



TOWN OF PARADISE
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Graywater System Requirements

Requirements are found in the Town of Paradise Manual for the Onsite Treatment of Wastewater, Section 4.16, and the 2013 California Plumbing Code, Chapter 16. The following are guidelines from those statutory regulations.

General Health and Safety:

- A graywater system allows the user to direct graywater to an irrigation or disposal field. Extra graywater, if any, is to be diverted back to the septic tank.
- Graywater is water from a clothes washer, shower, bathtub, handwash sink and laundry tub. Graywater is ***not*** water from a toilet, kitchen sink or dishwasher.
- No additional potable makeup water is allowed in a graywater system.
- Only drip and subsurface irrigation is allowed. Above surface spraying of graywater (e.g. rainbird sprinklers) is not allowed. Graywater may be released above the ground surface if the release point is covered by at least 2 inches of mulch, rock, soil or solid shield covers.
- The graywater must be contained on the site where it is generated (e.g. your graywater cannot spill over or run off to a neighboring property.)
- Ponding and runoff of graywater is prohibited.
- Graywater systems shall be designed to minimize contact with humans and pets.
- Water used to wash diapers, soiled or infectious garments, typically from clothes washing, must not go into graywater systems.
- Mechanical grease or oil, or waste water from home photo labs or similar hobbyist or home occupational activities must be treated as a hazardous waste and cannot go into a graywater or septic system.

Design Considerations:

- The system must not affect other building, plumbing, electrical or mechanical components including structural features, egress, fire-life safety, sanitation, potable water supply piping or accessibility.
- Backflow and air gap protection must be in place for all systems.
- An operation and maintenance (O& M) manual must be provided by the installer and remain with the building for the life of the graywater system. Upon change of ownership or occupancy the new owner/tenant must be notified of the graywater system by the old owner/tenant.

How to apply for a Graywater System

An application must be filled out completely and submitted. Plans must be attached. The application fee is \$97.25. Town staff will review the plans within 24 business hours.

Plans shall include the following elements (1 & 2 below):

1. Plumbing layout in the form of a detailed drawings showing:

- All graywater plumbing, equipment and appurtenances.
- Cross-Connection devices if required.
- Pumps and/or pressurization equipment if needed, back flow and air gap protection.
- If a pump is used a reduced pressure backflow device must be installed on the domestic water supply line, (water main going into the house), as close to the main water supply meter as possible.(A pump on a clothes washing machine is exempted).
- An air gap must be installed between the graywater discharge and any graywater holding tank on the system. The air gap must be at least two times the diameter of the effective pipe opening (see most recent California Plumbing Code Chapter 6).
- Internal backflow devices, i.e. non-potable uses.
- All water lines must be identified per the following code requirements:
 - Potable (blue or green background):
"CAUTION - POTABLE WATER LINE"
 - Non-potable (Irrigation, from a non-potable source, yellow background): "CAUTION - NON-POTABLE WATER LINE"
 - Graywater: "CAUTION:NONPOTABLE WATER. DO NOT DRINK" Markings shall be at intervals not to exceed 5.0 feet.
 - Graywater stub-out for future connection : "GRAYWATER STUB-OUT, CAUTION- UNSAFE WATER "

2. A scaled plot plan of the graywater dispersal site including:

- Show the ground slope, property lines, water service lines, septic tank, leachfield trenches, wells, creeks, storm water drains (open and closed), and landscaping including irrigationsystems.

How to size a graywater dispersal site - landscaping or disposal trenches

Calculate the graywater discharge rate:

1. Calculate number of occupants: 1 Bedroom = 2 occupants.
All other bedrooms = +1 occupant.
2. Calculate the amount of graywater discharged based on water fixtures;
Graywater from clothes washing machine = 15 gallons per day / occupant
Graywater from showers, bathtubs, lavatories, utility sink = 25 gallons per day/occupant.

Example: A 2-bedroom house is equal to 3 occupants. A clothes washer graywater system would have a graywater discharge of 3 occupants x 15 gallons = 45 gallons per day.

Example: If all fixtures are attached, the discharge is (3 occupants x 15) + (3 occupants x 25) = 120 gallons per day.

Calculate the area needed for irrigation or disposal field based on the discharge rate: *

Graywater can be discharged at a rate of 1 gpd/ft² of soil surface area. This surface area may be on top of the ground under a layer of mulch, gravel, etc., or into a subsurface disposal trench.

1. **On top of the ground:** Calculate the amount of surface area needed by dividing the discharge rate by the soil application rate.
Example: If the discharge rate is 45 gpd then the surface area needed around plants being watered is 45gpd/ 1gpd/ft² = 45 ft².

2. **Into a disposal field:** Disposal trench sizing requirements that must be used to design a disposal field:

Bottom width of trench = 12 inches to 24 inches

Depth of soil over trench = 10 inch minimum

Depth of filter material (pea gravel, leachrock, etc.): Beneath pipe = 3 inch minimum
Above pipe = 2 inch minimum

Example: A graywater discharge of 45 gpd requires 45 ft² of irrigation or disposal field. A circular bed of mulch that is 7.5 feet wide is 45 ft² and would be large enough. An underground disposal trench 2 feet wide and 23 feet long would also be large enough.

***Exception:** Not all of the calculated graywater discharge is required to be handled by an irrigation or disposal field. It is acceptable for excess graywater to be diverted to the septic system through the diverter valve.

Setback requirements for graywater irrigation (landscaping) or disposal fields

	Graywater Irrigation Field	Graywater Disposal Field	Graywater Tank
Building Structures	2'	5'	5'
Property Lines	5'	5'	5'
Water Wells	100'	100'	50'
Creeks, Streams	100'	100'	50'
Leachfields	4'	4'	5'
Septic Tanks	5'	5'	0'
Water Service Line	0'	0'	5'
Water Main	10'	10'	10'
Slopes over 45%	Not allowed	Not allowed	0'

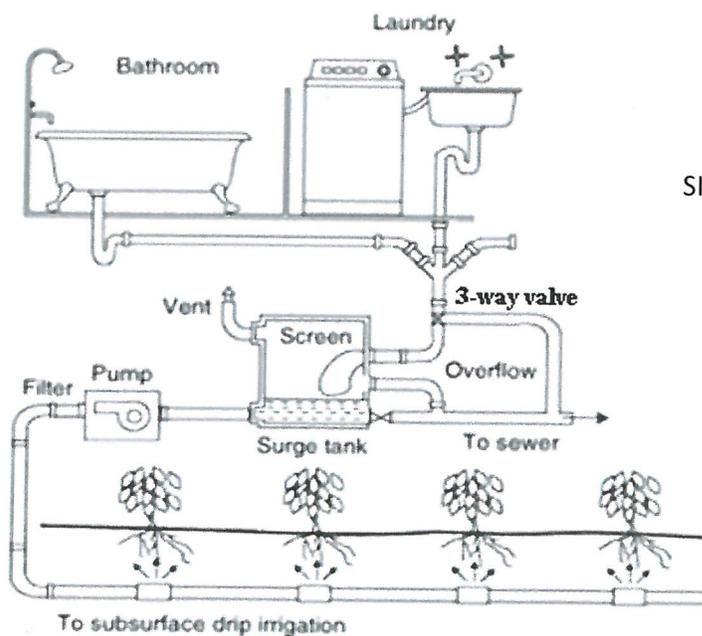
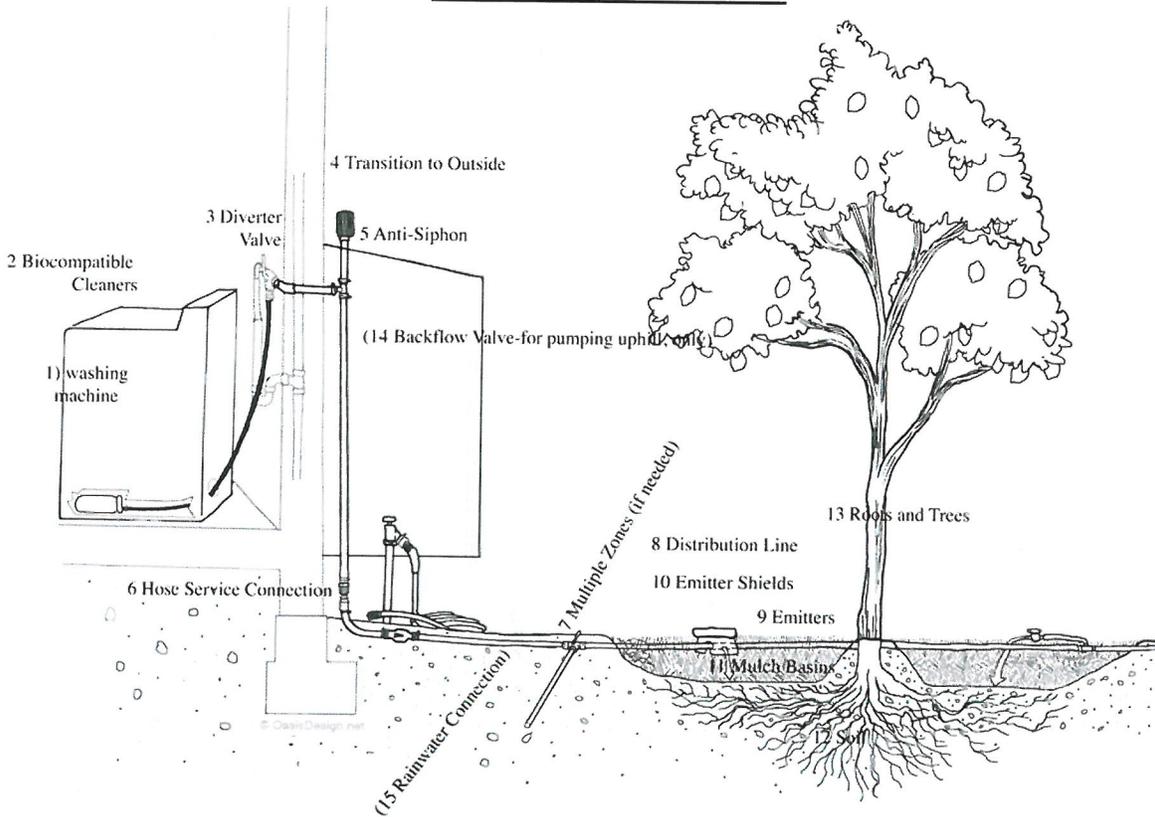
Graywater irrigation or disposal fields (landscaping) cannot be placed in areas with:

1. High groundwater - closer than 4 vertical feet from dispersal area
2. Ground slopes over 45%
3. Areas that ponding or runoff to adjacent property will occur
4. Soil conditions that are not satisfactory because of slow soil permeability or extensive rock content

Town staff is available to assist you. Please ask us any questions you may have.



CLOTHES WASHER GRAYWATER SYSTEM

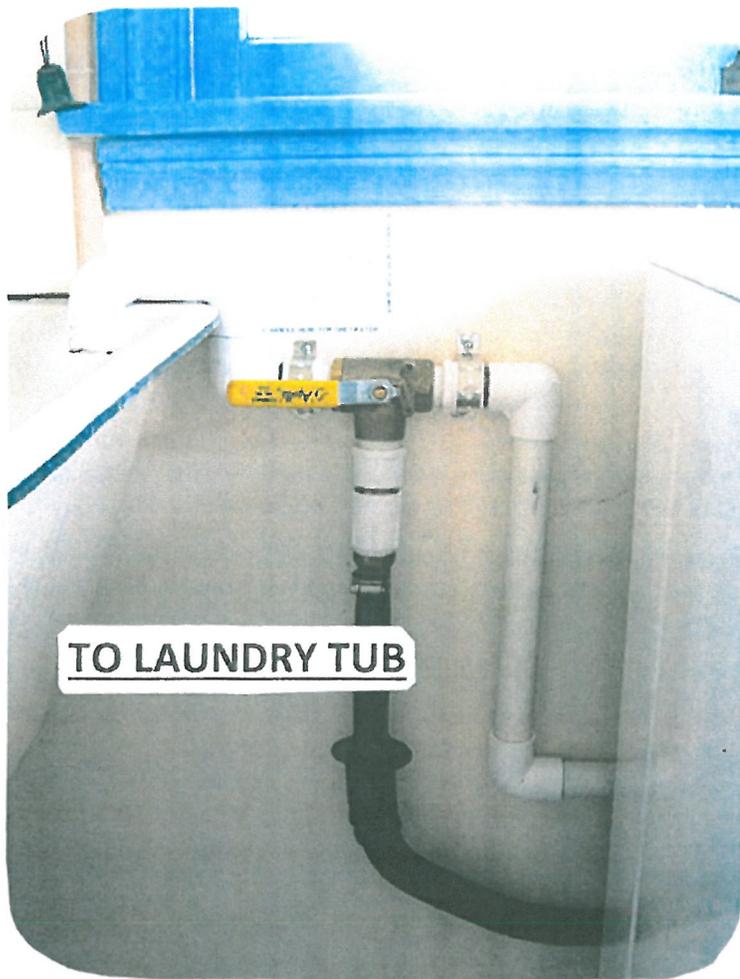


SIMPLE SYSTEM

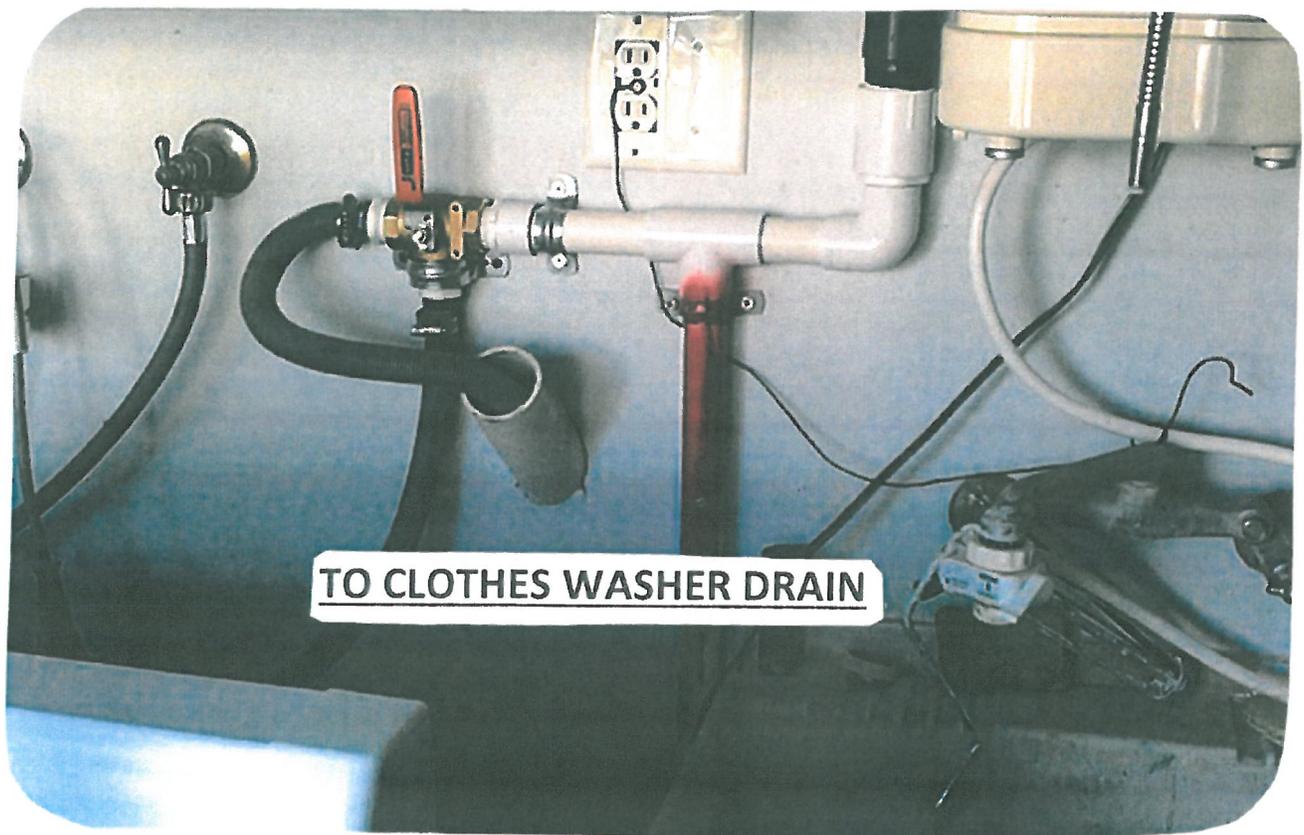
Simple Graywater System



CLOTHES
WASHER
SYSTEMS



TO LAUNDRY TUB



TO CLOTHES WASHER DRAIN