Local Agency Management Program Plan

For Onsite Wastewater Treatment Systems

City of Glendora

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Acronyms

AB	Assembly Bill
APMP	Advanced Protection Management Program
ANSI	American National Standards Institute
BOD	Biochemical Oxygen Demand
CEG	Certified Engineering Geologist
DPH	Department of Public Health
DWR	California Department of Water Resources
CEDEN	California Environmental Data Exchange Network
CPC	California Plumbing Code
EDF	Electronic Deliverable Format
EWMP	Enhanced Watershed Management Program
gpd	Gallons Per Day
IAPMO	International Association of Plumbing and Mechanical Officials
LAMP	Local Agency Management Program
LACWD	Los Angeles County Waterworks Districts
RWQCB	Los Angeles Regional Water Quality Control Board
MSGBW	Main San Gabriel Basin Watermaster
MPN	Most Probable Number
MS4	Municipal Separate Storm Sewer System
NOWTS	Non-conventional Onsite Wastewater Treatment System
NPDES	National Pollution Discharge Elimination System
NSF	National Sanitation Foundation
NRCS	Natural Resources Conservation Service
OWTS	Onsite Wastewater Treatment System
PE	Professional Engineer
PG	Professional Geologist
PS/GE	Professional Soil/Geotechnical Engineer
QP	Qualified Professional
REHS	Registered Environmental Health Specialist
SGVGB	San Gabriel Valley Groundwater Basin
SWRCB	State Water Resources Control Board
SWAMP	Surface Water Ambient Monitoring Program
TDS	Total Dissolved Solids
TMDL	Total Maximum Daily Load
USDA	United States Department of Agriculture
WDR	Waste Discharge Requirements
WSS	Web Soil Survey

1. Introduction

The Local Agency Management Program (LAMP) is the culmination of the actions required by Assembly Bill 885 (AB 885). AB 885 was introduced to the California State Assembly on February 25, 1999, and approved on September 27, 2000. This legislation directed the State Water Resources Control Board (SWRCB) to develop regulations or standards for Onsite Wastewater Treatment Systems (OWTS) to be implemented by qualified local agencies. The SWRCB adopted the *Water Quality Control Policy for Siting, Design, Operation, and Maintenance of Onsite Wastewater Treatment Systems* on June 19, 2012 (OWTS Policy). The OWTS Policy was subsequently approved by the Office of Administrative Law on November 13, 2012, and became effective on May 13, 2013. This LAMP has been prepared in accordance with the requirements of the SWRCB's OWTS Policy. The OWTS Policy allows local agencies to approve an OWTS, based on a local ordinance, after approval of a LAMP by the Los Angeles Regional Water Quality Control Board (RWQCB).

The purpose of the LAMP is to allow the continued use of OWTS within the jurisdiction of the City of Glendora (City), as well as permit and regulate alternative OWTS while protecting water quality and public health. The LAMP is designed to protect groundwater sources and surface water bodies from contamination through the proper design, placement, installation, maintenance, and assessment of individual OWTS. This plan develops minimum standards for the treatment and ultimate disposal of sewage through the use of an OWTS in the City. As such, it is intended to allow the City to continue providing local oversight of OWTS by implementing practices that: (a) are suited to the conditions in the local area; (b) meet or exceed the environmental protections of the "default" siting and design requirements for OWTS identified in Tier 1 of the OWTS Policy; and (c) ensure the best opportunity for coordinated and comprehensive management of OWTS, public health, and water quality within the City.

The LAMP does not include the following which require individual Waste Discharge Requirements (WDRs) or a waiver of individual WDRs issued by the RWQCB:

- Any OWTS with a projected wastewater flow of over 10,000 gallons per day (gpd).
- Any OWTS that receives high strength wastewater, unless the waste stream is from a commercial food service facility.
- Any OWTS that receives high strength wastewater from a commercial food service facility with a Biochemical Oxygen Demand (BOD) higher than 900 milligrams per liter (mg/L) or that does not have a properly sized and functioning oil/grease interceptor.

1.1 Regulation of Onsite Wastewater Treatment Systems

The City is responsible for regulating single family, multi-family, restaurant, and limited commercial OWTS throughout its jurisdiction. OWTS are used almost exclusively for properties located outside of municipal sewer service boundaries, which includes the area to the north of the City near the foothills and mountain regions of the San Gabriel Mountains. The City has historically operated its OWTS program under the authority granted to it by the RWQCB. The scope of the OWTS program includes plan review, permitting, construction, and management of OWTS.

The City's current wastewater program consists of a combination of municipal codes, plans, and policies. In response to the OWTS Policy, the City has begun the process to modify and update the City's OWTS

management program to meet the provisions of the OWTS Policy. Currently the City's municipal codes that regulate OWTS are the following:

- **15.20.030 Cesspools and groundwater pollution.**
  - *When it becomes necessary to construct septic tanks and cesspools to satisfy the needs for sanitary or industrial disposal, plans shall be submitted to the building department of the city and all permits and fees pertaining thereto shall be paid to that department. Specifications governing the construction of the structure, and control of pollution to ground waters by use of such structure shall be determined by County of Los Angeles (County) Ordinance No. 6130 and the water pollution control board provisions applicable thereto. (Prior code § 16.5 (part))*
- **15.24.020 Connection to sewer required—Exception.**
  - *All plumbing affecting the sanitary condition of any building, habitation or structure within the boundaries of any lot shall be connected with a public sewer; provided, however, that if there is no public sewer in a public street, alley or right-of-way on which the property abuts, or if the building or structure is located beyond the prescribed limit from such sewer, according to Sections 15.24.030 through 15.24.060, such building or structure may be connected to a cesspool and septic tank. (Prior code § 16.4 (part))*
- **15.24.050 Individually owned dwelling.**
  - *If there is no public sewer in a public street, alley or right-of-way on which the property abuts, such building or structure may be connected to a cesspool and septic tank as permitted under Section 1101 of the Uniform Plumbing Code unless otherwise specified by the city engineer. In such instance, the city engineer's recommendation must be ratified by the city council. (Prior code § 16.4 (part))*

These ordinances will be modified to remove the use of cesspools, as prohibited by the OWTS Policy, and to allow the City legal authority to implement and enforce the LAMP. The 2016 California Plumbing Code, specifically Appendix H Private Sewage Disposal Systems (2016 California Plumbing Code [CPC]), provides regulations on materials, design, and installation of OWTS. The City Council adopted the 2016 CPC on November 22, 2016, and it will become effective on January 1, 2017. A copy of Appendix H is in **Appendix A** of this plan. Further efforts to modify the City's municipal codes for inclusion of the LAMP will include a comprehensive review of: (a) the City Code pertaining to OWTS; (b) Los Angeles County's *Conventional and Non-Conventional Onsite Wastewater Treatment Systems - Requirements and Procedures* (County's Professional Guide), which contains and consolidates various standards for siting, design, and construction of OWTS along with other policies and procedures for implementation of OWTS requirements; and (c) the 2016 CPC. A copy of the County's Professional Guide is included in **Appendix B**.

1.2 City of Glendora OWTS Requirements

Proposed installation of new or replacement OWTS on a lot within the City's jurisdiction will require a permit. This process must be completed even if a permit was previously issued by the City for an existing OWTS. As part of the permitting approval process, the following form and reports will need to be submitted:

- Building Division Plan Check/Permit Worksheet. A blank copy of the worksheet is in **Appendix C**.
- A site evaluation and percolation test will need to be conducted. Findings are to be submitted as a feasibility plan and certified by a Qualified Professional (QP) as listed in **Section 4.2**.
- Proposed OWTS materials, design, installation, and maintenance plans.

Guidelines for the preparation and submittal of the site evaluation and plans in accordance to the City code, 2016 CPC, and other regulations applicable to OWTS are further detailed in **Section 3**. Permits must be obtained prior to the construction of an OWTS (Conventional) or OWTS with a supplemental treatment system (Non-conventional or NOWTS).

1.3 Organization of LAMP

The LAMP provides an outline of the procedures for the design and management of OWTS located within the City of Glendora. It is intended to document compliance with the OWTS Policy. The following provide the organization of this document:

- **Section 1** – Introduction: This section describes the purpose, scope, regulations, laws, guidance, and organization for the LAMP.
- **Section 2** – Environmental Conditions, OWTS Usage, and Water Quality Management: This section provides background information on environmental conditions related to OWTS usage and suitability. This section describes the extent of OWTS usage in the City of Glendora and summarizes water quality management measures.
- **Section 3** – OWTS Siting, Design, and Construction Requirements: This section presents excerpts from the Plumbing Code summarizing requirements for siting, design, and construction of OWTS, as per the requirements of the OWTS Policy.
- **Section 4** – Special Management Issues: This section describes special OWTS management issues in the City of Glendora, as per the OWTS Policy.
- **Section 5** – Prohibitions: This section presents prohibitions in the City of Glendora, as per prohibitions in the OWTS Policy.
- **Section 6** – Program Administration: This section describes the plan for maintaining records, water quality assessment, and reporting to the RWQCB, as per the OWTS Policy.

2. Environmental Conditions, OWTS Usage, and Water Quality Management

This section provides background information on environmental conditions, OWTS usage, and management approaches adopted to protect the surrounding water bodies and local groundwater supplies within the City of Glendora.

2.1 Geographic Area and Climate

The City is located in the eastern portion of Los Angeles County (County) along the south side of the San Gabriel Mountains. The City is bound to the west by the City of Azusa, to the south by the City of Covina, and to the east by the City of San Dimas. According to the U.S. Census Bureau, the City has a total area of 19.6 square miles with a recorded population of 50,073.

The City sits on the windward side of the San Gabriel Mountain range and has a Mediterranean climate. Annual precipitation is approximately 18 inches with most rain occurring during winter and early spring, typical of a Mediterranean climate. Precipitation during summer months is infrequent, and rainless periods of several months are common.

2.2 Hydrology

Surface water hydrology within the City is influenced by many factors including topography, geology, and climate. The City is situated within the San Gabriel River Watershed as illustrated in **Figure 2-1**. The San Gabriel River Watershed is located in the eastern portion of the County. The San Gabriel River drains the San Gabriel Mountains to the north and is bounded by the Los Angeles River Watershed to the west and Santa Ana River Watershed to the east. Big Dalton, Little Dalton and San Dimas Wash are the main water bodies that run through the City and eventually confluences with Walnut Creek and San Gabriel River Reach 3.

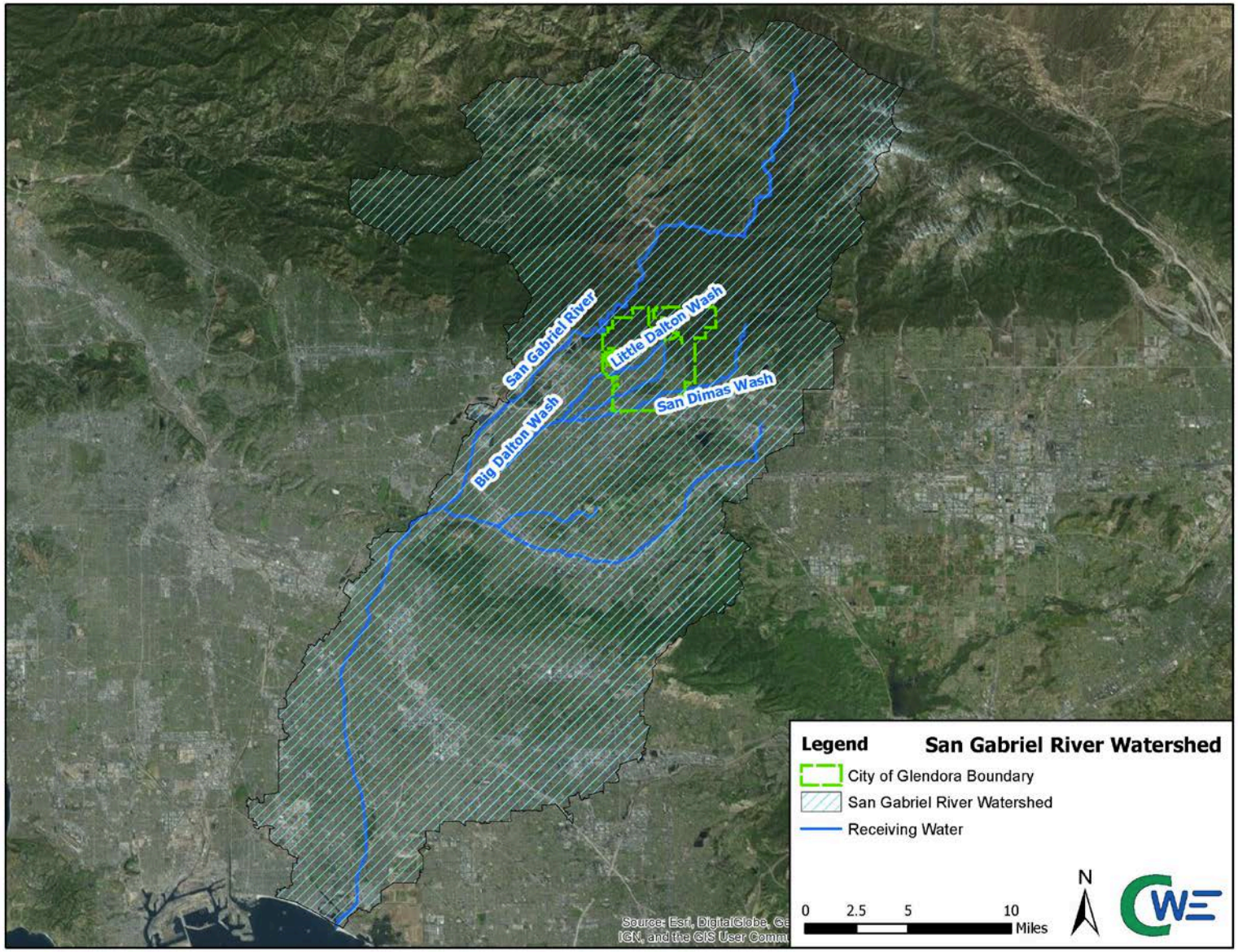

Figure 2-1 San Gabriel River Watershed

2.3 Geology

The mountain range along the northeast of the City is generally aligned in an east-west direction and is part of the Transverse Ranges. The major local range is the San Gabriel Mountains. Most of the mountainous areas lie below 5,000 feet with only 210 square miles above this elevation. The mountainous area is rugged with deep V-shaped canyons and steep walls that are separated by sharp dividing ridges. The average slope of the canyon floors ranges from 150 to 850 feet/mile. The San Gabriel Mountains are composed primarily of highly fractured igneous rock, with large outcrops of granitic rock exposed above coarse and porous alluvial soils. Faulting and deep weathering have produced pervious zones in the rock exposures. These rock masses have a comparatively shallow soil mantle formed in part by accelerated erosion on the steep slopes.

The water-bearing materials of the local groundwater basin are dominated by unconsolidated to semi-consolidated alluvium deposited by streams flowing out of the San Gabriel Mountains. These deposits include Pleistocene and Holocene alluvium and the lower Pleistocene San Pedro Formation. This young Holocene alluvium reaches 100 feet in thickness and although is typically above the water table, allows effective percolation of surface water in the basin. Upper Pleistocene alluvium deposits form most of the productive water-bearing deposits in this basin. They consist of unsorted, angular to sub-rounded sedimentary deposits ranging from boulder-bearing gravels near the San Gabriel Mountains to sands and silts in the central and western parts of the basin. Thickness varies from 40 feet in the north to about 4,100 feet in the central portion of the basin. The lower Pleistocene San Pedro Formation consists of interbedded marine sand, gravel, and silt. This formation bears fresh water and reaches a maximum thickness of about 2,000 feet and may grade eastward into continental deposits indistinguishable from the overlying Pleistocene age alluvium.

2.4 Groundwater

The main groundwater basin located beneath the City is the San Gabriel Valley Groundwater Basin (SGVGB). The SGVGB is located in the eastern portion of the County and has a surface area of approximately 255 square miles. The water within the basin is primarily calcium bicarbonate in character. In accordance with unpublished California Department of Water Resources (DWR) data, the north, west and central regions of the SGVGB's Total Dissolved Solids (TDS) ranges from 90 to 4,288 mg/L and averages around 367 mg/L.

The SGVGB recharge is mainly from direct percolation of precipitation and stream flows. Stream flow is a combination of runoff from the surrounding mountains, imported water conveyed in the San Gabriel River channel to the spreading grounds in the Central subbasin of the Coastal Plain of the Los Angeles Groundwater Basin, and treated sewage effluent. The subsurface flows enter from the Raymond Basin, Chino subbasin, and the fracture systems along the San Gabriel Mountain front.

Groundwater supply and level trends for the basin have been monitored by the Baldwin Park Key Well. According to the Main San Gabriel Basin Watermaster (MSGBW) Annual Report 2015-16, the water level fluctuated over 100 feet in elevation over the last 30 years from a high in 1983 to a low in 2016. In 2015, the groundwater elevation at the well was 174 feet, which represents a historic low.

According to the 1975 California Groundwater Bulletin 118 by the DWR, the storage capacity of the SGVGB was estimated to be 10,438,000 acre feet. With the addition of the Upper Santa Ana Valley Basin and removal of the Raymond Basin, the new adjusted storage capacity is about 10,740,000 acre feet.

2.5 Geologic Factors, OWTS Suitability and Soils

Geology is crucial to the suitability and performance of OWTS due to its influence on topography and landforms, the type and characteristics of soils that develop at the surface, the occurrence and movement of subsurface water, and slope stability. Geologic conditions are typically of greater significance in the mountainous regions, where the rock formations may influence the suitability for and effects of OWTS in areas with relatively thin or poorly developed soils, and/or relatively shallow groundwater.

Soil suitability is a critical aspect of onsite wastewater treatment and dispersal. The soil provides the medium for the absorption and treatment of wastewater discharged through subsurface dispersal systems. This is accomplished mainly through a combination of physical filtering, biological and chemical processes, and dilution. Protection of underlying groundwater relies on the provision of an adequate depth of permeable soil below the dispersal field (zone of aeration) for absorption and treatment to occur. The County's Professional Guide for OWTS requires a detailed site evaluation to document suitable soil characteristics and depth for each new OWTS installation consistent with industry practices and appropriate for the conditions and requirements as outlined in **Section 3**. The observed depth and engineering characteristics of the soil are used to select the appropriate location, sizing, and design of the OWTS to achieve proper effluent dispersal and groundwater protection.

Currently on the United States Department of Agriculture (USDA) Natural Resources Conservation Service (NRCS) Web Soil Survey (WSS), the City soil map area has not been completed. For informational purposes, the City has utilized the National Engineering Handbook, Chapter 7 Hydrology to define soil characteristics. The Hydrologic Soil Groups characterized in Chapter 7 were determined by water transmitting soil layer, with the lowest saturated hydraulic conductivity and depth to any layer that is more or less than water impermeable, or depth to a water table, if present. The City is grouped in an area where water transmission through soil is unimpeded. These soils have moderately low runoff potential when thoroughly wet. Its soil texture is typically between 10 and 20 percent clay and 50 to 90 percent sand with loamy sand or sandy loam textures. Some soils can be placed into this group if the characteristics consist of loam, silt loam, or sandy clay texture and are well aggregated, of low bulk density, or contain greater than 35 percent rock fragments. The limits on the diagnostic physical characteristics of these soil groups are as follows:

- The saturated hydraulic conductivity in the least transmissive layer between the surface and 20 inches ranges from 1.42 inches per hour to 5.67 inches per hour.
- The depth to any water impermeable layer is greater than 20 inches.
- The depth to the water table is greater than 24 inches.
- Soils that are deeper than 40 inches to a water impermeable layer and a water table are in this grouping if the saturated hydraulic conductivity of all soil layers within 40 inches of the surface exceeds 0.57 inches per hour but is less than 1.42 inches per hour.

Figure 2-2 illustrates the different soil types within the City.

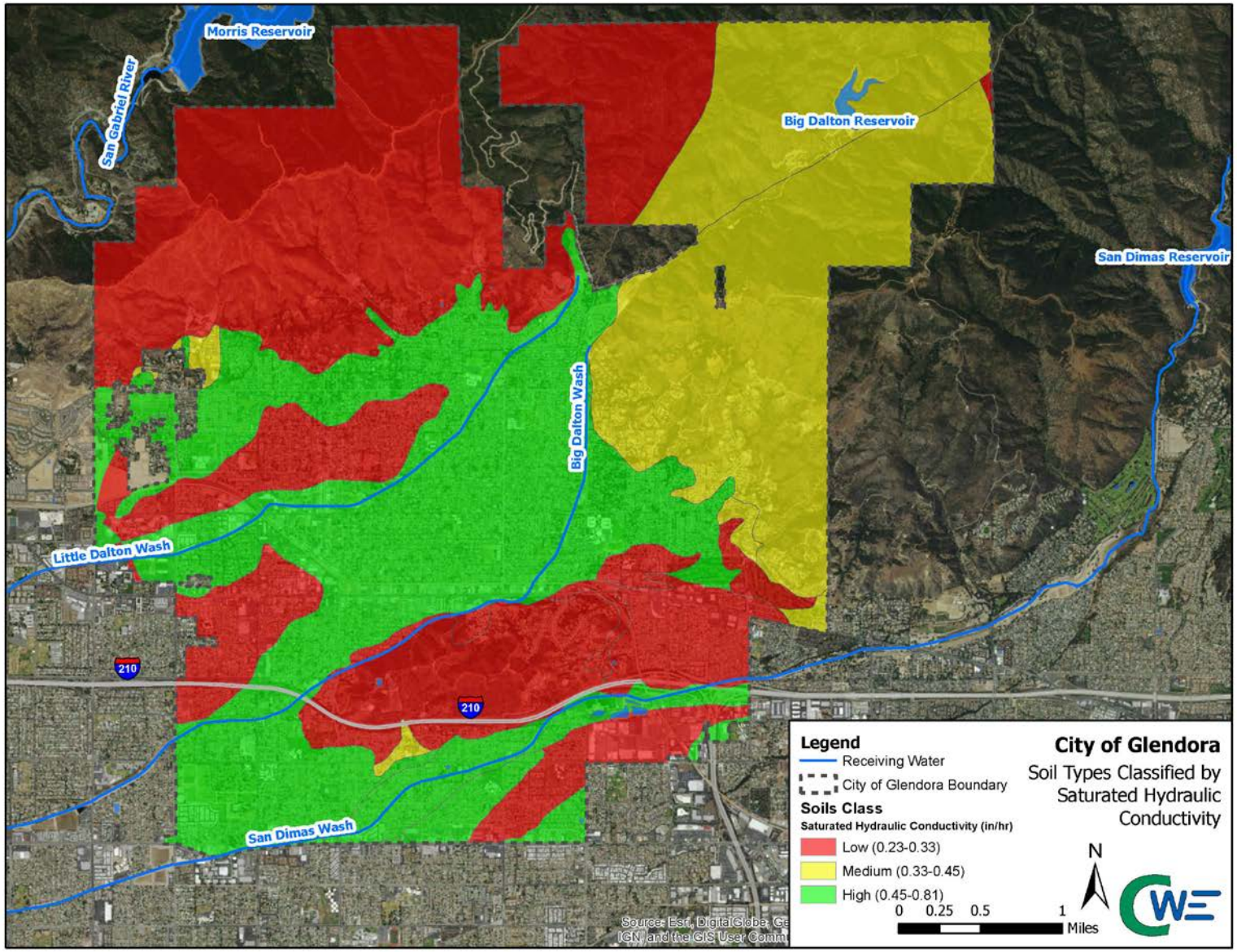

Figure 2-2 Glendora Soil Types

2.6 OWTS Usage Estimates

The City is estimated to have over 400 properties permitted with OWTS as illustrated in **Figure 2-3**. OWTS located within the City accept flows from:

- Domestic wastewater; and
- High-strength wastewater from commercial food service buildings with functioning oil/grease interceptors.

OWTS are used almost entirely on properties located outside of municipal sewer service boundaries, which primarily includes areas in the northern and northeastern portions of the City, as well as the mountainous regions.

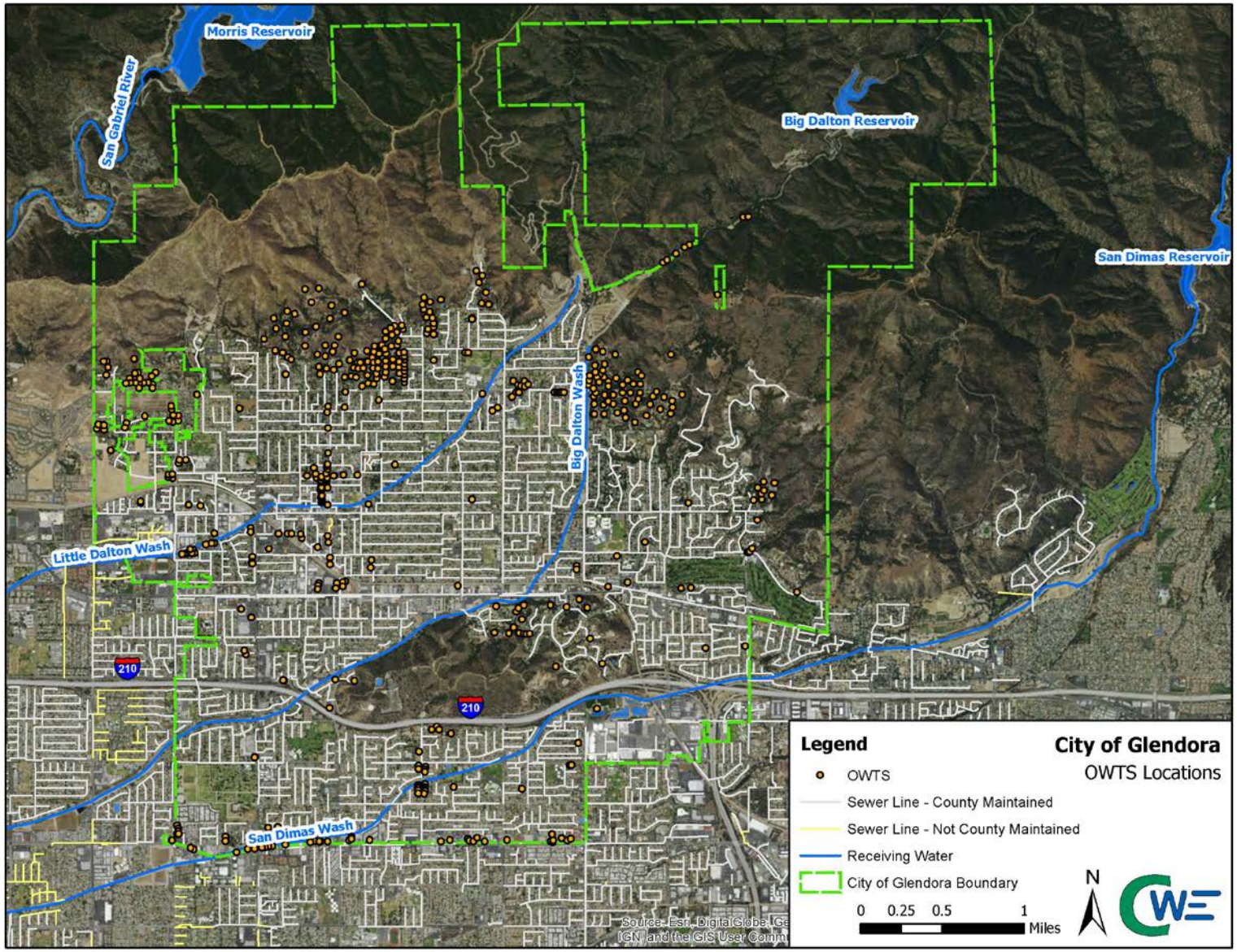

Figure 2-3 Glendora Permitted OWTS

2.7 Water Quality Management Measures

The following summarizes how key site suitability, land use, and development factors have been addressed in the OWTS requirements of the City's LAMP for protection of water quality. This summary is organized to correspond with the elements listed under the OWTS Policy Section 9.1.

Groundwater Quality Protection

- Soil suitability is addressed in **Section 2.5** of this document.
- Geologic conditions will be assessed in site evaluations which will include: description of slopes and topographical features, such as the location of all down banks and man-made cuts, and unstable land forms, on or off the property. Natural ground slopes in dispersal areas greater than 30 percent require a slope evaluation report approved by a California Certified Engineering Geologist (CEG) or a California Registered Professional Soil/Geotechnical Engineer (PS/GE) to address any possible potential for slope destabilization for any proposed hillside installation.
- Hydrogeologic conditions may be assessed in preparation for a site-specific evaluation and must be prepared and certified by a California Registered Geologist, Hydrogeologist or Engineering Geologist. The assessment will be based on a study of the interrelationship between the geologic conditions and surface and subsurface waters, conducted in at least one excavation located directly between the dispersal system and the subject drainage course to a depth not less than 10 feet below the anticipated bottom of the dispersal system. The hydrogeological assessment will describe the determining factors and examine the hydrogeological properties that provided a basis for the conclusion and ensure the protection of groundwater quality. The assessment will identify the existence of any hydrogeological elements that could support the possibility of lateral infiltration, such as, high hydraulic gradients, high hydraulic conductivity of soil, slow-permeable or impermeable layers, saturated zones, presence of perched water, elevation differential between the dispersal system and the drainage course, potential inflow of surface and subsurface water and wastewater, possibility of groundwater recharge, presence of vegetative growth, seasonal variations and climatic factors, etc. In situations where hydraulic gradient suggests the possibility of effluent migration toward the drainage course, even though the hydrogeological assessment has concluded that conventional OWTS will not have any impact on the drainage course it is recommended that non-conventional OWTS require supplemental treatment and disinfection components.
- Groundwater conditions are important to assess as it is the source of drinking water for the City. This resource must be protected from future impacts due to OWTS. The site evaluation must include evidence of groundwater depth satisfactory to the requirements in **Section 3.1**. Site plot plans will show all vegetation and trees, especially oak trees and groundwater indicators such as willows, reeds, cattails, and other hydrophilic plants to ensure adequate OWTS siting per **Section 3.1**. The locations of borings to establish current groundwater/subsurface water levels and percolation tests (including failures and their corresponding percolation rates) will be clearly documented in the site evaluation. This information helps determine suitable OWTS design and the minimum vertical separation distance between the bottom of the dispersal system to groundwater as given in **Table 3-1**. Requirements for vertical separation to groundwater are as follows:
  - Vertical separation distance of 5 feet for conventional OWTS with percolation rates between 5 and 60 minutes per inch;

- The City does not allow for reduced groundwater separation distances based on percolation rates, but does allow for reduced vertical separation distance based on inclusion of supplemental treatment for a non-conventional OWTS;
- No provision for vertical separation distance of less than 2 feet; and
- Areas with high use of domestic wells. Domestic wells are used widely in rural areas that also use OWTS. The California State Water Resources Control Board, Division of Drinking Water regulates the use of domestic water wells under the Safe Drinking Water Act requirements and this separates it from this LAMP. Horizontal setbacks from domestic wells are required to ensure the protection of the groundwater supply from OWTS near domestic wells. Horizontal setback requirements are summarized in **Section 3.1**.

Surface Water Quality Protection

Site evaluations will evaluate the required horizontal setback for OWTS and dispersal systems. Horizontal setbacks from flowing and non-flowing surface water bodies are required to protect surface water. Another requirement is determination of distance, minimum 1,200 feet, from an intake point for source water. Horizontal setback requirements and other siting criteria are summarized in **Section 3.1**. Currently there are no listed impaired water bodies in Attachment 2 of the OWTS Policy within the City's boundaries.

3. OWTS Siting, Design, and Construction Requirements

OWTS siting, design, and construction requirements for new and replacing existing tanks will be addressed by the OWTS Policy, and those differing from the OWTS Policy are addressed by the 2016 CPC Appendix H, and the County's Professional Guide. The following subsections provide a summary of these requirements.

3.1 Site Evaluation and Siting Criteria for OWTS

A site evaluation will need to be conducted prior to the installation of new or replacement OWTS. When installing new or replacement OWTS, a feasibility report and design plans must be completed. Feasibility reports will be prepared by a QP who possesses a valid California license/certification, outlined in **Section 4.2**. The QP who prepares the feasibility report must sign the report and clearly identify the property address, ownership information, QP's information, testing date(s), and a description of procedures performed by the QP. The feasibility report will include the following:

- The name and profession of the person(s) who performed the percolation testing procedure and their working relationship with the QP who signed the report.
- A site-specific determination of seasonal and historical subsurface water levels, including information regarding the methods utilized to reach the determination. This will include all available historical data that supports the findings concluded by the QP.
- Percolation testing data including the failures of test holes.
- A general soil description and any features that may affect subsurface wastewater dispersal.
- A soil profile excavation down-logged by a California Professional Geologist (PG) or California CEG. This report is to be included with the percolation test data.
- Depth of groundwater evaluation.

The feasibility report will describe the natural ground slope and topographical features, area available for the system and dispersal field, proximity to cuts, steep slopes, unstable land masses within 100 feet of the OWTS, water bodies, wells, other features that limit the available dispersal area, available future expansion area, and horizontal setback requirements. Surface water treatment plants for drinking water located within 1,200 feet of the OWTS will need be identified in the feasibility report. The feasibility study shall also verify if the new or replacement OWTS will be located within an area subject to a Basin Plan prohibition of discharges from OWTS. At this time the City is not located within an area prohibiting discharges from OWTS.

Soil Depth

For new or replacement OWTS, the feasibility report will include all necessary soil and site evaluations performed by the QP. A site evaluation shall determine that an adequate soil depth is present in the dispersal area. Soil depth is measured vertically to the point where bedrock, hardpan (a distinct layer of soil that is largely impervious to water), or impermeable soils are encountered or an adequate depth that has been determined. Soil depth will be determined through the use of soil profile(s) in the dispersal area and the designated dispersal system replacement area, as viewed in excavations exposing the soil profiles in representative areas, unless the City has determined through historical or regional information that a specific site soil profile evaluation is unwarranted.

Groundwater Separation and Percolation Requirements

A site evaluation will determine whether the anticipated highest level of groundwater within the dispersal field and its required minimum dispersal zone is not less than prescribed in **Table 3-1**. These minimum depths vary from the OWTS Policy Tier 1 requirements and are more restrictive. Depth to groundwater estimation may use one or a combination of the following methods:

- Direct observation of the highest extent of soil mottling observed in the examination of soil profiles, recognizing that soil mottling is not always an indicator of the uppermost extent of high groundwater; or
- Direct observation of groundwater levels during the anticipated period of high groundwater via groundwater exploration test holes; or
- Other methods, such as historical records, as acceptable by the City; or
- Where a conflict in the above methods of examination exists, the direct observation method indicating the highest level shall govern.

In areas that are known to have high groundwater and/or where observation of mottling, oxidation, staining, crystal buildup, seeps, weeps or other features that may indicate the presence of groundwater in the past or present or where groundwater or moisture seepage (i.e., seeps, perched-water, etc.) is present within 10 feet below the expected bottom of the dispersal field or seepage pit, the QP will, on a continuous basis, monitor and measure the presence of moisture and depth to high groundwater through a groundwater level observation well. Chapter 8 in the County's Professional Guide (**Appendix B**) provides a detailed description of the manner in which to conduct testing in areas of known or observed high subsurface water.

Table 3-1 Minimum Depths to Groundwater and Minimum Soil Depth from the Bottom of the Dispersal System

Percolation Rate (minutes per inch)	Minimum Depth (feet)
1-5	Not Allowed
5-60	8
>60	Not Allowed

A site evaluation shall include percolation testing and a suitability of the soils evaluation for absorption of wastewater in the dispersal zone. Prior to performing percolation testing, the QP will notify the City's Building and Safety Division and the County's Department of Public Health (DPH) of the date and time

one business day in advance. A DPH representative may visit the site to observe the testing procedure. All percolation test rates shall be performed by presoaking of percolation test holes and continuing the test until a stabilized rate is achieved. Percolation test results in the effluent disposal area cannot be faster than five minutes per inch or slower than 60 minutes per inch. Per the County's Professional Guide, reduced groundwater separation distances based on percolation rates for OWTS is not allowed, but is allowed for NOWTS dispersal systems. The percolation rates and minimum depth to groundwater for NOWTS and seepage pits can be found in **Table 3-2**. The entire percolation test procedures, including presoak shall be performed by a QP or trained individual(s) that are supervised by the QP.

Table 3-2 Minimum Depths to Groundwater with Percolation Rates for NOWTS and Seepage Pits

Type of NOWTS	Percolation Rate (minutes per inch)	Minimum Depth (feet)
New or replacement OWTS with leach line, leach field, and infiltrative chambers percolation rates faster than 5 minutes per inch or slower than 60 minutes per inch (Type changes from OWTS to NOTWS)	<5 or>60	10
Seepage Pits and Gravel-Packed Pits	Between 0.83 and 5.12 gallons per square foot in 24 hours	10
Seepage Pits and Gravel-Packed Pits – With Supplemental Treatment to meet or exceed secondary treatment technology and provide reduction in BOD	Greater than 5.12 gallons per square foot in 24 hours	10
Soil Replacement: the manufactured/engineered soil shall provide homogenized absorption capability, requires the use of a NOWTS system that uses pressurized drip tubing or other non-conventional method of wastewater disposal.	Greater than 5.12 gallons per square foot in 24 hours	2 feet as a variance for existing systems only. Otherwise, 5 feet.

Horizontal Setbacks

OWTS with treatment components and dispersal systems are required to have the following horizontal setbacks:

- 5 feet from parcel property lines and structures;
- 100 feet from water wells and monitoring wells, unless regulatory or legitimate data requirements necessitate that monitoring wells be located closer;
- 100 feet from any unstable land mass or any areas subject to earth slides identified by a registered engineer or registered geologist; other setback distances are allowed, if recommended by a geotechnical report prepared by a QP;

- 100 feet from springs and flowing surface water bodies where the edge of that water body is the natural or levied bank for creeks and rivers, or may be less where site conditions prevent migration of wastewater to the water body;
- 200 feet from vernal pools, wetlands, lakes, ponds, or other surface water bodies where the edge of that water body is the high water mark for lakes and reservoirs, and the mean high tide line for tidally influenced water bodies;
- 150 feet from a public water well where the depth of the effluent dispersal system does not exceed 10 feet;
- Where the effluent dispersal system is within 1,200 feet from a public water systems' surface water intake point, within the catchment of the drainage, and located such that it may impact water quality at the intake point such as upstream of the intake point for flowing water bodies, the dispersal system shall be no less than 400 feet from the high water mark of the reservoir, lake or flowing water body; and
- Where the effluent dispersal system is located more than 1,200 feet but less than 2,500 feet from a public water systems' surface water intake point, within the catchment of the drainage, and located such that it may impact water quality at the intake point such as upstream of the intake point for flowing water bodies, the dispersal system shall be no less than 200 feet from the high water mark of the reservoir, lake or flowing water body.

Other Siting Criteria

- The total depth of fill over leach lines to ground level, to include the gravel over the pipe, will not exceed 24 inches. A depth of 12 to 18 inches of earthen cover is required over leach lines.
- Where suitable sites outside of flood hazard areas are not available, wastewater dispersal systems may be permitted in flood hazard areas on sites where the effects of inundation, under conditions of the design, are minimized. Applicants are advised to contact the City's Building and Safety Division to inquire whether additional requirements apply.
- Natural ground slope in all areas used for effluent disposal shall not be greater than 25 percent. If greater than 25 percent a slope stability report approved by a QP will be needed.
- The average density for any subdivision of property made by Tentative Approval pursuant to the Subdivision Map Act occurring after the effective date of the OWTS Policy and implemented under Tier 1 shall not exceed the allowable density values in **Table 3-3** for a single-family dwelling unit, or its equivalent, for those units that rely on OWTS.

Table 3-3 Allowable Average Densities per Subdivision under Tier 1

Average Annual Rainfall (in/yr)	Allowable Density (acres/single family dwelling unit)
0-15	2.5
>15-20	2
>20-25	1.5
>25-35	1
>35-40	0.75
>40	0.5

3.2 OWTS Design Requirements

OWTS design requirements are addressed in the 2016 CPC and the County's Professional Guide. The minimum design criteria for new or replacement conventional and non-conventional OWTS are summarized below.

- The City will refer OWTS plan check of new and replacement conventional and non-conventional OWTS to the DPH. If a new or replacement OWTS is proposed for a property that is within 200 feet of an existing sewer line, the permit for the new or replacement OWTS will be rejected and connect to the sewer system will be required.
- The OWTS will be located, designed, and constructed in a manner to ensure that effluent does not surface at any time, and that percolation of effluent will not adversely affect beneficial uses to waters of the State.
- The design of new and replacement OWTS will be based on the influent wastewater quality, quantity, the site characteristics and the required level of treatment. The designer shall evaluate each situation including the peak wastewater flow rates for purposes of sizing hydraulic components, the projected average daily flow for purposes of sizing the dispersal system, the characteristics of the site, and the required level of treatment for protection of water quality and public health. The City will base the estimated waste/sewage flow rates on Appendix H of the 2016 California Plumbing Code as listed in **Table 3-4**.

Table 3-4 Estimated Waste/Sewage Flow Rates

Type of Occupancy	Unit gpd
Airports	15 per employee 5 per passenger
Auto Washers	Check with equipment manufacturer
Bowling Alleys (snack bar only)	75 per lane
Camps: Campground with central comfort station Campground with flush toilets, no showers Day camps (no meals served) Summer and seasonal	 35 per person 25 per person 15 per person 50 per person
Churches (Sanctuary) With kitchen waste	5 per seat 7 per seat
Dance Halls	5 per person
Factories: No showers With showers Cafeteria, add	 25 per employee 35 per employee 5 per employee
Hospitals Kitchen waste only Laundry waste only	250 per bed 25 per bed 40 per bed
Hotels (no kitchen waste)	60 per bed (2 person)
Institutions (Resident) Nursing home Rest home	75 per person 125 per person 125 per person

Type of Occupancy	Unit gpd
Laundries, self-service:	
(minimum 10 hours per day)	300 per machine
Commercial	Per manufacturer's specifications
Motel	50 per bed space
With kitchen	60 per bed space
Office	20 per employee
Parks, mobile homes:	250 per space
Picnic parks (toilets only)	20 per parking space
Recreational vehicles:	
Without water hook-up	75 per space
With water and sewer hook-up	100 per space
Restaurants – cafeterias	20 per employee
Toilet	7 per customer
Kitchen waste	6 per meal
Add for garbage disposal	1 per meal
Add for cocktail lounge	2 per customer
Kitchen waste – disposable service	2 per meal
Schools- Staff and office	20 per person
Elementary students	15 per person
Intermediate and high:	20 per student
With gym and showers, add	5 per student
With cafeteria, add	3 per student
Boarding, total waste	100 per student
Service station, toilets	1,000 for first bay, 500 for each additional bay
Stores	20 per employee
Public restrooms, add	1 per 10 square feet of floor space
Swimming pools, public	10 per person
Theatres, auditoriums	5 per seat
Drive-in	10 per seat

3.2.1 Septic Tank Design Requirements

- Septic tanks must have the minimum capacity shown in **Table 3-5** for single family and multiple dwelling units. The capacity for a septic tank to be utilized for single or multiple family dwellings are based on the number of bedrooms and bedroom equivalents. Septic tanks may be voluntarily oversized to improve the retention time and should be clearly noted on the plans.
- All new septic tanks shall comply with the most current version of the Los Angeles County Plumbing Code, Title 28, Appendix K.
- New and replacement tanks shall be approved by the International Association of Plumbing and Mechanical Officials (IAPMO) or stamped and certified by a California registered civil engineer as meeting industry standards and their installation shall be according to manufacturer's recommendations.
- New and replacement OWTS shall be designed to prevent solids in excess of three-sixteenths (3/16) of an inch in diameter from passing to the dispersal system. OWTS that use a National Sanitation Foundation/American National Standard Institute (NSF/ANSI) Standard 46 certified

septic tank filter at the final point of effluent discharge from the OWTS and prior to the dispersal system shall be deemed in compliance with this requirement.

- All joints between the septic tank and its components shall be watertight and constructed of solid, durable materials to prevent excessive corrosion or decay.
- The inverts of all outlets shall be level and the invert of the inlet shall be at least one inch higher than the outlets.
- All septic tank access points shall have watertight risers, the tops of which are set not more than six (6) inches below grade. Access openings at grade or above shall be locked or secured to prevent unauthorized access.
- Any tank proposed to be installed within a driveway must be traffic-rated and equipped with traffic-rated risers with traffic-rated covers set at grade. Non-traffic rated tanks shall not be installed within five feet of any road or driveway.
- OWTS that utilize pumps to move effluent from the septic tank to the dispersal system will be equipped with one of the following: a visual, audible, or telemetric alarm that alerts the owner or service provider in the event of pump failure. All pump systems, at minimum, will provide sufficient storage space in the pump chamber during a 24-hour power outage or pump failure and not allow an emergency overflow discharge. The capacity for the storage space of a pump chamber must be equal or greater than the sum of 300 gallons for first bedroom and 150 gallons for each additional bedroom or bedroom equivalent rooms thereafter.
- When the existing system is required to be exposed to establish the size and capacity of the septic tank and/or dispersal field or seepage pit, the DPH may visit the site and verify the dimensions with the QP. The QP must notify the DPH of the date and time of the OWTS uncovering at least one business day in advance for possible observation by the DPH representative.

3.2.2 Dispersal Systems and Design Requirements

General dispersal system requirements are consistent with the County's Professional Guide and the OWTS Policy and include the following:

- At least 12 inches of soil cover, except for pressure distribution systems, which must have at least six (6) inches of soil cover.
- Not exceed a maximum depth of 10 feet as measured from the ground surface to the bottom of the trench.
- Cannot be covered by an impermeable surface.
- Rock fragment of the native soil surrounding the disperseal system cannot exceed 50 percent by volume for rock fragments sized as cobble or larger.
- Where two or more leach lines are installed, an approved distribution box of sufficient size to receive lateral lines shall be installed at the head of the dispersal field. Similarly, two or more seepage pits shall be connected by means of a distribution box and not in series.
- Distribution boxes shall be of an approved type with protective coating on interior surfaces, sufficient in size, designed to ensure equal flow and be installed on a level concrete slab in natural or compacted soil.

- There must be at least three (3) feet of natural, continuous, undisturbed soil beneath the bottom of a conventional dispersal system.
- Every new OWTS and NOWTS, regardless of the type of the dispersal system, shall be provided with a sufficient land area for an entirely new dispersal system (100% future expansion area).
  - When soil profile and percolation tests confirm alluvium geology and uniformity in geology has been established by the PG, the required percolation testing for the 100% future expansion area may be waived. The uniformity in geology shall be established through both soil profile studies and percolation testing of more than one hole.
  - Where proposed future expansion areas are in bedrock, hardpan or fractured rock formation, the future pits shall be tested to establish percolation rates for each individual pit.

Multiple dispersal methods can be utilized for conventional OWTS. The following are the different types of dispersal methods and their design requirements.

3.2.2.1 Leach Beds

- This conventional leach bed system consists of multiple perforated lines which will be installed in an excavation with:
  - A minimum 36 inches in width
  - A maximum of 100 linear feet in length
  - 12 to 36 inches of gravel beneath a system of perforated distribution pipes through which sewage effluent seeps into the surrounding soil
  - Perforated pipes that will neither be installed greater than six feet apart nor closer than three feet to the sidewall of the leach bed
- The area designated as a leach bed will be at least 50% greater than the area required for leach lines.
- The dispersal field/area is not to be covered or paved over and in no case may a vehicle be driven or placed over the dispersal field/area.
- Gravel, stone, slag and similar materials used for filtration purposes shall be thoroughly washed to be free of fines (small particles).

3.2.2.2 Leach Line

- Leach line systems that require one or more trenches are required to have:
  - A minimum 36 inches in width
  - A maximum of 100 linear feet in length
  - 12 to 36 inches of gravel beneath a system of perforated distribution pipes through which sewage effluent seeps into the surrounding soil
- When more than one leach line is required to be installed, they will be equal in length and size and be provided effluent from a distribution box rather than an overflow pipe connecting the leach lines in series.
- The distance between trenches shall be a minimum of four feet, measured from closest sidewall to sidewall. The distance between trenches shall be increased by two feet for every additional foot of gravel beneath the perforated lines.

- Leach lines on hillside properties shall be installed level with the contour of the land.

3.2.2.3 Infiltrative Chamber

Infiltrative chamber septic system leach fields consist of semicircular chambers installed contiguously with the open portion of the infiltrative chambers on the ground.

- The infiltrative surface area credit will be limited to the calculated floor area beneath the open portion of the chamber, excluding the area beneath the base of walls where the infiltrative chamber is placed on the ground. The infiltrative surface area may be reduced to seventy percent (70%) of the area that would be required for a conventional leach field dispersal system.
- Use of gravel under the infiltrative chambers is optional; however, no additional sidewall credit will be given when gravel is used.

3.2.2.4 Seepage Pit

Seepage pits consist of one or more covered circular excavations, four to six feet in diameter with an interior lining of six inches of gravel and sewer brick or concrete liners allowing effluent to seep into the surrounding soil.

- The pit shall have a minimum effective sidewall of 10 feet below its sewer inlet pipe.
- The seepage pit(s) must be sized to hold a volume of at least five times the volume of the proposed size of the septic tank divided by the amount of water absorbed during the percolation test. When groundwater depth prevents a single pit from meeting this requirement, additional seepage pits must be constructed. Multiple seepage pits must have effluent delivered to them from a distribution box rather than connecting the pits in series.

Gravel packed pits are seepage pits that are filled with gravel of 0.75 to 2.5 inches in size up to the cap level, allowing effluent to seep into the surrounding soil. The gravel must be washed and free of silt. All of the limitations on seepage pits apply to gravel packed pits.

- The gravel packed pit(s) must be sized to hold a volume of at least five times the volume of the proposed size of the septic tank divided by the amount of water absorbed during the percolation test. The same requirements for percolation testing of a seepage pit apply to a gravel packed pit if the test is performed without gravel pack being added.

Table 3-5 Capacity of Septic Tanks

Single-Family Dwellings[1] Number of Bedrooms	Multiple Dwelling Units or Apartments One Bedroom Each	Other Uses: Maximum Fixture Units Served (per CPC)	Minimum Septic Tanks Capacity[2] (Gallons)
1 or 2		15	750
3		20	1,000
4	2	25	1,200
5 or 6	3	33	1,500
	4	45	2,000
	5	55	2,250
	6	60	2,500
	7	70	2,750
	8	80	3,000
	9	90	3,250
	10	100	3,500

[1]Applies to mobile homes not installed in a mobile home park.
[2]Septic tank sizes in this table include sludge storage capacity and the connection of domestic food waste disposal units without further volume increase.
Notes:
Extra bedroom, 150 gallons (568 liters) each.
Extra dwelling units over 10,250 gallons (946 liters) each.
Extra fixture units over 100, 25 gallons (95 liters) per fixture unit.

Materials and Equipment

The design of the OWTS will comply with minimum standards, including accepted plumbing material standards, as specified in the 2016 CPC. Materials and equipment for OWTS construction, replacement, or repair will need to be reviewed and evaluated by the DPH.

Septic tanks must be watertight, properly vented, and constructed of reinforced concrete, heavyweight reinforced concrete blocks, fiberglass or other durable non-corrodible materials as approved by the DPH's designated Director of Environmental Health (Director). Septic tanks must be designed to withstand any anticipated weight placed above it. All septic tanks shall be listed and approved by IAPMO or an ANSI accredited testing organization.

All OWTS approved under the LAMP will have a septic tank equipped with an effluent filter located in the outlet compartment in such a manner to be easily serviced.

Design and materials for special conditions or materials not provided for in the Plumbing Code must be permitted to be used only by special permission of the Director, after the Director has been satisfied as to their adequacy. If alternative materials are included in the OWTS design, technical documentation will be submitted to the DPH to demonstrate equivalency. The Director will have the authority to approve or disapprove the system, method, or device for the intended purpose.

Additional Design Requirements for Non-Conventional OWTS

Appendix D describes the requirements for an NOWTS, which require supplemental treatment. NOWTS include additional treatment of effluent to reduce its impact on the environment. Treatment systems include the effluent being pumped in small amounts to a specialized filter media where the effluent is processed mechanically, chemically, and biologically. These processes include treatment by aerobic bacteria to reduce the BOD and convert ammonia to nitrate as well as mechanical filtration of suspended solids. Additional information regarding sufficient treatment systems are outlined in the County's Professional Guide.

3.3 Construction and Installation

The following summarizes the minimum construction criteria as per the OWTS Policy:

- All new or replacement OWTS and new or replacement oil/grease interceptor tanks shall comply with the standards contained in Sections K5(b), K5(c), K5(d), K5(e), K5(k), K5(m)(1), and K5(m)(3)(ii) of Appendix K, of Part 5, Title 24 of the 2007 California Code of Regulations.
- All new septic tanks shall comply with the following requirements:
  - Access openings shall have watertight risers, the tops of which shall be set at most six inches below finished grade; and
  - Access openings at grade or above shall be locked or secured to prevent unauthorized access.
- New and replacement OWTS shall be limited to those approved by the IAPMO and submitted for review by the Building and Safety Division. The feasibility plan is to be stamped and certified by a California registered civil engineer as meeting industry standards and their installation shall be according to the manufacturer's instructions.
- A Licensed General Engineering Contractor (Class A), General Building Contractor (Class B), Sanitation System Contractor (Specialty Class C-42), or Plumbing Contractor (Specialty Class C-36) shall install all new and replacement OWTS in accordance with California Business and Professions Code Sections 7056, 7057, and 7058 and Article 3, Division 8, Title 16 of the California Code of Regulations. A property owner may also install his/her own OWTS if the as-built diagram and the installation are inspected and approved by the RWQCB or City at a time when the OWTS is in an open condition (not covered by soil and exposed for inspection).

4. NOWTS Requirements

OWTS that meet the following conditions below, may be constructed, but will require the additional supplemental or advanced treatment and will be referred to as NOWTS. The conditions for when they are required, as per the County's Professional Guide, are listed below.

- The percolation rate is faster than 5.12 gallons per square feet per day for a seepage pit.
- The percolation rate for a leach field or leach bed system is faster than 5 MPI for a new or replacement OWTS.
- The percolation rate for a leach field or leach bed system is slower than 60 MPI for a new or replacement OWTS.
- There is less than three (3) feet of continuous, natural, undisturbed soil beneath a conventional dispersal system.
- A replacement OWTS is unable to meet setback requirements for groundwater, surface water, a well or other public water source intake.

Supplemental treatment requirements for nitrogen and pathogens, as well as other requirements for NOWTS can be found in **Appendix D**.

5. Special Management Issues

The below discussion describes provisions under Tier 2 in this LAMP for special OWTS management issues as per OWTS Policy Sections 9.2.1 through 9.2.12.

5.1 Inspection, Monitoring, Maintenance, and Repair

Requirements for inspection, monitoring, maintenance, and repair are summarized in **Table 5-1** below. All systems for which a permit is required will be inspected, which is a requirement from the 2016 CPC, Chapter 1, Section 104. No portion of any system shall be concealed until inspected and approved. The City is not liable for expense entailed in the removal or replacement of material required to permit inspection. Approval as a result of an inspection will not be construed to be an approval of a violation of the provisions related to OWTS or of other codes and laws. Inspections presuming to give authority to violate or cancel the provisions related to OWTS or other codes and laws will not be valid.

5.1.1 OWTS Requiring Corrective Actions

Interim measures such as installing and utilizing sewage holding tanks will be permitted if it is determined that an OWTS is failing, but will not be permitted after corrective actions have been made. The following outlines the types of failures and corrective actions that will be taken per the Tier 4 requirements:

- Any OWTS that has pooling effluent, discharges wastewater to the surface, or has wastewater backed up into plumbing fixtures, because its dispersal system is no longer adequately percolating the wastewater is deemed to be failing, no longer meeting its primary purpose to protect public health, and requires major repair, and as such the dispersal system must be replaced, repaired, or modified so as to return to proper function and comply with Tier 2.
- Any OWTS septic tank failure, such as a baffle failure or tank structural integrity failure such that either wastewater is exfiltrating or groundwater is infiltrating is deemed to be failing, no longer meeting its primary purpose to protect public health, and requires major repair, and as such shall require the septic tank to be brought into compliance with the requirements of the City's LAMP.
- Any OWTS that has a failure of one of its components other than those covered by the first two bullets above, such as a distribution box or broken piping connection, shall have that component repaired so as to return the OWTS to a proper functioning condition and return to Tier 2.
- Any OWTS that has affected, or will affect, groundwater or surface water to a degree that makes it unfit for drinking or other uses, or is causing a human health or other public nuisance condition shall be modified or upgraded so as to abate its impact.
- If the owner of the OWTS is not able to comply with corrective action requirements of this section, the RWQCB may authorize repairs that are in substantial conformance, to the greatest extent practicable, with Tiers 1 or 3, or may require the owner of the OWTS to submit a report of waste discharge for evaluation on a case-by-case basis. RWQCB response to such reports of waste discharge may include, but is not limited to, enrollment in general WDRs, issuance of individual WDRs, or issuance of waiver of WDRs. The City may authorize repairs that are in substantial conformance, to the greatest extent practicable.

Table 5-1 Summary of OWTS Inspection, Monitoring, Maintenance, and Repairs

Activity	Code or Professional Guide	Inspections	Monitoring	Maintenance and Repairs	Permit Required
NOWTS Construction	Plumbing Code and Professional Guide	Site evaluation for setbacks leak test start up and telemetry test	N/A	N/A	Building and Safety and City approvals required
NOWTS Operation	Title 11 and Professional Guide	Annual inspection by City	Telemetry monitoring by service provider. Annual effluent testing per Professional Guide and Quarterly monitoring of *E. coli* per the NOWTS requirements	Service contract required. Maintenance schedule as specified by manufacturer	Annual Public Health Permit
OWTS Construction	Plumbing Code and Professional Guide	Site evaluation for setbacks	N/A	N/A	Building and Safety and City approvals required
OWTS Operation	N/A	None	None	Maintenance, including pumping of sludge every 3-5 years recommended	None
Point of Sale Inspections	N/A	Inspection of OWTS conducted by independent maintenance provider or professional in conjunction with sale of a property or re-financing.	Monitoring for constituents listed in APMP	Maintenance and/or repair/system upgrade work may be recommended or required as a result of inspection findings.	N/A

5.2 Professional, Contractor, and Maintenance Provider Qualifications

Educational, training, certification, and/or licensing requirements that will be required of OWTS service providers, site evaluators, designers, installers, pumpers, maintenance contractors, and any other person relating to OWTS activities can be addressed with the County's Professional Guide. **Table 5-2** summarizes the qualifications for OWTS practitioners.

Table 5-2 Qualifications for OWTS Practitioners

OWTS Activity	Required Work	Prof. Guide	Minimim Qualified Contractor or QP Qualifications
Soil and site evaluations and OWTS design, *except as noted below*	Percolation testing, surface setbacks, and system design	Chapter 2	PG, CEG, PE, PS/GE, Registered Environmental Health Specialist (REHS)
Subsurface exploration[1]	Conduct field studies and evaluate geology, soils, percolation, groundwater, slopes and other factors for design and use of OWTS.	Chapter 2	PG, CEG
Geological assessment[1]	Determination of uniform geology where extreme geologic conditions do not exist	Chapter 2	PG
Soil profile[1]	Prepare soil profile of any test pits	Chapter 2	PG, CEG
Slope evaluation[1]	Address potential slope destabilization for proposed hillside installation	Chapter 2	CEG, PS/GE
Hydrological assessment[1]	Prepare/certify assessment to request waiver of setback requirements from a blue line stream/tributary and confirm the dispersal system and drainage course will not generate sufficient lateral infiltration to negatively impact each other, declaring the location for the proposed dispersal area suitable	Chapter 2	PG, CEG, CHG
OWTS install, repair or replacement	All work related to install of new and replaced OWTS, and repair of existing OWTS	Chapter 2	General Building/ Engineering Contractor License: Class A, Class B, Class C-42, or Class C-36
Certification inspection of existing OWTS	For purposes of certification inspection of existing OWTS, contractors who possess only a General Building Contractor (Class B) license are not qualified to perform the inspection	Chapters 1 and 2	General Engineering Contractor License: Class A, Class C-42, or Class C-36
OWTS operation, monitoring, and maintenance	A person capable of operating, monitoring and maintaining an OWTS in accordance with the LAMP requirements may perform these tasks (e.g., pumping).	Chapters 5 and 12	Owner, manufacturer, or certified service provider, as prescribed by the County

[1]The noted OWTS activity will be performed by a QP on a specific site to contribute to a feasibility report for installation of OWTS, as applicable.

5.3 Education and Outreach

The City will provide educational materials to residents with a current OWTS. Education materials will direct the local resident to online references for the OWTS Policy. A copy of the LAMP will be accessible through the City's website. The City will notify known OWTS owners of the new OWTS Policy and the LAMP. Educational materials will be distributed through the mail and consist of information on new or replacement OWTS design, how to operate and provide proper maintenance, and ensure repair or replacement of critical items are completed within 48 hours following failure. Additional informational flyers and brochures will be made available to the public at the Public Works counter at City Hall.

5.4 Septage Management

Septage is produced as a result of pumping the septic tank during normal maintenance by the owner, in support of a real estate transaction, or in support of repairs using a registered septic pumper and hauler. There are septage receiving facilities located throughout the County at wastewater treatment plants and several are listed in **Table 5-3**. The Sanitation Districts of Los Angeles County tracks the volume of septage processed at the receiving facilities from both domestic and commercial sources under their Liquid Waste Disposal Program and ensures that capacities are adequate for septage generation. The current volumes of waste received at these facilities from septage sources are small relative to the treatment and conveyance capacity at the facilities. No formal predictions for future septage generation have been necessary, as the facilities could accommodate a significant increase in the amounts of septage currently received and capacity limitations have not been identified as a concern. **Table 5-3** presents septage generation data from 2014 and 2015.

Table 5-3 Annual Septage Generation from Facilities in South Los Angeles County

Septage Receiving Facility	Annual Septage Generation (million gallons)	
	2014	2015
Pomona[1]	13.9	13.0
Carson[1]	18.6	21.1
Saugus[1]	4.3	5.0
Total (Commercial and Domestic)[1]	36.8	39.1
Estimated Annual Contribution from Domestic OWTS/NOWTS[2]	16.2	16.2

[1]2014 and 2015 Data Source: Annual Load, Volume and Receipt Reports, Liquid Waste Disposal Program, January–December 2014 and January – December 2015.

[2]Assuming an average pumping frequency of once every five (5) years and a pump-out volume of 1,500 gallons per tank, the annual volume of septage generated by conventional and non-conventional OWTS within the County was calculated. The estimated value of 16.2 million gallons per year suggests the contribution from non-conventional and conventional OWTS is approximately 40 to 43% of the total annual septage generated.

5.5 Onsite Maintenance Districts

Currently the City has not established onsite wastewater maintenance districts or zones and no plans currently exist to establish them.

5.6 Watershed Management Coordination

The City is a member of the Upper San Gabriel River EWMP Watershed Management Group along with the Cities of Baldwin Park, Covina, Industry, La Puente, and Los Angeles County Flood Control District (Group). The Group was formed to address watershed-specific conditions, control measures in compliance with stormwater management requirements under the National Pollution Discharge Elimination System (NPDES) Permit for Municipal Separate Storm Sewer System (MS4) discharges. At this time there is no plan to coordinate with the Group regarding the OWTS Policy. If at a later date the City decides to coordinate with the Group, revisions to the LAMP will be made and sent to the RWQCB for approval.

5.7 Evaluating Proximity to Public Sewers

The City will refer plan check of new and replacement OWTS to the County. If a new or replacement OWTS is proposed for a property that is within 200 feet of an existing sewer line, the permit for the new or replacement OWTS will be rejected and connection to the sewer system will be required. The closest proximity to the property line will be used in determining the distance from the closest existing sewer line. Procedures for evaluating the proximity of sewer systems to the property line can be inquired through the Building and Safety Division of the Public Works Department.

5.8 Policies and Procedures when a Proposed OWTS Dispersal Area is within the Horizontal Sanitary Setback of a Public Well

Policies and procedures that will be followed when a proposed OWTS dispersal area is within the horizontal sanitary setback of a public well or a surface water intake point are addressed in the OWTS Policy Sections 10.9 and 10.10.

- Supplemental treatment requirements for nitrogen
  - Effluent from the supplemental treatment components designed to reduce nitrogen shall be certified by NSF, or other approved third party tester, to meet a 50 percent reduction in total nitrogen when comparing the 30-day average influent to the 30-day average effluent.
  - Where a drip-line dispersal system is used to enhance vegetative nitrogen uptake, the dispersal system shall have at least six (6) inches of soil cover.
- Supplemental treatment requirements for pathogens
  - Supplemental treatment components designed to perform disinfection shall provide sufficient pretreatment of the wastewater so that effluent from the supplemental treatment components does not exceed a 30-day average total suspended solids (TSS) of 30 mg/L and shall further achieve an effluent fecal coliform bacteria concentration less than or equal to 200 Most Probable Number (MPN) per 100 milliliters.
  - The minimum soil depth and the minimum depth to the anticipated highest level of groundwater below the bottom of the dispersal system shall not be less than three (3) feet. All dispersal systems shall have at least twelve (12) inches of soil cover.

5.9 Phase-Out of Cesspool Usage

The OWTS policy does not allow cesspools to be managed by the local agency; therefore, the City will not authorize usage of cesspools under this LAMP. The City will revise the ordinance to reflect the OWTS Policy regarding cesspools and will no longer allow their use within its jurisdiction. A number of cesspools may exist in the City and they will be phased out as they are discovered through communications with property owners, responses to complaints, application updates and/or repairs, pumper truck reports, or during inspections. The City will require septic tank pumping contractors to report cesspools, and non-conforming or failing systems to the City. The following measures will be taken when a cesspool is discovered:

1. Site visit to inspect, take photographs, and make observations. Observations will be recorded along with information including, but not limited to, address of cesspool, owner name, owner address, owner contact information, and size of holding tank or soak pit.
2. Determine appropriate corrective actions have been made to remove it from service.
3. Follow up with owner following completion of removal or phase-out.
4. Reporting of the number of cesspools discovered, their location, phase-out course of action, and inspections will be reported to the RWQCB in the Annual Report.

The schedule of abandonment is as follows:

- If a property is subject to sale or transfer, the cesspool must be removed from service within one year of the escrow closing date;
- If a cesspool has failed, it must be removed within one (1) year of the failure, or less if an imminent threat to public health is identified; or
- If a cesspool is located within one of the three areas described below, the cesspool must be removed immediately:
  - Within 200 feet of any public wells; or
  - Within 200 feet of a water body with an intake for a drinking water supply.

6. Prohibitions

OWTS Policy Section 9.4 identifies items that are not allowed to be managed by a local agency. The following items will not be managed by the City:

- Cesspools of any kind or size.
- OWTS receiving a projected flow over 10,000 gpd.
- OWTS that utilize any form of effluent disposal that discharges on or above the post installation ground surface such as sprinklers, exposed drip lines, free-surface wetlands, or a pond.
- Slopes greater than 25 percent without a slope stability report approved by a registered professional.
- Decreased leaching area for IAPMO certified dispersal systems using a multiplier less than 0.70.
- OWTS utilizing supplemental treatment without requirements for periodic monitoring or inspections.
- OWTS dedicated to receiving significant amounts of wastes dumped from recreational vehicle (RV) holding tanks.
- Separation of the bottom of the dispersal system to groundwater is less than two (2) feet, except for seepage pits, which shall not be less than 10 feet.
- Installation of new or replacement OWTS where a public sewer is available. The public sewer may be considered as not available when such public sewer or any building or exterior drainage facility connected thereto is located more than 200 feet from any proposed building or exterior drainage facility on any lot or premises that abuts and is served by such public sewer. This provision does not apply to replacement OWTS where the connection fees and construction cost are greater than twice the total cost of the replacement OWTS and the local agency determines that the discharge from the OWTS will not affect groundwater or surface water to a degree that makes it unfit for drinking or other uses.
- Except as listed in this section, new or replacement OWTS with minimum horizontal setbacks less than any of the following:
  - 150 feet from a public water well where the depth of the effluent dispersal system does not exceed 10 feet in depth.
  - 200 feet from a public water well where the depth of the effluent dispersal system exceeds 10 feet in depth.
  - Where the effluent dispersal system is within 600 feet of a public water well and exceeds 20 feet in depth, the horizontal setback required to achieve a two-year travel time for microbiological contaminants shall be evaluated. A QP shall conduct this evaluation. However, in no case shall the setback be less than 200 feet.
  - Where the effluent dispersal system is within 1,200 feet from a public water systems' surface water intake point, within the catchment of the drainage, and located such that it may impact water quality at the intake point such as upstream of the intake point for flowing water bodies, the dispersal system shall be no less than 400 feet from the high water mark of the reservoir, lake or flowing water body.
  - Where the effluent dispersal system is located more than 1,200 feet but less than 2,500 feet from a public water systems' surface water intake point, within the catchment area of the

drainage, and located such that it may impact water quality at the intake point such as upstream of the intake point for flowing water bodies, the dispersal system shall be no less than 200 feet from the high water mark of the reservoir, lake or flowing water body.

- For replacement OWTS that do not meet the above horizontal separation requirements, the replacement OWTS shall meet the horizontal separation to the greatest extent practicable. In such case, the replacement OWTS shall utilize supplemental treatment and other mitigation measures, unless the permitting authority finds that there is no indication that the previous system is adversely affecting the public water source, and there is limited potential that the replacement system could impact the water source based on topography, soil depth, soil texture, and groundwater separation.
- For new OWTS, installed on parcels of record existing at the time of the effective date of the OWTS Policy, that cannot meet the above horizontal separation requirements, the OWTS shall meet the horizontal separation to the greatest extent practicable and utilize supplemental treatment for pathogens as specified in OWTS Policy Section 10.8 and **Appendix D** of this report, and any other mitigation measures prescribed.

7. Program Administration

OWTS Policy Section 9.3 requires the City to be responsible for maintaining records of permitted OWTS, water quality assessment program, and annual reporting to the RWQCB. The City's Department of Public Works will be responsible for the implementation of the LAMP and the work chart outlining the responsibilities of the agencies involved is shown in **Figure 7-1**.

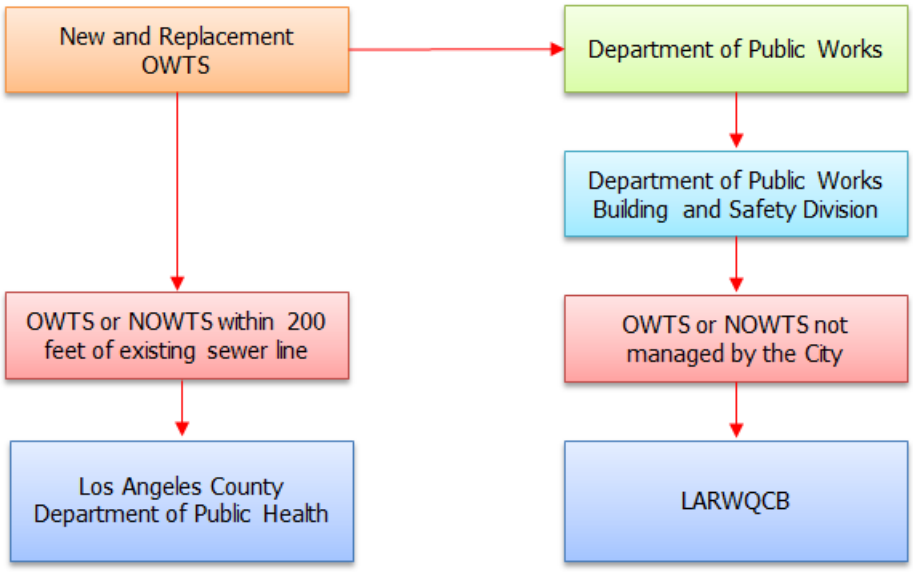

Figure 7-1 Organization Work Chart

7.1 Onsite Wastewater Treatment System Permitting Records

The City will maintain a digital inventory of known OWTS sites and include available information such as address, map, depth, unit size, permit date, additional work, and permit date. For existing OWTS, the available information for each site is limited. In compliance with the OWTS Policy, the City will continue to update this inventory when updates are available. The City will retain permanent records of these updates and additional new information that pertains to new or replacement OWTS. The City will make these records available within ten (10) working days upon request for review by the RWQCB. At a minimum, data will be updated to include the following information:

- Installation permits issued for new, repair, and replacement OWTS;
- OWTS variances and/or exemptions issued, including number, location, and description;
- Engineering, geological, infiltration, and percolation reports; and
- OWTS design and plot plans.

7.2 Water Quality Assessment Program

Per Tier 2 requirements of the OWTS Policy, the City is also required to maintain a water quality assessment program to determine operational status of OWTS, evaluate the impact of these OWTS, and assess the extent of the impact to the water quality. Assessment reports are required as described in **Section 7.3** below.

The assessment may use existing water quality monitoring data from current monitoring programs. At a minimum the parameters to be monitored are nitrates and pathogens. The water quality assessment will include the following:

- **Water Quality Parameters of Concern.** The initial focus of the water quality assessment program will be on bacteria. However, in areas where the initial water quality assessment determines that OWTS discharges may adversely affect groundwater and/or surface water quality, additional parameters may be considered to determine actual impacts of OWTS discharge.
- **Wastewater Discharge Volumes.** Estimates of annual wastewater discharge volumes from OWTS will be updated based upon the running inventory of OWTS per above.
- **Nitrate Loading.** Nitrate loading estimates will be maintained and updated based on the running inventory of OWTS in the City.
- **Water Quality Data Sources.** Relevant water quality monitoring data for (pathogens, nitrate-nitrogen, and TDS) will be compiled from available sources, anticipated to include:
  - Water quality data from cumulative impact studies;
  - Los Angeles County Waterworks Districts (LACWD) Annual Water Quality Reports;
  - Domestic water wells sampling from new wells or other;
  - Public water system raw water quality data monitoring reports;
  - Reservoir or stream water quality sampling data as outlined in the Upper San Gabriel River Watershed Management Group Coordinated Integrated Monitoring Program Plan;
  - Receiving water sampling performed as part of an NPDES permit;
  - Groundwater sampling performed as part of WDR;
  - Data from the California Water Quality Assessment Database; and
  - Groundwater data collected as part of the Groundwater Ambient Monitoring and Assessment Program available in the Geotracker Database.
- **Assessment.** In addition to periodically updating loading estimates for OWTS water quality assessment parameters within the City, it is anticipated that data assessment will include a review that is designed to: (a) determine relevance of the various data to OWTS; (b) identify any likely water quality degradation attributable to OWTS; and (c) identify changes to the LAMP undertaken to address impacts from the OWTS.

Currently the City will use monitoring data collected from the Upper San Gabriel River Coordinated Integrated Monitoring Program Plan for *E. coli* to assess the surface water quality for pathogen impairments potentially by OWTS and NOWTS. It is anticipated that the data will be in potential exceedance due to the invariability of stormwater samples. Data from the point of sales transfer inspection and monitoring, as well as the annual monitoring for NOWTS, will be compiled and assessed for water quality impairments of BOD, total nitrogen, total suspended solids, and pH. Upon review of the

data, if there are many exceedances of the limits set forth in **Appendix D**, the City will determine if further monitoring of groundwater quality is necessary.

7.3 Regional Water Quality Control Board Reporting

The City will submit an Annual Report to the RWQCB by February 1 of each year following the approval of the LAMP. At a minimum the following will be included in the annual report:

- Number and location of complaints pertaining to OWTS operation and maintenance, including cesspool discovery and phase-out, and identification of those which were investigated and how they were resolved;
- Number, location, and description of permits issued for new and replacement OWTS and which Tier the permit is issued; and
- Provide the applications and registrations issued as part of the local septic tank cleaning registration program pursuant to Section 117400 et seq. of the California Health and Safety Code.

The report will include: (a) a summary of whether any further actions related to OWTS are warranted to protect water quality or public health; (b) status of water quality data collection and review; and (c) any other information deemed appropriate by the City.

Every five years, the Annual Report will be accompanied by a Water Quality Assessment Report. The Water Quality Assessment Report will include:

- An evaluation of the monitoring program and an assessment of whether water quality is being impacted by OWTS; and
- Identify any changes in the LAMP that will be undertaken to address impacts from OWTS.

Summarizing monitoring data collected in the Water Quality Assessment, and all groundwater monitoring data generated by the City will be submitted in Electronic Deliverable Format (EDF) for inclusion into Geotracker, and surface water data will be submitted to the California Environmental Data Exchange Network (CEDEN) in a Surface Water Ambient Monitoring Program (SWAMP) comparable format.

8. References

California Building Standard Commission. 2016 California Plumbing Code, California Code of Regulations Title 25, Part 5 https://law.resource.org/pub/us/code/bsc.ca.gov/gov.ca.bsc.2016.05.pdf, Accessed December 2016.

California Regional Water Quality Board Staff Report, Total Maximum Daily Loads for Indicator Bacteria in San Gabriel River, Estuary and Tributaries dated June 10, 2015.

Los Angeles County, Department of Public Health, Environmental Health, Bureau of Environmental Protection, Land Use Program, Requirements and Procedures for Conventional and Non-Conventional Onsite Wastewater Treatment Systems, the Professional Guide, DRAFT dated July 2016.

Los Angeles County Code, Title 28 Plumbing Code, https://www.municode.com/library/ca/los_angeles_county/codes/code_of_ordinances?nodeId=TIT28PLCO_CH1AD, Accessed between January 2016 and December 2016.

Los Angeles Region – California Regional Water Quality Control Board, Basin Plan for the Coastal Watersheds of Los Angeles and Ventura Counties.

Los Angeles Region – California Regional Water Quality Control Board, Resolution No. R14-007, Amendments to the Water Quality Control Plan for the Los Angeles Region to incorporate the State Water Quality Control Policy for Siting, Design, Operation and Maintenance of Onsite Wastewater Treatment Systems, May 8, 2014.

Los Angeles Region – California Regional Water Quality Control Board, Resolution No. R15-005, Amendment to the Water Quality Control Plan – Los Angeles Region to incorporate the TMDL for Indicator Bacteria in the San Gabriel River, Estuary and Tributaries, June 10, 2015.

State Water Resources Control Board, 2012, OWTS Policy, Water Quality Control Policy for Siting, Design, Operation, and Maintenance of Onsite Wastewater Treatment Systems, formerly known as Assembly Bill 885, adopted by the SWRCB on June 19, 2012, approved by the Office of Administrative Law on November 13, 2012, effective date of the policy is May 13, 2013.

Appendix A

2016 California Plumbing Code – Appendix H: Private Sewage Disposal Systems

APPENDIX H

PRIVATE SEWAGE DISPOSAL SYSTEMS

H 101.0 General.

H 101.1 Applicability. This appendix provides general guidelines for the materials, design, and installation of private sewage disposal systems.

» **H 101.2 General Requirements.** Where permitted by Section 713.0, the building sewer shall be permitted to be connected to a private sewage disposal system in accordance with the provisions of this appendix. The type of system shall be determined on the basis of location, soil porosity, and groundwater level, and shall be designed to receive all sewage from the property. The system, except as otherwise approved, shall consist of a septic tank with effluent discharging into a subsurface disposal field, into one or more seepage pits, or into a combination of subsurface disposal field and seepage pits. The Authority Having Jurisdiction shall be permitted to grant exceptions to the provisions of this appendix for permitted structures that have been destroyed due to fire or natural disaster and that cannot be reconstructed in compliance with these provisions provided that such exceptions are the minimum necessary.

» **H 101.3 Quantity and Quality.** Where the quantity or quality of the sewage is such that the above system cannot be expected to function satisfactorily for commercial, agricultural, and industrial plumbing systems; for installations where appreciable amounts of industrial or indigestible wastes are produced; for occupancies producing abnormal quantities of sewage or liquid waste; or where grease interceptors are required by other parts of this code, the method of sewage treatment and disposal shall be first approved by the Authority Having Jurisdiction. Special sewage disposal systems for minor, limited, or temporary uses shall be first approved by the Authority Having Jurisdiction.

» **H 101.4 Septic Tank and Disposal Field Systems.** Disposal systems shall be designed to utilize the most porous or absorptive portions of the soil formation. Where the groundwater level extends to within 12 feet (3658 mm) or less of the ground surface or where the upper soil is porous and the underlying stratum is rock or impervious soil, a septic tank and disposal field system shall be installed.

» **H 101.5 Flood Hazard Areas.** Disposal systems shall be located outside of flood hazard areas.

Exception: Where suitable sites outside of flood hazard areas are not available, disposal systems shall be permitted to be located in flood hazard areas on sites where the effects of inundation under conditions of the design flood are minimized.

» **H 101.6 Design.** Private sewage disposal systems shall be so designed that additional seepage pits or subsurface drain fields, equivalent to not less than 100 percent of the required original system, shall be permitted to be installed where the original system cannot absorb all the sewage. No division of the lot or erection of structures on the lot shall be made where such division or structure impairs the usefulness of the 100 percent expansion area.

H 101.7 Capacity. No property shall be improved in excess « of its capacity to properly absorb sewage effluent by the means provided in this code.

Exception: The Authority Having Jurisdiction shall be permitted to, at its discretion, approve an alternate system.

H 101.8 Location. No private sewage disposal system, or part « thereof, shall be located in any lot other than the lot that is the site of the building or structure served by such private sewage disposal system, nor shall any private sewage disposal system or part thereof be located at any point having less than the minimum distances indicated in Table H 101.8.

Nothing contained in this code shall be construed to prohibit the use of all or part of an abutting lot to provide additional space for a private sewage disposal system or part thereof where proper cause, transfer of ownership, or change of boundary not in violation of other requirements has been first established to the satisfaction of the Authority Having Jurisdiction. The instrument recording such action shall constitute an agreement with the Authority Having Jurisdiction, which shall clearly state and show that the areas so joined or used shall be maintained as a unit during the time they are so used. Such agreement shall be recorded in the office of the County Recorder as part of the conditions of ownership of said properties and shall be binding on heirs, successors, and assigns to such properties. A copy of the instrument recording such proceedings shall be filed with the Authority Having Jurisdiction.

H 101.9 Building Permit. Where there is insufficient lot « area or improper soil conditions for sewage disposal for the building or land use proposed, and the Authority Having Jurisdiction so finds, no building permit shall be issued and no private sewage disposal shall be permitted. Where space or soil conditions are critical, no building permit shall be issued until engineering data and test reports satisfactory to the Authority Having Jurisdiction have been submitted and approved.

H 101.10 Additional Requirements. Nothing contained in « this appendix shall be construed to prevent the Authority Having Jurisdiction from requiring compliance with additional requirements than those contained herein, where such additional requirements are essential to maintain a safe and sanitary condition.

H 101.11 Alternate Systems. Alternate systems shall be « permitted to be used by special permission of the Authority Having Jurisdiction after being satisfied of their adequacy. This authorization is based on extensive field and test data from conditions similar to those at the proposed site, or require such additional data as necessary to provide assurance that the alternate system will produce continuous and

TABLE H 101.8
LOCATION OF SEWAGE DISPOSAL SYSTEM

MINIMUM HORIZONTAL DISTANCE IN CLEAR REQUIRED FROM	BUILDING SEWER	SEPTIC TANK	DISPOSAL FIELD	SEEPAGE PIT OR CESSPOOL
Building or structures[1]	2 feet	5 feet	8 feet	8 feet
Property line adjoining private property	Clear[2]	5 feet	5 feet	8 feet
Water supply wells	50 feet[3]	50 feet	100 feet	150 feet
Streams and other bodies of water	50 feet	50 feet	100 feet[7]	150 feet[7]
Trees	–	10 feet	–	10 feet
Seepage pits or cesspools[8]	–	5 feet	5 feet	12 feet
Disposal field[8]	–	5 feet	4 feet[4]	5 feet
On-site domestic water service line	1 foot[5]	5 feet	5 feet	5 feet
Distribution box	–	–	5 feet	5 feet
Pressure public water main	10 feet[6]	10 feet	10 feet	10 feet

For SI units: 1 foot = 304.8 mm

Notes:

[1] Including porches and steps, whether covered or uncovered, breezeways, roofed porte cocheres, roofed patios, carports, covered walks, covered driveways, and similar structures or appurtenances.

[2] See Section 312.3.

[3] Drainage piping shall clear domestic water supply wells by not less than 50 feet (15 240 mm). This distance shall be permitted to be reduced to not less than 25 feet (7620 mm) where the drainage piping is constructed of materials approved for use within a building.

[4] Plus 2 feet (610 mm) for each additional 1 foot (305 mm) of depth in excess of 1 foot (305 mm) below the bottom of the drain line. (See Section H 601.0)

[5] See Section 720.0.

[6] For parallel construction – For crossings, approval by the Health Department shall be required.

[7] These minimum clear horizontal distances shall also apply between disposal fields, seepage pits, and the mean high-tide line.

[8] Where disposal fields, seepage pits, or both are installed in sloping ground, the minimum horizontal distance between any part of the leaching system and ground surface shall be 15 feet (4572 mm).

long-range results at the proposed site, not less than equivalent to systems which are specifically authorized.

Where demonstration systems are to be considered for installation, conditions for installation, maintenance, and monitoring at each such site shall first be established by the Authority Having Jurisdiction.

Approved aerobic systems shall be permitted to be substituted for conventional septic tanks provided the Authority Having Jurisdiction is satisfied that such systems will produce results not less than equivalent to septic tanks, whether their aeration systems are operating or not.

H 201.0 Capacity of Septic Tanks.

H 201.1 General. The liquid capacity of septic tanks shall comply with Table H 201.1(1) and Table H 201.1(2) as determined by the number of bedrooms or apartment units in dwelling occupancies and the estimated waste/sewage design flow rate or the number of plumbing fixture units as determined from Table 702.1 of this code, whichever is greater in other building occupancies. The capacity of any one septic tank and its drainage system shall be limited by the soil structure classification in Table H 201.1(3), and as specified in Table H 201.1(4).

H 301.0 Area of Disposal Fields and Seepage Pits.

H 301.1 General. The minimum effective absorption area in disposal fields in square feet (m^2), and in seepage pits in square feet (m^2) of sidewall, shall be predicated on the required septic tank capacity in gallons (liters), estimated waste/sewage flow rate, or whichever is greater, and shall be in accordance with Table H 201.1(3) as determined for the type of soil found in the excavation, and shall be as follows:

(1) Where disposal fields are installed, not less than 150 square feet (13.9 m^2) of trench bottom shall be provided for each system exclusive of any hard pan, rock, clay, or other impervious formations. Sidewall area in excess of the required 12 inches (305 mm) and not exceeding 36 inches (914 mm) below the leach line shall be permitted to be added to the trench bottom area where computing absorption areas.

(2) Where leaching beds are permitted in lieu of trenches, the area of each such bed shall be not less than 50 percent greater than the tabular requirements for trenches. Perimeter sidewall area in excess of the required 12 inches (305 mm) and not exceeding 36 inches (914 mm) below the leach line shall be permitted to be added to the trench bottom area where computing absorption areas.

(3) No excavation for a leach line or leach bed shall be located within 5 feet (1524 mm) of the water table nor to a depth where sewage is capable of contaminating the underground water stratum that is usable for domestic purposes.

Exception: In areas where the records or data indicate that the groundwaters are grossly degraded, the 5 foot (1524 mm) separation requirement shall be permitted

TABLE H 201.1(1)
CAPACITY OF SEPTIC TANKS[1, 2, 3, 4]

SINGLE-FAMILY DWELLINGS - NUMBER OF BEDROOMS	MULTIPLE DWELLING UNITS OR APARTMENTS - ONE BEDROOM EACH	OTHER USES: MAXIMUM FIXTURE UNITS SERVED PER TABLE 702.1	MINIMUM SEPTIC TANK CAPACITY (gallons)
1 or 2	–	15	750
3	–	20	1000
4	2 units	25	1200
5 or 6	3	33	1500
–	4	45	2000
–	5	55	2250
–	6	60	2500
–	7	70	2750
–	8	80	3000
–	9	90	3250
–	10	100	3500

For SI units: 1 gallon = 3.785 L

Notes:

[1] Extra bedroom, 150 gallons (568 L) each.

[2] Extra dwelling units over 10: 250 gallons (946 L) each.

[3] Extra fixture units over 100: 25 gallons (94.6 L) per fixture unit.

[4] Septic tank sizes in this table include sludge storage capacity and the connection of domestic food waste disposers without further volume increase.

TABLE H 201.1(2)
ESTIMATED WASTE/SEWAGE FLOW RATES[1, 2, 3]

TYPE OF OCCUPANCY	GALLONS PER DAY
1. Airports	15 per employee
	5 per passenger
2. Auto washers	Check with equipment manufacturer
3. Bowling alleys (snack bar only)	75 per lane
4. Camps:	
Campground with central comfort station	35 per person
Campground with flush toilets, no showers	25 per person
Day camps (no meals served)	15 per person
Summer and seasonal	50 per person
5. Churches (Sanctuary)	5 per seat
with kitchen waste	7 per seat
6. Dance halls	5 per person
7. Factories	
no showers	25 per employee
with showers	35 per employee
Cafeteria, add	5 per employee
8. Hospitals	250 per bed
kitchen waste only	25 per bed
laundry waste only	40 per bed
9. Hotels (no kitchen waste)	60 per bed (2 person)
10. Institutions (Resident)	75 per person
Nursing home	125 per person
Rest home	125 per person
11. Laundries, self-service	
(minimum 10 hours per day)	50 per wash cycle
Commercial	Per manufacturer's specifications
12. Motel	50 per bed space
with kitchen	60 per bed space

TABLE H 201.1(2) (continued)
ESTIMATED WASTE/SEWAGE FLOW RATES[1, 2, 3]

13. Offices ..... 20 per employee
14. Parks, mobile homes ..... 250 per space
    Picnic parks (toilets only) ..... 20 per parking space
    Recreational vehicles
        without water hook-up ..... 75 per space
        with water and sewer hook-up ..... 100 per space
15. Restaurants – cafeterias ..... 20 per employee
    toilet ..... 7 per customer
    kitchen waste ..... 6 per meal
    add for garbage disposal ..... 1 per meal
    add for cocktail lounge ..... 2 per customer
    kitchen waste – disposable service ..... 2 per meal
16. Schools – Staff and office ..... 20 per person
    Elementary students ..... 15 per person
    Intermediate and high ..... 20 per student
        with gym and showers, add ..... 5 per student
        with cafeteria, add ..... 3 per student
    Boarding, total waste ..... 100 per person
17. Service station, toilets ..... 1000 for 1st bay
    500 for each additional bay
18. Stores ..... 20 per employee
    Public restrooms, add ..... 1 per 10 square feet of floor space
19. Swimming pools, public ..... 10 per person
20. Theaters, auditoriums ..... 5 per seat
    Drive-in ..... 10 per space

For SI units: 1 square foot = 0.0929 m^2, 1 gallon per day = 3.785 L/day

Notes:

[1] Sewage disposal systems sized using the estimated waste/sewage flow rates shall be calculated as follows:

(a) Waste/sewage flow, up to 1500 gallons per day (5678 L/day)

Flow x 1.5 = septic tank size

(b) Waste/sewage flow, over 1500 gallons per day (5678 L/day)

Flow x 0.75 + 1125 = septic tank size

(c) Secondary system shall be sized for total flow per 24 hours.

[2] See Section H 201.1.

[3] Because of the many variables encountered, it is not possible to set absolute values for waste/sewage flow rates for all situations. The designer should evaluate each situation and, where figures in this table need modification, they should be made with the concurrence of the Authority Having Jurisdiction.

TABLE H 201.1(3)
DESIGN CRITERIA OF FIVE TYPICAL SOILS

TYPE OF SOIL	REQUIRED SQUARE FEET OF LEACHING AREA PER 100 GALLONS	MAXIMUM ABSORPTION CAPACITY IN GALLONS PER SQUARE FEET OF LEACHING AREA FOR A 24 HOUR PERIOD
Coarse sand or gravel	20	5.0
Fine sand	25	4.0
Sandy loam or sandy clay	40	2.5
Clay with considerable sand or gravel	90	1.1
Clay with small amount of sand or gravel	120	0.8

For SI units: 1 square foot = 0.0929 m^2, 1 gallon = 3.785 L, 1 gallon per square foot = 40.7 L/m^2

TABLE H 201.1(4)
LEACHING AREA SIZE BASED ON SEPTIC TANK CAPACITY

REQUIRED SQUARE FEET OF LEACHING AREA PER 100 GALLONS SEPTIC TANK CAPACITY (square feet per 100 gallons)	MAXIMUM SEPTIC TANK SIZE ALLOWABLE (gallons)
20–25	7500
40	5000
90	3500
120	3000

For SI units: 1 square foot per 100 gallons = 0.000245 m^2/L, 1 gallon = 3.785 L

to be reduced by the Authority Having Jurisdiction. The applicant shall supply evidence of groundwater depth to the satisfaction of the Authority Having Jurisdiction.

(4) The minimum effective absorption area in any seepage pit shall be calculated as the excavated sidewall area below the inlet exclusive of any hardpan, rock, clay, or other impervious formations. The minimum required area of porous formation shall be provided in one or more seepage pits. No excavation shall extend within 10 feet (3048 mm) of the water table nor to a depth where sewage is capable of contaminating underground water stratum that is usable for domestic purposes.

Exception: In areas where the records or data indicate that the groundwaters are grossly degraded, the 10 foot (3048 mm) separation requirement shall be permitted to be reduced by the Authority Having Jurisdiction.

The applicant shall supply evidence of groundwater depth to the satisfaction of the Authority Having Jurisdiction.

(5) Leaching chambers that comply with IAPMO PS 63 and bundled expanded polystyrene synthetic aggregate units that comply with IAPMO IGC 276 shall be sized using the required area calculated using Table H 201.1(3) with a 0.70 multiplier.

H 401.0 Percolation Test.

H 401.1 Pit Sizes. Where practicable, disposal field and seepage pit sizes shall be computed from Table H 201.1(3). Seepage pit sizes shall be computed by percolation tests, unless use of Table H 201.1(3) is approved by the Authority Having Jurisdiction.

H 401.2 Absorption Qualities. In order to determine the absorption qualities of seepage pits and of questionable soils other than those listed in Table H 201.1(3), the proposed site shall be subjected to percolation tests acceptable to the Authority Having Jurisdiction.

H 401.3 Absorption Rates. Where a percolation test is required, no private disposal system shall be permitted to serve a building where that test shows the absorption capacity of the soil is less than 0.83 gallons per square foot (gal/ft^2) (33.8 L/m^2) or more than 5.12 gal/ft^2 (208.6 L/m^2) of leaching area per 24 hours. Where the percolation test shows an absorption rate greater than 5.12 gal/ft^2 (208.6 L/m^2) per 24 hours, a private disposal system shall be permitted where the site does not overlie groundwaters protected for drinking water supplies, a minimum thickness of 2 feet (610 mm) of the native soil below the entire proposed system is replaced by loamy sand, and the system design is based on percolation tests made in the loamy sand.

H 501.0 Septic Tank Construction.

H 501.1 Plans. Plans for septic tanks shall be submitted to the Authority Having Jurisdiction for approval. Such plans shall show dimensions, reinforcing, structural calculations, and such other pertinent data as required.

H 501.2 Design. Septic tank design shall be such as to produce a clarified effluent consistent with accepted standards and shall provide adequate space for sludge and scum accumulations.

H 501.3 Construction. Septic tanks shall be constructed of solid durable materials not subject to excessive corrosion or decay and shall be watertight.

H 501.4 Compartments. Septic tanks shall have not less than two compartments unless otherwise approved by the Authority Having Jurisdiction. The inlet compartment of any septic tank shall be not less than two-thirds of the total capacity of the tank, nor less than 500 gallons (1892 L) liquid capacity, and shall be not less than 3 feet (914 mm) in width and 5 feet (1524 mm) in length. Liquid depth shall be not less than 2½ feet (762 mm) nor more than 6 feet (1829 mm). The secondary compartment of a septic tank shall have a capacity of not less than 250 gallons (946 L) and a capacity not exceeding one-third of the total capacity of such tank. In septic tanks having a 1500 gallon (5678 L) capacity, the secondary compartment shall be not less than 5 feet (1524 mm) in length.

H 501.5 Access. Access to each septic tank shall be provided by not less than two manholes 20 inches (508 mm) in minimum dimension or by an equivalent removable cover slab. One access manhole shall be located over the inlet and one access manhole shall be located over the outlet. Where a first compartment exceeds 12 feet (3658 mm) in length, an additional manhole shall be provided over the baffle wall.

H 501.6 Pipe Opening Sizes. The inlet and outlet pipe openings shall not be larger in size than the connecting sewer pipe. The vertical leg of round inlet and outlet fittings shall not be less in size than the connecting sewer pipe nor less than 4 inches (102 mm). A baffle-type fitting shall have the equivalent cross-sectional area of the connecting sewer pipe and not less than a 4 inch (102 mm) horizontal dimension where measured at the inlet and outlet pipe inverts.

H 501.7 Pipe Extension. The inlet and outlet pipe or baffle shall extend 4 inches (102 mm) above and not less than 12 inches (305 mm) below the water surface. The invert of the inlet pipe shall be at a level not less than 2 inches (51 mm) above the invert of the outlet pipe.

H 501.8 Free Vent Area. Inlet and outlet pipe fittings or baffles and compartment partitions shall have a free vent area equal to the required cross-sectional area of the house sewer or private sewer discharging therein to provide free ventilation above the water surface from the disposal field or seepage pit through the septic tank, house sewer, and stack to the outer air.

H 501.9 Sidewalls. The sidewalls shall extend not less than 9 inches (229 mm) above the liquid depth. The cover of the septic tank shall be not less than 2 inches (51 mm) above the back vent openings.

H 501.10 Partitions and Baffles. Partitions or baffles between compartments shall be of solid, durable material and shall extend not less than 4 inches (102 mm) above the liquid level. The transfer port between compartments shall be a minimum size equivalent to the tank inlet, but in no case less than 4 inches (102 mm) in size, shall be installed in the inlet compartment side of the baffle so that the entry into the port is placed 65 percent to 75 percent in the depth of the liquid. Wooden baffles are prohibited.

H 501.11 Structural Design. The structural design of septic tanks shall comply with the following requirements:

(1) Each such tank shall be structurally designed to withstand all anticipated earth or other loads. Septic tank covers shall be capable of supporting an earth load of not less than 500 pounds per square foot (lb/ft^2) (2441 kg/m^2) where the maximum coverage does not exceed 3 feet (914 mm).

(2) In flood hazard areas, tanks shall be anchored to counter buoyant forces during conditions of the design flood. The vent termination and service manhole of the tank shall be not less than 2 feet (610 mm) above the design flood elevation or fitted with covers designed to prevent the inflow of floodwater or the outflow of the contents of the tanks during conditions of the design flood.

H 501.12 Manholes. Septic tanks installed under concrete or blacktop paving shall have the required manholes accessible by extending the manhole openings to grade in a manner acceptable to the Authority Having Jurisdiction.

H 501.13 Materials. The materials used for constructing a septic tank shall be in accordance with the following:

(1) Materials used in constructing a concrete septic tank shall be in accordance with applicable standards in Table 1701.1.

(2) The minimum wall thickness of a steel septic tank shall be number 12 U.S. gauge (0.109 of an inch) (2.77 mm), and each such tank shall be protected from corrosion both externally and internally by an approved bituminous coating or by other acceptable means.

(3) Septic tanks constructed of alternate materials shall be permitted to be approved by the Authority Having Jurisdiction where in accordance with approved applicable standards. Wooden septic tanks shall be prohibited.

H 501.14 Prefabricated Septic Tanks. Prefabricated septic tanks shall comply with the following requirements:

(1) Manufactured or prefabricated septic tanks shall comply with approved applicable standards and be approved by the Authority Having Jurisdiction. Prefabricated bituminous coated septic tanks shall comply with UL 70.

(2) Independent laboratory tests and engineering calculations certifying the tank capacity and structural stability shall be provided as required by the Authority Having Jurisdiction.

H 601.0 Disposal Fields.

H 601.1 Distribution Lines. Distribution lines shall be constructed of clay tile laid with open joints, perforated clay pipe, perforated bituminous fiber pipe, perforated high-density polyethylene pipe, perforated ABS pipe, perforated PVC pipe, or other approved materials, provided that approved openings are available for distribution of the effluent into the trench area.

H 601.2 Filter Material. Before placing filter material or drain lines in a prepared excavation, smeared or compacted surfaces shall be removed from trenches by raking to a depth of 1 inch (25.4 mm) and the loose material removed. Clean stone, gravel, slag, or similar filter material acceptable to the Authority Having Jurisdiction, varying in size from ¾ of an inch to 2½ inches (19.1 mm to 64 mm), shall be placed in the trench to the depth and grade required by this section. Drain pipe shall be placed on filter material in an approved manner. The drain lines shall then be covered with filter material to the minimum depth required by this section, and this material covered with untreated building paper, straw, or similar porous material to prevent closure of voids with earth backfill. No earth backfill shall be placed over the filter material cover until after inspection and acceptance.

Exception: Listed or approved plastic leaching chambers and bundled expanded polystyrene synthetic aggregate units shall be permitted to be used in lieu of pipe and filter material. Chamber and bundled expanded polystyrene synthetic aggregate unit installations shall follow the rules for disposal fields, where applicable, and shall be in accordance with the manufacturer's instructions.

H 601.3 Grade Board. A grade board staked in the trench to the depth of filter material shall be utilized where the dis-

tribution line is constructed with drain tile or a flexible pipe material that will not maintain alignment without continuous support.

H 601.4 Seepage Pits. Where seepage pits are used in combination with disposal fields, the filter material in the trenches shall terminate not less than 5 feet (1524 mm) from the pit excavation, and the line extending from such points to the seepage pit shall be approved pipe with watertight joints.

H 601.5 Distribution Boxes. Where two or more drain lines are installed, an approved distribution box of sufficient size to receive lateral lines shall be installed at the head of each disposal field. The inverts of outlets shall be level, and the invert of the inlet shall be not less than 1 inch (25.4 mm) above the outlets. Distribution boxes shall be designed to ensure equal flow and shall be installed on a level concrete slab in natural or compacted soil.

H 601.6 Laterals. Laterals from a distribution box to the disposal field shall be approved pipe with watertight joints. Multiple disposal field laterals, where practicable, shall be of uniform length.

H 601.7 Connections. Connections between a septic tank and a distribution box shall be laid with approved pipe with watertight joints on natural ground or compacted fill.

H 601.8 Dosing Tanks. Where the quantity of sewage exceeds the amount that is permitted to be disposed in 500 lineal feet (152.4 m) of leach line, a dosing tank shall be used. Dosing tanks shall be equipped with an automatic siphon or pump that discharges the tank once every 3 or 4 hours. The tank shall have a capacity equal to 60 to 75 percent of the interior capacity of the pipe to be dosed at one time. Where the total length of pipe exceeds 1000 lineal feet (304.8 m), the dosing tank shall be provided with two siphons or pumps dosing alternately and each serving one-half of the leach field.

H 601.9 Construction. Disposal fields shall be constructed in accordance with Table H 601.9.

Minimum spacing between trenches or leaching beds shall be not less than 4 feet (1219 mm) plus 2 feet (610 mm) for each additional foot (305 mm) of depth in excess of 1 foot (305 mm) below the bottom of the drain line. Distribution drain lines in leaching beds shall be not more than 6 feet (1829 mm) apart on centers, and no part of the perimeter of the leaching bed shall exceed 3 feet (914 mm) from a distribution drain line. Disposal fields, trenches, and leaching beds shall not be paved over or covered by concrete or a material that is capable of reducing or inhibiting a possible evaporation of sewer effluent.

H 601.10 Joints. Where necessary on sloping ground to prevent excessive line slope, leach lines or leach beds shall be stepped. The lines between each horizontal section shall be made with watertight joints and shall be designed so each horizontal leaching trench or bed shall be utilized to the maximum capacity before the effluent shall pass to the next lower leach line or bed. The lines between each horizontal leaching section shall be made with approved watertight joints and installed on natural or unfilled ground.

H 701.0 Seepage Pits.

H 701.1 Capacity. The capacity of seepage pits shall be based on the quantity of liquid waste discharging thereinto and on the character and porosity of the surrounding soil, and shall be in accordance with Section H 301.0 of this appendix.

H 701.2 Multiple Installations. Multiple seepage pit installations shall be served through an approved distribution box or be connected in series by means of a watertight connection laid on undistributed or compacted soil. The outlet from the pit shall have an approved vented leg fitting extending not less than 12 inches (305 mm) below the inlet fitting.

H 701.3 Construction. A seepage pit shall be circular in shape and shall have an excavated diameter of not less than 4 feet (1219 mm). Each such pit shall be lined with approved-type whole new hard-burned clay brick, concrete brick, concrete circular-type cesspool blocks, or other approved materials. Approval shall be obtained prior to construction for any pit having an excavated diameter greater than 6 feet (1829 mm).

H 701.4 Lining. The lining in a seepage pit shall be laid on a firm foundation. Lining materials shall be placed tight together and laid with joints staggered. Except in the case of approved-type precast concrete circular sections, no brick or block shall be greater in height than its width, and shall be laid flat to form not less than a 4 inch (102 mm)

TABLE H 601.9
GENERAL DISPOSAL FIELD REQUIREMENTS

	MINIMUM	MAXIMUM
Number of drain lines per field	1	–
Length of each line	–	100 feet
Bottom width of trench	18 inches	36 inches
Spacing of lines, center-to-center	6 feet	–
Depth of earth cover of lines (preferred –18 inches)	12 inches	–
Grade of lines	Level	3 inches per 100 feet
Filter material under drain lines	12 inches	–
Filter material over drain lines	2 inches	–

For SI units: 1 inch = 25.4 mm, 1 foot = 304.8 mm, 1 inch per foot = 83.3 mm/m

wall. Brick or block greater than 12 inches (305 mm) in length shall have chamfered matching ends and be scored to provide for seepage. Excavation voids behind the brick, block, or concrete liner shall have not less than 6 inches (152 mm) of clean ¾ of an inch (19.1 mm) gravel or rock.

H 701.5 Brick and Block. Brick or block used in seepage pit construction shall have a compressive strength of not less than 2500 pounds per square inch (lb/in^2) (1 757 674 kg/m^2).

H 701.6 Sidewall. A seepage pit shall have a minimum sidewall (not including the arch) of 10 feet (3048 mm) below the inlet.

H 701.7 Arch and Dome. The arch or dome of a seepage pit shall be permitted to be constructed in one of three ways:

(1) Approved-type hard-burned clay brick or solid concrete brick or block laid in cement mortar.

(2) Approved brick or block laid dry. In both of the above methods, an approved cement mortar covering of not less than 2 inches (51 mm) in thickness shall be applied, said covering to extend not less than 6 inches (152 mm) beyond the sidewalls of the pit.

(3) Approved-type one or two-piece reinforced concrete slabs of not less than 2500 lb/in^2 (1 757 674 kg/m^2) minimum compressive strength, not less than 5 inches (127 mm) thick, and designed to support an earth load of not less than 400 pounds per square foot (lb/ft^2) (1953 kg/m^2). Each such cover shall be provided with a 9 inch (229 mm) minimum inspection hole with plug or cover and shall be coated on the underside with an approved bituminous or other nonpermeable protective compound.

H 701.8 Location. The top of the arch or cover shall be not less than 18 inches (457 mm) but not exceed 4 feet (1219 mm) below the surface of the ground.

H 701.9 Inlet Fitting. An approved vented inlet fitting shall be provided in the seepage pit so arranged as to prevent the inflow from damaging the sidewall.

Exception: Where using a one- or two-piece concrete slab cover inlet, fitting shall be permitted to be a one-fourth bend fitting discharging through an opening in the top of the slab cover. On multiple seepage pit installations, the outlet fittings shall comply with Section H 701.2 of this appendix.

H 801.0 Cesspools.

H 801.1 Limitations. A cesspool shall be considered as a temporary expedient pending the construction of a public sewer; as an overflow facility where installed in conjunction with an existing cesspool; or as a means of sewage disposal for limited, minor, or temporary uses, where first approved by the Authority Having Jurisdiction.

H 801.2 Septic Tanks. Where it is established that a public sewer system will be available in less than 2 years, and soil and groundwater conditions are favorable to cesspool disposal, cesspools without septic tanks shall be permitted to be installed for single-family dwellings or for other limited uses where first approved by the Authority Having Jurisdiction.

H 801.3 Construction. Each cesspool, where permitted, shall be in accordance with the construction requirements set forth in Section H 701.0 of this appendix for seepage pits and shall have a sidewall (not including arch) of not less than 20 feet (6096 mm) below the inlet, provided, however, that where a strata of gravel or equally pervious material of 4 feet (1219 mm) in thickness is found, the depth of such sidewall shall not exceed 10 feet (3048 mm) below the inlet.

H 801.4 Existing Installations. Where overflow cesspools or seepage pits are added to existing installations, the effluent shall leave the existing pit through an approved vented leg extending not less than 12 inches (305 mm) downward into such existing pit and having its outlet flow line not less than 6 inches (152 mm) below the inlet. Pipe between pits shall be laid with approved watertight joints.

H 901.0 Commercial or Industrial Special Liquid-Waste Disposal.

H 901.1 Interceptor. Where liquid wastes contain excessive amounts of grease, garbage, flammable wastes, sand, or other ingredients that affect the operation of a private sewage disposal system, an interceptor for such wastes shall be installed.

H 901.2 Installation. Installation of such interceptors shall comply with Section 1009.0 of this code, and their location shall comply with Table H 101.8 of this appendix.

H 901.3 Sampling Box. A sampling box shall be installed where required by the Authority Having Jurisdiction.

H 901.4 Design and Structural Requirement. Interceptors shall be of approved design and be not less than two compartments. Structural requirements shall comply with Section H 501.0 of this appendix.

H 901.5 Location. Interceptors shall be located as close to the source as possible and be accessible for servicing. Necessary manholes for servicing shall be at grade level and be gastight.

H 901.6 Waste Discharge. Waste discharge from interceptors shall be permitted to be connected to a septic tank or other primary system or be disposed into a separate disposal system.

H 901.7 Design Criteria. A formula shall be permitted to be adapted to other types of occupancies with similar wastes. (See Chart H 901.7)

H 1001.0 Inspection and Testing.

H 1001.1 Inspection. Inspection requirements shall comply with the following:

(1) Applicable provisions of Section 105.0 of this code and this appendix shall be required. Plans shall be required in accordance with Section 103.3 of this code.

(2) System components shall be properly identified as to manufacturer. Septic tanks or other primary systems shall have the rated capacity permanently marked on the unit.

(3) Septic tanks or other primary systems shall be installed on dry, level, well-compacted soil.

(4) Where design is predicated on soil tests, the system shall be installed at the same location and depth as the tested area.

CHART H 901.7
RECOMMENDED DESIGN CRITERIA

GREASE AND GARBAGE, COMMERCIAL KITCHENS								
Number of meals per peak hour	x	Waste flow rate[1]	x	Retention time[2]	x	Storage factor[3]	=	Interceptor size (liquid capacity)
SAND-SILT OIL, AUTO WASHERS								
Number of vehicles per hour	x	Waste flow rate[1]	x	Retention time[2]	x	Storage factor[3]	=	Interceptor size (liquid capacity)
SILT-LINT GREASE, LAUNDRIES, LAUNDROMATS								
Number of machines	x	2 cycles per hour	x	Waste flow rate[1]	x	Retention time[2]	=	Storage factor[3] = Interceptor size (liquid capacity)

Notes:

[1] Waste Flow Rate:
See Table H 201.1(2) of this appendix for estimated flow rates.

[2] Retention Times:
Commercial kitchen waste:
Dishwasher, disposal, or both ..... 2.5 hours
Single service kitchen:
Single serving with disposal ..... 1.5 hours
Sand-silt oil ..... 2.0 hours
Lint-silt (laundry) ..... 2.0 hours

[3] Storage Factors:
Fully equipped commercial kitchen ..... 8 hours operation: 1
16 hours operation: 2
24 hours operation: 3
Single service kitchen 1.5
Auto washers ..... self-serve: 1.5
employee operated: 2
Laundries, laundromats ..... 1.5 (allows for rock filter)

H 1001.2 Testing. Testing requirements shall comply with the following:

(1) Septic tanks or other primary components shall be filled with water to flow line prior to requesting inspection. Seams or joints shall be left exposed (except the bottom), and the tank shall remain watertight.

(2) A flow test shall be performed through the system to the point of effluent disposal. All lines and components shall be watertight. Capacities, required air space, and fittings shall comply with the provisions set forth in this appendix.

H 1101.0 Abandoned Sewers and Sewage Disposal Facilities.

H 1101.1 Plugged and Capped. An abandoned building (house) sewer, or part thereof, shall be plugged or capped in an approved manner within 5 feet (1524 mm) of the property line.

H 1101.2 Fill Material. A cesspool, a septic tank, or a seepage pit that has been abandoned or has been discontinued otherwise from further use, or to which no waste or soil pipe from a plumbing fixture is connected, shall have the sewage removed therefrom and be completely filled with the earth, sand, gravel, concrete, or other approved material.

H 1101.3 Filling Requirements. The top cover or arch over the cesspool, septic tank, or seepage pit shall be removed before filling, and the filling shall not extend above the top of the vertical portions of the sidewalls or above the level of any outlet pipe until inspection has been called and the cesspool, septic tank, or seepage pit has been inspected. After such inspection, the cesspool, septic tank, or seepage pit shall be filled to the level of the top of the ground.

H 1101.4 Owner. No person owning or controlling a cesspool, septic tank, or seepage pit on the premises of such person or in that portion of any public street, alley, or other public property abutting such premises shall fail, refuse, or neglect to be in accordance with the provisions of this section or upon receipt of notice so to be in accordance with the Authority Having Jurisdiction.

H 1101.5 Permittee. Where disposal facilities are abandoned consequent to connecting any premises with the public sewer, the permittee making the connection shall fill all abandoned facilities in accordance with the Authority Having Jurisdiction within 30 days from the time of connecting to the public sewer.

H 1201.0 Drawings and Specifications.

H 1201.1 General. The Authority Having Jurisdiction, Health Officer, or other department having jurisdiction shall be permitted to require the following information before a permit is issued for a private sewage disposal system or at a time during the construction thereof:

(1) Plot plan drawn to scale, completely dimensioned, showing direction and approximate slope of surface,

location of present or proposed retaining walls, drainage channels, water supply lines or wells, paved areas and structures on the plot, number of bedrooms or plumbing fixtures in each structure, and location of the private sewage disposal system with relation to lot lines and structures.

(2) Details of construction necessary to ensure compliance with the requirements of this appendix together with a full description of the complete installation including quality, kind, and grade of materials, equipment, construction, workmanship, and methods of assembly and installation.

(3) A log of soil formations and groundwater levels as determined by test holes dug in close proximity to a proposed seepage pit or disposal field, together with a statement of water absorption characteristics of the soil at the proposed site, as determined by approved percolation tests.

CALIFORNIA PLUMBING CODE – MATRIX ADOPTION TABLE
APPENDIX I - INSTALLATION STANDARD FOR PEX TUBING SYSTEMS FOR HOT- AND COLD-WATER DISTRIBUTION

(Matrix Adoption Tables are non-regulatory, intended only as an aid to the code user. See Chapter 1 for state agency authority and building applications.)

Adopting Agency	BSC	BSC-CG	SFM	HCD			DSA			OSHPD				BSCC	DPH	AGR	DWR	CA	CEC	SL	SLC
				1	2	1-AC	AC	SS	SS/C	1	2	3	4								
Adopt Entire Chapter	X			X	X																
Adopt Entire Chapter as amended (amended sections listed below)																					
Adopt only those sections that are listed below																					
Chapter/Section																					

This state agency does not adopt sections identified with the following symbol: †

The Office of the State Fire Marshal's adoption of this chapter or individual sections is applicable to structures regulated by other state agencies pursuant to Section 1.11.

Appendix B

Los Angeles County Department of Public Health – Conventional and Non-Conventional Onsite Wastewater Treatment Systems – Requirements and Procedures

Conventional and Non-Conventional Onsite Wastewater Treatment Systems - Requirements and Procedures

LOS ANGELES COUNTY DEPARTMENT OF PUBLIC HEALTH
ENVIRONMENTAL HEALTH
LAND USE PROGRAM
July 2016

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Table of Contents

Purpose, Authority and Approval Process

Purpose

The County Los Angeles, Department of Public Health (DPH) has submitted a Local Agency Management Plan (LAMP) to the Regional Water Quality Control Board (RWQCB). This process required DPH to review and update its 2013 version of the Professional Guide to Requirements and Procedures for OWTS. Since the approval of the LAMP by the RWQCB and the County Board of Supervisors may require up to two years, it was decided to publish an updated version of the Professional Guide without the requirements of the State OWTS Policy and LAMP included. In addition to the document being renamed, other minor changes have been made to the requirements, including the acceptance of all NOWTS meeting NSF Standard 245 and requirements of the State OWTS policy regarding impaired water bodies which went into effect with the approval of the State OWTS Policy in 2012. Other changes have been noted in the guidelines. Otherwise, the intent of this document is to provide the information in the 2013 Professional Guide in a user friendly, easy to reference document.

These Requirements and Procedures shall apply to plan reviews for domestic wastewater systems producing under 20,000 gallons per day, including single family homes, multi-family units, and businesses where wastewater generated is primarily from toilets, sinks, clothes washers, bathtubs and showers, which are submitted prior to the approval of the Local Agency Management Plan (LAMP) which adopts the State OWTS Policy. The granting of an approval by the Department for an OWTS serving a Single Family Home grants the owner an exemption from obtaining a Waste Discharge Requirement (WDR) permit from the local regional water quality control board. All other applicants are required to obtain WDR permits from the local Regional Water Quality Control Board for all OWTS approvals prior to submitting plans to the Department. Developers are advised to consult with the appropriate field office of the RWQCB prior to contacting the Department for such projects.

Authority

The Department of Public Health entered into agreements with the Los Angeles Regional Water Quality Control Board and the Lahontan Regional Water Quality Control Board in 2004, which authorized DPH to continue approving OWTS while the State continued to develop the OWTS policy required by AB 885. Upon the adoption of the State OWTS Policy in 2012, the County was authorized to continue approving OWTS while the LAMP was developed and under review by the RWQCB.

This guide is prepared in accordance with the requirements set forth in the Los Angeles County Codes, Title 11 (Health and Safety) and Title 28 (Plumbing) and other regulations applicable to OWTS. It is intended to provide standardized guidelines for preparation and submittal of plans and feasibility reports in order to obtain the Department of Public Health – Environmental Health (the Department) approval for design, siting, and installation of an OWTS or NOWTS.

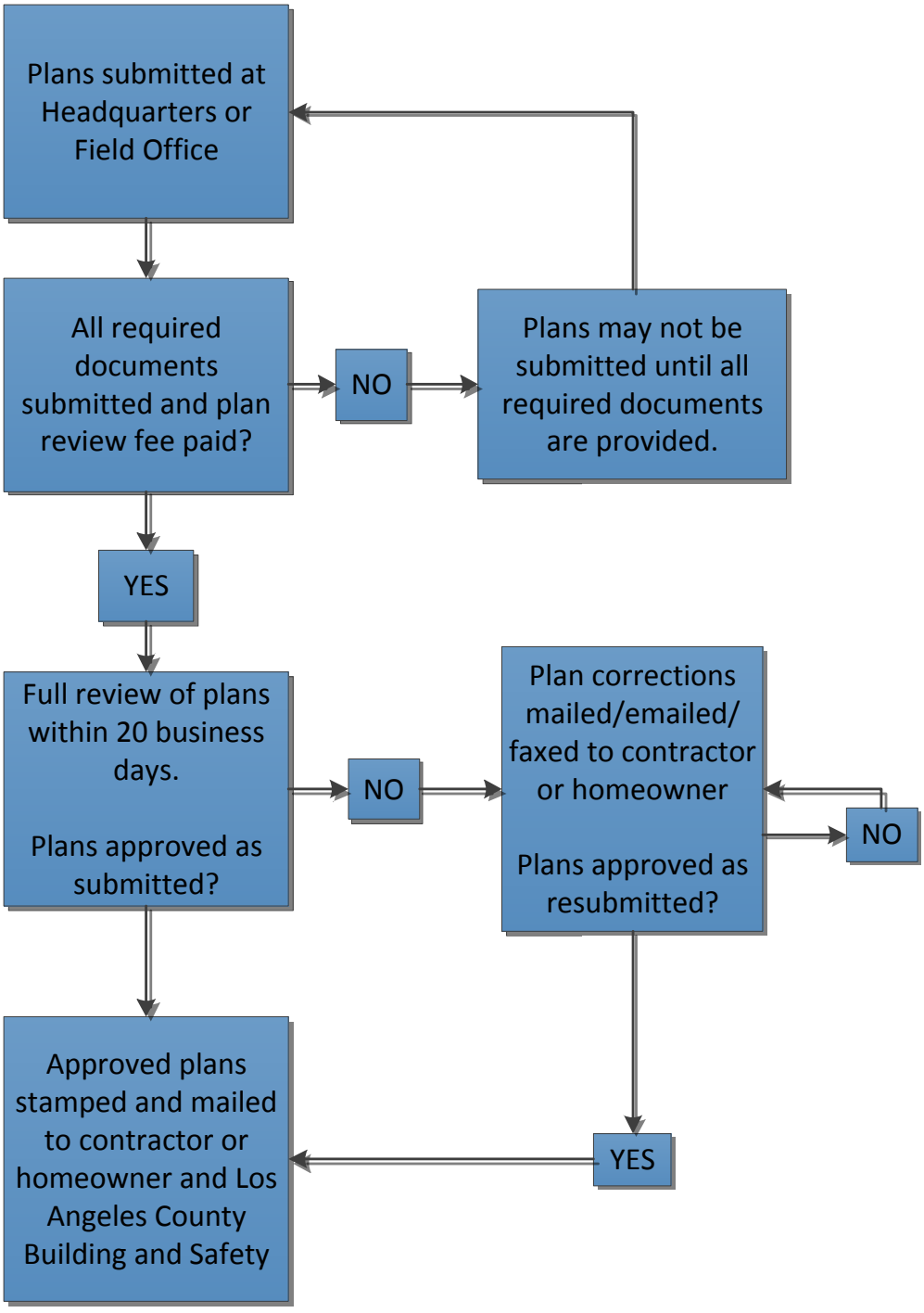
All requirements in this document are subject to amendments when deemed necessary by the Department. The Department will make every effort to notify the related industry and all interested parties of any revisions to these guidelines 30 days prior to the effective date of the implementation. This document does not represent all applicable regulations in their entirety; other requirements may apply.

Approval Process

Plans may be submitted at any Land Use field office or Environmental Health Headquarters for review (please call ahead for directions and/or hours). Refer to the Plan Submittal Checklist and Service Request Application in Appendix A to ensure that all required documents are submitted for review. Incomplete submittal packages will not be accepted and projects will not be reviewed until all fees are paid. If you are unsure of the payment amount, please contact a field office or headquarters.

Once a review has started, the Land Use Program will try to notify you within 20 business days of your plan status. After a full review, you will be advised that either your plan is approved as submitted or corrections to the plan are needed. Every effort will be made to review and approve plans in a timely manner from the time all required documents and payment are received.

Approval Process Flowchart



DEFINITIONS

Alluvium – unconsolidated rock and/or soil that has been redeposited and typically lies above consolidated bedrock.

Bedroom or Bedroom Equivalent – a room designed to afford privacy, which does not lead into other rooms and is equipped with window(s) on its exterior walls; OR any room that is designed in such a manner that could function and potentially be used as a bedroom is considered a bedroom equivalent. Rooms identified as sleeping rooms, dens, studios, sewing rooms, game rooms, libraries, theater rooms, lofts, study rooms, offices, lounges, gyms, or any room with an area of 70 square feet or greater in size shall be considered to be a bedroom or bedroom equivalent regardless of whether the room is equipped with a door or not. The Department may grant exception if a room, by its design, cannot function as a bedroom.

Bedrock – any consolidated rock, either weathered or not, which usually underlies unconsolidated alluvium. Bedrock would include sedimentary rocks excluding alluvium.

Core Room – a room in a single-family dwelling, recognized as a kitchen, living room, bathroom, utility room, dining room, or family room.

Day-Lighting – the act of effluent from an OWTS reaching the surface either due to failure of the effluent to percolate into the ground or through a slope or manmade cut.

Dispersal Area – the location of a dispersal system and expansion area.

Dispersal System – a method used for discharge of liquid sewage effluent from a septic tank, dosing tank or treatment tank. Standard dispersal systems include but are not limited to leach beds, leach lines, infiltrative chambers, seepage pits, and gravel-packed pits.

Domestic Wastewater – is wastewater normally discharged from plumbing fixtures, appliances, and other household devices including toilets, sinks, showers, bathtubs, laundry facilities, dishwashing facilities and garbage disposals. This may include wastewater from commercial buildings such as office buildings, retail stores, and some restaurants or from industrial facilities where domestic wastewater is segregated from industrial wastewater. Domestic wastewater does not include systems receiving a significant portion of RV holding tank discharges such as at RV dump stations.

Effluent – sewage or partially treated sewage flowing out of a septic tank, aerobic treatment unit, dispersal system, or other OWTS component.

Existing OWTS – an OWTS that was constructed and operating prior to the effective date of this Guideline or an OWTS for which a construction permit was granted up to one year prior to the effective date of this Guideline.

Feasibility Report – the documents, test results, geological reports, etc. that are required to be prepared and submitted in order to demonstrate the feasibility of installing an OWTS or NOWTS, including the 100% future expansion area.

Future Expansion Area – an area designated as the location for an additional dispersal system once the original dispersal system fails.

Failing Onsite Wastewater Treatment System – any onsite wastewater treatment system where wastewater is no longer safely treated or discharged and presents a health risk to humans or adversely impacts the environment. Evidence of a failing system includes, but may not be limited to:

- A backup of sewage into a structure which is caused by a septic tank or dispersal system problem other than a plumbing blockage.
- A discharge of sewage or effluent to the ground surface.
- A septic tank that requires frequent pumping in order to provide adequate dispersal of sewage.
- A structural failure that causes effluent to discharge at a location other than where intended or allows groundwater to infiltrate the system.
- A system that affects or will affect groundwater or surface water to a degree that makes it unfit for drinking or other uses or causes human health or other public nuisance condition.
- Inability to use the system as intended.

Family Room – a room with at least one wall designed with an unobstructed opening of at least one-half the length or area of that wall. A family room is an informal, all-purpose room, usually located adjacent to a dining room or a kitchen and has doors leading to the outdoors. A maximum of one room can be identified as a family room for each single family dwelling.

Groundwater – water located below the land surface in the saturated zone of the soil or rock. Groundwater includes perched water tables, shallow water tables, and zones that are seasonally or permanently saturated.

IAPMO – the International Association of Plumbing and Mechanical Officials.

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

Inspection – checking, observing, testing, and/or evaluating an onsite wastewater treatment system to determine the operating condition of the onsite wastewater treatment system.

Maintenance – work related to the upkeep or repair of an onsite wastewater treatment system. Examples include but are not limited to: any installation, repair or replacement of septic tank baffles, risers, effluent filters, tees, ells, tops, access port lids, pumps and blowers.

Mottling – a soil condition that results from oxidizing or reducing minerals due to soil moisture changes from saturated to unsaturated over time. This soil condition can be indicative of historic seasonal high groundwater level.

Mounding – upward movement of the effluent relative to the level of water observed last at the end of percolation test.

Non-conventional Onsite Wastewater Treatment System (NOWTS) - an onsite wastewater treatment system that utilizes, in addition to the septic tank, one or more supplemental treatment components to treat the effluent prior to discharge to the dispersal field.

NSF – the National Sanitation Foundation, a not for profit, non-governmental organization that develops health and safety standards and performs product certification.

Onsite Wastewater Treatment System (OWTS) - an onsite wastewater treatment system composed of a septic tank and a dispersal system that uses leach lines, a leach bed or seepage pits and does not include non-conventional onsite wastewater treatment systems.

Percolation Test - a subsurface test conducted to measure the absorption rate of water in soil strata. The test is conducted after initial presaturation and is usually expressed as minutes per inch or gallons per square foot of surface area per day.

Qualified Contractor – (QC) an individual who possesses a valid California License as General Engineering Contractor (Class A), General Building Contractor (Class B), Sanitation System Contractor (Specialty Class C-42), or Plumbing Contractor (Specialty Class C-36). The qualifying contractor under this definition may perform all work related to installation of new and replaced OWTS, and repair of existing OWTS in accordance with California Business and Professions Code and Title 16 of the California Code of Regulations.

Qualified Professional – (QP) a California Professional Geologist, a California Certified Engineering Geologist, a California Registered Professional Engineer, a California Registered Professional Soil/Geotechnical Engineer or a California Registered Environmental Health Specialist who is not currently employed by the County of Los Angeles.

Renovation – restoration, replacement, or alteration of any malfunctioning or damaged component of an onsite wastewater treatment system except those defined in this section as maintenance. The alteration of a hollow seepage pit to a rock filled seepage pit for the purposes of this article shall be considered a repair.

Seepage Pit – an excavation at least 10 feet deep and 4 – 6 feet in diameter, typically cylindrical in shape with 6 inches of rock between the pit wall and a concrete or brick liner, constructed for the purpose of disposing of sewage effluent from a septic tank or treatment tank.

Septic Tank – a water tight, compartmentalized, covered receptacle designed and constructed to: receive the discharge of sewage; separate the solids from the liquid; digest organic matter; store digested solids for a period of retention, and allow the resultant effluent to discharge from the tank.

Sewage – waste substance, liquid or solid, associated with human habitation, or which contains or may contain human or animal excreta or excrement.

Shallow Drip System – a treated wastewater dispersal system using filters, flexible tubing, drip emitters and a flushing mechanism to disperse directly to the soil without stone aggregate or chambers.

Soil – the naturally occurring body of porous mineral and organic materials on the land surface, which is composed of unconsolidated materials including sand, silt, and clay mixed with varying amounts of larger fragments and organic material.

Telemetry – the automatic collection and transmission of data by wire, radio, or other means.

TMDL – Total Maximum Daily Load. Limitations placed on pollutants causing the impairment of a 303(d) listed water body. The TMDL contains implementation plans detailing how water quality standards will be attained.

Utility Room – a room containing clothes washing and drying appliances, utility/mop sink, and space for storage or household supplies or other similar uses.

Waste Discharge Requirement or WDR – means an operation and discharge permit issued for the discharge of waste pursuant to Section 13260 of the California Water Code.

CHAPTER 1. PROJECTS THAT REQUIRE PLAN REVIEW AND FEASIBILITY REPORTS

A. Land Development Projects

Conditional Use Permit and land Subdivision projects where a public sewer is not available.

B. Building Construction

Any new construction where a public sewer is not available within 200 feet of the building.

C. Building Expansion

Any renovation of an existing building that entails expansion beyond the current footprint of the permitted structures, the addition of a room, the addition of plumbing fixtures or a combination of any of the above that will increase the design flow or demand a greater capacity than the capacity indicated on the previous approval for the existing system.

D. Addition of a Building or Structure on the Property

The addition of a new building or structure such as a garage, gazeebo, patio, deck, swimming pool, spa, or driveway, whether or not it includes any plumbing or bedroom equivalents must be evaluated to determine whether the new structure encroaches on the setbacks for the existing system and to ensure that a tested and approved area remains for the 100% future expansion area.

E. OWTS/NOWTS Renovation or Repair

- Any repair, renovation, or replacement of the septic tank, supplemental treatment components, or dispersal system where there are no records of the previous approval.

- Any repair, renovation or replacement of the septic tank, supplemental treatment components, or dispersal system where it is discovered that the existing system is nonconforming and does not meet the current requirements.

- Any repair, renovation or replacement of a previously approved, existing septic tank, supplemental treatment components, or dispersal system where geological conditions have been identified that may adversely affect the operation of the system. The replacement of a septic tank at a previously approved system requires plan submission but does not require a feasibility report.

- If you are rebuilding as a result of a fire or other natural disaster, please consult our Guidelines for Rebuilding Residential and Commercial Structures Following a Fire or Other Natural Disaster.

F. Activation of the 100% future expansion area

The feasibility of installing the 100% future expansion area shall be demonstrated if the previous approval was based on soil category evaluation or where the 100% future expansion area was not tested at the time of the original approval even if the plans or records refer or illustrate to a location for the future expansion area.

CHAPTER 2. PROFESSIONAL QUALIFICATIONS FOR PREPARING FEASIBILITY REPORTS AND INSTALLATION OF OWTS

A. Feasibility reports shall be prepared by <u>Qualified Professionals (QP)</u> who possess a valid California license / permit to conduct the required testing and / or to prepare or contribute to the preparation of a feasibility report.

1. The following are considered Qualified Professionals (QP):
   A California Professional Geologist, a California Certified Engineering Geologist, a California Registered Professional Engineer, a California Registered Professional Soil/Geotechnical Engineer or a California Registered Environmental Health Specialist who is not currently employed by the County of Los Angeles.

2. All above listed QP are qualified to design a new or replacement OWTS and to perform all necessary soil and site evaluations where the treatment or dispersal system will be replaced or expanded, except as noted below. The design of new and replacement OWTS shall be based on influent wastewater quality, quantity, the site characteristics and the required level of treatment for protection of water quality as well as public health.

3. For a person to be considered a QP for the following activities, the individual must have one of the qualifications noted next to the activity:

   - A site evaluation of the property, including subsurface exploration to determine the depth of groundwater, down-logging of a soil profile excavation hole and preparing a written report of findings – California Professional Geologist or California Certified Engineering Geologist
   - Determination of uniform geology where extreme geologic conditions do not exist – Professional Geologist
   - Preparation of soil profile of any test pits – California Professional Geologist or California Certified Engineering Geologist
   - Address potential for slope destabilization for any proposed hillside installation – California Certified Engineering Geologist or a California Registered Professional Soil/Geotechnical Engineer,
   - Prepare and certify a hydrological assessment to request a waiver of setback requirements from a blue line stream or tributary confirming that neither the proposed dispersal system nor the subject drainage course will ever generate sufficient lateral infiltration that could negatively impact each other, declaring the location for the proposed dispersal area suitable – Registered Geologist, Hydro-geologist or Engineering Geologist.

4. The QP who prepares the feasibility report shall sign the report. Additionally, he/she shall affix a professional stamp on the plot plan and the report adjacent to the signature, acknowledging the responsibility for the overall preparation of the report and agreeing to the following declaration: *"This submittal is intended to represent a complete feasibility report that conforms with the applicable provisions of the Los Angeles County Code – Title 28 Plumbing Code and the feasibility report requirements of the Department of Public Health - Environmental Health".*

B. Installation of OWTS shall be performed by a <u>Qualified Contractor</u>.

For the purposes of construction of OWTS, a Qualified Contractor is an individual who possesses a valid California License as General Engineering Contractor (Class A), General Building Contractor (Class B), Sanitation System Contractor (Specialty Class C-42), or Plumbing Contractor (Specialty Class C-36). The qualifying contractor under this definition may perform all work related to installation of new and replaced

OWTS, and repair of existing OWTS in accordance with California Business and Professions Code and Title 16 of the California Code of Regulations.

For the purposes of certification inspection of existing OWTS, contractors who only possess a General Building Contractor (Class B) license are not qualified to perform the required OWTS inspection.

CHAPTER 3. DOCUMENTS AND INFORMATION REQUIRED FOR OWTS PLAN REVIEW

A. Service Request Application

- The location of the property, including a legal description (state how the property is identified) and the Assessor's Parcel Number (APN).
- The property owner's name, mailing address, phone number, and email address.
- The contractor's name, address, phone number, and email address. The geologist's name and contact information is to be included with the feasibility report.
- The service requested.

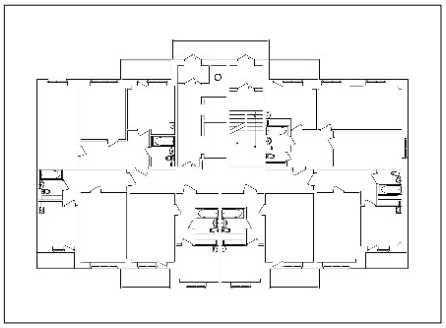
B. Feasibility Report

Feasibility reports contain "proprietary information" and are not released to the public or industry professionals. The feasibility report shall clearly identify the following:

- The property address, ownership information, the Qualified Professional's information, the date of the testing, and the description of the procedures.
- The name and the profession of the person(s) who performed the actual percolation testing procedure and their working relationship with the QP who signed the report.
- A site-specific determination of seasonal and historical subsurface water levels, including information regarding the methods utilized to reach the determination. This should include all available historical data that supports the findings concluded by the QP.
- Percolation testing data including the failures of test holes.
- A general soil description and any features that may affect subsurface wastewater dispersal.
- A soil profile excavation down-logged by a California Professional Geologist or California Certified Engineering Geologist. This report is to be included with the percolation test data.
- See Chapters 8. Determining Depth of Groundwater; Chapter 9. Requirements Applicable to all Percolation Tests; Chapter 10. Percolation Testing for Leach Lines and Leach Fields; and Chapter 11. Percolation Testing for Seepage Pit for additional information on what is required to be included in the Feasibility Report.

C. Floor Plan

A floor plan shall be submitted for the building(s), reduced to 11" X 17", to illustrate all rooms along with a listing of all plumbing fixture units. A scale indicator shall be included on the map and shall not be subject to change due to reduction or enlargement of the plan. For new construction the floor plan shall include all proposed rooms and their designated use. For evaluation of existing systems required due to building expansion, addition of a new building, OWTS repair, or activation of the future expansion area, the plans shall indicate all current rooms and their designated use.



D. Grading Plan

A copy of an approved grading plan from the DPW, Building & Safety Division. A copy of the rough grading geology review sheet approval for hillside properties that is required by the DPW, Building & Safety Division shall be submitted prior to final approval. The proposed system shall conform to the rough grading approval by the County Geology Division.

E. Plot Plan

A plot plan shall be submitted, professionally drawn to scale, not less than 1"= 20' for parcels of one acre or less, and 1"= 40' for parcels over one acre, signed by a QP. A scale indicator shall be included on the map and shall not be subject to change due to reduction or enlargement of the plan. For very large parcels, insertion of the specific wastewater dispersal areas may also be required. The typeface and size must remain legible (preferably size 12 font) when the plan is reduced to 11 x 17 inches. The plot plan may be on 8 ½ x 11 or 11 x 17 inch paper. Multiple pages may be used to clearly identify all relevant features of the site. Photographs may be included to illustrate site conditions. The plot plan shall illustrate a northerly indicator and contain the following information:

1. The dimension of the lot including property lines, easements for roads, utilities, utility easements, access to other lots, etc. (Submittal of easement documents with underlined dimensions that match the dimensions shown on plans and the description of the purpose for each easement shall be required).

   See **Appendix B** for further information on easements, including conditions when an OWTS/NOWTS may be installed in an easement.

2. All slopes and topographical features, including location of all down banks, man-made cuts, and unstable land masses, on or off the property, affecting "day-lighting" requirements shall be indicated. Typically, the day-lighting setback is measured from the point where wastewater is being discharged within the dispersal system. The day-lighting setback for infiltrative chambers is measured from the discharge point of the infiltrative chamber; for leach lines, it is measured from the trench wall; and for seepage pits, it is measured from the closest side wall at the capping depth. (Note: this was clarified here and in Chapter 4, Setbacks, both sections previously indicated that the daylighting setback was from the point of discharge, however, the descriptions were contradictory.)

3. All vegetation and trees, especially oak trees and groundwater indicators such as willows, reeds, cattails, and other hydrophilic plants shall be shown with clear indication of their trunk. A minimum of 10 feet of horizontal setback from the trunk of a tree to any part of OWTS is required.

   For oak trees, in addition to the location of the tree trunk, the drip-line of the tree shall be illustrated. In unincorporated area of Los Angeles County, the setback clearance from an oak tree shall be in conformance with the Los Angeles County Oak Tree Ordinance, extending to a point

that is at least 5 feet outside the drip line or 15 feet from the trunk of the tree, whichever is the greater.

Best Practice: Maintain a minimum 10 foot setback clearance measured horizontally from the **anticipated drip line of a tree at its maturity**.

4. All sources of water including, the proposed source of drinking water, all existing, abandoned, or proposed water wells on or off the property within 200 feet of the dispersal system; all water mains, domestic onsite water lines and service connections, culverts, ripraps, French drains, key-ways, and sub-drains on the subject property.

5. All flowing surface water bodies such as streams, springs, drainage courses, watercourses, and flood ways, whether year-round or ephemeral, within 200 feet of the property lines. The site plan shall illustrate the natural or levied bank.

6. All horizontal set-back distances as required by the Los Angeles County Plumbing Code – Title 28 Table H-1.7. Each setback distance should be indicated on the plan.

7. The location of all percolation tests, including failures, and their corresponding percolation rates; all borings to establish current and historical groundwater water levels; and test locations and borings shall be identified by numbers corresponding to the collected field data.

8. The location of rock outcroppings.

9. The location of all existing and proposed structures to include cesspools, tanks, out-buildings, car ports, swimming pools, driveways, paved areas, retaining walls, steps, decks, patios, cantilevered balconies, etc.

10. The location and components of the entire dispersal system to include:

    a) The dimensions (length, width and depth) of the leach lines, depth and diameter of seepage pits, or size of any other style of dispersal field, and the distances between trenches and seepage pits.

    b) The distribution box located at the head of the dispersal system when the dispersal system is comprised of more than one leach line or seepage pit.

    c) The required setbacks from the building are measured out from the vertical plane of the closest edge of the building exterior, clear to sky, to include any protrusions, such as, roof overhang, balcony, deck, etc.

    d) Any supplemental treatment components and disinfection treatment components.

    e) The required day-lighting setback applied to underground structures where the structure is at or below the level of the point of discharge measured out from the vertical plane of the closest edge of the structure.

11. The location, size and rating of the septic tank to be installed.

12. The proposed area reserved for the 100% future expansion. Where access to the future absorption area is compromised by the construction of the dwelling or by any future use of the property, the 100% future expansion system shall be installed with the present system. The 100%

future expansion system installed with the present system shall not be activated until the life of the present system has come to its end.

13. All information required in **A**. must also be included on the plot plans.

F. Cross Sectional View of the Dispersal Field or Seepage Pit

A cross-sectional view of the proposed installation of the entire dispersal field or seepage pit and its components, illustrating setbacks to preclude day-lighting. Any extra gravel in excess of the required 12 inches below the distribution line(s) shall be indicated on cross sectional view.

G. Site Identification

The address of the job site is to be clearly posted at the construction site. Clearly visible residential addresses meet this requirement. If an inspector attempting to conduct a site evaluation as part of the plan approval process is unable to locate the property because the address is not properly posted, the contractor may be required to pay additional fees for a second site evaluation.

H. Additional Information Required Depending on the Project

- An evaluation of the current system by a Qualified Contractor is required for existing systems without evidence of prior approval and approved systems operating for over 15 years whenever the project includes building expansions without additional bedrooms or plumbing fixtures, repairs of the existing system, the addition of new buildings or structures to the property, or the activation of a future expansion area.

- A Slope Evaluation Report approved by a qualified professional is required whenever natural ground slopes in dispersal areas are greater than 30%. (Note: This is a change from the prior requirement of evaluation by DPW Geological Materials and Engineering Division for slopes of 2:1 or greater. This change is due to DPW informing DPH that they are no longer performing this service.)

- A report by registered engineer indicating that the wastewater generated by the OWTS will not surcharge and mound on any caisson, column, pillar or footing that is intended to support an above ground structure, installed below grade extending down to or below the point of discharge, even though it may be lesser in width than the dispersal system (i.e., smaller than the diameter of seepage pit or width of trench) with which it interfaces. Any such structures with width equal to or wider than the interfacing dispersal system shall be considered an underground structure and a 15-foot day-lighting setback requirement shall apply.

- Identification of types of filler material such as rock or gravel to be used in the dispersal fields of leach lines and beds, or to line the outside of the seepage pit liners. Documentation from the supplier attesting that all filler materials/rocks have been washed to be reasonably free of fines shall be available at the time of installation.

CHAPTER 4. SETBACKS AND OTHER CONSIDERATIONS

A. Setbacks

1. All new OWTS/NOWTS installations and all replacement conventional OWTS shall comply with the setback requirements of the Los Angeles County Plumbing Code. A table with all of the required setbacks is provided in **Appendix C**.

2. The setback requirements for a NOWTS that is replacing a currently installed OWTS shall meet all of the setback requirements as is feasible. When setback requirements cannot be met, the Department shall specify the required level of treatment provided by the NOWTS.

3. A minimum of 10 feet separation shall exist between the bottom of a dispersal system and groundwater.

4. The minimum setback for day-lighting is 15 feet and it's considered the shortest horizontal distance measured from the nearest point that wastewater is being discharged (i.e., from the edge of the trench or closest edge of the seepage pit at the cap depth) to the edge of sloping grounds or to any underground structure.

5. OWTS/NOWTS shall not be built in a flood zone.

   See **Appendix C** for requirements to obtain a waiver for certain setbacks.

B. General Project Requirements

1. No plans will be accepted or approved for the installation, alteration, or repair of any OWTS or part thereof, for any building for which a connection to the public sewer is available within 200 feet.

2. All approved plans are valid for 1 year from the original date of approval. If the Building Permit has not been issued within the one-year period, the property owner may apply for an extension prior to the expiration of the one-year period. There will be a maximum of two (2) one-year extensions granted as long as it is determined that the original approval remains in conformance with the current code.

3. Projects that have not received a building permit within the two one-year extensions require submission of a new application and review of the feasibility report and are subject to plan check fees of equivalent to a renovation project.

4. The representative of the Department who is assigned to review the project will only communicate the outcome of the review and the required corrections with the property owner and the Qualified Professional or Qualified Contractor named on the Service Request Application submitted for the project.

5. All departmental issued documents, such as, plan correction response letters, inspection reports, approvals and other related documents are considered public records and may be released upon request. Proprietary information, including geological data compiled through tests, explorations, excavations, borings, evaluations, etc. performed by a qualified professional on a specific site to produce a feasibility report for installation of OWTS are not considered public records.

6. Prior to conducting an evaluation of an existing OWTS, the qualified contractor shall notify this Department of the date and the time of the uncovering of the OWTS, at least one business day in advance, for possible observation and verification by the Department representative.

7. The evaluation of an existing system must include whether the existing system was properly installed, is currently functional, and structurally in good repair. The qualified contractor shall submit to the Department a signed report attesting to such capability for the existing OWTS. The inspection report of the current system required in shall include:

a. Verification that all components were installed/constructed in an acceptable manner (i.e., setbacks are met) and all components are intact and in good repair.
b. Verification of the structural integrity of the entire system, to include tank, baffles, plumbing lines, distribution box, diverter valves, and any other related component.
c. The report shall attest to the current condition of the dispersal system. For example, the extent which the perforated pipes for leach lines and the gravel below are clogged; the presence of organic build up in the seepage pit; the observed level of standing wastewater in seepage pit and if the wall of the seepage pit is stained due to constant contact with wastewater that may have happened in the past, etc.
d. The report shall include a plot plan that clearly identifies and illustrates the entire OWTS to include the tank size and related details of the dispersal system.

8. If the evaluation of an existing system determines that the septic tank is inadequate the tank shall be upgraded to meet the current departmental requirements.

9. When a previously approved OWTS fails but the proposed expansion area does not meet the current percolation rates, a NOWTS shall be required even though there are no concurrent improvements planned for the structure.

10. When a previously approved OWTS fails and surface or subsurface water conditions are such that the current setback requirements cannot be met, a NOWTS including disinfection shall be required.

CHAPTER 5. SEPTIC TANK CAPACITY AND REQUIREMENTS

The liquid capacity of all septic tanks shall conform to Tables H 2.1 and H 2.1(1) of the Los Angeles County Code, Title 28 – Plumbing Code. See **Appendix D** for Table 2.1.

A. Capacity of Septic Tanks

The determination of the capacity of a septic tank is subject to the following requirements:

- The capacity for a septic tank to be utilized for single or multiple family dwelling shall be determined based on the number of bedrooms and bedroom equivalents.

- The septic tank capacity for commercial establishments shall be determined based on fixture units count specified in Table H 2.1 and in accordance with the type of the establishment indicated in Table H 2.1(1), whichever provides a greater capacity.

- When determining the septic tank size for establishments that are composed of both single or multiple family dwelling units and commercial establishments, whether based on fixture unit count or bedroom and bedroom equivalent or combination of both, the largest resulting capacity shall be proposed.

- All rooms with the exception of core rooms shall be considered a bedroom or bedroom equivalent when determining the minimum capacity for a septic tank and sizing of a dispersal system. As

noted in Chapter 3, the application for construction of a new OWTS shall include a detailed floor plan (see Chapter 3 for complete details).

- Detached structures/rooms with windows that are greater than 70 square feet in area and are not equipped with water lines or plumbing fixtures shall not be considered a bedroom or bedroom equivalent. Plans for construction shall clearly describe the purpose of such structure/room and indicate that the structure/room is not equipped with any plumbing fixtures.

- A guest house with kitchen shall require a separate OWTS, large enough to accommodate the wastewater dispersal needs of the structure, independent of the main house. Sizing of OWTS for guesthouses with kitchen shall be computed based on the number of bedrooms and bedroom equivalents. The construction of a guesthouse with kitchen requires approval from the Department of Regional Planning, in addition to Building and Safety Division.

Best Practice: Septic tanks may be voluntarily oversized to improve the retention time. This should be clearly noted on the plans.

B. Structural Requirements for Septic Tanks

- All new septic tanks shall comply with the most current version of the Los Angeles County Plumbing Code, Title 28, Appendix H.

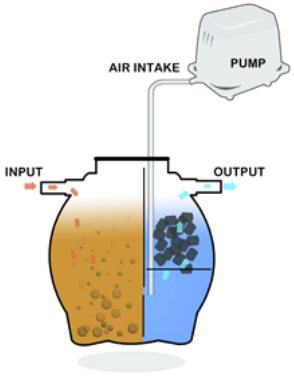
- All new or replacement tanks shall be meet the standards of the local Building Official and their installation shall be according to manufacturer's recommendations.

- All joints between the septic tank and its components shall be watertight and constructed of solid, durable materials to prevent excessive corrosion or decay.

- The inverts of all outlets shall be level and the invert of the inlet shall be at least one inch higher than the outlets.

- All septic tank access points shall have watertight risers the tops of which are set not more than six (6) inches below grade. Access openings at grade or above shall be locked or secured to prevent unauthorized access.

- Aerobic systems may be used in place of conventional septic tanks provided they provide equivalent treatment to a conventional system when the aeration unit is not operational.



Example of an Aerobic Treatment Tank

- Any tank proposed to be installed within a driveway must be traffic-rated and equipped with traffic-rated risers with traffic-rated covers set at grade. Non-traffic rated tanks shall not be installed within 5 feet of any road or driveway.

- OWTS that utilize pumps to move effluent from the septic tank to the dispersal system shall be equipped with one of the following: a visual, audible, or telemetric alarm that alerts the owner or service provider in the event of pump failure. All pump systems shall, at minimum, provide sufficient storage space in the pump chamber during a 24-hour power outage or pump failure and shall not allow an emergency overflow discharge. The capacity for the storage

space for pump chamber shall be equal or greater than the sum of 300 gallons for first bedroom and 150 gallons for each additional bedrooms or bedroom equivalent rooms thereafter.

- When the existing system is required to be exposed to establish the size and capacity of the septic tank and/or dispersal field or seepage pit, the Department staff shall visit the site and verify the dimensions with the QP/QC. The QP/QC shall notify this Department of the date and the time of the uncovering of the OWTS, at least one business day in advance for possible observation by the Department representative.

CHAPTER 6. DISPERSAL METHODS FOR CONVENTIONAL OWTS

A. General Dispersal System Requirements

1. If the percolation tests for a proposed leach bed or leach line results in an absorption rate that slower 60 MPI, the soil conditions do not meet the minimum requirements of a conventional system. **Soil Replacement as detailed in Chapter 12. Non-Conventional Onsite Wastewater Treatments – Supplemental Treatment and Soil Replacement is required**.

2. If the percolation test for a proposed leach bed or leach line results in an absorption rate that is less than 5 minutes for the water level to drop from the 5th to 6th inch, the soil conditions do not meet the minimum requirements of a conventional system. **Supplemental treatment as detailed in Chapter 12. Non-Conventional Onsite Wastewater Treatments – Supplemental Treatment and Soil Replacement Requirements is required.**

3. If the percolation tests for a replacement seepage pit or gravel packed pit results in an absorption rate exceeding 5.12 gallons per square foot of dispersal area per 24 hours**, Supplemental treatment as detailed in Chapter 12. Non-Conventional Onsite Wastewater Treatments – Supplemental Treatment and Soil Replacement Requirements is required**.

4. No excavation for a leach line, leach bed, or seepage pit shall extend to within 10 feet of groundwater.

5. Where two or more leach lines are installed, an approved distribution box of sufficient size to receive lateral lines shall be installed at the head of the dispersal field. Similarly, two or more seepage pits shall be connected by means of a distribution box and not in series.

6. Distribution boxes shall be of an approved type with protective coating on interior surfaces, sufficient in size, designed to ensure equal flow and be installed on a level concrete slab in natural or compacted soil.

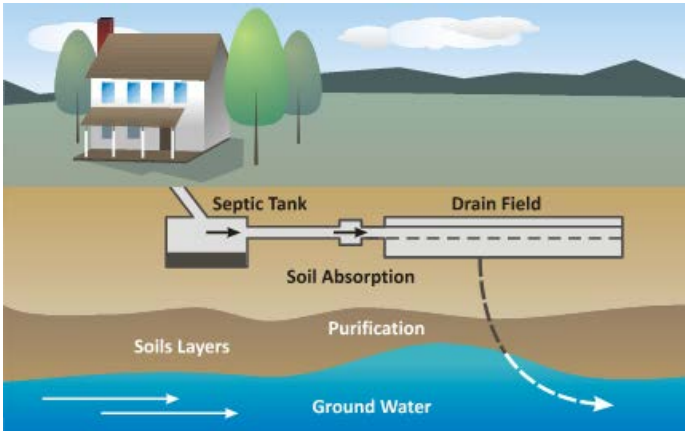


Illustration of an OWTS with a Drain Field

7. There shall be at least three (3) feet of natural, continuous, undisturbed soil beneath the bottom of a conventional dispersal system. When there is not 3 feet of natural, continuous, undisturbed soil between the bottom of the dispersal system and fractured bedrock or bedrock,

Supplemental treatment as detailed in Chapter 12. Non-Conventional Onsite Wastewater Treatments – Supplemental Treatment and Soil Replacement Requirements is required.

8. The dispersal area shall be configured to exclude all failed test holes (see Chapter 6). The minimum distances between failed test holes to the nearest component of the proposed dispersal system shall be not less than the required setback for the respective dispersal component (i.e., 12 feet for seepage pits, 4 feet for leach lines).

9. Dispersal fields for leach lines and leach beds shall be installed at the shallowest practicable depth to maximize elements critical to treatment of effluent in the soil. The total depth for a trench or bed, from ground level to the bottom of trench/bed, may not exceed 5 feet. The total depth of fill over leach lines to ground level, to include the gravel over the pipe, shall not exceed 24 inches. A depth of 12 to 18 inches of earthen cover is required over leach lines. See **Appendix E** for reason for shallow dispersal system.

10. On sloping grounds, to compensate for excessive line slope, leach lines and leach beds shall be stepped. The lines between each horizontal section shall be made with watertight joints and shall be designed so each horizontal dispersal trench or bed shall be utilized to the maximum capacity before the effluent shall pass to the next lower leach line or bed.

11. A slope stability report is required for any slope of 30% or greater. A California Certified Engineering Geologist or a California Registered Professional Soil/Geotechnical Engineer shall address whether the any unstable land mass or areas subject to earth slides require a setback of 100 feet or indicate other setbacks that should be allowed. (Note: This is a new requirement as the Department of Public Works, Geological and Materials Engineering Division has informed DPH that they no longer review slope stability reports.)

12. Leach lines on hillside properties shall be installed level with the contour of the land.

13. The dispersal field/area may not be covered or paved over and in no case may a vehicle be driven or placed over the dispersal field/area. See **Appendix E** for additional information.

B. Leach Bed

This system consists of multiple perforated lines installed in an excavation with a minimum 36 inches in width, maximum of 100 linear feet in length and containing 12 to 36 inches of gravel beneath a system of perforated distribution pipes through which sewage effluent seeps into the surrounding soil. Perforated pipes shall neither be installed greater than 6 feet apart nor closer than 3 feet to the sidewall of the leach bed.

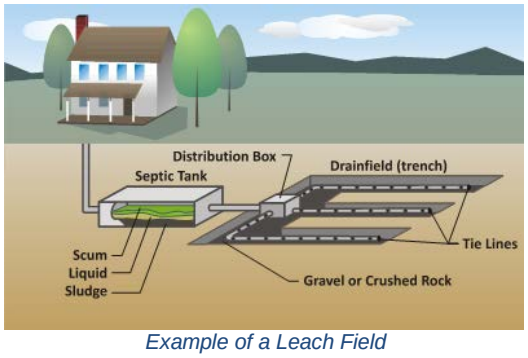
Construction of a Leach Bed

The area designated as a leach bed shall be at least 50% greater than the area required for leach lines.

Gravel, stone, slag and similar materials used for filtration purposes shall be thoroughly washed to be free of fines (small particles).

C. Leach Line

This system consists of one or more trenches. Each trench shall be 36 inches in width, maximum of 100 feet in length, and contain 12 to 36 inches of gravel beneath a single perforated distribution pipe through which sewage effluent seeps into the surrounding soil.



Example of a Leach Field

When more than 1 leach line is required to be installed, they shall equal in length and size and be provided effluent from a distribution box rather than an overflow pipe connecting the leach lines in series. See **Appendix E** for additional information regarding leach lines of uneven length or leach lines required to bend.

The distance between trenches shall be a minimum of 4 feet, measured from closest sidewall to sidewall. The distance between trenches shall be increased by 2 feet for every 1 foot of gravel beneath the perforated lines.

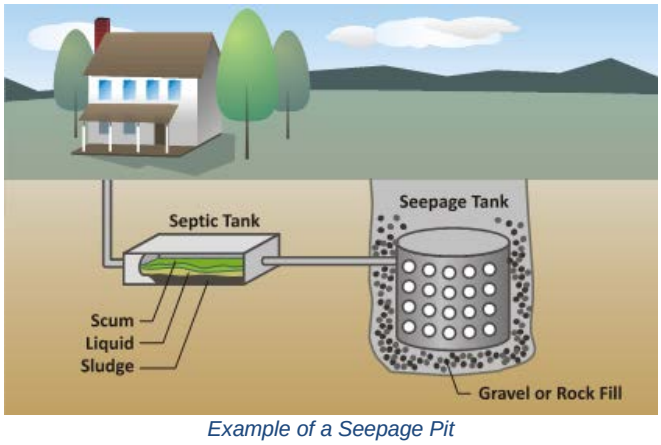
Gravel, stone, slag and similar materials used for filtration purposes shall be thoroughly washed to be free of fines (small particles).

D. Infiltrative Chamber

This system consists of semicircular chambers installed contiguously with open portion of the infiltrative chambers on the ground. The infiltrative surface area credit shall be limited to the calculated floor area beneath the open portion of the chamber, excluding the area beneath the base of walls where infiltrative chamber is placed on the ground. The infiltrative surface area may be reduced to seventy percent (70%) of the area that it would be required for a conventional leach field dispersal system. Use of gravel under the infiltrative chambers is optional; however, no additional sidewall credit will be given when gravel is used.

E. Seepage Pit

This system consists of one or more covered circular excavations, four to six feet in diameter with an interior lining of six inches of gravel and sewer brick or concrete liners allowing effluent to seep into the surrounding soil. The pit shall have a minimum effective sidewall of 10 feet below its sewer inlet pipe.



Example of a Seepage Pit

The seepage pit(s) must be sized to hold a volume of at least five (5) times the volume of the proposed size of the septic tank divided by the amount of water absorbed during the percolation test. When groundwater depth prevents a single pit from meeting this requirement, additional seepage pits must be constructed. Multiple seepage pits shall have effluent delivered to them from a distribution box rather than connecting the pits in series.

Gravel-packed Pit

Gravel packed pits are seepage pits that are filled with gravel of ¾ to 2 ½ inches in size up to the cap level, allowing effluent to seep into the surrounding soil. The gravel must be washed and free of silt. All of the limitations on seepage pits apply to gravel packed pits.

The gravel packed pit(s) must be sized to hold a volume of at least five (5) times the volume of the proposed size of the septic tank divided by the amount of water absorbed during the percolation test. The same requirements for percolation testing of a seepage pit apply to a gravel packed pit if the test is performed without gravel pack being added.

CHAPTER 7. FUTURE EXPANSION AREA

A. Every new OWTS and NOWTS, regardless of the type of the dispersal system, shall be provided with a sufficient land area for an entirely new dispersal system (100% future expansion area).

1. When soil profile and percolation tests confirm alluvium geology and uniformity in geology has been established by the Professional Geologist, the required percolation testing for the 100% future expansion area may be waived. The uniformity in geology shall be established through both soil profile studies and percolation testing of more than one hole.

2. Where proposed future expansion areas are in bedrock, hardpan or fractured rock formation, the future pits shall be tested to establish percolation rates for each individual pit.

B. If the dispersal system proposed for the 100% future expansion area is installed concurrently with the construction of a new system, the future expansion system may not be utilized until the present system has failed.

C. Any expansions beyond the current footprint of the existing structure or addition of any new detached structures, such as swimming pools, spas, patio, decks, stairs, walls or any permanently constructed structures shall require the demonstration of the feasibility of installing the 100% future expansion area, regardless of whether the proposed renovation will increase the design flow or demand greater capacity than the existing OWTS.

1. As a part of an approval for 100% future expansion, a previously approved existing OWTS that has been in service for more than 15 years is required to be inspected by a Qualified Contractor (see Chapter 4).

2. If previous approval of the OWTS is not available or did not include approval of the 100% future expansion area AND the renovation/expansion neither increases the design flow, nor demands a greater capacity, the existing OWTS shall be evaluated by a Qualified Contractor, in addition to proving out the 100% future expansion area by a Qualified Professional (see Chapter 4).

D. When the present dispersal system has failed and the 100% future expansion area is to be utilized, a new 100% future expansion area shall be demonstrated through tests and be reserved for future use.

This requirement may be waived if one of the following conditions is met:

- When the 100% future expansion area (dispersal system) that is being activated is equipped with supplemental treatment component;

- When the property is one acre or greater in size and the geology report prepared for the 100% future expansion area that is being activated confirms no unfavorable geological conditions, such as, bedrock formation, etc. exist;

- Where the geology report for the existing present dispersal system, if available, concurs with the geology report prepared for the 100% future expansion area that is being activated, confirming uniform and favorable soil and geological conditions throughout the property.

E. An expansion of up to 10% of the current footprint may be allowed without requiring to prove out the feasibility for the 100% future expansion area so long as the expansion:

1. Does not increase the design flow or require greater capacity,

2. Does not take up more than 10% of the remaining available undeveloped area on the property, where no unfavorable geological conditions, such as, bedrock formation, etc. exist,

3. All required setbacks can be met,

4. The location and direction of the proposed expansion is in a manner that will not interfere with the installation of the 100% future expansion area when needed in the future.

5. Applicants who elect to utilize the exemption under 10% expansion rule, shall submit a signed statement from a California Professional Geologist or a California Certified Engineering Geologist substantiating that there are areas available on the property for the installation of the 100% future expansion area and there are no unfavorable geological conditions, such as, bedrock formation, etc. exist within the property that may prevent the installation of the 100% future expansion area when needed in the future.

6. **Only one use of the 10% expansion rule will be granted to a property.**

F. In situations where adequate land is not available for a second 100% future expansion area, the dispersal system that is being installed shall be equipped with supplemental treatment component.

G. When approving a future expansion area for a system without prior approval, **the approval issued by the Department will only encompass the 100% future expansion area, approving only the renovation/expansion and not the existing OWTS. The Department may require other additional improvements to ensure that the minimum required standards have been met.**

See Appendix F for additional considerations for a future expansion area.

CHAPTER 8. PROCEDURES FOR DETERMINING DEPTH OF SUBSURFACE WATER

Prior to conducting any percolation tests, a site evaluation, including subsurface exploration, shall be conducted by a California Professional Geologist or a California Certified Engineering Geologist to determine the depth of groundwater. A groundwater exploration test hole shall be excavated at the lowest possible elevation within the immediate vicinity of the proposed dispersal system in order to monitor and determine the static depth of the seasonal high groundwater.

In areas with alluvial geology, the groundwater exploration test hole should be within a 35 foot radius and evenly distanced from the proposed seepage pits or leach lines (or both ends of a single leach line).

When unfavorable geological conditions, such as, bedrock formation, etc. exist, the groundwater determination shall be obtained from test borings made that overlie the leach lines or any of the seepage pits proposed for dispersal system.

The groundwater water test hole shall be down-logged by a professional geologist. The geologist shall take precautions to ensure safety. When it's deemed unsafe by the geologist, the required information shall be obtained through alternative methods advised by the geologist and acceptable to the Department.

The Geologist's log of the groundwater exploration test hole shall include the description of the earthen material in the excavation, any observation of mottling, oxidation, staining, crystal buildup, seeps, weeps or other features that may indicate the past or current presence of groundwater. The report shall provide an interpretation of the observation and include a statement by the professional geologist substantiating whether the infiltration and presence of water, if any, is temporary.

A 4 inch perforated pipe should be placed in the groundwater exploration test hole with soil backfilled around it to allow observation of the test hole. The test hole shall remain covered and secured for a minimum of 5 days and shall be monitored periodically by the QP, at least once on 2nd day and once at the end of 5th day to establish the static level of the water and when feasible by Environmental Health Specialist to observe the water level. The report generated by QP shall indicate the monitoring intervals, fluctuation of the water level and establish the final level where the water was stabilized. The covering and securing of any open test excavations/borings/pits shall be in conformance with DPW, Building & Safety Division's requirements.

Groundwater exploration test holes are required to comply with the Monitoring Well Standards Bulletin 74-90 requirements for exploration holes in Part I Section 7 – Reporting and Part III – Destruction of Monitoring Wells. Large volume excavations greater than 10 feet in depth that penetrate a layer that impedes movement of water of low quality, must be reestablished to the degree possible to protect subsurface waters per the Monitoring Well Standards Bulletin 74-90 Part I Section 4 – Exclusions.

In areas with alluvial geology where previous excavations and prior reports by Professional Geologists within the property have proven that there are no high subsurface water concerns, and the soil profile is similar within 10 feet of the anticipated bottom of dispersal field or seepage pit, a statement signed by a QP attesting to the data that substantiates the findings may be accepted.

Known or observed high subsurface water

In areas that are known to have high groundwater and/or where observation of mottling, oxidation, staining, crystal buildup, seeps, weeps or other features that may indicate presence of groundwater in the past or present or where groundwater or moisture seepage (seeps, perched-water, etc.) is present within 10 feet below the expected bottom of the dispersal field or seepage pit, the QP shall, on a continuous basis, monitor and measure the presence of moisture and depth to high groundwater through a groundwater level observation well in a manner described below:

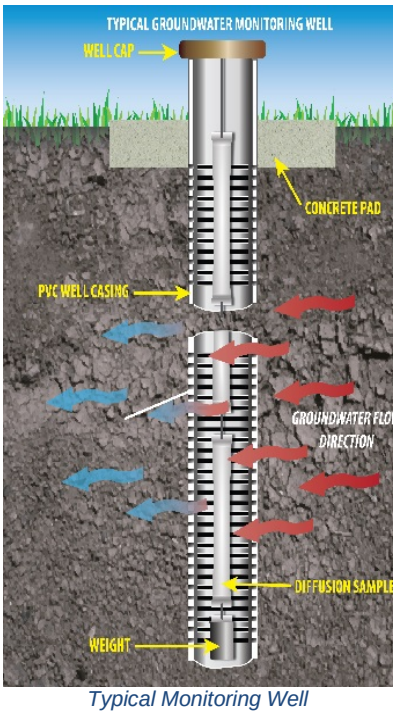
- A permit for a monitoring well is required from the Drinking Water Program. Call (626) 430- 5420 for information on applying for a permit to construct a monitoring well.

- The high groundwater determination exploration shall be conducted throughout the months of March through May.

- The groundwater level shall be monitored and measured on a regular basis to determine the highest level that water has reached during the monitoring period and the final static water level. The groundwater level shall be measured in consistent intervals of at least once every two weeks, during the entire monitoring period.

  When a minimum of 2 inches of rainfall has been recorded during a 10 day period within the area where the groundwater monitoring is being conducted, the interval between two monitoring events shall be reduced to once a week, starting after 3 weeks from the last rainfall that constituted the 2-inch rainfall. If rainfall continues to occur during the monitoring period, the monitoring intervals shall continue to remain at least once a week.

  The groundwater measurements could be achieved by physical observation or by using a piezometer or any instrument intended for this purpose to record the groundwater level. The piezometer or instrument may be a float device that mechanically or electrically records the highest groundwater level.



Typical Monitoring Well

- The groundwater level observation well shall be installed to a minimum depth of 10 feet below the anticipated depth of dispersal field or seepage pit, at the lowest possible elevation in the vicinity of a proposed wastewater dispersal system.

  If an impermeable layer is present at a depth of less than 10 feet below the anticipated bottom of the dispersal field or seepage pit, the depth of the subsurface water level observation well shall extend beyond the depth of the impermeable layer to a depth of 10 feet below the anticipated bottom of the dispersal field or seepage pit, unless demonstrated in other manners acceptable to the Department.

- Seeps and perched-water are considered infiltration of water and are considered as evidence of high groundwater being present. The QP shall monitor the excavated groundwater test hole during the entire observation period as specified above to observe the presence of water, continuation of seeps, increase/decrease in the seepage and any fluctuation of the water level or if the water has been dissipated and the excavated test hole is completely dry. The professional geologist shall interpret the observation in the geology report and substantiate that the infiltration and presence of water no longer exists, if so.

- In areas that are subject to special circumstances such as snowmelt or irrigation, measurements to determine the annual high groundwater level shall be conducted during the period when the special circumstances occur.

- The exploratory groundwater test hole may utilized as a seepage pit if the hole is backfilled with native soil to 10 feet above the point where groundwater was encountered and compacted to match the compaction of the surrounding area, then topped with one foot of neat cement or hydrated bentonite to ensure the required vertical setback from the groundwater.

CHAPTER 9. REQUIREMENTS APPLICABLE TO ALL PERCOLATION TESTING TYPES

A sufficient number of percolation tests shall be conducted within the anticipated dispersal system on all properties proposing to use an OWTS. The entire percolation test procedures, including presoak shall be performed by a QP or individual(s) that are supervised by the QP.

- Prior to performing percolation testing, the QP shall notify the Department of the date and time of all percolation tests to be performed, at least one business day in advance. The Department representative may visit the site to observe the testing procedure. All QPs are strongly advised to consult with the Department, prior to performing the tests, to reach an agreement on the number of test holes required when it's anticipated that unusual circumstances may be encountered.

- When a minimum of 2 inches of rainfall has been recorded within a 10 day period in the area where the percolation test is to be conducted, the start of percolation test, including the presoak shall be delayed a minimum of 3 weeks provided that there shall be no rainfalls during the 3-week period.

- All percolation testing shall be performed within the immediate proximity of the actual anticipated dispersal area. All test holes, successful or failed, shall be clearly identified and labeled by durable monuments and tags so that the correct locations for dispersal system (leach fields and seepage pits), as established through successful tests, can be easily identified during the construction.

- Where extreme geological conditions (e.g., bedrock formation or variation in water table, etc.) do not exist on a property and where uniform geology has been established by a Professional Geologist within a certain limited area on the property, the results of soil profile and percolation testing conducted in the area may be accepted as a representation for a dispersal field or seepage pit as long as the test holes are within a 35 feet radius of the proposed dispersal field or seepage pit.

- The distances between percolation test holes shall be the same as the setback required for the respective dispersal system when constructed. An exception may be allowed when due to extenuating circumstances test holes cannot meet minimum setback requirements.

- Results from previously conducted percolation testing may be accepted for a project, if the proposed dispersal field or seepage pit is in the same location where tests were conducted and referenced in updated geology reports, except when significant changes in geology (e.g., flood, earthquake, significant groundwater recharge, etc.) have occurred or the Department's procedures for percolation test has changed after the date of the testing. All plan approvals of the entire construction proposal will expire one year from the date of the approval.

CHAPTER 10. PERCOLATION TESTING FOR LEACH LINES AND LEACH BED DISPERSAL SYSTEMS

A. Requirements

1. There shall be a minimum of 3 successful test holes in the proposed present dispersal area and 3 successful test holes in the proposed 100% future expansion area unless a waiver on testing the future expansion area has been granted (see Chapter 5. Future Expansion Areas).

   Requiring only 3 test holes represents the most optimal situation with a minimum size system and shall be authorized only when uniformity in geology and absorption rates has been demonstrated. Larger dispersal fields, significant variation in absorption rates of percolation tests or less favorable geological conditions, such as, hard rock formation require additional testing. It's recommended and may be necessary to excavate and test a sufficient number of percolation

test holes in the proposed present, and future dispersal areas to provide a complete and accurate representation of the absorption rate for each proposed dispersal area.

2. The location for percolation testing on each line shall be strategically selected so as to provide a true representation of the entire leach line.

3. The percolation test locations shall be evenly spaced along the proposed present and 100% future expansion leach fields/lines in a manner that the test holes are not greater than 35 feet apart from each other.

4. During the percolation testing, the slowest successful percolation time observed among all tested holes shall be considered for determining the size of the proposed dispersal field.

B. Percolation Test Procedures for Leach Beds and Leach Lines.

1. Prior to performing percolation tests, a determination of the topography and plumbing hydraulic grade shall be made to appropriately determine the level of the dispersal field.

2. An excavation shall be made at least 10 feet below the calculated depth of the trenches to determine if seasonally high groundwater precludes the use of a conventional system. Based on this information, the size of the system may be estimated and a determination made concerning a representative number of test holes.

3. Excavation for the test holes shall be made at the same depth as the proposed depth for the leach lines or leach bed. These test holes shall be at least 3 feet square and dug to the depth of not less than 2.5 feet. A 1 cubic foot hole (1' x 1' x 1') shall be provided at the bottom. All percolation tests shall be performed so that the top of the 1 cubic foot test hole is at the same level as the anticipated bottom of the trench.

4. The sides and bottom of the 1 cubic foot holes shall be scarified so as to remove the areas that became smeared by the auger or other tool used to develop the hole.

5. The 1 cubic foot holes shall be thoroughly presoaked 24 hours prior to percolation test. If water is found in any test holes after 24 hours of the presoak, that test hole is considered failed. This procedure is to ensure that the soil is given ample opportunity to swell and to approach the condition it will be in during the wettest season of the year.

   The soaking must be done with clean water, and the water should be added carefully (to avoid disturbing the sides of the test hole) to a minimum depth of twelve inches. There are three options for conducting the presoak:

   - 1st option: Maintain 12 inches of clear water for a minimum of 4 hours. After 4 hours, allow the water column to drop overnight. Testing must be done within 15-30 hours after the initial 4-hour presoak.

   - 2nd option: The hole should be continuously soaked overnight, which may require constant addition of water from a make-up reservoir, possibly by means of an automatic siphon. The percolation measurements are made 24 hours after the start of the soaking period.

   - 3rd option: In sandy soils with little or no clay, no swelling of the soil will occur. If, after filling the hole twice with 12 inches of water, the water seeps completely away in less than ten minutes, the test can proceed immediately.

6. Following the presoak, the test holes shall be completely filled with water again and allowed adequate time for the water level to drop. As the water level drops, each one inch of drop shall be recorded as Minutes per Inch (MPI). The size of the dispersal field shall be determined by the amount of time required for the water to drop from the 5th to the 6th inch. The slowest acceptable elapsed time recorded on the property shall be used as the representative of the percolation rate for the area being tested and utilized in the Ryon Formula calculation.

7. At or before 24 hours later, after a successful presoak, the test holes shall be completely filled with water again and allowed adequate time for the water level to drop. As the water level drops, the time of each one inch of drop shall be recorded. The size of the dispersal field shall be determined by the amount of time required for the water to drop from the 5th to the 6th inch. The slowest acceptable elapsed time recorded on the property shall be used as the representative of the percolation rate for the area being tested and utilized in the Ryon Formula calculation.

   Ryon Formula: $A = \frac{T + 6.24}{29} x \frac{C}{2}$

   Where A = Square feet of 3-foot wide trench dispersal area
   T = Time in minutes for the 6th inch of water to drain
   C = Proposed septic tank capacity

   The resulting "A" must be divided by 3 to arrive at the length of a 3 foot wide trench with 1 foot of filter material below the perforated pipe provided for the dispersal system. For trenches proposing 2 feet of filter material below the pipe, "A" must be divided by 5 to arrive at the length of trench. For trenches proposing 3 feet of filter material below the pipe, "A" must be divided by 7.

CHAPTER 11. PERCOLATION TESTING FOR SEEPAGE PIT AND GRAVEL PACKED PIT DISPERSAL SYSTEMS

A. Requirements

1. The soil profile excavation hole shall be down-logged by a California Professional Geologist or California Certified Engineering Geologist unless reasonably deemed unsafe by the Geologist. When reasonably deemed unsafe by the geologist the required information shall be obtained through alternative methods advised by the geologist. When test holes are required to be down-logged by Geological and Materials Engineering Division (GMED) of DPW, a copy of the field data shall be submitted to the Department.

2. Results from the soil profile and percolation testing of different pits shall be accepted where the proposed seepage pits locations are within 35 feet of the actual soil profile and percolation testing area, where uniform geology has been established by a Professional Geologist, except where the proposed seepage pits are located in bedrock/hardpan/fractured rock formation.

3. Every seepage pit located in bedrock, hardpan or fractured rock formation shall be tested to establish percolation rates for each individual pit.

4. Where proposed future expansion areas are in bedrock, hardpan or fractured rock formation, the future pits shall be tested to establish percolation rates for each individual pit.

5. When one pit is marginally dispersing water and it has to be supplemented with more pit(s) to achieve the required septic tank capacity, each pit shall be tested for the entire 8 hours to assess the exact capability of the pit(s) and to ensure 10-feet drop can be achieved at the end of the tests.

6. When proposing a cluster system comprised of numerous pits, the Professional Geologist may request for reconsideration of this requirement in light of sufficient data that might support an alternative scope of testing. Such data should be presented to the local office prior to commencing the test procedure, in order to reach an agreement as to the scope of testing that will be required.

7. The water metered in shall be under pressure and shall be metered in constantly through a hose with a minimum of 1½ inch in diameter. A written certification, confirming that the water meter used for the percolation test has been calibrated and certified within the last 12 months prior to the date of the test shall be made available during the test for verification purposes and submitted with the feasibility report.

8. A decrease in the effective height of the seepage pit due to a cap level adjustment after percolation test has been completed shall require an additional percolation test in order to demonstrate adequate absorption and the 10 feet of drop can be successfully achieved.

9. The covering and securing of any open test excavations/borings/pits shall be in conformance with DPW, Building & Safety Division's requirements**.**

B. Procedures:

1. A circular boring with a minimum 2 foot diameter and maximum 6 foot diameter shall be excavated to the anticipated depth of the seepage pit for percolation testing purposes. Approval shall be obtained prior to construction of any pit having an excavated diameter greater than 6 feet. No pits shall be finished, bricked or capped, without prior authorization by the Department. If a seepage pit is to be installed, it will be necessary to secure a permit for the installation of a test pit from DPW, Building & Safety Division.

2. Presoak the test pit by filling it with clear water up to the proposed level of the inlet and allow it to permeate for 24 hours. The water drop after 24-hour presoak period shall equal or exceed 10 feet**.**

   When percolation testing holes cannot be filled to presoak or to conduct a conventional percolation test due to drainage of water from the hole, the test may be stopped once a volume of water equal or greater than the nominal volume of the hole has been metered in during the presoak test or a volume equal or greater than 5 times the required tank capacity has been metered in during the percolation test. In this case the maximum absorption capacity allowed by the Los Angeles County Plumbing Code is considered to be exceeded and a NOWTS is required. The feasibly report shall include the volume of water dispersed, the percolation rate and the required calculations.

3. At or before 24 hours later, after a successful presoak achieving a minimum 10 feet drop, the level of the water remaining in the pit is measured and considered the starting level for the percolation testing (Zero Level). Then, clear water under constant pressure is continuously metered into the test pit to the proposed cap level through a hose with a minimum 1½ inch diameter size, corresponding with the water meter being used. The water is allowed to drop for equal intervals of 30 to 60 minutes. The water level shall be measured and documented after each equal interval during the 8-hour period. The pit is re-filled with water to the cap level after each drop. At the end of the 8-hour testing, the pit is filled back up with water to the cap level for one final time.

4. Twenty-four (24) hours after the start of the 8-hour testing period or 16 hours after the end of percolation test, the water level in the test pit shall be measured to determine that there has been at least a 10 feet drop in the water. The volume of water dispersed during the percolation test is

computed based on the “effective height”, which is measured by subtracting the height (level) of the remaining water from the cap level. The total amount of water that percolated into the soil is then calculated by subtracting the volume of water remaining in the test pit from the total volume of water metered into the test pit over the 8-hour testing period.

5. After completion of the percolation test, where water is remaining at the bottom of the test pit, the test pit shall be periodically monitored for the next 16 hours by a QP to observe the fluctuation in water level, lack of absorption or any infiltration of the subsurface water into test pit to rule out the possibility of mounding and to observe whether the remaining water has been partially or completely dissipated. The geologist shall explain why the remaining water in the test pit after 24 hours from the start of the testing will not adversely affect the dispersal of expected wastewater load and attest that mounding will not occur in future. For the intent of this section, mounding is defined as any elevation in water level, above the level recorded after 24 hours from the start of the 8 hour percolation test.

C. Calculation

The percolation rate is calculated by adding the sum of the surface area of the bottom of the pit and sidewall area of the seepage pit that absorbed the water (total area of sidewall shall be calculated based on the “effective height” as described under number Note # above). Then the total number of gallons of water that the pit absorbed is divided by the sum of the areas; the result is the percolation rate.

1. The seepage pit(s) must have a volume large enough to hold five times the capacity of the septic tank divided by the total volume of water absorbed.

2. When volumetric determinations are being made for testing in a two foot boring, credit will be given for 23.5 gallons per vertical foot that the water drops.

3. The volume of water absorbed by the 2 feet diameter test hole may be adjusted to a larger volume based on the ratio of the side wall surface areas:

    a) A 4 feet diameter pit would be given credit for 2 times the volume percolated in a 2 feet diameter test hole.
    b) A 5 feet diameter pit would be given credit for 2.5 times the volume percolated in a 2 feet diameter test hole.
    c) A 6 feet diameter pit would be given credit for 3 times the volume percolated in a 2 feet diameter test hole.

4. Sidewall determinations are based on the boring diameter. Volumetric calculations are based on the liner diameter. The pilot hole for reaming out a pit is not calculated in the sizing of a pit and shall not extend to within 10 feet of the level of groundwater.

5. Seepage pits shall be constructed with 6 inches of washed gravel between the pit lining and the excavated sidewall and shall have an excavated diameter of not less than four 4 feet. The following chart provides the capacity for different diameters of finished bricked/lined seepage pits and gallons of wastewater dispersed for each size.

Seepage Pit Diameter	Gallons per Vertical Foot
4 Feet	53 Gallons
5 Feet	94 Gallons
6 Feet	147 Gallons

6. During the percolation test, when the volume of water dispersed collectively by more than one test pit, has been marginally greater than the required amount AND the absorption capability of one pit is significantly less that the other(s), the QP shall design the dispersal system (set the distribution box) in a manner to ensure that the volume of wastewater received by each pit is proportionate to its respective absorption capability. The designing QP shall provide information describing the design configuration and include a statement attesting that the design will not create inundation in either seepage pit.

7. **Absorption rates of less than 0.83 gallons per square foot of dispersal area per 24 hours shall not be accepted. Absorption rates that exceed 5.12 gallons per square foot of dispersal area per 24 hours do not meet the minimum requirements for conventional OWTS. Replacement OWTS with non-conforming absorption rates that exceed 5.12 gallons per square foot are required to provide additional treatment (supplemental treatment component) of the sewage effluent prior to discharging the effluent into receiving environment below ground surface (refer to Chapter 11 "Non-Conventional Onsite Wastewater Treatment Systems).**

Considerations for Gravel Packed Pits

The following requirements pertain only to pits that are gravel packed after successful presoak and percolation tests have been accomplished while test holes were empty.

1. All other requirements established for percolation testing of seepage pits shall apply.

2. The percolation testing shall be conducted in a 2 feet diameter test hole to establish the feasibility prior to filling the pit with gravel.

3. The perforated pipe schedule 40 quality or equivalent with 8 to 12 inches in diameter shall be installed symmetrically within the pit prior to gravel packing the pit.

If it is not possible to test a seepage pit without first adding gravel due to structural instability or other reason, the QP/applicant shall obtain approval from the Department prior to gravel packing the pit.

See **Appendix G** for procedures on conducting a percolation test of a gravel packed pit.

CHAPTER 12. NON-CONVENTIONAL ONSITE WASTEWATER TREATMENT SYSTEMS (NOWTS)

A. When NOWTS Are Required

Non-conventional Onsite Wastewater Systems (NOWTS) perform additional treatment of effluent to reduce its impact on the environment. This usually includes the effluent being pumped in small amounts to a specialized filter media where the effluent is processed mechanically, chemically, and biologically. These processes include treatment by aerobic bacteria to reduce the Biological Oxygen Demand (BOD) and convert ammonia to nitrate as well as mechanical filtration of suspended solids. When a reduction in total nitrogen is required, the effluent is returned to the septic tank where the nitrate is processed anaerobically into nitrogen gas.

NOWTS are required to be installed when one or more of the following conditions exist at a proposed site:

- The percolation rate is faster than 5.12 gallons per square feet per day for a seepage pit.
- The percolation rate for a leach field or leach bed system is faster than 5 MPI for a new or replacement OWTS.
- The percolation rate for a leach field or leach bed system is slower than 60 MPI for a new or replacement OWTS.
- There is less than three (3) feet of continuous, natural, undisturbed soil beneath a conventional dispersal system.
- A replacement OWTS is unable to meet setback requirements for groundwater, surface water, a well or other public water source intake.
- The property of the proposed system is within 600 feet of an impaired water body that is listed for pathogens or nitrate and no TMDL is present.
- The property of the proposed system is within 2,000 feet of an impaired water body that has a TMDL for pathogens or any form of nitrogen.

(Note: The last two bullets are new items that went into effect with the adoption of the State OWTS Policy in 2012 and are not subject not approval of the LAMP.)

See **Appendix H** for a list of impaired water bodies per current 303(d) listing and active TMDLs.

NOTE: The bottom of a seepage pit is never permitted to extend within 10 feet of groundwater, regardless of the presence of a NOWTS.

NOTE: A new OWTS or NOWTS is never permitted to be installed where it would not meet setback requirements for surface water, groundwater, a water well, or public water source surface intake regardless of the presence of a NOWTS.

B. Types of NOWTS and the Conditions Where They Are Used

NOWTS are divided into two categories, Enhanced Systems and Alternative Systems.

1. Enhanced System - a NOWTS that utilizes a supplemental treatment component to provide further treatment of the sewage effluent prior to discharging into a conventional dispersal system (e.g. leach line, leach field, seepage pit or a combination seepage pit/leach system).

2. Alternative System - a NOWTS that utilizes a supplemental treatment component to provide further treatment of the sewage effluent prior to discharging into the dispersal system that utilizes pressurized drip tubing or other approved, sub-surface, non-conventional means for dispersal of wastewater effluent.

An enhanced system is required where the percolation rate exceeds the accepted rate for a seepage pit (exceeding 5.12 gallons per square foot of dispersal area per 24 hours).

Either an alternative system or enhanced treatment system is may be used where the percolation rate exceeds accepted rate for a leach line or leach bed (faster than 5 minutes for the drop of the 5th to 6th inch).

An enhanced system is required when there is less than three (3) feet but at least two (2) feet of continuous, natural, undisturbed soil the proposed dispersal system. The dispersal field may not overlie groundwater protected for drinking water supplies.

Soil replacement in conjunction with an alternative system is required where the percolation rate is slower that accepted (slower than 60 minutes for the drop of the 5th to 6th inch for a leach line or leach bed system) or when there is less than two (2) feet of continuous, natural, undisturbed soil below the

proposed dispersal system. The dispersal field may not overlie groundwater protected for drinking water supplies.

An alternative system is required where groundwater or surface water setbacks cannot be met, if space permits. In every case the NOWTS system shall include an additional disinfection component.

Either an enhanced or an alternative system is required near an impaired water body. If the water body is impaired for pathogens, an additional disinfection component is required.

NOTE: When space is not available for a leach bed or leach line and percolation test results for a seepage pit are slower than 0.83 gallons per square foot of dispersal area per 24 hours, the property is not suitable for construction using either an OWTS or an NOWTS.

C. Requirements for Use of NOWTS

1. NOWTS shall be certified to meet NSF 245 unless the NOWTS is proposed to be installed within the restricted area of a water body impaired for pathogens and all setback and percolation tests are within acceptable ranges for an OWTS. In this case the NOWTS must be certified as at least NSF 40 and provide additional disinfection components. NOWTS manufacturers whose systems are not NSF certified may apply for a demonstration test to receive approval to install their systems in the County of Los Angeles. See Demonstration Test Requirements in **Section F.** below.

   (Note: the acceptance of NSF 245 approved systems without a Demonstration Phase is a policy change from the 2013 version that was not dependent on the adoption of the LAMP to implement.)

   The septic tank of the NOWTS must be IAPMO certified or the applicant shall obtain proof of Uniform Plumbing Code (UPC) equivalency as determined by the local building department. The NSF approval may be accepted as UPC equivalency if the tank and its components are intended to function as a supplemental treatment system bearing the markings of NSF and if accompanied by documentation from NSF indicating that the system being installed is listed as NSF approved. The documentation shall reflect that the tank and all individual components are identified as part of the listed system and shall be presented for each individual installation.

   The UPC determination of equivalency made by the local building department administrative authority shall be expressed in writing and shall be presented for each individual project during the review process. The tank and its components, and the written confirmation from the local building department shall be easily cross-referenced.

2. The installation of a NOWTS requires recordation of a Covenant and Agreement document through the County Recorder's Office **(See Appendix I, Sample Covenant).**

3. The owner, prior to approval of the NOWTS, shall enter and maintain in effect at all times throughout the operational life of the system, a contract signed by both the property owner and a Service provider certified by the components' manufacturer. The contract shall include all routine maintenance recommended by the manufacturer, collection of influent and effluent samples at least once per calendar year, and testing of the influent and effluent samples by a certified laboratory. The lab report shall clearly specify the location/address where sample was collected, the name of the technician and the date and time of the collection. The laboratory analysis must include Total Nitrogen of the influent entering the septic tank, and Biological Oxygen Demand (BOD), Total Nitrogen (TN) (which consists of ammonia, organic nitrogen, nitrate, etc.), Total Suspended Solids (TSS), and pH of the effluent as it enters the dispersal system. Bacteriological analysis is also required when the system is equipped with a disinfection device. The homeowner shall be responsible for ensuring that all maintenance records and lab reports are forwarded to this Department on a quarterly basis or more frequently as deemed necessary by the Department.

4. All supplemental treatment systems and components shall be installed and operated in accordance with their respective manufacturers' recommendations. The NOWTS shall be operated and maintained to produce effluent concentration levels that meet or surpass the following requirements:

    - BOD – 30 mg/L or CBOD5 – 25 mg/L
    - TSS – 30 mg/L
    - Total Nitrogen – At least a 50% average of influent TKN (Total Kjeldahl Nitrogen)
    - pH – 6.0 to 9.0 SU

5. The NOWTS shall be equipped with a visual or audible alarm as well as a telemetric alarm that notifies the owner and the service provider of the NOWTS in the event of system malfunction. The homeowner is responsible for ensuring that the telemetric monitoring system is powered on and operative and shall contact their contracted service provider in the event of a failure.

6. The Department may exercise the option of requiring samples to be taken while the departmental representative is present and/or by an independent party authorized by the Department.

7. The use of a NOWTS may be subject to future ordinances that require the owner to obtain a Public Health Operating Permit and to make the system available for inspection upon reasonable notice by the Department**.**

D. Required Soil Depths

Dispersal systems of all NOWTS utilizing supplemental treatment components shall have at all times during operation at least two (2) feet of continuous, natural, undisturbed soil, excluding non-porous materials, below the bottom of the dispersal field or seepage pit. Where these conditions cannot be met, the supplemental treatment components in conjunction with disinfection shall be used to disperse the effluent. A minimum of 10 feet of separation to groundwater from the bottom of the dispersal field or 10 feet from the bottom of a seepage pit shall be maintained.

E. Soil Replacement Conditions

When there is less than two (2) feet of continuous, natural, undisturbed soil between the bottom of a proposed dispersal system and bedrock, fractured bedrock, or an impervious layer; the soil has an absorption rate slower than 60 MPI; or there is inadequate soil depth to groundwater, manufactured/engineered soil with similar composition characteristics of loamy sand may be added to or replace the existing native soil so that the site conditions meet or exceed the specific depth and absorption rate requirements. The compaction characteristics of the manufactured soil shall correspond as close as possible to the native soil of the surrounding area.

An alternative system is required where engineered soil is used to improve percolation rates, comply with the two (2) foot minimum soil requirement, or meet the requirements for minimum vertical setback to groundwater. The total absorption surface area required for the pressurized distribution system is determined in the manner as typical leach field. Additional effluent treatment including disinfection shall be required where the possibility of groundwater contamination exists.

Engineered soil shall compensate for the lack of in-place soil or the replacement of poorly drained soil at a ratio of 1.5 to 1; so that 1.5' of engineered soil material is required for a 1' deficiency in the soil column. In no case shall engineered soil compensate for more than 2' of the minimum native soil

depth requirements and ground may be built up by engineering/manufactured soil to a maximum of 3' in depth.

The manufactured/engineered soil shall be re-composed and re-graded uniformly to provide homogenized absorption capability, equivalent to soil category of loamy sand. The manufactured/engineered soil must be certified by a California Registered Professional Soil/Geotechnical Engineer who shall prove through sieve analysis and other quantifying tests that the desirable composition and compaction has been achieved.

Adequate number of percolation test shall be conducted in the area where manufactured soil has been provided to confirm that the percolation rates are in correlation with loamy sand soil category. The results of the percolation tests conducted in the area shall affirm uniformity in soil composition and compaction.

When deemed necessary, the Department may require supplemental treatment systems and/or disinfection component for any existing or new NOWTS to ensure the protection of the underlying groundwater quality and public health.

F. Demonstration Testing for NOWTS Manufacturers

Any manufacturer of a NOWTS system which is not NSF approved may apply with the Department for approval to install their system within the County of Los Angeles. Acceptance of non-NSF supplemental treatment systems by the Department is contingent upon a demonstration through extensive field and test data confirming that the supplemental treatment system will produce continuous and long-range results. This acceptance is subject to revocation when the supplemental treatment system is deemed inadequate by this Department.

There are three phases of the demonstration test:

1. **Submission and review of the system's performance in other jurisdictions**. The manufacturer must submit information on five systems installed in areas with similar geology and climate to Los Angeles. This information shall include the location where the system was installed, the maintenance records for the systems, and the lab results of the influent and effluent testing for one year. The contact information for the jurisdictions responsible for regulating each system shall also be provided.

2. **Installation of Demonstration Systems**. After adequate performance in other jurisdictions has been demonstrated, the manufacturer may begin a demonstration phase in LA County. This demonstration phase consists of the installation of the proposed system at three locations in the County. Each of the proposed locations must meet all requirements for a conventional system in order to prevent the contamination of groundwater or surface water in the event that the system fails to meet the performance requirements.

   Please contact the Chief of the Land Use Program to coordinate the installation of the demonstration systems. Normal plan review and permitting procedures apply for demonstration systems, however coordination of the permitting and installation through the Chief will help prevent unnecessary delays.

3. **System Testing**. System testing commences after the installation of NOWTS has been completed and the system is ready to be utilized by the occupant(s) of the house, a Certificate of Occupancy has been issued, and extends to at least three months after the dwelling has been occupied for normal occupancy.

During the system testing period, a minimum of 3 consecutive monthly reports of all service calls and maintenance/repairs performed for the system shall be forwarded to Land Use Program. At or immediately after 3 months of system use, samples of wastewater shall be taken (influent and effluent) by a certified representative of the manufacturer at the point where wastewater enters the supplemental treatment system (influent) and at the point of discharge in subsurface dispersal area (effluent).

The samples shall be taken to an approved laboratory by a certified lab technician in a manner to assure the integrity of the "Chain of Custody" procedures. The samples shall be analyzed for the levels of BOD or CBOD, TSS, Total Nitrogen, and pH. The result of the analysis shall be forwarded to Land Use Program for review and further assessment of the systems' capability. For the purposes of successful completion of the demonstration phase, it shall be demonstrated to the satisfaction of the Department that the supplemental treatment system is capable of achieving or surpassing the effluent concentration levels specified in **D (5)** above. If the NOWTS also includes a disinfection component, the effluent shall be tested for E. coli with an acceptable concentration of 2.2 MPN/100mL.

If any of the systems are unable to meet the effluent requirements or show signs of failure, the manufacturer shall submit a report indicating the geological, climatic, or waste strength conditions that resulted in the failure and how future installations will be limited to avoid similar conditions. After three systems successfully complete the demonstration phase, the manufacturer is approved to install the systems in areas with similar geological and climatic conditions and where the waste stream is of similar strength.

CHAPTER 13. NOWTS START UP AND LEAK TEST

All NOWTS septic tanks and partially buried components must successfully pass a Leak Test and a Final/Start-up inspection to obtain approval from the Department. Components, such as pods, that require above ground installation are exempt from leak testing when the entire component, including the bottom is completely exposed and visible for inspection at all times.

If the location or the orientation of the septic tank differs from the original approval, an "As Built" plot plan shall be submitted and all setbacks shall be verified. "As built" plot plans shall be stamped, signed, and dated by the designer of the system.

A. Verification of IAPMO / NSF Tank Certification Requirements:

1. The IAPMO certification will be verified by the inspector through an identifying stamp on the body of the tank (model or serial number corresponding to the specifications sheet provided by the tank manufacturer) and a letter from the manufacturer attesting that the tank was manufactured in accordance with the IAPMO requirements. IAPMO certified tanks may be inspected when the exterior walls are backfilled up to a level below the lid.

2. If NSF approval is being accepted as UPC equivalency, the inspector will verify that the tank and its components bear the markings of NSF and documentation from NSF indicates tank and all individual components are identified as part of the listed system. The documentation shall be presented for each individual installation.

3. For tanks lacking IAPMO certification and NSF approval as a system, the applicant shall obtain proof of Uniform Plumbing Code (UPC) equivalency in writing as determined by the local building department. The UPC equivalency determination shall be presented for each individual project during the review process. The tank and its components, and the written confirmation from

the local building department shall be easily cross-referenced.

B. Leak Test Guidelines

The installer shall prepare for the leak test by completing the following prior to the arrival of the inspector:

- Obtain approval from the local building department for the location of the NOWTS.
- Thoroughly coat all interior surfaces of concrete tanks with appropriate waterproofing materials. All joints shall be sealed with sealing materials approved by the American Society of Testing and Materials (ASTM) or equivalent to ensure the tank is completely water-tight prior to requesting a leak test inspection.
- Ensure that all exterior walls of the tank are exposed to the greatest extent practical and the entire surrounding area/soil is free from moisture and dampness. All seams and joints, except for the bottom of the tank, shall be left exposed. It is permissible to backfill around the tank's exterior walls when justifiable, expressed in writing and recommended by the tank manufacturer.
- The tank and any other primary components that are required to be leak tested, such as, lids, risers, etc. shall be sealed. The tank to be leak tested shall stand alone, detached from any plumbing fixtures, pipes or hoses connected to a water source. Both inlet and outlet openings to the tank/unit that is being leak tested shall be plugged/capped completely watertight. If due to safe construction practices a plumbing line is attached to the tank, the plumbing line shall remain exposed during the leak test. The plumbing line shall be placed in a manner that its termination end is visible and the representative of the Department can verify that the plumbing line is not connected to a water source.

During the inspection the Inspector shall:

- Observe the tanks filled with water up to the inlet or outlet pipes (whichever is lowest) and let stand for a minimum of one hour. Although not required, it is recommended that the tank be filled into the risers, 2" above the highest joint to ensure the tank remains watertight during an extreme rain event.
- Witness the marking of the level of water immediately after the tank is filled to facilitate the determination that the tank is watertight. To minimize possible water loss due to evaporation, the top of the risers may be temporarily covered by an easily removable cover prior to inspection.
- Observe the tank and its surroundings for a minimum of one hour verify that there are no visible water leaks and that the entire tank and its components have remained watertight. It shall be confirmed that there has been NO loss of water from the tank. If any dampness on the tank's exterior walls is noticed, field staff will determine whether the dampness is due to condensation or leaks.
- If the tank passes the leak test inspection Department field staff will document the back side of the local building department card (usually yellow) verifying that no leaks were detected and inform the applicant/contractor to contact the Building Inspector for permission to backfill the tank. If the tank does not pass the leak test, follow the leak test failure procedures below.

C. Leak Test Failure: Follow-Up Procedures

A follow-up inspection will be conducted if any leak is detected or dampness in surrounding soil has been observed or any of the above instructions have not been strictly followed. All follow- up inspections are chargeable, based on the prevailing hourly rate. Additional fees, if any, must be collected prior to the release of the departmental sign-off/approval.

- When the detected leak is deemed to be the result of structural failure, the tank shall be emptied to a level below where the leak has originated from and the area allowed to air dry before the failure is properly repaired, sealed and tested prior to requesting for a follow up leak test inspection. All repairs of structural failures shall be made from the inside of the tank on the interior surfaces. Additionally, the exterior surfaces, where the leak is located, can be sealed as well, if needed. All repair work shall be performed in a professional manner. Patchwork performed only on the exterior of the tank in order to stop leakage does not constitute satisfactory repair work. A tank that is deemed structurally deficient due to repeated and/or significant leakage which cannot be easily repaired at the project site shall be replaced with a new tank.

- After completion of the repairs and testing of the tank the inspector should be contacted for an appointment. The same testing procedure shall be completed for the re-test.
- Prior to backfilling the tank, authorization shall be obtained from the local building department.

- Once the leak test inspection has been successfully completed, Department field staff will document the back side of the local building department card (usually yellow) verifying that no leaks were detected and inform the applicant/contractor to contact the Building Inspector for permission to backfill the tank.

D. Final/Start-Up Inspection Guidelines

During the final phase of construction, the local building department will request that the Department conduct a final start-up inspection prior to issuing a Certificate of Occupancy. The following tasks must be completed prior to the arrival of the inspector.

- Arrange for a representative from the manufacturer or a Service Provider certified by the manufacturer to be present during the start-up inspection.

- Verify that both the electricity and telephone service will be available during the inspection. Applicants planning to utilize solar power as the source for electricity shall provide a verification of approval from the local building department that the source is reliable and capable of providing electricity 24 hours/day on a permanent basis. Applicant proposing an alternative phone connection, other than a land line, shall demonstrate that the telephone system is interconnected to the telemetry system and is programmed to receive necessary calls from the telemetry system.

- Provide a complete copy of the supplemental treatment system's operations manual for reference during the inspection.

- Perform a pre-inspection test to ensure all components are operable and make final adjustments if necessary.

E. Final/Start-up Inspection Procedures

During the final start-up inspection, the inspector will verify that the manufacturer's representative or the certified service provider performs a series of tests as prescribed by the manufacturer of the supplemental treatment unit. The tests performed shall demonstrate the operational competency of the system as declared by the manufacturer and to the satisfaction of the Department. The tests will consist of the following:

- It shall be clearly demonstrated how wastewater from the primary treatment compartment will be circulated to the secondary treatment compartment and introduced over the area/material where the media for the additional treatment will be located. It shall be demonstrated that the method employed to circulate wastewater to other components of the system such as, pumps, agitators, spray valves, nozzles, etc. are functioning properly.

- The functionality of a "high water alarm", both auditory and visual (light), shall be demonstrated. There shall be a dial tone at the control box. The control box shall be mounted on a permanent structure in a location where the alarm can be heard and the light can be seen by the occupants of the house.

  The effectiveness of the apparatus that is intended to trigger the "high water alarm" shall be examined and demonstrated while the apparatus is mounted in its intended place within the tank, simulating the actual operation. When the "high water alarm" cannot be demonstrated while the apparatus is mounted in the tank, alternate testing methods that simulate a water environment may be considered by the Department.

- Operation of the air compressor, pump, blower, etc. shall be demonstrated to ensure that the alarm attached to the air supplying device is operable. It shall be demonstrated that the alarm will be automatically activated after the electrical source has been turned off for a few moments. Systems that employ pump(s) shall be equipped with "pump failure alarm" that will warn the service provider and the property owner in the event of pump failure. A single alarm system may be utilized to detect both high water level and pump failure, depending on the design and operation of the supplemental treatment tank and the alarm system.

- The housings for additional equipment, such as, the filter, disinfection unit, UV light tubes, ozone generator, chlorinator and de-chlorinator shall be clearly identified. It shall be demonstrated how each component will be connected in order to work in conjunction with the supplemental treatment system.

Once the final start-up inspection has been successfully completed, the Department inspector will sign in the space provided for the Department of Public Health on the front side of the local building department inspection card or issue a notice to the local building department attesting that the final inspection has been completed.

Appendices

Appendix A – Application Forms

ENVIRONMENTAL HEALTH

LAND USE PROGRAM
5050 Commerce Drive, Baldwin Park, CA 91706
Telephone: (626) 430-5380 • Website: *www.publichealth.lacounty.gov/eh*

PLAN SUBMITTAL CHECKLIST

Required Items	Yes	No
Application: Service Request (from website)		
Feasibility Report		
Fee $_____ Make check payable to Los Angeles County Department Public Health		
Floor Plan		
Grading Plan		
Plot Plan		
Cross Sectional View		
Report of Evaluation by a qualified contractor (Existing systems only)		
Source of Potable Water (Well Completion Report or Will Serve letter from water company)		

Plans will not be accepted until all required documents are received by the Land Use Program. Plans will not be reviewed until the fee is received.

Please call ahead for office hours when submitting plans at any of the following locations:

Environmental Health Headquarters
Land Use Program
5050 Commerce Drive
Baldwin Park, CA 91706
(626) 430-5380

Calabasas Office
Land Use Program
26600 Agoura Road, Suite 110
Calabasas, CA 91302
(818) 880-3410

Santa Clarita Office
Land Use Program
26415 Carl Boyer Drive, Suite 145
Santa Clarita, CA 91350
(661) 287-7018

Antelope Valley Office
Land Use Program
335-A East Avenue K-6
Lancaster, CA 93535
(661) 723-4549

ENVIRONMENTAL HEALTH

LAND USE PROGRAM
5050 Commerce Drive, Baldwin Park, CA 91706
Telephone: (626) 430-5380 • Website: *http://www.publichealth.lacounty.gov/eh*

SERVICE REQUEST APPLICATION

Please check the appropriate box for the type of service, provide the necessary information at the bottom of the form and include the required fee for the service being requested. **Please make the money order or check payable to Los Angeles County Department of Public Health**. Please do not mail cash with the application. The application and the fee paid are non-transferable.

FEE REQUIRED		TYPE OF SERVICE
$1,329.00	☐	PROJECT REVIEW (ONSITE WASTEWATER TREATMENT SYSTEM – NEW OR REPLACEMENT)
$1,727.00	☐	PROJECT REVIEW (NON-CONVENTIONAL ONSITE WASTEWATER TREATMENT SYSTEM – NEW OR REPLACEMENT)
$389.00	☐	ONSITE WASTEWATER TREATMENT SYSTEM EVALUATION – WITH VERIFICATION OF PRIOR SYSTEM APPROVAL
$454.00	☐	ONSITE WASTEWATER TREATMENT SYSTEM EVALUATION – WITH NO VERIFICATION OF PRIOR SYSTEM APPROVAL
$1,329.00	☐	PRE-COASTAL COMMISSION APPROVAL (ONSITE WASTEWATER TREATMENT SYSTEM)
$1,727.00	☐	PRE-COASTAL COMMISSION APPROVAL (NON-CONVENTIONAL ONSITE WASTEWATER TREATMENT SYSTEM)
$392.00	☐	POST COASTAL COMMISSION APPROVAL (ONSITE WASTEWATER TREATMENT SYSTEM OR NON-CONVENTIONAL ONSITE WASTEWATER TREATMENT SYSTEM)
$129.00	__	HOURS EHS III/EHS IV HOURLY RATE CHARGE FOR ADDITIONAL REVIEWS OR INSPECTIONS

Job Address City Zip Assessor Parcel Number (APN/AIN)

Property Owner's Name Address City Zip Phone Number E-mail Address

Contractor's Name Address City Zip Phone Number E-mail Address

Qualified Professional's Name Address City Zip Phone Number E-mail Address

Return completed application and payment to Land Use Program, 5050 Commerce Drive Baldwin Park, CA 91706-1423
Please contact the inspector listed below for questions regarding the application process.

INSPECTOR ASSIGNED:	FOR DEPARTMENT USE ONLY
PHONE #:	DATE RECEIVED:
E-MAIL ADDRESS:	SR# ASSIGNED:

Appendix B – Requirements for Easements

1. The installation of septic systems in public road easements requires written authorization from the Road and Grading Section of the Building and Safety Division.

2. No part of a septic system shall be installed in an ingress/egress easement on a private road intended to provide access to more than one property without a variance from this Department and written authorization from the Fire Department. When determined by the Department that through adequate tests conducted by QP throughout the property that no favorable area for installation of an OWTS is available on the property, the Department may authorize the installation of OWTS or part thereof in the easement.

3. The Department will accept an easement that is completely dedicated for the purpose of installing OWTS when it has been recorded through Assessor's Office reflecting such use. An OWTS or any part of the system may be installed within a utility easement, once it's demonstrated to the Department that there is no other area on the property that may be feasible for the installation of the OWTS. However, there shall not be any overhead obstructions, such as, electrical lines and all horizontal and vertical setbacks from other utilities are maintained at all times, as required.

4. The installation of OWTS within flood plain/hazard area shall be avoided. Where suitable sites outside of flood hazard areas are not available, wastewater dispersal systems may be located in flood hazard areas on sites where the effects of inundation, under conditions of the design, are minimized. Applicants are advised to contact the local Building and Safety office to inquire whether additional requirements apply.

Appendix C –Setback Required by Plumbing Code

MINIMUM HORIZONTAL DISTANCE IN CLEAR REQUIRED FROM	SEPTIC TANK	DISPOSAL FIELD	SEEPAGE PIT
Building or structures[1]	5 feet	8 feet	8 feet
Property line adjoining private property	Clear	5 feet	8 feet
Private water supply wells or monitoring well[4]	50 feet	100 feet	150 feet
Public water supply well	50 feet	100 feet	150 feet
Streams, springs, and rivers[4, 5]	100 feet	100 feet[3]	150 feet
Vernal pools, wetlands, lakes, ponds, reservoirs, and ocean[5]	50 feet	150 feet	150 feet
Trees[6]	10 feet	NA	10 feet
Seepage pits[3]	5 feet	5 feet	12 feet
Disposal field[3]	5 feet	4 feet[2]	5 feet
On-site domestic water service line	5 feet	5 feet	5 feet
Distribution box	5 feet	5 feet	5 feet
Pressure public water main	10 feet	10 feet	10 feet
Unstable land mass	NA	NA	NA

1. Including porches and steps, whether covered or uncovered, breezeways, roofed porte cocheres, roofed patios, carports, covered walks, covered driveways, and similar structures or appurtenances.

2. Plus 2 feet (610 mm) for each additional 1 foot (305 mm) of depth in excess of 1 foot (305 mm) below the bottom of the drain line. (See Section H 6.0)
3. Where disposal fields, seepage pits, or both are installed in sloping ground, the minimum horizontal distance between any part of the leaching system and ground surface shall be 15 feet (4572 mm).
4. Where special hazards are involved, the distance required shall be increased as may be directed by the Authority Having Jurisdiction.
5. 400 feet from the high water mark if within 1,200 feet of a of a public water system's surface water catchment. 200 feet from the high water mark if within >1,200 but <2,500 feet of a public surface water intake. For flowing bodies of water, the surface water intake shall be upstream or the setback distance.
6. For oak trees the distance shall be 15 feet from the trunk or 5 feet beyond the estimated mature drip line of the branches.

Setback clearance for dispersal fields/pits shall be measured from the closest edge of the floodway as determined by the Grading and Drainage Section of the Building and Safety Division of the Los Angeles County Department of Public Works or the Public Works Department/Division for the effected City.

Due to site constraints of a property, located within a flood hazard area, the applicant shall be required to demonstrate that the proposed OWTS is designed with additional protective measures to prevent contamination of surface water or runoffs and minimize other risks associated with flooding, such as, infiltration into the dispersal system when the area is inundated by flood water or the potential of scour over and into the dispersal system that could adversely impact the absorption capability of the dispersal system and the overall function of the OWTS.

The Department may waive the setback requirements in consideration of a hydrogeological assessment prepared and certified by a registered Geologist, Hydro-geologist or Engineering Geologist confirming that neither the proposed dispersal system nor the subject drainage course will ever generate sufficient lateral infiltration that could negatively impact each other, declaring the location for the proposed dispersal area suitable. The assessment shall be based on the wetted perimeter within the drainage course, and the zone of influence from the dispersal system when they are active at their full potential.

The hydrogeological assessment shall be site specific and prepared for the specific dispersal system that is being proposed. The assessment shall be based on a study of the interrelationship between the geologic conditions and surface and subsurface waters, conducted in at least one excavation located directly between the dispersal system and the subject drainage course to a depth not less than 10 feet below the anticipated bottom of the dispersal system.

The hydrogeological assessment shall describe the determining factors and examine the hydrogeological properties that provided a basis for the conclusion. The assessment shall identify the existence of any hydrogeological elements that could support the possibility of lateral infiltration, such as, high hydraulic gradients, high hydraulic conductivity of soil, slow-permeable or impermeable layers, saturated zones, presence of perched water, elevation differential between the dispersal system and the drainage course, potential inflow of surface and subsurface water and wastewater, possibility of groundwater recharge, presence of vegetative growth, seasonal variations and climatic factors, etc.

In situations where hydraulic gradient suggests the possibility of effluent migration toward the drainage course, even though the hydrogeological assessment has concluded that OWTS will not have any impact on the drainage course, the Department may require supplemental treatment and disinfection components.

Appendix D - Septic Tank Capacity

Los Angeles County Plumbing Code Table H 2.1 CAPACITY OF SEPTIC TANKS

SINGLE-FAMILY DWELLINGS NUMBER OF BEDROOMS	MULTIPLE DWELLING UNITS OR APARTMENTS- ONE BEDROOM EACH	OTHER USES: MAXIMIM FIXTURE UNITS	MINIMUM SEPTIC TANK CAPACITY (GALLONS)
1 OR 2	-	15	750
3	-	20	1000
4	2 UNITS	25	1200
5 OR 6	3	33	1500
-	4	45	2000
-	5	55	2250
-	6	60	2500
-	7	70	2750
-	8	80	3000
-	9	90	3250
-	10	100	3500

Extra Bedroom, 150 gallons each
Extra dwelling units over 10: 250 gallons each
Extra fixture units over 100: 25 gallons per fixture unit
Septic tank sizes in this table include sludge storage capacity and the connection of domestic food waste disposal units without volume increase.
Single-family dwelling capacity requirements also apply to mobile homes not installed in a mobile home park.

Appendix E – Dispersal Methods for Conventional OWTS

1. Deep trenches will provide effective wastewater dispersal, but not necessarily effective treatment of the wastewater, as there will be limited biological activities due to lack of oxygenation to support degradation of particles at greater depth.

   Where due to day-lighting concerns on steep slopes or other extreme circumstances that may exist on a property, or when it necessitates due to poor soil conditions or an impervious layer that restricts the downward movement of the wastewater, the total depth for trench or bed may be allowed to be greater than 5 feet. The QP shall address the need for greater depth. When the total depth of fill and the depth from ground to the bottom of trenches are allowed to be greater than 5 feet, the entire column of the trench shall be back filled with gravel to the height where the earthen cover starts (12 to 18 inches below the ground level). Except for hillside properties where slope is 30% or steeper, the trench spaces above leach lines installed deeper than 5 feet will not be required to be backfilled with gravel.

2. Elements critical to treatment of effluent include oxygen transfer, biological treatment, and evaporation and uptake of nutrients by vegetation (evapotranspiration).

3. In situations where due to insufficient land or other extenuating circumstances, after it has been demonstrated to the satisfaction of the Department that there are no other alternative, the dispersal system may be allowed to be paved or driven over. However, the dispersal system shall be comprised of IAPMO approved traffic rated infiltrative chambers leaching system equipped with either a

supplemental treatment component, or air vents with a minimum of 2 inches in diameter, one on each end, that are erected at the same proximity of each end.

The vent openings shall be designed and installed in a manner to prevent moisture intrusion into infiltrative chambers. The vents stacks shall extend to a height required by Building and Safety Division and secured to a permanently installed structure(s) to remain upright at all times and be protected from accidental damage or being covered. The Department may require carbon filters and blowers in conjunction with the air vents to enhance aeration.

The applicants are required to demonstrate, by means of adequate tests or otherwise, that the placement of the leach field in the driveway is the only viable and practical alternative. The location of the leach field in a driveway will be reviewed and approved on a case by case basis

4. If extreme circumstances exist on a property or if the property's configuration precludes the installation of leach lines equal in length, the QP shall design the dispersal system (set the distribution box) in a manner to ensure that the anticipated volume of wastewater received by each leach line is proportionate to the length of each leach line. The designing QP shall provide information describing the design configuration to include a statement attesting that the design will not create inundation.

5. If due to extenuating circumstances installation of a straight leach line is not possible, the leach line may be allowed to be bent in an angle not exceeding 45 degrees. The entire length of the bend may not be perforated. The non-perforated segment shall connect to the leach line with watertight joints and shall extend to a length that provides sufficient separation between the start of each dispersal area on both sides of the bend.

   The length of the non-perforated segment shall be proportional to the depth of the gravel underneath the pipe. For example, if 3 feet of gravel underneath the pipe is used, the separation distance between the closest points on the dispersal areas where the perforated pipe ends and restarts shall not be less than 8 feet.

   The length of the non-perorated segment of the leach line shall be excluded when determining the required length of the leach line.

Appendix F. Future Expansion Area

1. When the original approval includes the previous percolation test results for 100% future expansion area and the percolations rates are within the acceptable range of 0.83 to 5.12 gallons per sq. ft. per day for seepage pits and 5 to 60 minutes per inch for leach fields, no additional percolation tests will be required as long as the future dispersal fields/pits are installed as originally approved.

2. For the purposes of the 10% exemption, the current footprint is considered the area occupied by all existing habitable structures that were permitted at the time when OWTS was initially approved, i.e., the main house including garage as a one story building. This does not include roof overhangs, balconies, patios, decks, driveways, carports, swimming pools/spas, storage structures, landscaping and areas confined by the design of the permitted structures. Any existing detached structure, habitable or otherwise (e.g., studio, workshop, barn, etc.), that was approved by Environmental Health (i.e., No Impact approval).

3. The determination made by the professional geologist may be based on evaluations that were previously conducted by a professional geologist within the area or upon reliable source provided that the evaluations were conducted consistent with the current departmental guidelines. The statement made by the professional geologist shall be supported by practical principles and fundamentals of geology that are based on geological circumstances that exist at the site.

Appendix G - Gravel-packed Pit Requirements and Considerations

When due to safety concerns, instability of the land or other geological circumstances, QP determines that the test holes must be gravel packed prior to presoak and/or percolation tests in order to maintain the structural integrity of the hole, the QP/applicant shall obtain authorization from the Department prior to gravel packing and performing the percolation test.

The gravel placed within the gravel packed test hole occupies 62.5% of the space within the test hole. Therefore, the required 10 feet of drop during presoak and percolation tests, the length of time that is required to achieve the required drop and the dispersal of water shall be calculated based on 3/8 ratio (37.5%) (i.e., for each foot of water drop, a credit of 0.375 feet of vertical drop will be given).

As an alternative technique to achieve the required water drop and the volume dispersed, the length of time that is required to achieve the required drop and the dispersal of water shall be reduced based on a 3/8 ratio. (i.e., the 10 feet drop during the presoak shall be achieved in a total of 9 hours instead of typical 24 hours and the required 10 feet drop after the percolation testing shall be achieved in 6 hours instead of typical 16 hours). The time allowed for the total required volume of water to be dispersed (a volume equal to or greater than 5 times the required tank capacity) may remain 8 hours.

The following requirements shall apply when presoak and percolation tests are performed in gravel-packed pits:

1. A successful presoak test has been achieved once water equal to the nominal volume of the hole has been metered in. To establish that the required 10 feet of drop has been achieved, the measurement for the drop shall be taken immediately after 9 hours that a successful presoak has been achieved.

2. After a successful presoak test, a percolation test is considered successful and complete once at least water equal to 5 times the required tank capacity has been metered in, as further prescribes for seepage pit dispersal systems earlier in this appendix. <u>The required 10 feet drop shall be measured after 6 hours from the end of the percolation test.</u>

3. A perforated pipe with a minimum of 4 inches in diameter shall be installed vertically within the gravel-packed pit to facilitate the measurement of the water level during the percolation testing.

4. Gravel packing the test holes prior to the percolation testing shall be pre-authorized by this Department.

5. All other requirements established for percolation testing of seepage pits shall apply.

Appendix H - List of Impaired Water Bodies and Current TMDLs

Water Bodies Impaired for Pathogens

All OWTS proposed with 600 feet are required to install a NOWTS with Disinfection:

- Coyote Creek
- Malibu Creek (includes Las Virgenes Creek and Malibu Lagoon
- San Gabriel River Reach 1 (Estuary to Firestone)
- San Gabriel River Reach 2 (Firestone to Whittier Narrows Dam)
- San Gabriel River Reach 3 (Whittier Narrows to Ramona)
- San Jose Creek Reach 1 (San Gabriel Confluence to Temple)
- San Jose Creek Reach 2 (Temple Street to Interstate – 10 at White Ave.)
- Sawpit Creek
- Walnut Creek Wash (Drains from Puddingstone Reservoir)

Water Bodies Impaired for Nitrogen

All OWTS proposed with 600 feet are required to install a NOWTS which meets NSF Standard 245.

- Malibu Creek (Includes Las Virgenes Creek and Malibu Lagoon)
- Westlake Lake
- Mint Canyon Creek
- Santa Clara River Lakes (Lake Hughes, Munz Lake, Elizabeth Lake)

At this time none of the impaired water bodies have a TMDL which identifies residential OWTS as a contributing factor and places a load limit on OWTS. The Santa Clara River Lakes are in the beginning phases of a TMDL which would apply a load allocation to OWTS.

Appendix I - Sample Covenant Non-Conventional Onsite Wastewater Treatment Systems

Recorded at the request: _____
and mailed to: **Applicants Name**

Los Angeles County Environmental Health
Land Use Program
5050 Commerce Drive
Baldwin Park, Ca 91706

SPACE ABOVE THIS LINE FOR RECORDERS USE

COVENANT AND AGREEMENT
REGARDING NON-CONVENTIONAL ONSITE WASTEWATER TREATMENT SYSTEM
AND THE USE AND TRANSFER OF OWNERSHIP OF PROPERTY
SUBJECT TO THIS COVENANT AND AGREEMENT

WHEREAS_____ the undersigned property owner(s) (hereinafter referred to as **OWNER)** owns that certain real property described below (hereinafter referred to as **PROPERTY**), which is served, or shall be served, by an Non-Conventional Onsite Wastewater Treatment System constructed and installed pursuant to the County of Los Angeles Uniform Plumbing Code and Health and Safety Code; and

WHEREAS, OWNER represents that they are the sole owners of the **PROPERTY,** being situated in the County of Los Angeles, State of California, and described as follows:

Legal Description of PROPERTY:

_____

(if lengthy, include as EXHIBIT "A")

Street location/Location of PROPERTY:

_____

NOW THEREFORE, the undersigned **OWNER**, in consideration for constructing the Non-Conventional Onsite Wastewater Treatment System and/or occupying dwelling(s) on **PROPERTY**, does hereby promise, covenant and agree to comply with at all times all applicable federal, state, and local laws and requirements regarding the construction, operation, repair and maintenance of a Non-Conventional Onsite Wastewater Treatment System approved by the County for the PROPERTY, and that the **OWNER** shall at all times maintain in force a legally valid and binding maintenance and monitoring agreement with an approved servicing company covering such system, and shall provide upon request all maintenance and monitoring information to the County of Los Angeles Department of Public Health or its successor agency (County Health). Said agreement shall include computer monitoring and annual testing required by County Health of the efficiency and effectiveness of the system, including effluent testing as may be applicable. Said testing shall be to ensure the continued ability of the system to meet applicable federal, state, and local laws and requirements, including secondary waste discharge standards. Should the system not be in compliance with said laws and requirements, OWNER shall ensure that maintenance and/or repair is performed on the system, and the system shall be subject to re-testing. If following maintenance and repair, the system is still unable to meet applicable laws and requirements, the system shall be replaced with a new Non-Conventional Onsite Wastewater Treatment System upon approval by County Health. A copy of the maintenance and monitoring agreement shall be filed with County Health. Upon a material change in the maintenance agreement or a change of the approved servicing company, OWNER shall file the new or replacement maintenance and monitoring agreement with County Health within 30 days of said change.

The County is hereby granted easement rights to inspect the Non-Conventional Onsite Wastewater Treatment System, with reasonable notice to OWNER absent an emergency, to insure compliance with the Covenant and Agreement.

Upon approval of the Non-Conventional Onsite Wastewater Treatment System for the PROPERTY, OWNER shall have this document recorded with the Los Angeles County Recorder's Office against the title of the PROPERTY.

This **COVENANT AND AGREEMENT**, as well as the appurtenant easement for access as set forth above, shall run with the land and shall be binding upon all future owner, heirs, successors, and assigns of the PROPERTY.

This **COVENANT AND AGREEMENT** shall only be terminated by a **RELEASE OF COVENANT AND AGREEMENT** duly executed by an authorized agent of the County of Los Angeles, Division of Environmental Health, or its successor agency; said **RELEASE** shall not be effective until recorded in the County of Los Angeles Recorder's Office.

Dated this_____ day of_____[month], _____ [year]

_____	_____
Print Name	Signature
_____	_____
Print Name	Signature
_____	_____
Print Name	Signature
_____	_____
Print Name	Signature

Appendix C

City of Glendora
Building Division Plan Check/Permit Worksheet

CITY OF GLENDORA *BUILDING DIVISION* PLAN CHECK/PERMIT WORKSHEET

Building Address:

Description of Work: _____

_____

Owner Name:		Phone:
Address:	City:	Zip:
Applicant Name:		Phone:
Address:	City:	Zip:
Contractor/Eng./Arch./Designer Name:		Phone:
Address:	City:	Zip:
State License No. :	License Type:	Expiration Date:
EMAIL CONTACT (*for plan review comments):*		

ELECTRICAL SYSTEM		MECHANICAL SYSTEM		PLUMBING SYSTEM	
# of Units	Description	# of Units	Description	# of Units	Description
	Receptacles		FAU_____Heater_____		Bath Tub
	Lights		Up to 100,000 BTU		Clothes Washer
	Switches		Up to 1,000,000 BTU		Dishwasher
	Range		Over 1,000,000 BTU		Floor Drain
	Cellular Antenna		Air Handler		Gas System
	Clothes Dryer/Washer		Up to 2,000 CFM		Gas Outlets
	Dishwasher		Up to 10,000 CFM		Grease Trap
	Electric Vehicle Station		Over 10,000 CFM		Hose Bib
	Furnace in Attic		AIR CONDITIONER:		Kitchen Sink
	Furnace in Closet		SEER_____TONNAGE_____		Laundry Tub or Tray
	Garbage Disposal		HVAC RESIDENTIAL SYSTEM		Lawn Sprinkler System
	Generator		HVAC ELECTRICAL		
	Light Standards		Air Inlet/Outlet		Main Line Water Piping
	Photo Voltaic System		Alter Duct System		Misc Water Piping
	Service – Not Over 200 AMP				
	Service – Sub Panel		Appliance Vent		Shower
	Service – Over 200 AMP		Evaporative Cooler		Swimming Pool Piping
	Signs		Exhaust Fans		Toilet or Urinal
	Space Heater		Factory Built Fireplace		Water Basin/Sink
	Stationary Appliance (1/2 HP)		Fire Damper		
	Stationary Cooktop				Water Heater
	TPP ;___# of distribution poles		Kitchen Hood & Exhaust System		• Solar Water Heater
	Transformer		Spray Booth; Exhaust System		• Tank Water Heater
	Water Heater (electric)		Ventilation System		• Tankless Water Heater
	New Dwelling (sq footage)				Water Softener
	New Apartments (sq footage)				

	SEWER SYSTEM
	House Sewer Connecting to Public Sewer
	Septic Tank Seepage Pit or Pits and/or Drain Field
	Overflow Seepage Pit Drain Field, Cesspool, Drywell
	Connect Additional Building or Work to Sewer
	Alter, Repair or Abandon House Sewer or Disposal System
	Grease Interceptor

PW Permit #_____

Sewer Map Location:

Lateral Station:

Manhole Reference: Upper Lower Depth___

Type of Connection: Y Curb PL Saddle

L.A. County Sanitation District No.:_____

SQ FT	DEMOLITION
	Description:
	Square Footage
	No. of Structures:

	FIRE ALARMS
	Valuation:

SQ FT	FIRE SPRINKLERS
	Square Footage

	PHOTO VOLTAIC
	# of Modules
	Wattage (EA):
	Total Wattage

SQ FT	POOL/SPA
	Pool
	Spa
	Built In BBQ $_____Valuation
	Firepit /Fireplace $_____Valuation

SQ FT	RETAINING WALL
	Linear Feet
	Height
	Linear Feet
	Height
	Total Area

SQ FT	REROOF
	# of Squares of Material
	Material:_____
	ICBO/ICC# for Tile Roof #_____
	Detached Garage (Yes/No)_____
	Tear-Off (Yes/No)_____

SQ FT	RESIDENTIAL
	Balcony/Deck
	Garage Conversion
	Garage/Shed
	Patio Cover/Porch
	• Lattice Patio
	• Solid Roof Patio
	• Enclosed Patio
	Remodel
	Room Addition
	Single Family Residence (new)
	Multi family Residence (new)
	• Apartments No. of units:_____
	• Condominiums No. of units:_____
	• Townhomes No. of units:_____

SQ FT	COMMERCIAL – NEW CONSTRUCTION
	Auditorium
	Bank
	Church
	Hotels & Motels
	Industrial
	Institutional
	Medical Office
	Office
	Public Garage
	Restaurant
	School
	Service Station
	Store
	Theater
	Warehouse
	Free Standing Wall
	Trash Enclosure
	Trellis/Awning/Entry
	Valuation:

	SIGNS
	Illuminated Wall Sign
	Non Illuminated Wall Sign
	Monument Sign
	Name on Sign:
	Valuation $_____

SQ FT	TENANT IMPROVEMENT
	Description:
	Square Footage
	Occupancy:
	Use:

Appendix D

NOWTS Requirmements

NOWTS Requirements

OWTS that meet the following conditions in Section 4 of the LAMP, may be constructed, but will require the additional supplemental or advanced treatment and will be referred to as non-conventional wastewater treatment systems (NOWTS). OWTS can be significant sources of bacteria when the systems provide inadequate treatment and discharge directly to groundwater in close proximity to surface waters or discharge directly to surface water via overland flow. When correctly sited, operated, and maintained, OWTS are highly effective at removing bacteria so long as there are not failures due to improper siting, design, and maintenance.

Types of NOWTS

Standards for siting, design, and construction of NOWTS will be referenced from the Los Angeles County's *Conventional and Non-Conventional Onsite Wastewater Treatment Systems - Requirements and Procedures* (County's Professional Guide). The County's Professional Guide further divides the NOWTS into two categories:

- **Enhanced System** – a NOWTS that utilizes a supplemental treatment component to provide further treatment of the sewage effluent prior to discharging into a conventional dispersal system (e.g., leach line, leach field, seepage pit, or a combination seepage pit/leach system).
  - Required where the percolation rate exceeds the accepted rate for a seepage pit (exceeding 5.12 gallons per square foot of dispersal area per 24 hours).
- **Alternative System** – a NOWTS that utilizes a supplemental treatment component to provide further treatment of the sewage effluent prior to discharging into the dispersal system that utilizes pressurized drip tubing or other approved, sub-surface, non-conventional means for dispersal of wastewater effluent.
  - Required where groundwater or surface water setbacks cannot be met, if space permits. In every case the NOWTS will include an additional disinfection component.
  - An alternative system is required where engineered soil is used to improve percolation rates, comply with the two (2) foot minimum soil requirement, or meet the requirements for minimum vertical setback to groundwater. The total absorption surface area required for the pressurized distribution system is determined in the manner as typical leach field. Additional effluent treatment including disinfection will be required where the possibility of groundwater contamination exists.

The condition in which either the enhanced or alternative system is used is as follows:

- An alternative or enhanced treatment system may be used where the percolation rate exceeds the accepted rate for a leach line or leach bed (faster than 5 minutes for the drop of the 5th to 6th inch).
- Soil replacement in conjunction with an alternative system is required where the percolation rate is slower than expected (slower than 60 minutes for the drop of the 5th to 6th inch for a leach line or leach bed system) or when there is less than two (2) feet of continuous, natural, undisturbed soil below the proposed dispersal system. The dispersal field may not overlie groundwater protected for drinking water supplies.

- Disinfectant component is required if either an enhanced or alternative system is required near an impaired water body.

Design Requirements

The following are requirements for use of NOWTS, as per the County's Professional Guide, and modified for the City's needs.

- NOWTS will be certified to meet NSF 245 unless the NOWTS is proposed to be installed within the restricted area of a water body impaired for pathogens and all setback and percolation tests are within acceptable ranges for an OWTS. In this case the NOWTS must be certified as at least NSF 40 and provide additional disinfection components.
- The septic tank of the NOWTS must be IAPMO certified.
- The owner, prior to approval of the NOWTS, will enter and maintain in effect at all times throughout the operational life of the system, a contract signed by both the property owner and a service provider certified by the components' manufacturer. The contract will include routine maintenance recommended by the manufacturer, collection of influent and effluent samples at least once per calendar year, and testing of the influent and effluent samples by a certified laboratory. The laboratory report will clearly specify the location/address where the sample was collected, name of the technician, and date and time of the collection. The laboratory analysis must include Total Nitrogen of the influent entering the septic tank, and Biochemical Oxygen Demand (BOD), Total Nitrogen (TN) (which consists of ammonia, organic nitrogen, nitrate, etc.), Total Suspended Solids (TSS), and pH of the effluent as it enters the dispersal system. Bacteriological analysis is also required when the system is equipped with a disinfection device. The owner will be responsible for ensuring that all maintenance records and laboratory reports are forwarded to the City's Department of Public Works. NOWTS effluent concentration levels are defined in the monitoring section below.
- The NOWTS will be equipped with a visual or audible alarm as well as a telemetric alarm that notifies the owner and the service provider of the NOWTS in the event of system malfunction. The owner is responsible for ensuring that the telemetric monitoring system is powered on and operative and will contact their contracted service provider in the event of a failure.
- Dispersal systems of NOWTS utilizing supplemental treatment components will have at all times during operation at least two (2) feet of continuous, natural, undisturbed soil, excluding non-porous materials, below the bottom of the dispersal field or seepage pit. Where these conditions cannot be met, the supplemental treatment components in conjunction with disinfection will be used to disperse the effluent. A minimum of 10 feet of separation to groundwater from the bottom of the dispersal field or 10 feet from the bottom of a seepage pit will be maintained.

Manufactured/engineered soil with similar composition characteristics of loamy sand may be added to or replace the existing native soil so that the site conditions meet or exceed the specific depth and absorption rate requirements listed below. The compaction characteristics of the manufactured soil will correspond as close as possible to the native soil of the surrounding area. Soil replacement can be implemented if the following conditions listed below occur:

- When there is less than two (2) feet of continuous, natural, undisturbed soil between the bottom of a proposed dispersal system and bedrock, fractured bedrock, or an impervious layer;

- The soil has an absorption rate slower than 60 MPI; or
- There is inadequate soil depth to groundwater.

Engineered soil will compensate for the lack of in-place soil or the replacement of poorly drained soil at a ratio of 1.5 to 1; so that 1.5' of engineered soil material is required for a 1' deficiency in the soil column. In no case will engineered soil compensate for more than 2' of the minimum native soil depth requirements and ground may be built up by engineering/manufactured soil to a maximum of 3' in depth.

The manufactured/engineered soil will be re-composed and re-graded uniformly to provide homogenized absorption capability, equivalent to the soil category of loamy sand. The manufactured/engineered soil must be certified by a California Registered Professional Soil/Geotechnical Engineer who will prove through sieve analysis and other quantifying tests that the desirable composition and compaction has been achieved.

An adequate number of percolation tests will be conducted in the area where manufactured soil has been provided to confirm that the percolation rates are in correlation with loamy sand soil category. The results of the percolation tests conducted in the area will confirm uniformity in soil composition and compaction.

Supplemental Treatment Requirements for Nutrients and Pathogens

The designing of the proprietary treatment will be performed by a qualified professional (QP) and meet the requirements listed below. To ensure that the treatment meets the requirements, testing by an independent third party laboratory will be done prior to the installation.

Supplemental Treatment Requirements for Nitrogen

- Effluent from the supplemental treatment components designed to reduce nitrogen will be certified by NSF, or other approved third party tester, to meet a 50 percent reduction in total nitrogen when comparing the 30-day average influent to the 30-day average effluent.
- Where a drip-line dispersal system is used to enhance vegetative nitrogen uptake, the dispersal system will have at least six (6) inches of soil cover.

Supplemental Treatment Requirements for Pathogens

- Supplemental treatment components designed to perform disinfection will provide sufficient pretreatment of the wastewater so that effluent from the supplemental treatment components does not exceed a 30-day average TSS of 30 mg/L and will further achieve an effluent fecal coliform bacteria concentration less than or equal to 200 Most Probable Number (MPN) per 100 milliliters.
- The minimum soil depth and the minimum depth to the anticipated highest level of groundwater below the bottom of the dispersal system will not be less than three (3) feet. All dispersal systems will have at least 12 inches of soil cover.

Exempt OWTS

The OWTS Policy, Section 10.6 lists what is not covered under the policy but may be authorized by a separate RWQCB order.

Requirements in Section 10 of the OWTS Policy are not applicable to owners of OWTS that are constructed and operating, or permitted, on or prior to the date the nearby impaired water body was listed in Attachment 2 of the OWTS Policy if they have committed to a legally binding document stating that they will connect to a centralized wastewater collection and treatment system regulated through water discharge requirements (WDR). The legally binding agreement must take place within these timeframes:

- The owner must sign the document within 48 months of the date that the nearby water body is initially listed on Attachment 2.
- The specified date for the connection to the centralized community wastewater collection and treatment system will not extend beyond nine years following the date that the nearby water body is added to Attachment 2.

Monitoring

Per the County's Professional Guide, NOWTS will operate and maintain to produce effluent concentrations at levels that meet or surpass the following:

Monitored Constituents and Target Limits

Constituent	Limits
pH	6.0-9.0
Biochemical Oxygen Demand (BOD)	30 mg/L
Total Nitrogen	At least a 50% average of influent TKN (Total Kjeldahl Nitrogen)
Total Kjeldahl Nitrogen	Sampled to compare for Total N
Nitrate as N	10 mg/L[1]
Nitrite as N	1 mg/L[1]
Total Suspended Solids (TSS)	30 mg/L
Total Dissolved Solids (TDS)	750 mg/L[2]
Chloride, Total Residual	0.1 mg/L[1]
Sulfate	300 mg/L[2]
Boron	1 mg/L[2]
E. coli	235 MPN/100mL[3]

[1]Based on Basin Plan for the Coastal Watersheds of Los Angeles and Ventura Counties, Regional Objectives for Inland Surface Waters
[2]Based on Basin Plan for the Coastal Watersheds of Los Angeles and Ventura Counties, Water Quality Objectives for San Gabriel River and tributaries-between Ramona Blvd. and Valley Blvd
[3]Numeric target from the San Gabriel River Indicator Bacteria TMDL

The ongoing monitoring of NOWTS will be monitored once a year, unless the telemetric alarm is not available and then it will be done monthly, or more frequently as required by the City or RWQCB.

NOWTS will be equipped with a visual or audible alarm as well as a telemetric alarm that alerts the owner and service provider in the event of system malfunction. Where telemetry is not possible, the owner or owner's agent will inspect the system at least monthly while the system is in use as directed and instructed by a service provider and notify the service provider not less than quarterly of the observed operating parameters of the NOWTS.

For NOWTS with disinfection requirements for pathogens, inspection for proper operation will be done quarterly while the system is in use by a service provider unless a telemetric monitoring system is capable of continuously assessing the operation of the disinfection system. The OWTS Policy requires testing of the wastewater flowing from supplemental treatment components that perform disinfection will be sampled at a point in the system after the treatment components and before the dispersal system and will be conducted quarterly based on analysis of total coliform with a minimum detection limit of 2.2 MPN. In the Water Quality Control Plans (Basin Plan) for the Coastal Watersheds of Los Angeles and Ventura Counties, no single sample limits are provided for Total Coliform. The City proposes to monitor for *E. coli* with the limitation listed in the table above, and maintain the same detection limit of 2.2 MPN/100mL. All effluent samples must include the geographic coordinates of the sample's location. Effluent samples will be taken by a service provider and analyzed by a California Department of Public Health certified laboratory.