
SELECTION OF APPROPRIATE ONSITE SYSTEMS FOR SINGLE FAMILY DWELLINGS

- 3.1 General Requirements for Onsite Wastewater Disposal Systems
 - 3.2 Selection of an Appropriate Onsite System
 - 3.3 Lots With Limited Space for Waste Disposal System
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This chapter of the manual is intended to serve as a guide for the selection of onsite wastewater disposal systems which are appropriate for various soil conditions found in the Town of Paradise Onsite Wastewater Management Zone. **THE SITING CRITERIA ONLY APPLIES TO THE REPAIR OF EXISTING SYSTEMS AND FOR THE CONSTRUCTION OF NEW SYSTEMS ON EXISTING LOTS. THIS MANUAL DOES NOT APPLY TO SUBDIVISIONS OR LOT SPLITS.**

3.1 GENERAL REQUIREMENTS FOR ONSITE WASTEWATER DISPOSAL SYSTEMS

Certain requirements apply to all onsite wastewater disposal systems located within the Onsite Wastewater Management Zone. These include setbacks, the acquisition of easements for disposal off the property, and proper abandonment of unused systems, as described within this chapter. Variances will be required for systems which cannot meet the general requirements discussed in this section.

A. Required setbacks

Required setbacks are presented in Table 3.1. Required setbacks for portable toilet systems are shown in Table 3.2. Other guidelines are presented below.

- Water lines and sewer lines: Where water lines and building or effluent sewer lines cross, separation distances shall be as required in the Uniform Plumbing Code, California Plumbing Code Edition and the American Water Works Associations "Guidelines for Distribution of Nonpotable Water."
- Septic tank setbacks: The Town encourages the placement of septic tanks and other treatment units as close as feasible to the minimum separation from the building foundation to minimize potential clogging of the building sewer.
- Stream setbacks: Setback from streams shall be measured from the ten-year high-water mark.

3. Selection of Appropriate Onsite Systems for Single Family Dwellings

**Table 3.1
REQUIRED SETBACKS**

Setback requirements are minimum and may be altered for wastewater flows over 2500gpd as determined by the Onsite Sanitary Official

Condition	Setback, ft	
	A ¹ Absorption fields, etc.	B ² Septic tanks, etc.
Wells, whether in use or abandoned, excluding shallow aquifer, non-permanent groundwater monitoring wells associated with hazardous substance investigation sites. Properly destroyed wells are exempt from setbacks	100	50 100 ft for Public water wells
Surface waters: ³ perennial (all year) streams, springs or seeps ⁴ intermittent (part of year) streams, springs or seeps ravine, drainageway or ephemeral stream lakes and reservoirs ⁵	100 50 50 200	50 50 50 50
Groundwater interceptors such as french drain or curtain drain used to collect groundwater: upgradient (the interceptor is upgradient) downgradient (the interceptor is downgradient)	20 50 ⁵	20 25
Irrigation canals: lined (watertight canal) unlined upgradient downgradient	50 100 100	25 50 50
Cuts exceeding 30%, downslope from an absorption field, in excess of 30 in. (top of cut): – intersects layers that limit effective soil depth within 48 in. of surface – does not intersect layers that limit effective soil depth	Four times height of cut ⁷ 10	10 10
Fill downslope from an absorption field, trenches. Fill must be on top of a native soil surface with over 30% slope ^{7,8}	Four x's height of fill ⁷	10

3. Selection of Appropriate Onsite Systems for Single Family Dwellings

Condition	Setback, ft	
	A ¹ Absorption fields, etc.	B ² Septic tanks, etc.
Escarpment (a steep slope or cliff, over 30% slope, that makes a boundary to a flat or gently sloped upland area) downslope from an absorption field :	50	10
Roadway setback	20 ⁹	20 ⁹
Property lines	5	5
Swimming pool	5	5
Water lines (service line off water main)	5	5
Water main (public) - New construction / Repairs	25/10	10/10
Water main (private)	10	10
Driveway or parking area	0 ¹⁰	0 ¹¹
Foundations, building peers, foundation lines of any building or structure	5 ¹²	5 ¹²
Absorption trench (from the sidewall) Narrow absorption trenches are exempt as per Section 4.4 of this manual	8	5
Storm water drainage pipe	25 ¹³	5 ¹³
Storm Water Retention/Detention Basins	50	50

¹ **A** = From wastewater absorption fields or infiltrative surfaces, including absorption field replacement areas

² **B** = From septic tanks dosing tanks, treatment units and distribution units of over 20 gallon capacity

³ Does not prevent stream crossing in approved piping systems; culverting these drainage ways will not be allowed to reduce these setback requirements

⁴ When a perennial stream, spring or seep is upgradient and higher in elevation the setback to "A" or "B" may be reduced to 50 feet

⁵ Any impounded body of water with no less than one-acre foot of water

⁶ Twenty feet if an impermeable barrier is supplied with the drain

⁷ Four times the height of the bank, measured from the top edge of bank (with a 50 foot maximum distance)

⁸ For existing absorption field repairs where no other option is available earthen fill areas may be exempt from this setback requirement if the fill has been in place for over 5 years, has been adequately evaluated by a qualified designer and has demonstrated compatibility with underlying soils. Native soils underneath fill areas may also be used for absorption fields if

they are properly evaluated by a qualified designer and necessary system controls/mitigations are designed into the wastewater treatment and dispersal system

9 If an existing public road right-of-way or public utility easement exceeds the twenty-foot setback a greater setback distance is required. A lesser setback distance to the edge of the road is allowed when information is provided that demonstrates the location of the public road right of way or public utility easement. In no instance shall a septic tank, etc., or absorption field, etc., be allowed to be constructed in a public road right of way or public utility easement.

10 Only if percolation rate is less than thirty minutes per inch

11 Only if access risers are provided and a minimum one-foot of total cover is provided over the septic tank. New installations in vehicle areas require traffic-rated septic tanks

12 Including non-slab porches and steps whether covered or uncovered, breezeways, roofing structures, carports, and similar structures or appurtenances. Small cement porches and steps that do not serve as foundations for overhead structures are exempt from these setback requirements

13 Greater or lesser distances may be required depending on site characteristics. Lesser distances may be allowed for storm drains that flow only during rain events and are engineered to eliminate effluent infiltration and preferential pathways

Table 3.2
REQUIRED SETBACKS FOR PORTABLE TOILETS

Condition	Setback, ft	
Groundwater supplies, including springs and cisterns	50	25
Surface public waters, excluding intermittent streams	50	50
Intermittent streams	50	25
Property line	25	25

B. Easements

A wastewater disposal system shall be located entirely on the property served by the system or a legal permanent easement for an absorption field needs to be obtained for placement on a neighboring property before the issuance of a permit. An easement will provide for future access to allow maintenance of the system. Examples of single party and multiple party easement forms are available from the Onsite Wastewater Management Zone.

When the system crosses a property line separating properties of different ownership, a recorded permanent utility easement and covenant against conflicting uses is required in a format approved by the Town. An easement must accommodate that part of the system, including setbacks for property

lines and building foundations, which lies beyond the applicant's property line. The easement must allow for entry to install, maintain and repair the system.

When the system crosses a property line separating properties under the same ownership, the applicant/owner must create an easement with covenants in a format approved by the Town to enter and inspect that portion of the system, including setbacks for property lines and building foundations, on the adjacent parcel, by excavation, if necessary, agreeing not to put that portion of the adjacent parcel to a conflicting use, and agreeing upon severance of the adjacent parcel to grant a permanent utility easement in favor of the owner of the parcel served by the system.

Absorption field easements may be necessary for the repair of existing systems mandates crossing property lines.

C. Abandonment of a system

The owner shall abandon a system for several reasons:

- A sewerage system becomes available and the building sewer has been connected thereto; or
- The source of wastewater has been eliminated permanently.
- The system has been operated in violation of these rules, unless and until a repair permit and an Operating Permit are subsequently issued therefore; or
- The system has been constructed, installed, altered or repaired without a required permit authorizing such, unless and until a permit is subsequently issued therefore.

Procedures for abandonment should start with the septic tank, cesspool or seepage pit being pumped by a licensed wastewater disposal service to remove all sludge. The septic tank, cesspool or seepage pit should then be filled with sand. If, in the judgment of the Onsite Sanitary Official, it is not reasonable, possible or necessary to pump and fill the system, the Onsite Sanitary Official may waive either or both of these requirements provided such action does not constitute a menace to public health, welfare or safety.

3.2 SELECTION OF AN APPROPRIATE ONSITE SYSTEM

A series of flow charts (Figures 3.1 through 3.7) and a soil map on file with the Town, have been developed to aid in the selection of an appropriate onsite system in the Town of Paradise Onsite Wastewater Management Zone. Figures 3.1 through 3.7 are based on soil and site conditions commonly found in Paradise. However, they do not cover all conditions. The soil map is also general in nature and may not show all the soil conditions present. Therefore, a site evaluation is still required to verify actual soil conditions at all proposed disposal areas. Special designs may be considered under a variance for those sites not described in Figures 3.1 - 3.7. Table 3.3 lists the general procedure for the use of the flow charts and soil map. Table 3.4 is a summary of the soil types, areas, and recommended onsite systems.

TABLE 3.3

**PROCEDURE FOR THE SELECTION OF AN
APPROPRIATE ONSITE DISPOSAL SYSTEM**

For General Planning:

1. Locate the lot on the soil map to identify the soil type commonly found in the area.
2. Use Figures 3.1 through 3.7 to identify the appropriate soil group and probable onsite system requirements.
3. Review the system requirements as described in Chapter 4 of this manual.

For Design:

1. Verify site conditions. Dig test holes, identify soil conditions, and select an appropriate system. **The charts and soil map do not replace good judgment or common sense.**
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3.3 LOTS WITH LIMITED SPACE FOR WASTE DISPOSAL SYSTEM

Those existing lots which have very small suitable disposal areas can use one or more of the following techniques depending on soil conditions:

- Pretreatment of septic tank effluent with an intermittent dosing sand filter or recirculating gravel filter.
- Bottomless intermittent dosing sand filter (bed or trench)
- Package engineered systems.
- Pressure distribution with narrow absorption trenches and narrow spacing
- Deep absorption trenches
- Redundant system

A qualified designer shall prepare plans of the proposed system. There must be adequate space on the lot for a replacement system and absorption field.

TABLE 3.4
SUMMARY OF SOIL TYPES FOUND IN PARADISE AND THE
RECOMMENDED TYPE OF ONSITE WASTEWATER DISPOSAL SYSTEM

Soil Map Symbol	Mapping Unit Name	Area (Acres)	Percent of Total	Recommended Onsite System
AVD 0-30%	Aiken Very Deep	7805	66.7	S
AVD 30-45%	Aiken Very Deep	50	0.4	S
AD 0-30%	Aiken Deep	173	1.5	S
BA 0-30%	Aiken Bouldery Phase	380	3.3	S + Extra
BA 30-45%	Aiken Bouldery Phase	19	0.2	S + Extra
PR 0-10%	Basalt flow with soil between columns of rock	140	1.2	S + Extra
MC-C 0-30%	Guenoc-Cohasset complex	243	2.0	S or P
MC-C >30%	Guenoc-Cohasset complex	49	0.4	P
SC-MC 0-30%	Shallow clay loam - Guenoc complex	406	3.5	U
SC-MC 30-45%	Shallow clay loam - Guenoc complex	7	0.1	E
SC-T 0-30%	Shallow clay loam - Toomes complex	133	1.1	U
SC-T 30-45%	Shallow clay loam - Toomes complex	3	>0.1	D or P or E
W 0-10%	Wetlands/swamp/marshes	10	>0.1	NA

3. Selection of Appropriate Onsite Systems for Single Family Dwellings

Soil Map Symbol	Mapping Unit Name	Area (Acres)	Percent of Total	Recommended Onsite System
TW-MA 0-10%	Complex of two unnamed series with seasonal water tables	927	7.9	U
SM 0-30%	Shallow, very poorly drained soil	34	0.3	U
PO 0-30%	Mariposa	6	0.1	U
C/F	Cuts and fills	22	0.2	P
F	Fills	8	0.1	P
RL	Rockland	440	3.7	U
Q	Quarries	1	>0.1	U
45%	Slopes over 45% with a variety of soils	844	7.2	U
		11,700	100	

S = Standard System S + Extra = Standard System plus extra drainfield

P = Pretreatment E = Engineered Fill D = Dewatering U = Unsuitable

FIG. E 3.1
SOIL GROUP CHART

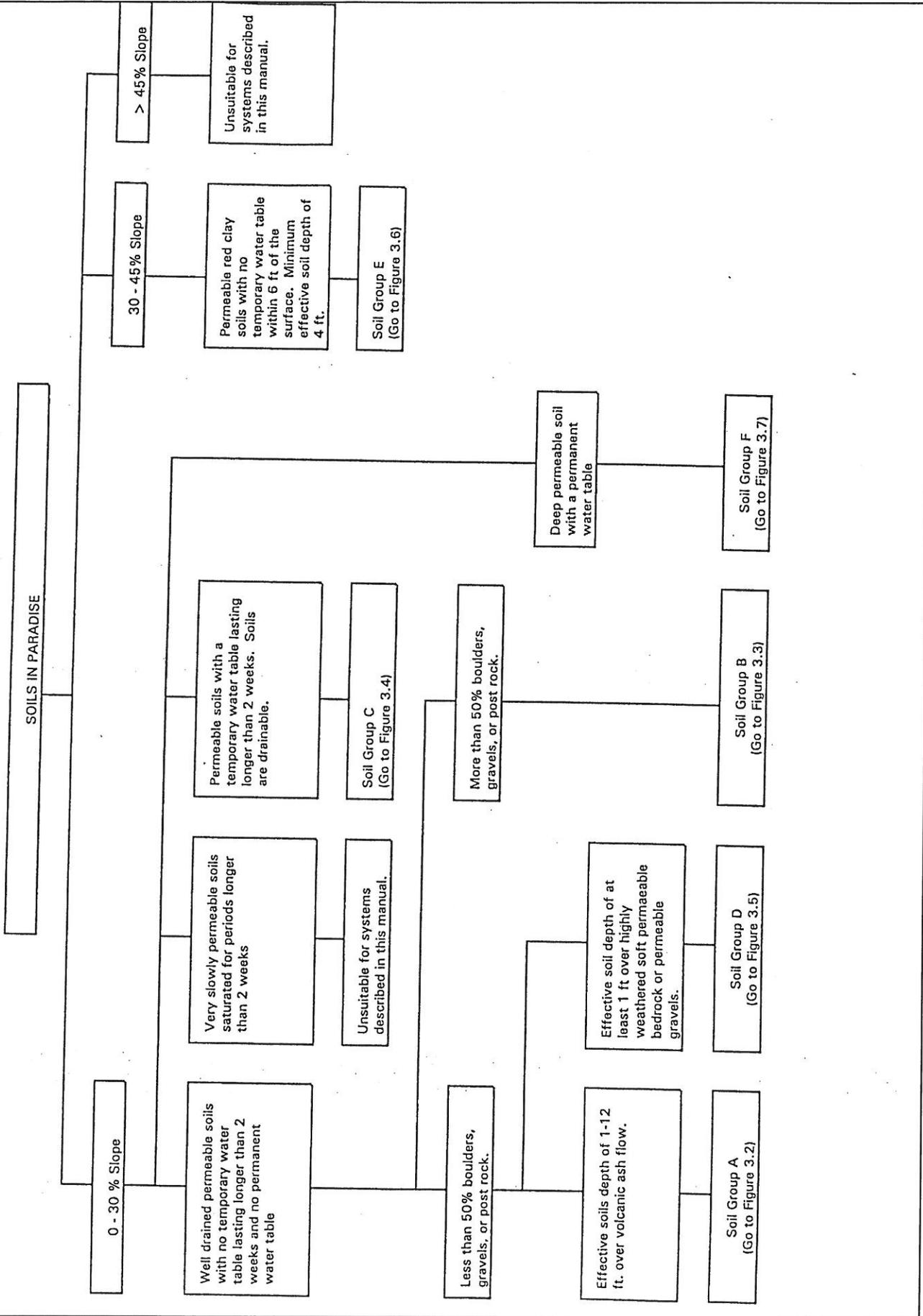
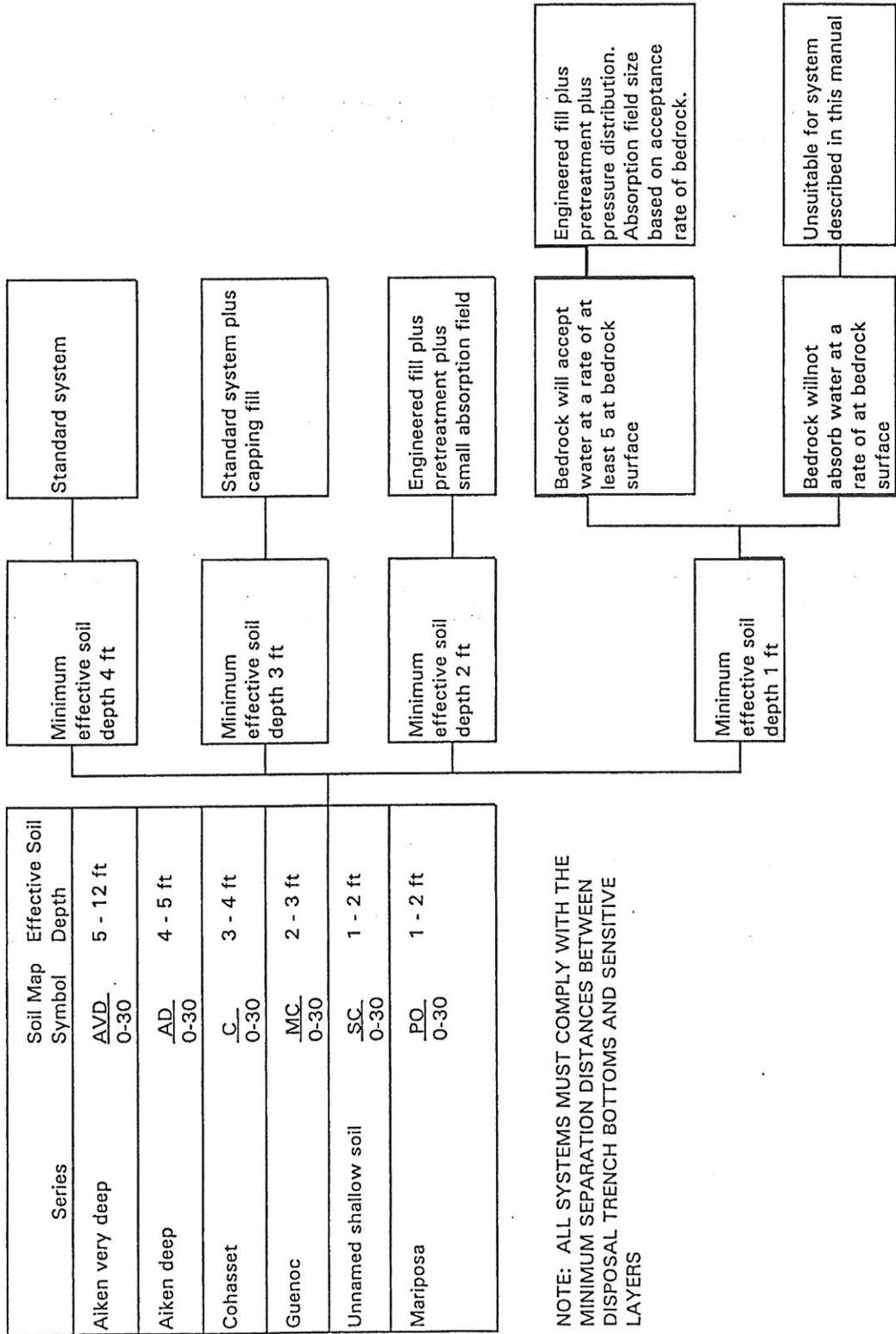


FIGURE 3.2
SYSTEM SELECTION CHART: SOIL GROUP A

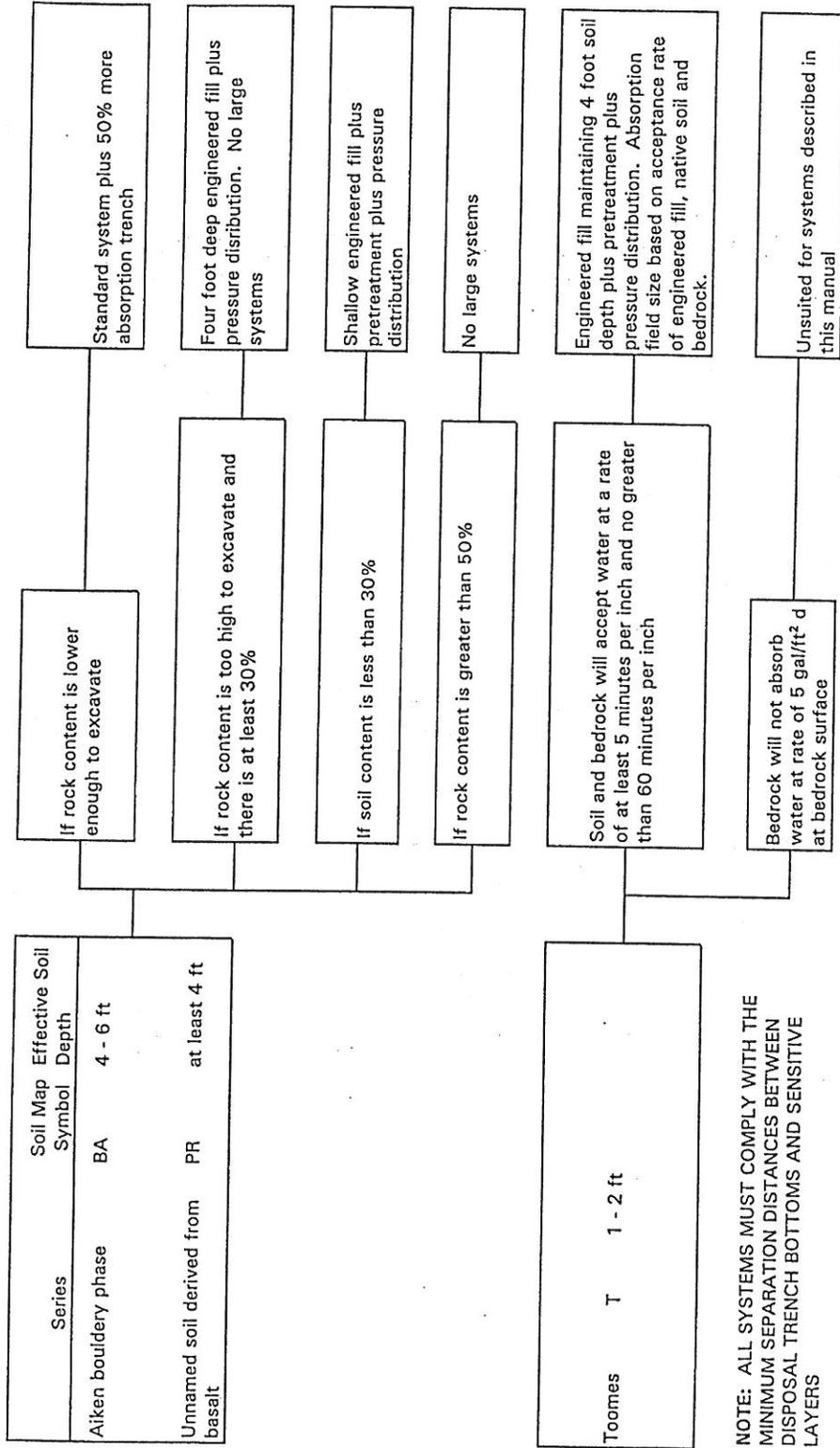
Well-drained, permeable soils on slopes less than thirty percent. Soils have no permanent water table and no temporary water table lastir more than two weeks. Texture of subsoil is either clay or clay loam.



NOTE: ALL SYSTEMS MUST COMPLY WITH THE MINIMUM SEPARATION DISTANCES BETWEEN DISPOSAL TRENCH BOTTOMS AND SENSITIVE LAYERS

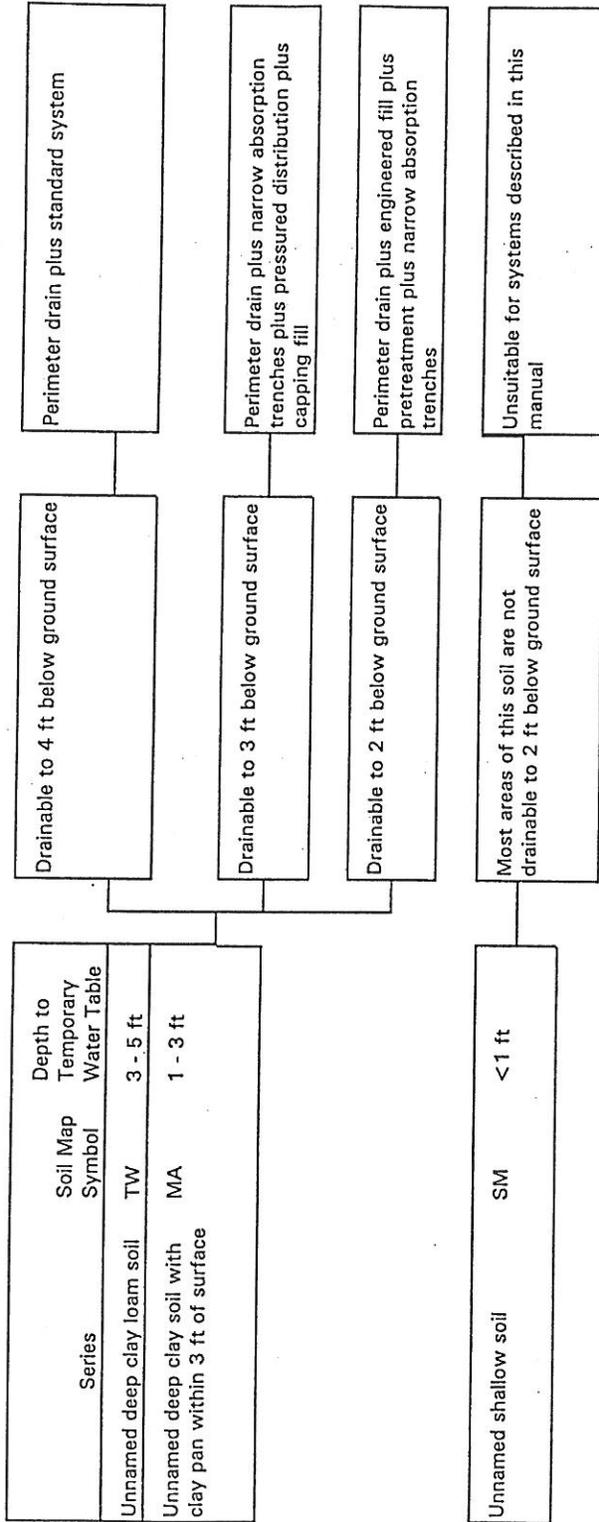
FIG. E 3.3
SYSTEM SELECTION CHART: SOIL GROUP B

Well-drained, permeable soils on slopes less than thirty percent (30%) with more than fifty percent (50%) boulders, gravels, or post rock Texture of the subsoil is very gravelly clay to loam. These soils have no water table.



**FIGURE 3.4
SYSTEM SELECTION CHART: SOIL GROUP C**

Permeable soils on slopes less than thirty percent. Soils have temporary water tables lasting longer than two weeks. Texture of subsoil ranges from clay loam to dense clay.



NOTES: ALL COMPLETED SYSTEMS MUST COMPLY WITH THE MINIMUM SEPARATION DISTANCES BETWEEN DISPOSAL TRENCH BOTTOMS AND SENSITIVE LAYERS.
 DEMONSTRATION THAT THE DISPOSAL SITE CAN BE DRAINED OVER AN ENTIRE WET SEASON WILL BE REQUIRED PRIOR TO CONSTRUCTION OF THE WASTEWATER DISPOSAL SYSTEM.

**FIGURE 3.5
SYSTEM SELECTION CHART: SOIL GROUP D**

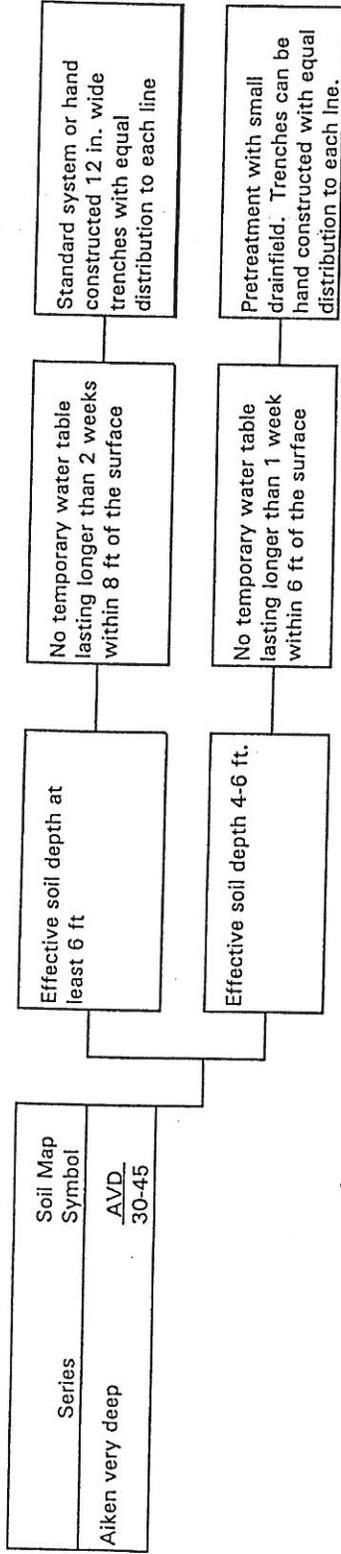
Permeable soils overlying fractured, permeable bedrock on slopes less than thirty percent with no permanent or temporary water table. Bedrock must be diggable with a common backhoe and have clay films along fractures. Infiltration rate thirty-six inches into bedrock must be greater than five gallons per square foot-day.

There are a limited number of areas with these conditions in Paradise. No soil series designations have been developed for these soils. A bottomless and filter may be used if the completed system will have the minimum required effective soil depth.

**NOTE: ALL SYSTEMS MUST COMPLY WITH THE MINIMUM SEPARATION
DISTANCES BETWEEN DISPOSAL TRENCH BOTTOMS AND SENSITIVE LAYERS**

FIGURE 3.6
SYSTEM SELECTION CHART: SOIL GROUP E

Permeable soils on slopes between thirty-forty percent . These soils have no permanent water tables.



NOTE: ALL SYSTEMS MUST COMPLY WITH THE MINIMUM SEPARATION DISTANCES BETWEEN DISPOSAL TRENCH BOTTOMS AND SENSITIVE LAYERS

**FIGURE 3.7
SYSTEM SELECTION CHART: SOIL GROUP F**

There are a few soils in Paradise which qualify as having a permanent water table. The maximum height of the water lasting more than two weeks needs to be established on a case-by-case basis. A four foot separation from the trench bottom and the maximum height of the water table shall be maintained.