



COCONINO COUNTY ARIZONA

COMMUNITY DEVELOPMENT DEPARTMENT

Jay Christelman, Director

EFFECTIVE DATE: November 27, 2019

POLICY NAME: Shallow Groundwater Design

POLICY NO: EQ-2019-03

PURPOSE:

The purpose is to clarify the design requirement for the onsite wastewater system where the site investigation per R18-9-A310(D)(2) identifies “seasonal saturation” that could affect the performance of the onsite wastewater system per A310(D)(2)(c) or “seasonal high water table” less than the required vertical separation per A310(D)(2)(b).

BACKGROUND:

Shallow seasonal high water table occurs in many areas of Coconino county and affects the performance of a subsurface onsite wastewater system. In some cases, it effectively causes the surfacing of septic tank effluent and a public health risk. In some cases, it can cause sewage to back up into the house when the system cannot take any more flow.

A site investigation that identifies mottles in a soil horizon as “common” or “many” indicates seasonal saturation that will affect the performance of a subsurface onsite wastewater system and seasonal high water table subject to the vertical separation requirements.

R18-9-A312 (E) establishes various vertical separation requirements. For soils with a lower Soil Application Rate (SAR) (0.20 to 0.63 gpdpsf) the vertical separation requirement is 5 feet for trench or chamber systems. A lesser value is applicable to advanced treatment systems depending on the level of treatment beyond a conventional septic tank.

These areas of seasonal saturation are often associated with areas that included intermittent streams, washes, shallow drainage, and sheet flow runoff conditions. The horizontal setback from intermittent streams and washes is set at 100 feet and 50 feet respectively. The determination of intermittent streams and washes is addressed in Substantive Policy EQ-2019-01, Wash and Intermittent Stream setback. Shallow drainage and sheet flow runoff conditions have no horizontal setback but must be addressed in the design of an onsite wastewater system.

POLICY:

Where seasonal saturation or seasonal high water table is identified at 1 foot or less depth, then a subsurface disposal system cannot be approved.

Where a hydrology study indicates there is shallow or sheet flow inundation from a 10 year event that can not be diverted, then a subsurface disposal system cannot be approved.

In either of those cases, an advanced treatment system: Peat Filter (GP 4.11), Textile Filter (GP 4.12) or Aerobic System (GP 4.15) discharging to a Wisconsin Mound (GP 4.08) shall be designed.

The natural ground surface shall be prepared in accordance with requirements of the Wisconsin Mound. The mound shall be designed with the following fill below the bed:

- A depth of sand equal to the depth of inundation from a 10 year event that cannot be diverted around the mound plus 1 foot. This may be cinder sand or other suitable material specified in the plans but does not need to meet the requirements of rule for the Wisconsin Mound.
- A depth of sand to meet the Minimum Vertical Separation for the combined treatment system. This must be sand meeting the requirements of rule for the Wisconsin Mound.
- A depth of sand per the requirements for the Wisconsin Mound.

The remaining components of the Mound including cover, bed, and piping shall conform to the requirements for a Wisconsin Mound.

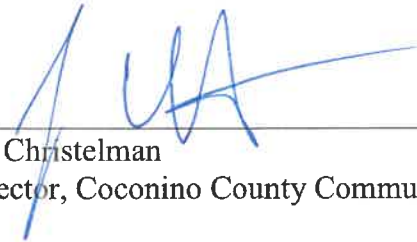
The Minimum Vertical Separation shall be calculated in the design report using the performance standards for the advanced treatment system (4.11, 4.12, or 4.15) selected and for the mound (4.08) Category A or B selected. A technical memorandum has been prepared by Coconino County to address “stacking” technologies which may be updated into a separate substantive policy.

(An applicant may provide an A312G submittal for an Alternative design that performs as well as the system in this policy. The justification will likely require a detailed analysis of surface and subsurface hydraulic flow that is often beyond the economic viability of most small residential systems which is why this policy was developed.)

ACCESS:

This substantive policy statement is available for inspection at the Community Development office or on the Coconino County website: www.coconino.az.gov.

APPROVED BY:



Jay Christelman
Director, Coconino County Community Development Director

11.27.19

Date

