

Graywater Tier 1 Branched Drain Basin System Design Worksheet

Determine daily graywater flow: _____ gal/day

For single-family dwelling, use 160 gallons per day for 1 & 2 bedrooms, 240 gallons per day for 3 bedrooms, and 40 gallons per day for each additional bedroom (R317-401, Table 1). Daily graywater flow should be determined for maximum occupancy of house but must add at least one bedroom for unfinished basements.

Alternatively, determine flow using the fixtures in the residence: 30 gallons per day per bedroom for washing machine, 50 gallons per day per bedroom for shower/bathtub, and 5 gallons per day per bedroom for hand wash basin. Flow from other sources must be determined by a qualified designer.

Non-residential usage shall be sized by a certified designer and evaluated on a case-by-case basis by the regulatory authority.

Determine number of mulch shields required: _____ mulch shields

From Table 8 of R317-401, based on soil type, using the right column, calculate number of mulch shields required by dividing daily graywater flow in gallons per day by maximum gallons per mulch shield per day. One mulch shield is required per mulch basin.

The number of gallons per mulch shield per day is site specific. The designer may need to decrease the number of gallons per mulch shield when appropriate or as required by the regulatory authority.

Determine total absorption area required: _____ sq. ft.

From Table 8 of R317-401, using the left column, based on soil type, calculate the total absorption area required by dividing the daily graywater flow in gallons per day by the maximum mulch basin loading rate in gallons per day per square foot.

Determine absorption area required per mulch basin: _____ sq. ft.

Divide the number of sq. ft. of total absorption area by the number of mulch shields.

Select branched drain basin system components:

Select a three-way diverter valve, double ell flow splitters, mulch shields, vegetation, and mulch. The minimum volume for a mulch shield is 5 gallons, and the minimum air gap above the highest perforation in the shield is 6 inches.

Additional requirements for branched drain basin system components are given in R317-401-6.4 and 6.5.

Prepare a system sketch:

The construction of a branched drain system shall be in accordance with Table 9. The minimum number of discharge points per stub out is 2 and the maximum is 16.

The number of branched drain basins used is site specific and depends on the landscape design.

Each distribution zone shall have a minimum effective irrigation area for the soil characteristics and vegetation needs. A distribution zone is any portion of a graywater irrigation system that discharges graywater to a specific area for irrigation purposes.

System Sketch



