice with 12-14 inches of water, the water will not seep away in less than 30 minutes. If not, proceed with the test. Otherwise, go to CASE II).

3. Clean out the silt and mud. Add 2 inches of nominal 3/8 inch pea gravel. If an insert or method to stabilize the side of the test hole was not used and caving resulted, it will be necessary to evaluate the test hole and proceed according to Section 2.04.

4. Adjust water depth to 6 inch above the 2 inch pea gravel buffer and measure from a fixed reference point at 30 minute intervals to the nearest 1/16th inch. NOTE: It is not necessary to record data points for the first hour as this is an adjustment period and a reestablishment of a wetted boundary.

5. Refill the hole as necessary to maintain a 6-inch column of water over the 2 inch of pea gravel. A fall of 1 inch can be allowed before refilling, for example, if fall is less than 1 inch, allow test to continue to next 30 minute reading interval.

6. Continue 30-minute readings for a minimum of four hours.

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

4.00 *CALCULATIONS AND MEASUREMENTS*

4.01 CALCULATION EXAMPLE

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)

4.02 MEASUREMENT PRINCIPLES

1. The time interval for readings are to reflect the actual times and are to be maintained as near as possible to the intervals outlined for the test. (10 or 30 minutes).

2. Measurements to the nearest 1/16th inch should be adjusted to the slowest rate, e.g., a reading observed between 3/8 inch and 5/16 inch (80 mpi and 96 mpi) would be reported as 96 mpi.

3. Measurements on an engineering scale (tenths of an inch) should follow the same principle, e.g., a reading observed between 0.4 inch and 0.3 inch (75 mpi and 100 mpi) would be reported as 100 mpi.

4.03 MEASUREMENT, SPECIAL CONSIDERATION

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 <u>required</u> when the depth of a test hole is greater than 60 inch. 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

5.00 REPORTS

1. All test data and required information shall be submitted on approved Department of Environmental Health 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 consultants are required to be on an approved list on file with the Department of Environmental Health Services. (Information regarding the orientation review can be obtained from any DEH field offices).

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

5. Companies whose consultants employ a technician are responsible for the work performed by the technician. It is incumbent upon the consultant 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 ONSITE WASTEWATER SYSTEMS IN SOILS HAVING POOR PERCOLATION

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.

3. The land on which the subsurface sewage disposal system will be installed shall not have a slope greater than 25 percent.

4. Stabilized percolation rates of 61 to 90 minutes per inch will require a minimum lot size of three (3) acres and shall have not less than 200 percent expansion area available.

5. Stabilized percolation rates of 91 to 120 minutes per inch will require a minimum lot size of five (5) acres and shall have not less than 300 percent expansion area available.

6. 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.

HORIZONTAL SEEPAGE PIT POLICY

PURPOSE

To establish procedures for the design and construction of horizontal seepage pits. The procedures are specific for horizontal seepage pits, and do not apply to vertical seepage pits.

BACKGROUND

Horizontal seepage pits were originally intended to be used as temporary sewage disposal systems, pending connection to public sewer. These originally consisted of ten-foot long redwood boxes without a septic tank. The early designs became permanent installations and developed a history of premature failures. In November 1978, DEH revised the horizontal seepage pit design criteria to address the premature failure issue of the older designs. With proper design, the horizontal seepage pit, preceded by a septic tank, provides a method for effluent disposal in situations where soil conditions are excellent and disposal area is limited. The current policies used within DEH have been developed with concurrence of the California Regional Water Quality Control Board (CRWQCB).

PERCOLATION TEST PROCEDURES

Percolation tests are to be performed in accordance with the DEH percolation test procedures. Deep borings, backhoe slices, and percolation tests are used to demonstrate that the disposal site is located in an area of uniform soil, and that no conditions exist which could adversely affect the performance of the system or result in groundwater degradation. These procedures may not apply to systems installed in the Anza-Borrego desert area (CRWQCB, Region 7).

- The average percolation rates shall not exceed 30 minutes per inch in any portion of the pit disposal site. Individual rates exceeding 30 minutes per inch may be considered with additional soil testing.
- 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 sidewall depth of the pit.
- At least 1 deep boring should extend to a depth of at least 10 feet below the bottom of the seepage pit, or to impermeable material.
- Backhoe slices may be required to demonstrate uniformity of soil throughout the seepage pit. This would be necessary when the pit is proposed in an area of variable soil conditions.

UPDATE OF PRE-1978 PERCOLATION TEST DESIGNS

Any percolation tests for horizontal seepage pits, which were approved based on testing prior to November 1978, will require additional percolation testing unless the previous testing meets current requirements. Previous approvals based on one test hole at a six-foot depth will not be accepted. A waiver of additional percolation testing may be considered if site conditions are appropriate.

CAP DEPTH REQUIREMENTS

1. The maximum cap depth allowed is six (6) feet, measured on the down slope side of the pit. The minimum cap depth is one (1) foot on slopes less than 15%, and two (2) feet on slopes greater than 15% and less than 25%.
2. The maximum slope for the use of horizontal seepage pits is 35%. 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.

3. Slopes which exceed 15% will require a 15-foot setback to daylight from the cap depth, measured from the downhill side of the pit.
4. 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.

DIMENSIONS

1. Horizontal seepage pits are to be installed according to the design engineer's specifications for location, length, width, and depth.
2. Horizontal seepage pits are to be spaced 20 feet apart, edge to edge.
3. Primary and reserve seepage pits 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 sidewall depth below the cap shall not exceed 7 feet.
6. The pit excavations may arc or bend under the following conditions:
   A) The maximum deflection cannot exceed 45 degrees in any direction without increasing the pit length to compensate for loss of sidewall area.
   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.
   C) U-shaped bends and H-shaped bends will not be accepted.

The total depth of the seepage pit must be taken into consideration, with respect to restrictions to vertical seepage pits in groundwater-dependent areas, and restricted to no more than a 13-foot depth below grade for horizontal seepage pit design.

SETBACK/SITING REQUIREMENTS

Minimum setbacks should be considered only when site conditions are ideal. Horizontal seepage pits discharge a large amount of effluent in a confined space. The risk to groundwater degradation is much higher with seepage pits compared to leach lines.

Private Well	150 feet (Hand-dug wells – 200 feet)
Public Well	200 feet
Public Water Line	25 feet or 5:1 setback from edge of easement, which ever is greater. Aqueducts require a 100-foot setback from the edge of the easement. Any reduction to an aqueduct setback requires SD County Water Authority approval.
Utility Trench	5:1 setback from cap depth to trench depth
Cut Slope	5:1 setback, including filled cuts
Seepage Pit	20 feet edge to edge
Leach Lines	15 feet edge to edge
Septic Tank	5 feet
Structures	10 feet
Drainage Courses	50-feet from edge of bank or 5:1 to edge of bank, whichever is greater
Flowing Streams/Ponds	100 feet from top of bank
Reservoirs	200 feet
Property Line	10 feet

CONSTRUCTION CONSIDERATIONS

1. The use of concrete pit liners is at the discretion of the design professional. 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 DEH.
2. 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 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.
3. A manifold system constructed of 4 inch Schedule 40 perforated pipe shall be installed in the pit to allow for distribution of the effluent throughout the entire length of the pit.
4. A minimum of two access risers shall be installed for each seepage pit for clean-out, pumping, or verification of the total rock depth. Risers shall extend to the ground surface and shall have perforated pipe from the cap depth to the bottom of the pit.
5. Where more than one pit is proposed for the primary or reserve system, a serial dam and siphon must be used to connect the pits.
6. Seepage pits underneath driveways shall be evaluated for the purpose of settling issues by the design professional.
7. A hybrid system combining a seepage pit 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.
8. The system design identified as 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 is constructed.
9. The California Occupational Health and Safety Act (COHSA) requires shoring for excavations exceeding five 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

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

LL = leach line length as a function of percolation rate
w = seepage pit width
d = seepage pit sidewall depth

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-ft sidewall depth, and a 5-ft width.

$$\text{Length of horizontal seepage pit} = \frac{3(360\text{ ft}) - 2(6\text{ ft} \times 5\text{ ft})}{2 \times 6\text{ ft}}$$

$$= \frac{1080\text{ ft}^2 - 72\text{ ft}^2}{12\text{ ft}}$$

$$= 84\text{ ft}$$

VERTICAL SEEPAGE PIT POLICY

POLICY

To establish procedures for the design and construction of vertical seepage pits in San Diego County.

BACKGROUND

A meeting to discuss vertical seepage pit testing, reasons for premature failures and areas of the County where vertical seepage pits could be safely used was held on August 7, 1980. A committee of engineers, geologists and environmental health specialists was formed to recommend design and testing criteria to the Department of Environmental Health. Those recommendations were reviewed by the Regional Water Quality Control Board along with staff of the Department of Environmental Health. Based on this, the following policy for vertical seepage pits was implemented.

LOCATIONS ALLOWED

1. Existing lots – any lot previously approved for the use of a vertical seepage pit will remain approved subject to demonstrating acceptable capacity per current testing procedures and the minimal setback requirements as set forth in County regulations and policies. Lots previously approved for leach field disposal systems will be required to install that system.

2. New Lots – Any lot not previously approved for use of vertical seepage pits will not be approved unless it is located in a water basin of sedimentary soils, whose ground waters have experienced salt water intrusion or total dissolved solids levels exceeding 1500 ppm. A hydrology map outlining those areas of known poor ground water quality was prepared, based on data from the March 1979 report on the Comprehensive Water Quality Control Plan, Regional Water Quality Control Board, and San Diego Region. The data is not complete along the coastal area; therefore, it may be possible that this degraded area of water quality will be enlarged. The Regional Water Quality Control Board will determine the acceptability of proposing vertical seepage pits in this fringe area, based on groundwater data provided by the applicant's engineer.

New land divisions or lots previously approved for leach line disposal systems will not be approved for vertical pit use in interior granitic formations. The presence of fractured rock aquifers makes the use of vertical seepage pits in these areas potentially deleterious to known beneficial water quality.

PERCOLATION TEST PROCEDURE

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. 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.

3. The overdrill must be checked for the presence of groundwater a minimum of 72 hours after the completion of the test boring to allow time for groundwater to stabilize in the hole.

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.

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 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.

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 engineer. If non-uniform rates persist, the soil will not be considered uniform and the tests discontinued as they will not be approved by this department.

7. If the procedure in Item no. 4 demonstrates soil uniformity, 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.

8. A vertical seepage pit shall have a minimum capacity of 1,667 gallons in 24 hours.

9. Each pit must meet these minimum criteria to be acceptable. The engineer may include safety factors as he feels the situation warrants.

10. It shall be the responsibility of the engineer to maintain all test holes or pits in a safe manner prior to backfill or capping to prevent a hazard or accident.

DIMENSIONS AND SETBACKS

1. Vertical seepage pits shall be installed according to the design engineer's specifications for location, depth, and cap depth.
2. Vertical seepage pits shall be spaced 20 feet apart, edge to edge.
3. The pit excavation shall be 4 feet in diameter.
4. The sidewall depth below the cap shall not be less than 10 feet.
5. The minimum cap depth allowed is three (3) feet. There is no maximum cap depth.
6. The maximum slope allowed for the use of vertical seepage pits is 25%.

The following minimum setbacks shall be used for the design and installation of vertical seepage pits. Reductions in setbacks can be considered on a case by case basis where it is demonstrated no impact to public health or the environment will exist.

Private Well[1]	150 feet (shallow or hand-dug wells – 250 feet)
Public Well[1]	250 feet
Public Water Line	25 feet or 5:1 setback from edge of easement, which ever is greater. Aqueducts require a 100-foot setback from the edge of the easement. Any reduction to an aqueduct setback requires SD County Water Authority approval.
Utility Trench	5:1 setback from cap depth to trench depth
Cut Slope	5:1 setback, including filled cuts
Seepage Pit	20 feet edge to edge
Leach Lines	15 feet edge to edge
Septic Tank	5 feet
Structures	10 feet
Drainage Courses	50-feet from edge of bank or 5:1 to edge of bank, whichever is greater
Flowing Streams/Ponds	100 feet from top of bank
Reservoirs	200 feet
Property Line	10 feet

[1] Setbacks indicated are for those sites located within in a water basin of sedimentary soils, whose ground waters have experienced salt water intrusion or total dissolved solids levels exceeding 1500 ppm. A ¼ mile radius setback must be maintained for any water well from a vertical seepage pit outside the area of known poor groundwater quality.

CONSTRUCTION CONSIDERATIONS

1. All pits must be filled with clean leach line rock to the cap depth. 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.
2. A riser shall be installed to the bottom of each seepage pit for clean-out, pumping and verification of the total pit depth. Risers shall extend to the ground surface and shall have perforated pipe from the cap depth to the bottom of the pit. The riser shall be constructed of 4 inch Schedule 40 pipe.
3. Where more than one pit is proposed for the primary or reserve system, a serial dam and siphon must be used to connect the pits.

SEPTIC SYSTEM DESIGN FOR SECOND DWELLING UNITS

BACKGROUND

A change in the San Diego County Zoning Ordinance allows for the addition of a second dwelling unit on a single lot when specific zoning requirements are met. These guidelines will assist staff with the design and sizing of onsite wastewater treatment systems for multiple residential dwelling units on a single property.

PERCOLATION TESTING

The second dwelling's design should be based on a percolation test or a waiver letter. A waiver of testing will be considered based on previous or adjacent percolation tests, soil type, uniformity of rates, area available, and type of system proposed for the second dwelling. A waiver of testing must have concurrence of the area supervisor.

FEES

A second dwelling unit may require a minor use permit from the Department of Planning and Land Use (DPLU), if the minimum lot size is not met or an increase in the allowable size of the unit is proposed. In addition, a second dwelling unit can have the same appearance as an accessory apartment when specific limitations on occupancy exist. See the attached excerpts from the County Zoning Ordinance, which provides definitions and specifications for allowance. Staff should be aware of the differences and possible requirements. In all cases, the customer should be advised to contact DPLU when the determination for allowance or the need for a Minor Use or Administrative Permit will be made.

When a minor use permit is not required, fees will be charged as we do for the construction of new dwellings. The septic permit fee will depend on what is being proposed. A new installation permit fee will be required for separate systems or the addition of a tank and disposal field to a common system. A repair installation permit fee can be used when the modifications only require a tank or disposal field expansion.

SYSTEM SIZE - SEPTIC TANK

Since each dwelling can have a kitchen with a dishwasher and garbage disposal, along with a laundry facility, the tank size must be calculated as separate flows, even if a common septic tank is used. The requirements will be as follows:

Main Dwelling	Second Dwelling	Minimum Tank Size
1 BR	1 BR	1000 Gallons
2 BR	1 BR	1200 Gallons
2 BR	2 BR	1500 Gallons
3 BR	1 BR	1500 Gallons
3 BR	2 BR	1500 Gallons
4 BR	1 BR	1500 Gallons
4 BR	2 BR	2000 Gallons

Dwellings larger than the above will require oversized or battery-type tanks and separate tanks for each dwelling should be used even if connected to a common disposal field.

SYSTEM SIZE - DISPOSAL FIELD

There are two ways to design the subsurface disposal field for a second dwelling. The system can be designed as a separate system serving the second dwelling or on a common system serving both the existing dwelling and the second dwelling. A review of the calculations from several viewpoints provided approximately the same results that the disposal fields for two dwellings would be the same, regardless of the use of common or separate systems. Since the second dwelling can be used for full-time occupancy, such as a rental unit, the system is to be sized accordingly based on independent dwelling units, even if a common system is to be used. The system size for a common system will be the sum of the two individual system sizes.

Example:

3 bedroom main dwelling and 2 bedroom second dwelling
Assume 16-minute/inch percolation rate

Separate Systems:
- 3 bedroom dwelling requires 360' + 100% reserve
- 2 bedroom dwelling requires 300' + 100% reserve

Common System:
- 3 bedroom dwelling + 2 bedroom dwelling requires 660' + 100% reserve

In many cases with second dwellings, the second unit will have only one bedroom. To size for this dwelling whether using a common or separate system, you can extrapolate from the Leach Line Footage Chart to determine the footage necessary for a one-bedroom dwelling.

CALCULATIONS FOR ONSITE WASTEWATER TREATMENT SYSTEMS

1) Septic Tank Size

   Flow = gallons/day (from attached table)

   A. For flow of 1-1500 g/d: Tank size = 1.5 (flow)

   B. For flow greater than 1500 g/d: Tank size = 1125 + (0.75 x flow)

2) Leach Field Length

   A.R. = Application Rate (gallons/ft^2/day)
   T = percolation rate

   A.R. = $5/\sqrt{t}$
   Flow = ft^2 absorption area required
   A.R.

   Ft^2 required
   1.5 width of trench

3) Vertical Seepage Pits

   A. Convert drop in feet to gallons (falling head method only)

Test hole diameter (ft)	#gallons/foot
1	5.8
2	23.5
3	52.6
4	93.4

   B. Extrapolate to a 24 hr. capacity
   C. Adjust to a 4 ft. diameter hole by cross multiplication
   D. Minimum capacity of pit(s) must be 5 x the volume of the septic tank

4) Horizontal Seepage Pits

   A. Calculate equivalent leach line length (LLL) from part 2 above

   B. Total ft^2 of pit = (LLL) X (3)

   $$\text{Pit length} = \frac{\text{total } ft^2 \text{ of pit} - 48}{12}$$

5) Commercial systems require a multiplier of 2 as a surge/safety factor.

The following chart can be used along with the EPA Onsite Wastewater Treatment Systems Manual to estimate projected wastewater flows from commercial establishments.

TYPE OF ESTABLISHMENT	GALLONS/ PERSONS/ DAY
Small dwellings/cottages w/seasonal occupancy	50
Single family dwellings	75
Multi-family dwellings (apartments)	60
Rooming houses	40
Boarding houses	50
Add. Kitchen wastes for nonresident. boarders	10
Hotels without private baths	50
Hotels with private baths (2 persons/day)	60
Restaurants (toilet/kitchen wastes per patron)	7 to 10
Restaurants (kitchen wastes per meal)	2.5 to 3
Additional for bars/cocktail lounges	2
Tourist camps/trailer parks w/cent. bath	35
Tourist or mobile home parks w/individual baths	50
Resort camps (night/day) w/limited plumbing	50
Luxury camps	100 to 150
Work/Constructions camps – semi permanent	50
Day camps – no meals served	15
Day schools without cafeterias, gyms, or showers	15
Day schools with cafeterias, but no gyms or showers	20
Day schools with cafeterias, gyms, showers	25
Boarding schools	75 to 100
Day workers at schools/offices per shift	15
Hospitals	150 to 250+
Institutions other than hospitals	75 to 125
Factories (gallons per person per shift, exclusive of industrial waste)	15 to 35
Picnic parks (toilet wastes only, gallons per person)	5
Picnic parks with baths, showers, toilets	10
Swimming pools and bath houses	10
Luxury residences and estates	100 to 150
Country clubs (per resident member)	100
Country clubs (per nonresident member)	25
Motels (per bed space)	40
Motels w/bath, toilet, and kitchen waste	50
Drive-in theaters (per car space)	5
Movie theaters (per seat)	5
Airports (per passenger)	3 to 5
Self service laundries (gallons per wash per customer)	50
Stores (per toilet room)	400
Service station (per vehicle served)	10
Churches	5

GUIDELINES FOR PUBLIC SWIMMING POOL FILTER BACKWASH DISPOSAL

PURPOSE

Public or commercial swimming pools are required to discharge filter backwash waste either to the sanitary sewer or to an approved subsurface disposal system. This guideline provides design parameters for the engineering of on-site disposal for swimming pool filter backwash waste.

BACKGROUND

The disposal of wastewater from filter backwash for on-site disposal requires discharge to an approved subsurface disposal system. Establishing guidelines for design of these systems will provide for waiver of waste discharge form the California Regional Water Quality Control board (CRWQCB).

AUTHORITY

- San Diego County Code, Section 68.311 states the following: *"It shall be unlawful for any person to cause, suffer, or permit the disposal of sewage, human excrement or other liquid wastes, in any place or in any manner except through and by means of an approved plumbing and drainage system and an approved sewage disposal system"*

- The Uniform Plumbing Code, Section 113 defines liquid waste as: *"the discharge from any fixture, appliance, or appurtenance in connection with a plumbing system which does not receive fecal matter."*

- Resolution 83-21 of the CRWQCB, Region 9, waives discharge requirements for the draining of swimming pools. The waiver of waste discharge requirements is based on pool filter backwash wastes being disposed of through a sanitary sewer system or an approved subsurface disposal system.

- The State Building Code, Part 2, Title 24, California Code of Regulations Section 2-9045, as referenced within the State booklet "The Design, Construction, Operation, and Maintenance of Public Swimming Pools", lists the following requirements:

WASTE WATER DISPOSAL:
Section 2-90-45

(a) General Requirements. Material cleaned from filters, wastewater from temporary training pool showers, and backwash water from any pool system shall be disposed of in a manner which will not create a (public) nuisance.

GUIDELINES

When public sewer is not available, commercial swimming pools and spas will require on-site disposal systems for the filter backwash wastewater with the following conditions:

1. The backwash waste shall discharge to a system separate from any other wastewater system serving the site.

2. The disposal system shall be capable of confining the wastes from backwashing based on the maximum pumping rate for a fifteen minute backwash cycle per filter.

   Typical Backwash Wasting Times

   High rate sand filters: 2-3 minutes (clear effluent)

   Diatomaceous earth: 8-10 minutes

   Filter modules: physical time to flush the filter surface.

3. Sizing of the disposal area should be based on a percolation test. A waiver of testing may be accepted based on existing criteria such as soil analysis, borings or backhoe excavations, and adjacent percolation testing.

4. The 2x "surge factor" is not required because the backwash loading is predictable.

5. Discharge of the wastewater shall be through an air gap separation between the filter and the disposal system.

6. Calculate the linear feet of the disposal system based on the application rate and divide by three. This is premised on a typical backwash cycle of every third day of a week. A site specific judgment should be made on the basis of use and seasonal variations, which could affect backwash frequency. Discharge volume is independent of the filter area and based upon pump rate and backwash time.

7. The on-site disposal system shall be preceded by a separation tank to remove the filter residue. The separation tank is to be commercially manufactured or designed by an engineer. An engineered design is to demonstrate how suspended clay from the backwash will be restricted from flowing into the disposal system. The number and/or size of a commercially manufactured separation tank is to be based on the flow rate and manufacturer's specification.

CALCULATIONS

NOTE: Pumps typically vary from 40 gallons/minute (3/4 horsepower) to 85+ gallons/minute (2.0 horsepower).

- The example calculations are for one filter. Multiply the calculated linear length by the number of filters if more than one filter is used for the pool.

EXAMPLE

Consider a site with a 25 minutes per inch percolation rate and a pool with a pumping rate of 40 gallons per minute. Then with a ten minute pumping cycle the loading is as follows:

Leach Lines

Flow (40 gal. /min) (10 min.) = 400 gal. (per event – assumes as a "day".

Application Rate: $5/\sqrt{25} = 1.0$ gal. /ft. ^{2}/day

Absorption Area: 400 gal. / 1.0 gal. / ft. ^{2}/day = 400 ft. ^{2}

Leach Line Length: 400 ft. ^{2}/1.5 ft. = 267 linear feet.

Then divide this length by three (since the backwash can be expected to be done about every third day).
Therefore: 267 ft./3 = 89 feet.

Horizontal Seepage Pits

Pits Length = [(3 ft.) (89 ft.) - 72 ft. ^{2}] /12 ft. /linear feet = 16.25 linear feet.*

Divide the horizontal pit length by 3 in order to set the length in proportion to the volume of the leach field flow and a resultant equality for gallons (proof: calculate leach line and horizontal pit volume for comparison).

*16.25 feet /3 = 5.4 feet. Recommend a minimum 6 feet length of horizontal pit.

Alternative absorption area configurations

Dimensions for a disposal system other than for a standard leach line for horizontal seepage pit will be considered when absorption area requirements are met with bottom area. These will be considered when:

1. Area exists for expansion and repairs.

2. The recommendation is based on engineering data.

LEACH LINES ON STEEP SLOPES

PURPOSE

To establish design parameters for the installation of leach field sewage disposal trenches on slopes exceeding 25 per cent.

BACKGROUND

Past policy limited the installation of disposal trenches when slopes exceeded 25 percent without grading terraces. Terracing provided a method to meet the minimum separation requirement between the point of disposal and the face of a slope. This separation is contained in the Uniform Plumbing Code and is necessary as good engineering practice for the prevention of surface seepage of effluent.

The San Diego County Resource Protection Ordinance (RPO) designates slopes exceeding 25 percent as sensitive and requires special environmental review and permitting for clearing or grading on such slopes.

POLICY

This policy will provide an optional method for the installation of disposal 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.

1. Scope

All existing and proposed lots when the leach field area exceeds 25 percent, but not 40 percent slope. A terrace design must be used when slope exceeds 40 percent.

2. Safety

The California Occupational Health and Safety Act (COHSA) requires shoring for excavations exceeding five feet when persons will be working in them.

All work done installing disposal trenches on steep slopes must comply with COHSA for the purpose of construction and inspection.

It is recommended that sites be only considered if the leach-line trench depth does not exceed five feet, with or without terraces. Slopes over 30% are extremely dangerous for operation with a backhoe or trackhoe to excavate trenches, and should not be considered for subsurface sewage disposal system locations.

3. Separation of Trenches

Separation of trenches must meet the Uniform Plumbing Code requirements of increasing separation with increasing depth. The following can be used for determining the center-to-center spacing of standard 18-inch wide trenches:

% SLOPE	CENTER TO CENTER OF TRENCH SPACING
25% or less	10 feet
26% to 30%	15 feet
31% to 35%	20 feet
36% to 40%	25 feet
greater than 40%	use terraces

Interpolating for slopes between break points is acceptable for trench spacing.

4. Trench Depth

Increasing trench depth on a steep slope will allow for the placement of the disposal system away from the slope surface. All steep slope trenches are to be installed with 12" of rock below the leach pipe. The purpose of the trench depth design is to maintain a 15-foot setback from all parts of the disposal trench to daylight on the slope.

% SLOPE	TRENCH DEPTH*
26% to 30%	5'
31% to 35%	6'
36% to 40%	7'
greater than 40%	use terraces

***** As measured from the downhill trench wall.

Note: The use of approved, plastic chambers, instead of rock and pipe, could reduce the corresponding trench depth by up to 12" and still provide a 15-ft setback to daylight from all parts of the disposal system**.**

5. Percolation Rate Limit

Average percolation rates of over 60 minutes per inch will not be approved on slopes over 25%.

6. Design Proposal

The design of disposal systems on steep slopes requires the experience and expertise to address conditions relative to soil stability slope stability, and subsurface conditions which require professional judgment and technical knowledge. Designs for steep slope systems will only be approved when submitted by or signed by a Civil Engineer, Geotechnical Engineer, or Engineering Geologist, registered in the State of California.

7. Testing

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:

- Six percolation tests at a depth equal to the proposed trench depth.
- Two percolation tests five feet below the proposed trench depth.
- At least two soil profile borings demonstrating uniform conditions throughout the disposal area to a depth of 10 feet below the proposed trench depth.

8. Reports

Design reports must include the following:

- Cross section(s) hillside soil profile(s).
- Detailed boring logs of all test holes and borings.
- Scaled layouts and profiled designs based on accurate topography.
- A statement advising compliance with COHSA requirements.
- Any grading proposed on the site in the disposal area.

9. Mini-Terraces

Any small terraces, proposed to create a stable work area for trench installation, are subject to review for conflict with the Resource Protection Ordinance and Grading Ordinance. Contact the Department of Planning and Land Use prior to any grading.

10. Site Specific

The design of a disposal system on steep slopes may require a case-by-case evaluation and more detailed study.

11. Prior Approvals

A prior approval on a specific engineered design for an existing lot exceeding 25% slope may be considered valid, if the original design included specifications on sidewall separation to daylight, to mitigate steep slopes.

SEWAGE EFFLUENT PUMP SYSTEMS

PURPOSE

To establish guidelines for the design and review of non-gravity flow onsite wastewater systems also known as sewage effluent pump systems.

BACKGROUND

In the past, the use of sewage effluent pump systems was limited to sites only where it could it be demonstrated that a hardship existed such as in a repair situation where inadequate disposal area was available by gravity flow or for new construction where a gravity flow option was not available for reasonable development. Currently, DEH has no limitations on the use of a sewage effluent pump system including their use for the creation of new lots. This policy provides complete and consistent design criteria that will facilitate the work of the design professional and staff for reviewing the proposal.

POLICY

This policy applies to all situations in which the use of a pump is proposed in the disposal of sewage from the structure to the onsite wastewater system. Only septic tank effluent will be allowed to be pumped to the disposal field of the onsite wastewater system. A septic tank must be installed in a location that will allow for the gravity flow of sewage from the structure. Due to the additional cost and maintenance requirements for a pump system, the use of an effluent pump system should be discouraged if the ability to install a gravity flow onsite wastewater system exists.

The sewage effluent pump system shall be designed by a qualified professional such as registered engineers and licensed contractors with a Class A, C-36 or C-42 license. The design shall include the following information.

1. Percolation or capacity data for the disposal system as needed.

2. A detailed layout to scale which includes elevations.

3. Pump chamber design which includes the following:

    a. A cross section complete with elevations of control switches, measured in inches, from the bottom of the chamber.
    b. 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.
    c. The pump “off switch” is to set per the manufacturer’s specifications. It is recommended that the pump remain submerged to allow for cooling and to prevent contact with sewer gas.
    d. 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.
    e. Maintenance ports (manholes) with a minimum diameter of 22 inches are to be provided and shall extend at least 2 inches above finished grade. The final grade is to allow for drainage away from the maintenance ports.

f. Pump chamber is to be water-tight to exclude surface and ground water and shall be constructed with an approved material. Chambers made out of concrete shall be type 5 concrete or have an approved coating.

4. 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:

    a. Pump type shall be for sewage effluent and data is to include the pump curve, U.L. approval and other test certification.
    b. Any potential air space connections through conduit between the pump tank and electrical panel shall be sealed to prevent sewer gasses from corroding exposed electrical connection.
    c. 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.
    d. The pump system for commercial installations must be based on alternating duplex pumps.
    e. A single family dwelling may use duplex pumps or a single pump. For using a single pump, the following criteria is to be met:

        1. The single pump is to be a commercially engineered pump suitable for continuous duty.
        2. The pump must be capable of handling total flow, with minimum flow of 15 gallons per minute (GPM) as measured at the discharge point of the force main.

5. Design of the force main and venting system is to include the following:

    a. Provide head-loss calculations addressing all fittings and elevations from pump to surge chamber.
    b. The force main is to be 2” to 3” in diameter, rated for the head-loss calculated pressure, velocity, and be of an approved material.
    c. The connection between the force main and pumps shall allow for ease of pump removal and maintenance.
    d. A check valve is required unless the consultant determines that the amount of backflow will be insignificant to the system design. The consultant should account for the volume of the effluent within the force main, when sizing the pump chamber and pump cycle.
    e. The pump chamber and surge chamber shall be cross-vented to each other to avoid venting to the atmosphere.

6. Design of the surge chamber that allows for the simulation of gravity flow to the disposal system shall include the following:
    a. The surge chamber is to 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.
    b. The inlet pipe is to have an air gap separation between inlet and highest effluent level (outlet) that is equal to or greater than two times the inlet pipe diameter, to prevent a siphon effect.
    c. The outlet drain of the surge tank shall be constructed of approved schedule 35 or 40 4” drain pipe with ½” holes drilled every 4” along the pipe length. The outlet drain pipe shall protrude from the surge tank drain opening vertically into the surge tank to an elevation that extends beyond the typical fill level of the surge tank based on the batch cycle volume.

d. It is recommended the chamber be sized to allow for sediment collection.

In all cases, gravity flow to the septic tank and pump chamber is required such that only clarified effluent is pumped. Pumps, venting, and electrical components shall be installed in accordance with plumbing, electrical and mechanical codes and per installation specifications/instructions and all necessary building permits shall be obtained. A septic permit is required for the installation of a pump system. The pump system shall be inspected and hydraulically tested for proper operation by the system installer in the presence of staff from DEH.

It is recommended that the design professional provide an operating manual to the property owner. Instructions should be provided to allow periodic testing of the alarm system along with phone number for maintenance or repairs.

PUMP SYSTEM FOR ANCILLARY ROOM OR STRUCTURES

PURPOSE

To establish guidelines for the approval of sewage ejector pumps to serve ancillary rooms and structures when the main structure is served by gravity flow to an onsite wastewater system.

BACKGROUND

This policy will clarify the use of non-gravity flow sewer lines within a structure when an onsite wastewater system is used as the method of sewage disposal. In the past, there have been cases involving plumbing fixtures which required the use of sewage ejector pumps because they were situated lower than the sewer lines in the structure. In addition, building elevation constraints involving additions or with new dwellings can require the use of sewage ejector pumps. This policy is intended to allow the use of sewage ejector pumps for ancillary fixtures only when the majority of waste producing fixtures are served by a gravity flow drainage system. Approval will be on case-by-case basis.

POLICY

This policy will allow the use of sewage ejector pumps to be used under the following conditions:

1. Gravity flow from the septic tank to the primary and reserve area must be maintained via a properly sized onsite wastewater system.

2. Gravity flow to the septic tank must be utilized for kitchens, laundries and bathroom facilities necessary for basic sanitary practices in the household.

3. Secondary, or supplemental baths, toilets, wet bars, hand sinks, installed in ancillary rooms (eg: downstairs bathroom to serve downstairs bedroom(s), pool cabanas with shower and/or toilet, workshops/garages with toilet and hand sink) may be approved for use with a sewage ejector pump. Other applications may be approved on a case-be-case basis.

4. The end of the force main pipe should be connected to the distal (far) end of the existing house plumbing, whenever possible. As an alternative, a second length of sewer pipe may be installed that would act to decelerate the sewage prior to entering the septic tank. This will allow for sewage to simulate gravity flow into the septic tank without excessive surge.

5. All sewage ejector pump system designs shall be reviewed by an Environmental Health Specialist III, or higher.

6. All electrical and plumbing work shall be completed under permit and inspection by the Department and Planning and Land use.

7. Sewage ejector pump designs shall include:

    A. Proposal for simulated gravity flow to the septic tank via the house plumbing or secondary sewer line at termination of force main, including diagram of existing house plumbing.
    B. Description of sewage ejector pump and pump-chamber, including lift capacities, make and model number(s), applications for use, elevation of septic tank inlet, peak elevation of force main and elevation of ancillary fixture plumbing stub out.
    C. Floor plan of proposed and/or existing structure, including location of waste producing fixtures.

TEMPORARY SYSTEMS AND HOLDING TANKS

This policy establishes the guidelines governing the approval for the use of temporary sewage disposal systems and holding tanks for permitting permanent structures in San Diego County. A temporary system is one providing sewage treatment and disposal on the site. A holding tank is a closed storage system requiring routine pumping for disposal at an approved off-site location.

DISCUSSION

This Department routinely receives requests for our approval to allow occupancy or construction of a structure without connection to sanitary sewer system or a bona fide onsite sewage disposal system. Section 68.316 of the San Diego County Code establishes certain conditions for the installation of a "temporary system." The essential elements of the section are that it is highly probably that a sanitary sewer system will be available to the property within 24 months, a permanent onsite sewage disposal system could be installed on the property meeting all current regulations and a title agreement must be recorded between the property owner and the Department of Environmental Health.

Sections 68.320-22 of the San Diego County Code allow for the use of a "holding tank". The essential elements of this section are that engineering studies indicate the site cannot support an onsite sewage disposal system or that such a system is impractical and a guarantee is provided that the property can be connected to a sanitary sewer system within 6 months.

POLICY

Temporary Systems

A. Each request for the installation of a temporary system will be considered on a case by case basis. In all cases, the temporary system design shall be based on engineering and be expected to perform satisfactorily for the proposed period of use. Generally, temporary systems are "smaller" onsite sewage systems than would be installed for permanent use.

B. Requirements:

1. An approved percolation/capacity test must be provided demonstrating that a full sized onsite sewage disposal system can be installed on the site to serve the structure and use proposed. The specific type of temporary system that will be allowed will be based on that engineering data, use of the structure and site specific conditions. Examples could be a septic tank and 200 feet of leach line or a septic tank and a single seepage pit.

2. An assurance is provided from the sewering agency that there is a high probability that sewer will be available to serve the structure within twenty-four months. In some situations, factors such as annexations, forming an assessment or improvement district or relying on adjacent private development cannot be used to assure that sewer will be available.

3. A recorded agreement is executed between the property owner and the Director of Environmental Health that specifies:

    a. The property will not be occupied until the temporary onsite wastewater system is installed under permit and inspection by this Department.
    b. The property will be connected to the sanitary sewer within 30 days after it becomes available to the property.

c. The septic tank used as part of the temporary system shall be pumped by a licensed septic tank pumper and removed or destroyed upon connection to sewer.
d. If sewer does not become available within the specified period of time, the property owner shall immediately apply for a permit to install the full sized onsite sewage disposal system.

4. Prior to obtaining a building permit, a septic tank permit must be issued by this Department. Prior to receiving a final building inspection, the temporary system must be inspected and approved by this Department.

5. At the termination of the temporary use period, the structure shall be connected to the sanitary sewer and the temporary system properly abandoned, or the temporary system shall be expanded to a full sized onsite sewage disposal system.

Holding Tanks

A. Each request for the use of a holding tank will be considered on a case by case basis. In all cases, the ultimate criteria will be based on a very short period of use, when no other disposal method is feasible.

B. Requirements:

1. Engineering data substantiates that an onsite sewage disposal system is not feasible. A holding tank may be considered in some cases, even though an onsite system is feasible, when the use period is very short, and would then be considered a temporary system.

2. A guarantee is provided from the sewering agency that a sanitary sewer system will be available within six months or less. In all cases, the guarantee cannot be dependent on payment of fees, annexations or adjacent development to make sewer available.

3. A recorded agreement is executed between the property owner and the Director of Environmental Health that specifies:

a. The property will not be occupied until the holding tank is installed under permit and inspection by this Department.
b. The property will be connected to the sanitary sewer within 30 days after it becomes available to the property.
c. The septic tank used as the holding tank shall be pumped by a licensed septic tank pumper and removed or destroyed upon connection to sewer.

4. The building permit for the proposed structure must be obtained based on a connection to the sewer. Prior to receiving approval for occupancy of the building, a septic tank permit must be issued by this Department for the holding tank and the holding tank must be inspected and approved by this Department. The holding tank shall be constructed of watertight concrete or other approved material and shall have a minimum capacity of 1500 gallons and be equipped with an approved alarm signally when the tank is three-fourths full.

5. At the termination of the temporary use period, the structure shall be connected to the sanitary sewer and the holding tank shall be properly abandoned.

ONSITE WASTEWATER SYSTEM GROUNDWATER SEPARATION POLICY

PURPOSE

This document is only for determining potential groundwater levels and should be read together with the County's "On-site Wastewater Systems (Septic Systems): Permitting Process and Design Criteria".

The purpose of this policy is 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 on-site wastewater systems caused by high groundwater.
- Provide a methodology for the evaluation of potential building sites using on-site wastewater systems with regards to maintaining minimum groundwater separation requirements with the use of an on-site wastewater system.

DEFINITIONS

Any subsurface sewage disposal system, including graywater systems, septic systems, and alternative/experimental private sewage disposal systems are referred to as ***onsite wastewater systems (OSWS)*** by definition for this guideline.

For this Department's purposes, groundwater is defined as the water occupying all voids within a geologic stratum. Groundwater, therefore, includes any saturated zone that could effect the functioning of an OSWS. Transient high groundwater can occur during periods of heavy rainfall and can be identified by "spikes" in groundwater elevations observed in groundwater test borings for short periods of time.

Normal rainfall is defined as the average rainfall over the rainfall record considered representative of the area. The historical rainfall records kept by the County of San Diego Department of Public Works and records kept by NOAA are considered a resource for such information.

BACKGROUND

The Department of Environmental Health (DEH) enforces the Regional Water Quality Control Board (RWQCB), Region 9 requirements of maintaining at least a five-foot separation between the bottom of the OSWS disposal point and the highest anticipated groundwater level. Projects within the Colorado Regional Water Quality Control Board, Region 7, located east of the coastal mountains (desert), are subject to greater separation requirements, due to the extreme permeability and transmissibility of some desert basin soils.

Groundwater typically fluctuates seasonally depending on local geology and rainfall amounts. In certain areas dependent on imported water and OSWS, 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.

OSWS 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 OSWS. In 1980 a groundwater policy was written requiring that the determination of actual or potential groundwater levels be verified prior to issuing septic tank 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 septic tank 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 OSWS 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 a normal 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 OSWS will not be issued.***

1. Procedure For Groundwater Determination For Discretionary Projects:

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

The registered professional, must support their expressed conclusion it is unlikely that seeps or springs would develop as a results of the OSWS and the high historic groundwater elevation will not encroach upon the 5-foot minimum separation required between the bottom of the proposed OSWS and the highest anticipated groundwater level.

Transient high groundwater conditions (spikes) must be documented thoroughly if encountered. A written discussion by the registered professional must be submitted to DEH 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.

DEH and/or the RWQCB may require a comprehensive hydro-geologic study. This study 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.

2. Existing Lot OSWS Design Review:

a. If this site review reveals any evidence of groundwater changes, including but not limited to; plant growth, ponding water, or OSWS failures in the area, additional groundwater test borings may be required. DEH staff will specify the depth and the locations of the additional test borings in consultation with project registered professional.

b. When groundwater is observed in the borings and DEH 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 the highest historic groundwater elevation which will not encroach upon the 5-foot minimum separation between the bottom of the proposed OSWS. Monitoring, if required, must be conducted during the course of an average annual rainfall year and/or when full groundwater recharge has occurred.

c. When groundwater is not observed in the boring but there is evidence of past high groundwater levels, such as documentation of groundwater rise on adjacent properties, monitoring may be required. 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 OSWS 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 the course of an average annual rainfall year and/or when full groundwater recharge has occurred.

d. If there is a dry boring, there is not a known history of rising groundwater and there is no evidence of groundwater changes, including but not limited to; plant growth, ponding water, or OSWS failures in the area the project will be able to move forward.

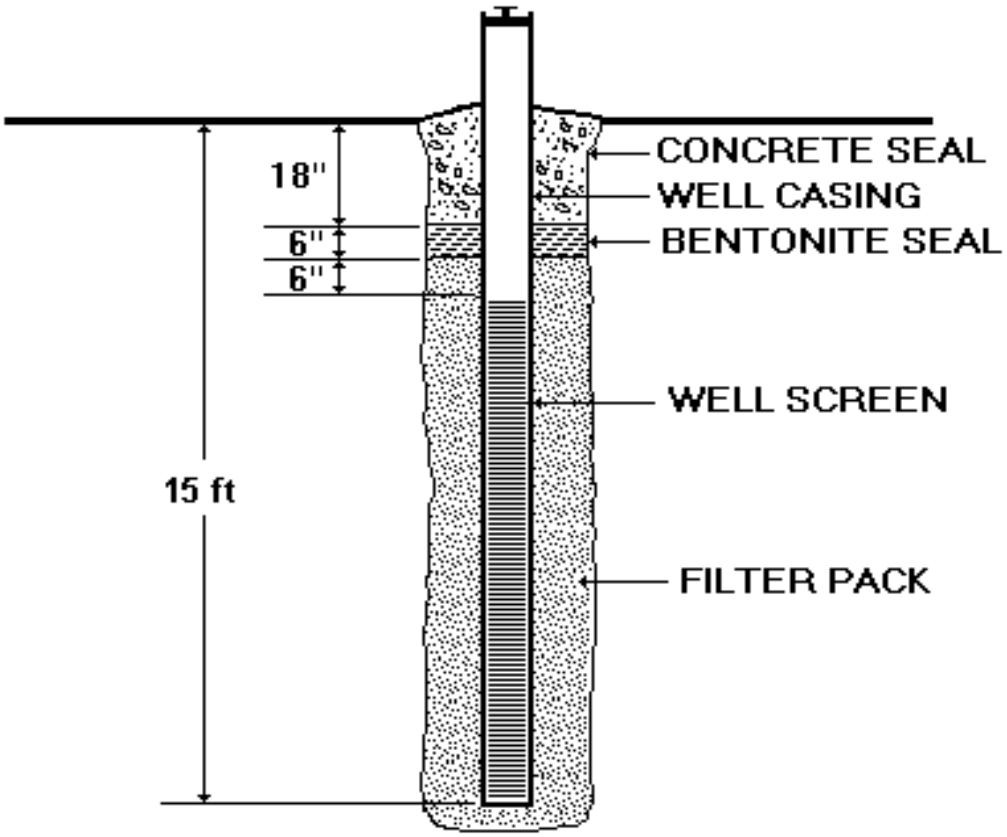
e. The registered professional conducting the groundwater study must support their express conclusion it is unlikely that seeps or springs would develop as a result of the OSWS and the highest historic groundwater elevation will not encroach upon the 5-foot minimum separation between the bottom of the proposed OSWS. The supporting data shall include, but not be limited to, data on the sites topography, soils, geology, basin studies, hydro-geologic studies, and groundwater-monitoring data from the on-site observation wells through a normal rainfall year.

3. <u>Testing procedures for groundwater shall consist of the following:</u>

a. Test borings in the area of an OSWS shall extend to a minimum of 15 feet unless refusal is reached. Deeper depths may be required depending on site-specific conditions as determined by DEH or the project engineer. 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.

b. Test borings in the area of a seepage pit and/or horizontal pit systems shall extend to at least 10 feet deeper than the bottom of the proposed pit.

c. Since groundwater does not always immediately flow into a test boring, DEH requires a minimum of 72 hours pass before an accurate groundwater measurement is taken. The registered professional and/or the property owner maintain full responsibility for protecting the public from any hazards related to the test borings. It is recommended that all test borings that encounter groundwater be converted to observation wells so the groundwater conditions can be monitored over time. The observation wells must meet the minimum construction requirements outlined on the figure below:



TYPICAL OBSERVATION WELL FOR GROUNDWATER MONITORING

d. If the registered 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.

e. 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 suspect may not mean that approval to issue a septic tank permit can be granted. 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 OSWS during periods of normal or above normal rainfall. It may be necessary for DEH to monitor the test borings for a sufficient period of time to determine where groundwater will rise to during normal to above normal rainfall.

The County is now exploring how alternative types of OSWS known as Onsite Wastewater Treatment Systems (OWTS) might be used in circumstances where a five-foot separation from ground water cannot be demonstrated. Pursuant to Water Code Section 13291, the state is also developing further regulations that will apply to OSWS statewide. These anticipated state regulations may not be in place until 2008 or later. No completion date can be estimated yet for the County's potential use of alternative OWTS. However, changes in this regulatory program may require review under CEQA, and will require coordination with the San Diego RWQCB.

Note: This policy supersedes the January 17, 1980 groundwater policy.

FRENCH DRAINS

BACKGROUND

Rainfall and the use of imported water have the potential to create a high groundwater table in many areas of San Diego County. A high groundwater table may preclude the use of an onsite wastewater system and these areas become unbuildable until public sewer is available. In some instances, engineers have proposed the use of "French Drains" and other methods to dewater an area or lower the groundwater table level to a depth that would permit the installation of an onsite wastewater system. Our Department has been advised by the California Regional Water Quality Control Board when onsite wastewater systems are used in an area, the surface discharge of any subsurface water requires a Federal permit.

POLICY

The following policy shall be adhered to whenever proposals to install "French Drains" or any other proposals to dewater an area are submitted to enable the use of an onsite wastewater system.

1. When existing homes are using an onsite wastewater system and are failing due to a high ground water table, a "French Drain" may be used upon an engineer's recommendation to try and salvage the onsite wastewater system provided that (a) the "French Drain" shall be installed a minimum of 50 feet up gradient* from any disposal field; (b) the "French Drain" shall be installed a minimum of 200 feet down gradient** from any disposal field; (c) the "French Drain" shall be installed so as to not inversely condemn any other property; (d) the "French Drain" shall not cause a public health hazard or a nuisance to adjoining or downstream property.

2. Where there is an existing "French Drain" in an area, development of an approved lot will be allowed under conditions outlined in Item #1 provided that an engineer can demonstrate the anticipated high groundwater level will not reach a point within five (5) feet of the lowest elevation of the proposed onsite wastewater. Proposed divisions of land shall meet the conditions outline in Item #3.

3. The use of "French Drains" or any other method of dewatering an area to lower ground water tables where new onsite wastewater systems are proposed shall be prohibited unless a Federal permit is obtained from the California Regional Water Quality Control Board. All proposals of this type shall be referred to the California Regional Water Quality Control Board for approval.

* Up gradient is where the bottom elevation of French Drain is above the top of subsurface disposal field.

** Down gradient is where the bottom elevation of French Drain is equal to or below the top of subsurface disposal field.

LAND USE PROJECT SUBMITTAL CHECKLIST

APN _____ Project # _____ Specialist/EHT _____

Section 1 - Items Required on Layout Prior to Submittal

- ❑ Will this project be associated with a discretionary permit application with DPLU?
- ❑ 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 (number of bedrooms for home)
- ❑ Scope of work if a remodel
- ❑ Number of existing or proposed bedrooms
- ❑ Purpose of project (e.g. new dwelling, new structure, guesthouse, 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 OSWS 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
- ❑ Stormwater BMPs
- ❑ Other _____

Section 2 - Items Required Prior to Field Review

- ❑ Site markers
- ❑ Gate codes or keys
- ❑ Dogs or other animals
- ❑ Field staking of disposal system (case by case)
- ❑ Other _____

Section 3 - Items Required Prior to Approval

- ❑ Sign-off of layout by Department of Public Works Route Locations
- ❑ Sign-off of layout by local water district or company if required (Vista Irrigation District, Rincon del Diablo, Yuima, County Service Areas)
- ❑ Sign-off of layout by County Water Authority or Metropolitan Water District as needed where aqueducts or associated pipelines exist
- ❑ Other _____

Section 4 - Items Required Prior to Issuance of Onsite Wastewater System Permit

- ❑ Copy of well permit
- ❑ Installation of water well.
- ❑ Approved well log
- ❑ Submittal of approved water sample results with bacteriological and nitrate results
- ❑ Collection and approval of nitrate sample by DEH staff
- ❑ Approval to connect to small water company. Need approval letter from DEH or State.
- ❑ Review of stamped building plans
- ❑ Review of completed grading
- ❑ Signature authorization if someone other than owner or licensed contractor to pull permit
- ❑ Other _____

Section 5 - Items to be completed by DEH Counter Specialist

- ❑ Confirmation of layout information provided
- ❑ Copy of assessor parcel book page
- ❑ Copy of legal description
- ❑ Pulling of all available background material
- ❑ Other _____

The acceptance of this project for submittal does not constitute an approval of the project. Additional items may be required upon completion of the field review by the field specialist.

Currently, projects are being reviewed in approximately _____ days, although this time frame may increase or decrease depending on district workload. Should you wish to determine the status of your project, please contact the specialist only after this approximate review period.

Please do not call the general office number as clerical staff cannot provide you with specific information regarding your project other than whether or not the project has been approved or is pending additional information.

If information provided on layout is incomplete or incorrect, project will not be accepted for submittal and will be returned to the applicant for corrections with a copy of the checklist indicating the items required. Section 1 will be used to indicate those deficiencies and form will be given to the applicant.

If layout is complete and submittal is accepted, applicant will be advised of additional requirements that may be needed prior to review in Section 2, prior to approval in Section 3 and prior to issuance of septic permit in Section 4. Copy of completed form should be made to give to applicant and original kept with submittal.

ONSITE WASTEWATER SYSTEM COMPONENT POLICY

PURPOSE

To provide a single policy that defines and establishes conditions of approval for all major components used within an onsite wastewater treatment system.

BACKGROUND

Previously this Department had multiple policies covering the different components within a septic system. We relied almost exclusively on the International Association of Plumbing and Mechanical Officials (IAPMO) to ensure products met the standards and requirements of the latest edition of the Uniform Plumbing Code. We also had components with requirements that exceeded IAPMO standards and components not listed with IAPMO. The requirements for these additional standards were included in the San Diego County Code, interdepartmental memos and guidelines.

AUTHORITY

International Association of Plumbing and Mechanical Officials (IAPMO), Uniform Plumbing Code, San Diego County Code, Title 6, Division 8, Chapter 3, Septic Tank Ordinance.

POLICY

SEPTIC TANKS

Septic tanks are approved for use within San Diego County with the following conditions:

1. An active registration of the product shall be maintained with IAPMO.

2. Each tank shall be clearly and permanently marked (a) the manufacturer's name and/or trademark, (b) IAPMO certification mark with registration "R" and, (c) the nominal working volume, e.g., 1000, 1200 or 1500 gallon.

3. The septic tank shall be installed in accordance with (a) the manufacturer's instructions and, (b) the requirements of the latest edition of the Uniform Plumbing Code.

4. The septic tank shall not be installed under paved areas unless the tank is designed to accept such loading or an approved engineered traffic slab is used. In both cases, approved risers with gas-tight manhole covers are required for access and pumping purposes.

5. The fittings on septic tanks must be made watertight through the use of plastic slip fittings or the fittings must be grouted in place. The grout must be made with Type V cement or must be coated with an approved bituminous coating to prevent corrosion.

TRAFFIC SLABS

A structurally engineered traffic slab design is required to allow placement of a septic tank below or within five (5) feet of a driveway, unless the tank is manufactured to support such loading. The design must be specific for the tank being used. Engineering designs provided by the manufacturer of the tank are acceptable. The design must include specifics on construction of slab, along with details for risers and gastight manhole covers.

SEPTIC TANK RISERS

The riser must have a current IAPMO certification or must be reviewed and approved by our Department prior to use. The risers and lids must be constructed and installed so as to be watertight. All concrete exposed to sewer gases must be protected from corrosion with an approved bituminous coating or other approved means. An exception to this rule may be granted with risers and lids are constructed using Type V concrete. The interior diameter of the riser shall be a minimum of eighteen (18) inches.

Septic tank risers are required when the ground cover over the septic tank lids exceeds two (2) feet. Risers are used to bring the lids to within at least two (2) feet of the ground's surface.

PIPE/PIPE COUPLING

Leach line pipe and tight line must have current IAPMO approval for use with septic systems and can be constructed out of ABS, PVC, PE or HDPE. ABS and PVC pipes are gluable whereas PE and HDPE are not gluable. Joints in tight line must be made watertight through the use of compatible fittings and glue or couplings when non-gluable pipe is used. The pipe coupling must have a current IAPMO certification. Minimum four (4) inch diameter pipe is required for leach pipe. Tight line can be three (3) or four (4) inch diameters as long as minimum plumbing falls are maintained.

CONCRETE PIT LINERS/COVERS

Currently there are no concrete pit liners available in the San Diego area with IAPMO approval. Approval of pit liners in lieu of an IAPMO certification will be made on a case-by-case basis with the design and engineering for the liners to be reviewed by this Department. Engineering previously submitted to IAPMO for certification may be used, but new engineering is required if new products are produced or a change in the manufacturing process occurs.

All concrete pit liners and covers shall be protected from corrosion by coating with an approved bituminous coating or other acceptable means. An exception to this rule may be granted when pit liners and covers are constructed used Type V concrete.

REDWOOD PIT LINERS/CRIBBING AND COVERS

The use of redwood for a horizontal seepage pit installation will require a construction design by a structural engineer. The use of redwood for a vertical seepage pit installation requires the use of the standard octagon design on file. Pit liners and cribbing must be constructed using heart redwood to reduce problems with rot. Seepage pits installed, but not used for one year or more, must be certified by a registered engineer for the absence of dry rot prior to approval for use. A concrete cap, reinforced with iron mesh or bars, must be installed over the cribbing. The cap must be at least four (4) inches thick and keyed a minimum of eighteen (18) inches into sidewall.

LEACH ROCK

Leach rock used in leach line or pit systems must be clean, washed rock, gravel or approved blast furnace slag grading 1 to 1.5 inches. The material shall not contain more than 15% (by weight) less than 3/4 inch or more than 5% (by weight) less than 3/8 inch. The rock shall have a hardness of 3 or greater on the MOH's scale. Any exceptions will require special review and approval.

LEACHING CHAMBERS

Leaching chambers are used in disposal trenches as an alternative to standard pipe and gravel systems. They require a current IAPMO certification, along with Departmental approval, for use within San Diego County. Our review of the product takes into account the width, depth and

method of connection between trenches along with any other manufacturer's specification regarding the use of a chamber system. The systems are sized based on a trench bottom area with a maximum of eighteen (18) inches and no reductions allowed based upon for decreased masking effects or increased sidewall absorption area.

DISTRIBUTION BOX

Distribution boxes must have a current IAPMO certification and water tight construction. The interior surface of a concrete box and grout around pipes must be protected form corrosion by coating with an approved bituminous coating or other acceptable means. An exception to this rule is granted when Type V concrete is used for the box and grout.

The outlets from the distribution box shall have the same elevation and shall be located at least two (2) inches above the bottom of the box. The inlet shall be one (1) inch above the outlets. The box shall be set in a concrete base on natural or compacted soil certified by an engineer to address issues of possible shifting. Interior baffles may be used to absorb surges during peak flows.

EFFLUENT FILTERS

Effluent filters are used to reduce particulate flow in effluent to the disposal field. They are used in conjunction with a septic tank when solids removal is the primary function. There is no current IAPMO or UPC listing for these devices. Their efficiency and long-term benefit is the subject of an ongoing study.

The approval for use of effluent filters will be granted under the following conditions:

1. The filter shall be used on internal septic tank applications only. External applications utilizing a separate chamber are not acceptable.

2. No modifications shall be made to the septic tank system that would compromise its integrity.

3. The filter shall be accessible for cleaning and must be cleaned in a way that does not create a health hazard.

4. The filter shall not impede access to or prevent proper maintenance of the septic tank.

5. The filter shall be installed and used in accordance with the manufacturer's recommendations and specifications.

6. The manufacturer shall supply an owner's manual with clear directions for use and maintenance, including warnings of actions that could cause contamination.

NEW PRODUCTS AND MISCELLANEOUS COMPONENTS

Occasionally new products such as chamber disposal field systems are submitted for review and use within San Diego County. These products will be reviewed on a case-by-case basis. Our review will evaluate the construction on such products with respect to the structural integrity and corrosion resistance. We will evaluate studies on performance that detail effectiveness and longevity. Approval or testing of products by IAPMO or other nationally recognized official testing agencies may be required and will be considered during our reviews as well as performance histories from other regulatory agencies. Upon completion of our review, our Department will write a condition of approval letter to allow use of the new product.

GUIDELINE FOR MAINTAINING SETBACKS FROM ONSITE WASTEWATER SYSTEMS TO PUBLIC WATER SYSTEMS

PURPOSE

This guideline is intended to provide a rationale and approach for applying Department requirements with setbacks from onsite wastewater systems (OSWS) to public water mains. It is the intent of this guideline to prevent the potential for contamination of water supplies when developing property. All septic systems including leach lines, seepage pits, or other are referred to as OSWS by definition for this guideline in the interest of context.

SETBACKS REQUIREMENTS

PUBLIC WATER MAINS are defined as smaller diameter, pressure water lines supplying water from the district facility to end users. The recommended setback is 25 feet from the edge of the water easement, unless the water main trench depth is greater than five feet. Then a 5:1 setback is required from the edge of the easement to the OSWS calculated on water main trench depth. It is recommended that the water purveyor as depicted on the layout confirm all water main easement locations. Several water districts require this prior to plan check approval. In some locations blanket waterline easements will need to be quitclaimed before a layout can be approved.

Title 22 of the California Administrative Code, Section 6430 states that:

- The horizontal distance between pressure water mains and parallel OSWS shall not be less than 10 feet.
- OSWS shall not be installed within 25 feet horizontally of a low head (5 psi or lower pressure) water main.
- Perpendicular crossing of a tight sewer pipe shall be at least 12 inches below a pressure water main.

These separation distances may be increased if site conditions justify a need as determined by the Department of Environmental Health (DEH).

DEH policy will allow for the following setback reductions on a case by case basis:

- A 5:1 setback is taken from the water main to the sewage disposal system based on pipe depth and verification from the water purveyor that no additional water lines will be installed in between these two points.

- A 10-ft. setback to the water main if the water line is no more than 24 inches deep, if it is established that no additional water lines will be installed within the water main easement, and this is the only way to develop an existing, legal lot.

FLUMES are defined as an aboveground or belowground channel, (open or covered), conveying water between water supplier facilities; such as between surface reservoirs.

Above ground flume:

- Sewer lines down-gradient from the edge of the easement are to be no closer than 10 feet to the edge of the easement.

- Sewer lines up-gradient from the edge of the easement are to be no closer than 25 feet to the edge of the easement. If the condition of the flume presents a risk of contamination, the setback to OSWS will be increased to 100 feet from the edge of the easement.

Below ground flume:

- Sewer lines down-gradient are to be no closer than 25 feet from the edge of the easement.

- Sewer lines up-gradient from the easement are to be no closer than 100 feet from the edge of the easement.

AQUEDUCTS are defined as the easement or right of way through which large diameter pipelines run.

Pipelines (Barrels):

- The standard setback is 100 feet from the edge of the pipeline easement (aqueduct) to sewer lines. This should be used for creating new lots on all parcel maps and subdivisions, as well as layout approvals. All proposed maps must have input from the water purveyor to confirm the aqueducts are depicted accurately on the map.

- If a 100-ft. setback from the edge of the easement is not possible, or the lot has a previous approval with a setback less than 100 feet to an OSWS, the design encroachment proposal must be reviewed and approved by the water purveyor. This must be accomplished in order for this Department to consider an updated layout design approval. **(This is not an option for creating new lots.)** Site conditions may still prohibit a setback reduction if a risk of pollution is determined.

Unlined tunnels:

- OSWS shall be located no closer than 200 feet from the edge of the tunnel easement.

DESIGN CONSIDERATIONS

Prior to approval of any onsite wastewater system design:

- Confirm the waterline easement location with the water purveyor. It is recommended the water purveyor provides written confirmation or a stamp on the layout to show they agree with the waterline easement depiction.

- If a blanket waterline easement exists, quitclaim the blanket easement and establish a waterline easement with the water purveyor.

- An aqueduct easement may require additional permits from the water purveyor in order to establish pipeline and excavation depth.

- Any proposal to cross an aqueduct or waterline easement with tight sewer pipe must be reviewed and approved by the water purveyor. The recommended design is a continuous sleeve from edge to edge of the aqueduct easement using a cast-iron pipe with welded joints. The sewer pipe crossing the aqueduct shall have at least an 18-inch separation above or below the pipeline, and cross at a perpendicular angle to the aqueduct. Minimum fall across the sewer pipe shall be 1/8 inch per foot. Refer to the DEH policy on crossing easements with sewer tight lines.

- Any parcel map or subdivision that has an aqueduct on, or within 100 feet of the project boundaries, shall have the project reviewed by the water purveyor to confirm the location of the aqueducts are depicted accurately on the project designs. A copy of purveyor's review and concurrence shall be included with the project submittal.

- Due to the excavation depth and shoring for the construction of aqueduct pipelines, it is expected that the entire width of the easement will be excavated to install or repair a pipeline.

RESERVOIR SETBACK POLICY

PURPOSE

To establish guidelines for the setback from onsite wastewater systems to domestic water supply reservoirs consistent with the guidelines set by the California Department of Public Health Drinking Water Program.

BACKGROUND

On September 1, 1967, policies and regulations for the protection of domestic water supply reservoirs were adopted for the County of San Diego consisting of restrictions on the location and use of onsite wastewater systems including a setback ranging from 500 to 1000 feet to the reservoir high water line. Since that time, improvements have been made in the design and review of onsite wastewater systems eliminating the need for such restrictive setbacks. In addition, the California Department of Public Health who has authority over domestic drinking water reservoirs developed setback guidelines that were less restrictive than our guidelines.

POLICY

Effective this date, where residential or commercial sewage disposal is by means of individual onsite wastewater systems in the vicinity of a domestic drinking water reservoir, the following is required.

a. The onsite wastewater systems must be designed by a registered Civil Engineer, Geologist or Environmental Health Specialist on the basis of percolation tests conducted at the site. In addition, the systems shall meet the all criteria contained in the Regional Water Quality Control Board's basin plan and San Diego County Code of Regulatory Ordinances.

b. An area shall be set aside for each onsite wastewater system design to allow for the replacement of the entire drainage/dispersal system design in the event the initial system fails to function. This 100% reserve area is required for all onsite wastewater system designs that are a part of new construction, remodeling, a change in usage that increases potential occupancy or daily sewage flow, subdivisions, boundary adjustments, or grading plan projects. Percolation tests with rates in excess of 60 minutes per inch shall be required to have multiple reserve field areas.

c. The onsite wastewater system must be set back from the reservoir high water line at least 200 feet, and must be at least 10 feet above the high water line. Such system must be prohibited from the shoreline portion of the closed zone at the reservoir outlet.

d. Plans for the onsite wastewater system must be submitted to the Department of Environmental Health for review and approval prior to construction.

CROSSING WATER SUPPLY LINES WITH SEWER TIGHT LINE

PURPOSE

To establish guidelines that can be used for the review of onsite wastewater system layouts that propose sewer "tight line" crossing an aqueduct easement, a reservoir transfer line, or any other municipal water supply line.

BACKGROUND

The DEH "Guideline for Maintaining Setbacks from Onsite Wastewater Systems to Public Water Systems" provides *setback* information. Consultants who design onsite wastewater systems with the constraint of having to cross a water main need specific criteria for *separation* standards. Exceptions to Separation Standards are discussed in the California Code of Regulations, Title 22, Section 64630 and State DHS *Criteria for the Separation of Water Mains and Sanitary Sewers*.

LAYOUT PROFILE AND SPECIFICATIONS

- The layout should include a profile modeled after Figure 2 in the State *Criteria for the Separation of Water mains and Sanitary Sewers.* This drawing should show the "Case Number" , "Zone Designators" and other information as follows:

  - ❑ Depth of the waterline.
  - ❑ Outside diameter of the waterline.
  - ❑ Depth of the sewer line.
  - ❑ Outside diameter of the sewer line.
  - ❑ Separation distances.

- Additionally, the layout should show a "top view" with the following:

  - ❑ Sewer line crossing perpendicular to the water line.
  - ❑ Easement width.
  - ❑ Waterline width.

OTHER LAYOUT NOTES

- Indicate specifications and other criteria for the sewer line *i.e.*

  - ❑ Schedule, AWWA nomenclature and class, or other description.
  - ❑ Required setbacks from the waterline to the leach field.
  - ❑ Type of encasement for the sewer line in construction zone "C".

OTHER REQUIREMENTS AND PERMITS

- Contact the water agency or water district that maintains the waterline for information about encroachment permits, any required covenant and the following:

  - ❑ Written approval for encroachment and crossing of the waterline easement.
  - ❑ Concurrence of the design for crossing the waterline.
  - ❑ Written approval for equipment used on the easement. (Equipment used within the easement shall not impose loads on the pipeline that exceed AASHTO-H2O or currently equivalent loading standards.)

CONSTRUCTION FEATURES AND COMMENTS

- The State Office of Drinking Water should be contacted for technical questions beyond the scope of this guideline.

- Mild steel pipe (1/4-inch thickness) is recommended for encasement of Schedule 40 PVC or ABS. The pipe should not be enclosed in concrete because stress from curing can impact the pipe alignment.

- Cathodic protection is recommended for all steel pipes.

- Puddled concrete with anchors and rebar on all four corners is recommended at the ends of the encasement and at stress points.

- Separation distances shall be measured from the nearest edge of any facility.

- Actual locations and depths shall be verified in the field.

- Thrust blocks should be constructed on all connections.

- These guidelines refer to water mains under pressure in excess of 20 psi. Where pressure is less than 20 psi, the State Department of Public Health regardless of Title 22 context must review the crossing design.

CROSSING PRIVATE ROAD EASEMENTS WITH SEWER TIGHT LINES

PURPOSE

To establish methodology for the design of sewer tight lines crossing private road easements, allowing disposal field installation on individual lots when house site and disposal field are on opposite sides of the easement.

BACKGROUND

In the past this Department has not allowed crossing private road easements with private sewer tight lines which resulted in the separation of the house site and disposal field. Private road easements were considered actual dividing lines, whereby lot splits or boundary adjustments could be approved causing an owner to inadvertently lose the disposal area and/or reserve area. Current Department of Environmental Health (DEH) policy pertaining to the review of discretionary permits and layout review prior to the issuance of a septic permit helps eliminate these concerns.

POLICY

This policy applies to existing or proposed private road easements only. This policy does not apply to public road easements. All proposals for crossings will be reviewed by an Environmental Health Specialist III or above. The crossing shall be designed by a registered civil engineer, and shall include the following information:

1. A detailed layout drawn to scale, including elevations, cross-sectional diagram, materials and methods used for construction.

2. Proposed or existing gas and water lines, telephone and electrical cable locations and depths shall be shown. Water main and sewer line location must meet special construction and setback criteria specified by the State of California Department of Public Health. Written approval from the water district must be obtained pertaining to the crossing. Authorization for crossing other utilities must be obtained by the appropriate agency and verified by the engineer and this Department.

3. Adequate markers shall be permanently installed at each end of the sewer tight line sleeve. These markers shall be visible from the road and describe the type of crossing and depth. The materials and specifications for these markers shall be approved by the engineer designing the crossing and this Department.

4. A minimum of 18” cover shall be required over the top of the tight line sleeve. A minimum of 1/8” per foot for adequate fall form septic tank to disposal area must be maintained. On flat or mildly sloping lots, shallow tight line depths may result in insufficient cover to allow approval by this department.

5. In general, the crossing shall consist of a minimum 10-gauge wall thickness, 6-inch diameter steel pipe sleeve of sufficient strength surrounding minimum SDR 35 approved sewer pipe. The steel pipe sleeve shall extend completely across the easement width, beginning and ending at a point no closer than 10-feet from the edge of the easement. The line shall be installed perpendicular to the alignment of the road easement. This will allow for tight line maintenance, if necessary, without excavation within the easement.

6. The septic system must be installed on the same legal lot as the proposed structure, thus eliminating the possibility of an owner inadvertently separating the disposal system from the existing dwelling. Therefore, lots created prior to February 1, 1972 will require evidence of legal parcel status from the Department of Planning and Land Use (DPLU). Staffs are directed to request, in writing, that DPLU research legal lot status for the purpose of this policy. If legal lot status cannot be determined in this fashion, a merger certificate of compliance must be finalled prior to issuance of a septic tank permit. Individual lots created after February 1, 1972 can be considered based upon the legal lot status determined by DPLU as part of the building permit process.

CROSSING DRAINAGE COURSES WITH SEWER TIGHT LINES

PURPOSE

To establish criteria to be used when reviewing sewer tight line crossings over drainage courses, and to provide procedures for obtaining permit approval from the Department of Public Works (DPW), the Department of Planning and Land Use (DPLU), and this Department. DPW will review the design to ensure the structure is not located in a 100-year flood elevation, and for any potential scouring impacts to footings in or near the flow line. DPLU will review the structural design, and determine if structural permits are required. Department of Environmental Health (DEH) staff will review the design as it relates to the onsite wastewater system.

BACKGROUND

There have not been written guidelines for the design of tight line crossing over drainage courses, as the need for crossing a drainage course was very rare. In the past, applications have been reviewed on a case-by-case basis. The designs have ranged from simple, underground pipe crossings to private foot bridges. Trestle designs have been considered private bridges, and have required building permit inspections. Independent pipe-spans on the other hand have not been considered in the same category as private bridges by DPLU and as a result have not always been reviewed by all three departments. When a bridge, trestle or pipe-span is proposed, the design must address footing erosion, pipe-span deflection, structural integrity and adequate grade of the pipe.

GUIDELINES

1. The crossing of a drainage course is to be considered only if no other design options are reasonably feasible for development of an onsite wastewater system on the site.

2. All bridge, trestle or pipe-span designs are to be prepared by a licensed civil engineer.

3. Fall across the pipe shall include any pipe deflection proposed in design. The design must maintain at least the minimum grade requirements based on pipe diameter as described in the Uniform Plumbing code (UPC). For example, a 4” diameter pipe will require no less than 1/8” per foot fall at all points of deflection and for the length of the pipe span.

4. All tight-line crossings over drainage courses are to be reviewed by a supervisor prior to approval of the layout design. At this stage of the project review, a determination should be made of the need to direct the applicant to DPLU for review. If the tight-line crossing is six feet or greater in length, it will require DPLU and DPW review, per agreement between the Departments.

5. Structural permit applications submitted to DPLU for tight-line crossings will be automatically routed by DPLU to DPW for review. DPW will require that all L-Grading plans show the bridge design for review of potential erosion to bridge footings and protection form the 100 year flood elevation. Structural permits can be issued independently of the building permits, thus the structural permit number should be written on the layout for reference when ever possible. If DPLU and/or DPW waive permit requirements for the tight-line crossing; verification from DPLU and/or DPW should be obtained in writing. This process is to be completed prior to issuance of a septic tank permit.

6. Tight-line crossings, which are constructed over a culvert, and/or cross a small drainage course encased in a sleeve or concrete footing, may not require additional permits form DPLU or DPW. These designs may still require DPW review. Designs in question should be routed through DPLU for input. As stated before, if a bridge is shown on the L-grading plan, DPLU and DPW will have a chance to provide input on the design at the very beginning of the project.

7. Final approval of the septic system should not be given until the structural permit for the tight-line crossing has final inspection approval by DPLU and DPW.

8. No engineering or multi-department review is required for situations involving minor drainage courses which are subject to little or no erosion and the tight-line is constructed underground. For example, when pad or driveway grading has been intercepted and redirected away for the original flow line.

WATER DISTRICT REVIEW OF ONSITE WASTEWATER SYSTEM DESIGN

PURPOSE

To establish guidelines that will ensure layouts designs for onsite wastewater systems will provide for an adequate separation between the onsite wastewater system and public water lines or easements.

BACKGROUND

This Department has been notified by certain water companies that there have been some instances where onsite wastewater systems have been installed too close to public water lines. This has occurred despite the signing of the water line conflict statement by applicants. Some districts have requested a pre-approval review of designs for comparison with their records. When the Land Use specialist reviews an onsite wastewater system design, it is imperative that all information which will affect the septic system be available. Therefore, the following policy shall be adhered to when reviewing layouts.

POLICY

1. All layouts shall contain the following statement signed by the person preparing the layout:

   "I certify that the layout drawing shows the location of all known easements on the lot and public water lines on or within 20 feet of the lot boundaries".

2. Several water districts have requested that they have the opportunity to certify all layouts within their districts. Therefore, all layouts in the below listed water districts or service areas shall be reviewed and stamped by a representative from that agency prior to submittal to the Department of Health Services:

   - Rincon Del Diablo Water District, 1920 North Iris Lane, Escondido, CA 92026, (760) 745-5522 – Escondido area.

   - Yuima Municipal Water District – 34928 Valley Center Road, Pauma Valley, CA 92061-0177 (P.O. Box 177), (760) 742-3704 – Pauma Valley Area.

   - County Service Area (CSA) Number 4 – Special Districts Administration, Department of Public Works, 5555 Overland Drive, San Diego, CA 92123, M.S. 0384, [S50] 694-2124 – Julian Area.

     This area included lots created by the original Whispering Pines and Kentwood-in-the-Pines subdivision maps and other parcels within the CSA, but outside of these subdivided areas.

WATER WELLS AND ONSITE WASTEWATER SYSTEM LOCATION

PURPOSE

To define the criteria for determining and establishing the requirements for the separation between water wells and onsite wastewater systems.

BACKGROUND

Onsite wastewater system layouts and property development designs require a consideration for specific separation between water wells and onsite wastewater systems. Background research is essential in order to determine if encroachment will occur in the case of existing disposal systems or proposed disposal systems.

AUTHORITY

San Diego County Code, Section 53.101, is the adoption of the Plumbing Code portion of the State Building Standards Code. Table II-1 of the Uniform Plumbing Code (UPC) specifies setbacks for drainage pipe from water supply wells. The California State Water Resources Control Board requires the County to enforce the State Water Well Standards Bulletin 74-81 ad Supplement 74-90.

POLICY

Minimum setbacks for wells shall conform to Bulletin 74-81, Supplemental 74-90, and the current requirements of the UPC.

Site specific/case-by-case guidelines follow:

Proposed New Lots

Wherever individual onsite wastewater systems are used and individual water wells are in use, new wells and proposed onsite wastewater systems shall have a 50-foot setback from the property line. The following are exceptions to this setback requirement:

1. Where surrounding lots are built-out and the 100-foot setbacks from leach lines located on surrounding lots can be maintained while installing the well closer than 50-feet to the property line.

2. Where a public water system is proposed or available to adjoining lots.

3. Where existing adjacent lots are not built-out, but are in conformance with the County's Groundwater Policy relating to parcel size or are of sufficient size to maintain proper setbacks.

4. Topographical features, such as creeks, canyons, cut banks, or easements which offset the separation distance.

NOTE: Minimum 150-foot setbacks for horizontal pits will require site specific adjustments.

Existing Legal Lots

Current codes must be maintained unless exemption is specified. If a lot will not meet the State Bulletin 74-81/Supplement 74-90 minimum setbacks, this Department may allow a lesser requirement to prevail if no public health hazards or nuisances will be created by such installation. Special construction/sealing methods, based on acceptable geologic conditions, will be considered.

This policy applies to review of permit applications for building additions.

Repairs to failing systems within minimal setbacks as required by current codes will be considered on a "case-by-case basis".

Lots served by Municipal Water (Non-Well Areas)

A 95-foot setback to property lines should be required if the site evaluation shows leach field or reserve area on adjacent and within five feet of the property line.

This requires adjustment for horizontal pits in order to provide 150-foot setback from the well to the pit.

WELL SETBACK GUIDELINES

PURPOSE

To establish criteria for the consideration of a reduction in water well setbacks from sources of contamination.

BACKGROUND

California Water Well Standards, Bulletin 74-81 and Bulletin 74-90 (Bulletin 74-81/90) establish setback criteria for water wells. San Diego County Code Section 67.421 adopts Bulletin 74-81/90. County Code and Bulletin 74-81/90 allows for well setback reduction by the Director of Environmental Health Services on a case-by-case basis.

GUIDELINE

This guideline allows for a reduction in setbacks to water wells only when the reduction will not jeopardize the quality of the groundwater supply.

Well setback reductions from sources of contamination will be considered on a case-by-case basis, when minimum setbacks cannot be met. Hardships include, but are not limited to, the following:

1. For the development of an existing legal lot when public water is not available.

2. Replacement of an existing water well.

3. To make repairs to a failing onsite wastewater system.

PROCEDURES TO CONSIDER WELL SETBACK REDUCTION

The request for a water well setback reduction must be made by a C-57 licensed contractor. This request should be supported by site specific information. The following information may be necessary for staff to make a determination.

1. Well logs and percolation test data for the site or the immediate area.

   This may provide data on the location of impervious formations close to the ground surface, such as bedrock, aquatards, fractured rock, and clay lenses. A review of well logs for existing wells in the immediate area may confirm the availability of impervious strata into which the annular seal and casing could penetrate to seal shallow contaminated zones from pristine aquifers. If the well cannot be installed and sealed into such a formation, the well permit will be denied.

2. Soils data such as soil type, permeability, conductivity and stratigraphy.

   This data may provide information regarding the potential movement of a contaminant(s) in the soil.

3. Any available information regarding well production, and well draw-down and recovery tests on wells in the immediate area.

   This data may provide information regarding the area of influence of the proposed well.

Depending on the site and subsurface conditions identified on site and the immediate area, this office may require well setback recommendations be provided by a licensed civil engineer, a registered geologist, or a registered hydro geologist who specializes in groundwater quality.

APPROACHES TO WELL SETBACK REDUCTION

Water well setback reductions will be considered based on the information provided and the following approaches:

A. All the conditions described above are addressed, based on review of well logs and soils reports in the immediate area, the well permit could then be approved with concurrence by an Environmental Health Specialist III or above.

B. If the conditions cannot be verified through logs or soils data, then staff is to determine the necessary data, tests and/or conditions which would need to be met to obtain a permit. This may include the review by a licensed civil engineer, a registered geologist, or a registered hydrogeologist, with concurrent review by the DEH Hydrogeologist. With the information which addresses items 1, 2 and 3 above, the well permit could be approved with concurrence by the DEH Hydrogeologist and Supervising Environmental Health Specialist.

    - Factors or conditions for approval may include knowledge of the hydro geologic basin, and a review of reports of well draw-down characteristics of existing wells in the area.

    - This still would be premised on sufficient evidence to expect impervious strata to set the well seal.

C. If, after evaluating the data, there is insufficient evidence to consider a well setback reduction, a test well may be conducted, under permit, to prove the casing and annular seal could penetrate impervious strata. The property owner and well contractor must sign an acknowledgement that, if the test well proves factors are not suitable for setback reduction, the well will be destroyed. With the information which addresses items 1, 2 and 3, the well permit could be approved with concurrence by the DEH Hydrogeologist and/or Supervising Environmental Health Specialist.

For setbacks to house plumbing and household sewer laterals please refer to the “Guidelines for Reduction in Setback from Water Wells to House Plumbing”.

GUIDELINE FOR REDUCTION IN SETBACK FROM WATER WELLS TO HOUSE PLUMBING

State of California Water Wells Standards bulletin 74-81 and 74-90 require a minimum 50 foot separation from a sanitary sewer to a well. This includes sewer lines and laterals within a structure. Uniform Plumbing Code Appendix I allows for the separation to be reduced to not less than 25 feet when the drainage pipe is constructed of materials approved for use within a building.

Therefore, this Department will allow a reduction to 25 feet in setback from a water well to the interior house plumbing if the following conditions are met:

1. The structure is a single family dwelling.

2. The well is a private domestic well or irrigation well with at least a 20' annular seal.

3. The dwelling is a newer home constructed with modern materials (e.g. ABS drain line).

4. The dwelling is an older home retro-fitted with modern materials or the drainage pipes have been sleeved or guttered.

5. The soil in the area does not consist of fractured rock.

The setback is not to be reduced to less than 25 feet. Any exceptions to these guidelines must be reviewed by an Environmental Health Specialist III with concurrence from the Supervisor. This reduction in setback will not be considered for commercial operations or community supply wells.

GENERAL PLAN
CIRCULATION ELEMENT ROADWAYS

PURPOSE

To establish a review procedure for onsite wastewater system layouts that abut general plan circulation element roadways.

BACKGROUND

Our Department approves onsite wastewater system layouts and issues septic tank permits for property that may abut general plan circulation element roadways. In some cases these approved designs have been in conflict with the proposed road improvements, causing the need for septic system relocation or condemnation of the property by the County and, in some cases, involving costly litigation.

The Department of Public Works (DPW) has provided our Department with maps of all general plan circulation element roadways. These maps will be updated by DPW as circulation element roadways are revised through the General Plan Update process.

POLICY

Layouts for new constructions or additions, percolation tests, subdivisions, parcel maps, boundary adjustments and certificates of compliance shall be reviewed by staff to determine if any proposed onsite wastewater system(s) abutting circulation element roadways pose a problem or conflict.

Applicants whose projects are determined to pose a potential problem or conflict will be required to submit their proposals to the Route Locations Section of the DPW for approval prior to final approval of the project by our Department. In these cases, do not approve the project until the Route Locations Section stamps and signs the face of the layout that there is no conflict with circulation element roadways.

REVIEW OF HOUSE PLANS AS A CONDITION OF ISSUING A SEPTIC TANK PERMIT

BACKGROUND

Past practice has been to issue septic tank permits based solely on the proposed layout, with conditions stipulated as to the number of bedrooms, type of grading, house and plumbing elevations, etc. This procedure has resulted in numerous problems, such as: too many bedrooms for the size of system the lot can sustain (defacto bedrooms such as dens, sewing rooms, etc), excessive system depth due to deep house plumbing, and grading which adversely affects the disposal area. Review of the actual construction plans, approved plot plan and site grading will result in identifying and resolving these problems before they occur.

POLICY

Prior to issuing a septic tank permit staff shall review the approved stamped set of construction and plot plans. The review shall include the following:

1. Compare the locations shown for all structures, driveways and graded cuts and pads.

2. Determine the number of potential bedrooms.

3. Verify depth of house sewer at the point it exits the structure to ensure the disposal system depth will not be excessive.

4. Verify that pad elevations and finish floor levels will allow the system to be installed according to the layout.

5. Note that a site review upon completion of grading is required, unless elevation is not critical and excessive disposal area is available.

6. Note that plot conforms to approved layout.

A septic tank permit can be issued once the above has been completed, and there is no doubt that the system will be installed as approved, and be of adequate size for the actual structure to be built.

(Exceptions to this policy may be made by the Area Supervisor on a case by case basis.)

BEDROOM DETERMINATION GUIDELINE

PURPOSE

Onsite wastewater systems are sized based on the number of bedrooms or potential bedrooms in a dwelling. Evaluating proposed and potential use of rooms based on size, configuration and location makes the determination of the number of bedrooms. The following guidelines are provided to determine which rooms will be considered as bedrooms. Adequate sizing of the onsite wastewater system is necessary to prevent premature failure of the system, which could jeopardize the long-term occupancy of the structure.

GUIDELINES

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 guidelines 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, unobstructed 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. Rooms that have direct access into a garage cannot be used for sleeping purposes and therefore will not be considered as bedrooms. Additionally, bedrooms have minimum requirements for natural lighting, ventilation and emergency egress which are determined by the Department of Planning and Land Use.

6. 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.

7. Any cases, which will require the relocation or modification of doorways, are to be reviewed and approved by the Department of Planning and Land Use to address any structural considerations such as load bearing walls. This is to be done prior to approval or sign-off by the Department of Environmental Health.

GREENHOUSE OPERATIONS

PURPOSE

To establish requirements for sanitary facilities at greenhouse operations.

BACKGROUND

The construction of a green house would allow the use of a site as a non-seasonal operation and therefore, like any commercial establishment, water flush toilets and hand washing facilities are required. The Department of Environmental Health becomes involved when public sewer is not available and an onsite wastewater system must be utilized. This policy will outline options available to allow compliance with the need for sanitary facilities.

AUTHORITY

San Diego County Code, Sections 53.101, 68.310 and 68.311; Uniform Plumbing Code, Section 910.

POLICY

1. When commercial greenhouses are proposed on a vacant property, a toilet facility must be constructed under permit and inspection by the Department of Planning and Land Use and connected to public sewer or an approved onsite wastewater system. The system must be installed under permit and inspection by the Department of Environmental Health.

2. When commercial greenhouses are proposed and an existing house is located on the property, the toilet facility in the house may be utilized under the following conditions:

    a. Only one fixture is required.

    b. The house is within a five-minute walk of the operation.

    c. The owner of the property and tenant of the house sign a statement allowing the use of the toilet facilities in the house.

    d. If the structure is served by an onsite wastewater system, the system must be adequately sized or have area available along with 100% reserve to handle the additional flows created by the greenhouse operation.

The following two options may be considered on a case-by-case basis when the installation of a subsurface sewage disposal system is not possible due to site conditions or moratoriums.

3. When a greenhouse is proposed on a property adjacent to the main business operation, the toilet facilities at the main operation may be utilized under the following conditions:

    a. Both properties are under the same ownership and lease agreement.

b. If the structure is served by an onsite wastewater system, the system must be adequately sized or have area available along with 100% reserve to handle the additional flows created by the greenhouse operation.

c. The toilet facility is within a five minute walk of the operation.

d. A covenant and agreement must be recorded through the Department of Planning and Land Use stating that upon sale of either property, loss of lease or change in employee status, the greenhouses will be removed unless water flush toilets can be provided.

4. A satellite greenhouse operation is one in which greenhouses are located on a site not adjacent to the main business operation. The satellite operation is for storage only or has only a seasonal or occasional need for onsite workers during periods of planting and harvesting. This type of operation may be approved under the following conditions:

   a. The property is under the same ownership and lease agreement as the main operation.

   b. During the periods of planting and harvesting, chemical toilets will be provided on a temporary basis.

   c. A covenant and agreement must be recorded through the Department of Planning and Land Use stating that upon sale of either property, loss of lease or change in employee status, the greenhouses will be removed unless water flush toilets can be provided.

5. The use of chemical toilets for a greenhouse operation must be approved by the Department of Environmental Health. The chemical toilets shall be provided from and serviced by a company having a permit from the San Diego County Department of Environmental Health.

SEWER CONNECTION REQUIREMENT POLICY

PURPOSE

This policy is intended to eliminate conflicts with interpretation of the County Code and Uniform Plumbing Code by defining sewer availability and requirements for connection to public sewer.

BACKGROUND

Prior to this policy, the Department of Environmental Health (DEH) required connection to public sewer when sewer was available for new construction, remodels that required changes to the onsite wastewater system or when a failure of the onsite wastewater system occurred. Availability was defined as having sewer within 200 feet of the property and the property was within the boundaries of the sewer district with no need for any private easement to access the sewer.

San Diego County Code defines public sewer availability as follows:

- The property on which the building (structure) is located abuts a public sewer.
- The property is within the boundaries of the sewer district or annexation has been approved by the sewer district.
- No easements must be obtained to access the sewer line.

The Uniform Plumbing Code defines public sewer availability as follows:

- The property abuts a public sewer.
- The building or plumbing stubout is within 200 feet of that sewer.

These definitions differ from how DEH enforced the requirements to connect to public sewer and the requirement to extend sewer mains up to 200 feet was in many cases a financial hardship.

AUTHORITY

San Diego County Code, Section 68.312; Uniform Plumbing Code, Section 1101

POLICY

Effective immediately, it shall be DEH policy to require connection to public sewer only if such sewer abuts and is available to the property that will be served. Sewer will not be considered available if (1) annexation to the sewer district is required or (2) private easements must be obtained to allow a connection.

A waiver of the connection requirement can be considered if (1) the building or plumbing stubout is located more than 200 feet from the public sewer or other hardship exists and (2) a new onsite wastewater system or repair to the onsite wastewater system can be provided that will provide an assurance of long term performance.

If an existing structure served by an onsite wastewater system is not within a sewer district and a repair to the system is not feasible or recommended, the property owner can petition for annexation to such sewer district and be supported by a “Letter of Urgency” from our Department.

WATER WELL SHARING GUIDELINES

PURPOSE

To establish requirements for service of potable water to a proposed building site from a privately controlled well or a mutually owned well located on another parcel.

BACKGROUND

Situations occur where a property owner may wish to obtain their potable water supply from a water well not located on their own property. Reasons for this may include the site not having public water available and not having adequate area or conditions that would allow for the installation of water supply well. Property owners may share water well for the purpose of obtaining an adequate potable supply of water. This sharing of a well will not result in the requirement to form a permitted small public water system when four or fewer connections are served.

AUTHORITY

The Uniform Plumbing Code (UPC) requires potable running water (Section 1001) and a minimum pressure of 15 pounds per square inch (Section 1007). An operating pressure of 20 pounds per square inch is required for public water supplied by the California Code of Regulations, Title 22, Section 645566. Water quality standards for public water supplies are within the Code of Regulations, Title 22.

POLICY

INDIVIDUAL LOTS

1. Bacteriological analysis of the well water shall to be performed within one year of application for a septic permit and acceptable results obtained. A new sample analysis shall be required if the sample results are older than one year.

2. Nitrate analysis shall confirm acceptability with a maximum contaminant level of 45 mg/l as nitrate (NO_3-) or 10 mg/l as nitrate-nitrogen ($N0_3 – N$).

3. An agreement shall be recorded among all property owners and must be attached to the deed documents. This agreement shall:

    a. In the case of a privately owned or controlled well, require the well owner and all subsequent owners to furnish potable water to each involved parcel at the pressure described by the most current edition of the UPC, currently 20 psi.

    b. In the case of a mutually owned well, show equal ownership of the well, reservoirs, pressure tanks and other portions of the distribution system.

4. Recorded 10’ wide easements shall be granted to all parcels involved to allow for access to the well and piping for maintenance or repair work.

These requirements shall apply to any property owner wishing to use a well on another parcel, whether the water well is private or mutually owned. These conditions are to be in compliance before a septic tank permit is issued. If it is a public water system (5 or more connections), Title 22 requirements shall apply.

REGULATORY PLANNING PROJECTS

Regulatory planning projects with or without existing dwellings, may be processed with a recorded agreement with the Director stating that upon sale or transfer a shared well agreement or an individual well will be provided.

1. Bacteriological analysis of the well water is to be performed within one year of project application or approval and acceptable results obtained. A new sample analysis shall be required if the sample results are older than one year.

2. Nitrate analysis shall confirm acceptability with a maximum contaminant level of 45 mg/1 as nitrate ($N0_3-$) or 10 mg/1 as nitrate-nitrogen ($N0_3-N$).

3. Ten-foot (10') wide easements are to be shown on the plat or map, from the well to all parcels being served.

QUALITY AND QUANTITY OF WELL WATER

PURPOSE

To establish minimum quality and quantity requirements of water obtained from wells when used as a domestic water supply.

BACKGROUND

Groundwater is subject to contamination and pollution. This can occur from poor well construction practices, aquifer compromise from hazardous materials and toxic waste, influence from long-term application of imported water and leaching of salts, fertilizers and pesticides, and cross-contamination from shallow aquifers. In addition, minimum volumes of water are needed to adequately meet the water supply needs of a property proposed for development.

AUTHORITY

California Health and Safety Code, Chapter 7, California State Drinking Water Act (SDWA); California Code of Regulations Title 17 and Title 22. For general procedures, information and for a discussion as referenced, refer to the California Water Code, California Department of Water Resources Bulletin 74-81 and 74-90, and the Uniform Plumbing Code Section 1001. For regulatory planning projects, please refer to the County Groundwater Ordinance, San Diego County Code, Section 67.701 et. al.

POLICY

DOMESTIC WELLS

Minimum well capacity for domestic wells shall be one (1) gallon per minute per dwelling unit. This water capacity shall be considered adequate for domestic use only within the residence.

Water quality for domestic wells shall meet Title 22 requirements. This includes, but is not limited to, consideration of bacteria and parasite contamination, pollution by nitrates, and total dissolved solids (TDS). Sampling for contaminants is based on a risk assessment; the minimum water quality sampling is as follows:

1. Prior to the issuance of a septic permit; bacteriological testing is required and the sample must be collected by staff from DEH. The results from the laboratory shall confirm the absence of bacteria. With multiple tube fermentation method, the absence result will be less than 2.2 coliform per 100 ml.

2. Nitrate as NO_3 – shall not exceed 45 mg/l.

3. Sampling for additional water quality constituents may be required when the well is located in an area of known groundwater contamination.

PUBLIC WATER SUPPLY WELLS

For wells which are associated with a commercial operation or are a public water supply, consult with the small water system specialist. Source capacity, water quality and monitoring requirements are established in the California Water Works Standards, Title 22, California Code of Regulations.

INSTALLATION OF WELLS
IN AREAS OF POOR WATER QUALITY

PURPOSE

To provide the analysis of wells in areas found to have high concentrations of nitrates including, but not limited to the Ramona Basin, Twin Oaks Valley Basin (San Marcos area) and San Pasqual Valley Basin.

Further, to inform the public, prior to the installation of water wells, of any specific concerns regarding other contaminants and the use of the water extracted from their property by the proposed well, for example total dissolved solids (TDS).

BACKGROUND

This Department continues to gather data on water quality through testing and analysis. Certain areas within the County have aquifers that contain high concentrations of nitrates, brackish water, or other contaminants that may pose a threat to the public health.

Numerous wells within the Ramona Basin (Santa Maria Hydrographic Basin), the San Marcos/Twin Oaks Valley area and the San Pasqual Valley have been sampled and shown to have a nitrate concentration in excess of the 45 mg/1 as NO_3 limit set by Title 22, California Administrative Code. This is not desirable or acceptable because of the potential for illness from methemoglobinemia.

Wells proposed in coastal areas, such as South Bay, mid-County coastal areas, and Rancho Santa Fe, may produce water with high TDS concentrations. Water containing high TDS levels may be unsuitable for potable water or irrigation purposes, due to high salt content, and may cause gastrointestinal distress.

AUTHORITY

Section 1001 of the Uniform Plumbing Code, as adopted by the County Plumbing Code, Section 53.101, requires an adequate supply of potable running water piped into each plumbing fixture in an approved manner.

POLICY

Prior to the approval of the issuance of any buildings and/or septic tank permit, it shall be demonstrated by water samples tested in an approved laboratory that the nitrate concentration does not exceed 45 mg/l and that the bacteriological quality meets State of California standards.

This Department notifies applicants in writing of any of special concerns regarding the potential quality of water that may be obtained from a proposed well. This notification includes potable water usage, irrigation use only, public water supply meter protection, information contacts, backflow prevention device installation requirements, high nitrate area concerns and/or suitability and limitations for connection to community water supply systems. This policy allows the inclusion of future areas with aquifers found to be included in the category of poor water quality.

WELLS IN AREAS OF POOR WATER QUALITY

Ramona Basin (Santa Maria Hydrographic Basin) encompasses the central and northern areas of the Ramona community. The approximate boundaries are as follows:

1. **West:** Archie Moore from Highway 67 to above Highland Valley Road and to the Ramona Airport.

2. **North:** Above the Ramona Airport from the intersection of Rangeland and Puerto Orto Lane following roughly to the Rancho Santa Maria Rancho boundary to above San Pasqual Valley Road and east to Black Canyon Road.

3. **East:** From Black Canyon Road and Larado Lane south to San Vicente Road, west of San Diego Country Estates.

4. **South:** San Vicente and Dye Roads.

San Marcos/Twin Oaks Valley Area Basin is within the City of San Marcos running along Twin Oaks Valley Road.

The receiving basin is approximately bounded by:

1. **North:** Intersection of Sunshine Mountain Road and Buena Creek Road, North to the intersection of Twin Oaks Valley Road and Camino Mayor, South to the intersection of Solar Lane and Solar View Drive.

2. **East:** Deer Springs Road to Marilyn Lane, Marilyn Lane, Richland Road.

3. **South:** E. Barham Drive to Craven Road, Craven Road to Echo Lane, Echo Lane to Discovery Street.

4. **West:** MacMahr Road to Los Posas Road to Mission Road, Mission Road to Liberty Drive, Liberty Drive to Toyon Court, Toyon Court to Robin Hood Road to Buena Creek Road.

San Pasqual Valley Area extends east and south of the City of Escondido with the majority of the area within the City of San Diego.

This area shall include those areas at or below the 500 foot contour extending from the aqueduct located 3500-4000 feet east of Interstate15 to the Academy.

The rough boundaries are as follows:

1. **West:** West of Via Rancho Parkway, adjacent to and east of Cloverdale.

2. **East:** To the Wild Animal Park.

3. **South:** To Highland Valley Road and Bandy Canyon Road.

4. **North:** To the Eagles Crest County Club.

AREAS OF HIGH TOTAL DISSOLVED SOLIDS

These areas are common along the coast, typically areas where vertical seepage pits are allowed.

The rough boundaries would be west of Highway 5 and inland following streams and estuaries.

RESTRICTED AREAS FOR WATER WELLS

PURPOSE

To define known areas of contaminated groundwater which restrict construction of new wells and impact water quality in existing wells.

BACKGROUND

Petroleum products, pesticides and other organic and inorganic chemicals have contaminated certain groundwater basins within San Diego County. The contaminants cause health hazards when ingested in quantities above established maximum contaminant level (MCL).

AUTHORITY

California Code of Regulations, Title 22, Sections 64.445 and 67.435, and California Health and Safety Code, Sections 208, 4017, 4024 and 4026.4, regulate public water systems. Private water supplies are regulated by the Uniform Housing Code (see Quality and Quantity Policy).

POLICY

Well applications in the known areas of contamination shall be disapproved and further processing shall be pending the demonstration of acceptable decontamination methods or construction methods.

Reference maps are available which delineate the following known areas of contamination.

- Chatham Brothers hazardous waste site, Escondido
- Santa Ysabel
- Ocotillo Wells
- Hazardous Materials Management Division's list of contaminated sites
- Locations of former dump sites
- Julian township area
- San Pasqual Valley – EDB site
- Ramona Community Area

100% PERCOLATION TESTING AND WAIVER PROCEDURE

POLICY

Percolation testing for onsite wastewater treatment system designs is required for all lot created through the tentative map, parcel map, boundary adjustment or certificate of compliance process. Applications for these projects shall not be accepted unless 100% percolation testing or a letter requesting a waiver of the testing is submitted.

!00% percolation testing for parcel maps, boundary adjustments and certificates of compliance is defined as a minimum of four (4) tests per lot. 100% percolation testing for tentative maps is defined as a minimum of one (1) test hole per lot. Tentative maps can be submitted for review with a minimum of 40% of the lots having percolation testing but final approval will require full testing.

The percolation test requirement may be waived by Director of Environmental Health. Therefore, an approved waiver letter may replace the required percolation test. When a percolation waiver request is submitted, the procedure is as follows:

1. The "Letter of Waiver" shall include the Assessor parcel number, size of the parcels in acres or square feet and the location of property.

2. A property owner of large acreage may request a waiver for a certificate of compliance or boundary adjustment only.

3. A registered engineer, geologist or environmental health specialist certified to perform percolation testing in San Diego County may request waivers for tentative maps, parcel maps, certificates of compliance, and boundary adjustments.

    a. The qualified professional requesting the waiver shall refer to actual percolation tests performed on the land in question, or on adjoining land, and submit copies of those percolation tests.

    b. The qualified professional shall certify that it is his professional opinion that soil types and conditions within the area of the project are consistent with the soils on the adjoining land where the percolation tests were performed.

    c. The qualified professional shall certify there are no factors which could adversely affect the installation and proper operation of an onsite wastewater treatment system. These include, but are not limited to, water table levels, drainage channels, cuts and fills, rock ledges, and outcrops.

    d. The qualified professional shall place the following statement at the end of the letter of waiver request:

        "I certify that in my professional opinion that the soil conditions, topography, and any other conditions affecting onsite wastewater treatment systems on this property, are such that an onsite wastewater treatment system can be installed on each parcel of land in compliance with San Diego County regulations and sound engineering practices.

        Signature of qualified professional
        California Registration Number

4. All requests for a waiver shall be reviewed by an Environmental Health Specialist III or above.

BOUNDARY ADJUSTMENTS AND CERTIFICATES OF COMPLIANCE

SUBJECT

This document describes the Department of Environmental Health (DEH) review procedures for boundary adjustments and certificates of compliance. The process for a boundary adjustment or certificate of compliance that is not entirely served by public sewer begins with DEH review.

AUTHORITY

San Diego County Code, Chapter 3, Section 68.301 et al. Septic Tank Ordinance; County Zoning Ordinance, Section 6903(h).

OVERVIEW

Boundary adjustments and certificates of compliance are discretionary review projects, and are subject to CEQA requirements. This includes compliance with County Ordinance requirements for water supply, sewage disposal, and zoning. DEH will review these projects to determine compliance with potable water supply and sewage disposal system requirements, which is the health department certification process for the project. Boundary adjustments and certificates of compliance cannot result in an increase in the number of parcels. Certification of septic system designs must meet all current design criteria defined in County Ordinance.

If public sewer does not serve any parcel of a boundary adjustment or certificate of compliance, the review process begins with review by DEH. Once DEH has approved the project, it is then submitted to the Department of Planning and Land Use for review pending recordation.

CERTIFICATION REQUIREMENTS

Boundary adjustment and certificates of compliance should include layout designs and percolation test data for vacant parcels that will be developed with onsite wastewater treatment systems (OWTS). The layout designs should show the location of water supplies and all easements on or adjacent to the project site.

There are two types of review processes that DEH uses for evaluation of a boundary adjustment or certificate of compliance.

Over the counter processing (OTC) can be done where all parcels involved are developed and have accurate designs on file for the location of the OWTS and water supply. OTC reviews are not appropriate for vacant parcels, and will not be considered.

Where vacant parcels are involved or parcels with no information regarding the location of the OWTS, a field review will be required. If the vacant parcels have no previous percolation testing data on file, new percolation tests will be required with OWTS designs. A licensed civil engineer, registered geologist, or registered environmental health specialist may request a waiver of percolation testing if the sites have large acreage and uniform soil conditions.

WAIVER OF CERTIFICATION

The County Zoning Ordinance prohibits boundary adjustments or certificates of compliance that create an unbuildable lot. The Director of Environmental Health may exempt a boundary adjustment lot(s) from certification when the lot line changes will not impact the ability of the lot(s) to utilize an OWTS. This is typically associated with minor lot line adjustments for developed parcels, or parcels with

recent OWTS design approvals. An example of this would be an adjustment to accommodate a building or driveway encroachment when the area involved was not usable for an OWTS or is insignificant as to the lots ability to support an OWTS.

Situations that will allow approval of a boundary adjustment without a certification include, but are not limited to:

1. One or more lots of the boundary adjustment are proposed for unmanned public facilities or other uses that will prevent future development such as water tanks, open space easements, etc.

   The sign-off must specifically state the proposed use of the site and that the site is not approved for the installation of an OWTS. An example of this would be "EXEMPT FROM CERTIFICATION, per S.D. County Zoning Ordinance, Section 6903(h). Site is proposed for use as an unmanned public facility, open space easement, etc. Not approved for any development which would require the use of an onsite wastewater treatment system."

   The remaining lots involved must either have approved engineering for development or meet one or more conditions of this policy to be approved without certification.

2. One or more lots of the boundary adjustment are currently unbuildable due to rock, groundwater, slope or other site conditions and will remain unbuildable after the adjustment.

   The sign-off must state "EXEMPT FROM CERTIFICATION, per S.D. County Zoning Ordinance, Section 6903(h). "Existing lot is not approved for the installation of an onsite wastewater treatment system - Site development requires connection to public sewer." A statement as to what the limiting site condition is should be included.

   Any remaining lots involved must either have approved engineering for development or meet one or more conditions of this policy to be approved without certification.

3. One or more lots of the boundary adjustment do not have engineering to demonstrate the ability for the site to support an OWTS.

   The lot must appear feasible for the installation of an OWTS based on the acreage or having multiple sites available. At no time can we knowingly create an unbuildable lot. On lots when it is unknown if the site can support an OWTS, engineering and layouts shall be provided. This option generally requires a field review to evaluate the conditions.

   The sign-off must state "EXEMPT FROM CERTIFICATION, per S.D. County Zoning Ordinance, Section 6903(h). Not approved for development without engineering to demonstrate site can support development based on the use of an onsite wastewater treatment system".

   Any remaining lots involved must either have approved engineering for development or meet one or more conditions of this policy to be approved without certification.