

COCONINO COUNTY ARIZONA

COMMUNITY DEVELOPMENT DEPARTMENT

Jay Christelman, Director

EFFECTIVE DATE: September 27, 2019

POLICY NAME: Wash and Intermittent Stream Setback

POLICY NO: EQ-2019-01

PURPOSE:

The purpose is to clarify the horizontal setback for an onsite wastewater system from a wash or an intermittent stream as per ADEQ Rule R18-9-A312(C) Setbacks.

BACKGROUND:

1. ADEQ Rule:

ADEQ Rule R18-9-A312(C) establishes a horizontal setbacks including:

5. 100 feet for perennial or intermittent stream.

8. 50 feet for a wash or drainage easement with a drainage area of 20 acres or more.

ADEQ provides no definition in the onsite wastewater rule for an intermittent stream or wash.

The setback from a stream is measured from the “high water line from a 10 year, 24 hour rainfall event”. The setback from a wash is measured from the “edge of the defined natural channel bank”.

The ADEQ water quality standards do provide some definitions (R18-11-101) as follows:

“Ephemeral water” means a surface water that has a channel that is at all times above the water table and flows only in direct response to precipitation.

“Intermittent water” means a stream or reach that flows continuously only at certain times of the year, as when it receives water from a spring or from another surface source such as melting snow.

ADEQ completed a report in 2018 titled “An Assessment of Arizona’s Intermittent Streams” The initial survey used the following criteria:

- Water present in Google Earth at any time.
- Presence on Intermittent Stream map.
- Observable riparian corridor.

Site visits were completed. This classification was used for study purposes as opposed to regulatory purposes.

2. USGS Definitions:

The United States Department of the Interior, Geological Survey, provides definitions in the “General Introduction and Hydrologic Definitions” Manual of Hydrology: Part 1 General Surface-Water Techniques, Geological Survey Water-Supply Paper 1541-1, dated 1983. The definitions are as follows:

Stream: A general term for a body of flowing water. In hydrology the term is generally applied to the water flowing in a natural channel as distinct for a canal.

Perennial Stream: One which flows continuously.

Intermittent (or seasonal) Stream: One that flows only at certain times of the year when it receives water from springs or some surface water such as melting snow in mountainous areas.

Ephemeral: One that flows only in direct response to precipitation, and whose channel is at all times above the water table.

Channel (water course): An open conduit either naturally or artificially created which periodically or continuously contains moving water, or which forms a connecting link between two bodies of water. River, creek, run, branch, anabranch, and tributary are some of the terms used to describe natural channels. Natural channels may be single or braided. Canal and floodway are some other terms used to describe artificial channels.

Bank: The margins of a channel. Banks are called right or left as viewed facing in the direction of flow.

Surface Runoff: That part of the runoff which travels over the soil surface to the nearest stream channel.

Ground-water runoff: That part of the runoff which has passed into the ground, has become groundwater, and has been discharged into a stream channel as spring or seepage water.

3. Mapping and Drainage Data:

The Fort Valley area has been mapped by Coconino County and the 1 foot contour data is available from the GIS department. Some other areas have also been mapped.

That mapping data was used to complete the Fort Valley Initial Engineering Assessment (IEA) which resulted in a 10-year and 100-year FLO2D maps. Those maps are available online at the Coconino County Community Development, Engineering, Floodplain Management Page. The IEA data was used by the Ranch at the Peaks and Majestic View Estates subdivision to produce specific maps for onsite wastewater setbacks which are also available on that web page.

FEMA has mapped the floodway and floodplain throughout the county. That includes the Rio de Flag through Fort Valley and some of its tributaries. The stream profile can provide

information on the 10-year depth that would allow a designer to delineate the edge of a channel for onsite wastewater setback. In the Fort Valley area, the FEMA study shows a much lower inundation than the County IEA which is consistent to what is observed in Fort Valley. This information is available on the Coconino County Parcel Viewer maintained by the GIS department and from FEMA on their website.

There are topographic images of Coconino County that are available in the Parcel Viewer. They can provide insight into the vegetation and implications regarding drainage.

POLICY:

Presentation:

All channels on or within 100 feet of a property shall be identified and shown on the site plan submitted to Coconino County for an onsite wastewater permit. The most current and accurate data shall be used in making that determination including the use of field and published data.

A site shall be evaluated for the presence of channels that would define a drainage swale, wash (ephemeral stream) or stream (perineal or intermittent) preferably by field evaluation, but mapping may be adequate.

Channels that drain less than 20 acres should be noted along with any drainage swale features that might impact the operation of the onsite wastewater system.

Channels that drain more than 20 acres must be shown on the site plan and the distinction between wash (ephemeral stream) and stream (perennial or intermittent) made.

Design:

The onsite wastewater system shall be designed to meet the requirements for horizontal setbacks from these channels.

Adequate diversion features must be designed to protect the onsite wastewater system components from overloading due to runoff either from sheet flow, drainage swale or channels draining less than 20 acres.

Application:

In general, and specifically in Fort Valley, FEMA mapped channels are intermittent streams as they are expected to carry water more often than merely in response to a precipitation event. Washes that only carry water in response to a precipitation event are expected to have vegetation consistent with the surrounding area. The presence of plants that require more water than the surrounding vegetation are evidence of an intermittent stream. The presence of flowing water for a longer period of time including a spring snowmelt runoff is indicative of an intermittent stream.

The Fort Valley IEA maps the 10-year event for the entire area. During that 10-year event water can accumulate to depths of 0.2 to 0.5 feet such that they show up on the model but that does not by itself meet the definition of a wash, stream or lake. (A review of the map shows some

individual 20 foot x 20 foot cells in the model that accumulate water to a depth of 0.2 to 0.5 feet. The underlying contours indicate that the ground slope is flattening but they do not show a “lake” therefore these cells do not meet the definition of a lake nor do swales that carry some shallow water meet the definition of a channel.) Nevertheless, those drainages that are shown on the Fort Valley IEA but are not part of a wash or intermittent stream must be addressed in the design of an onsite wastewater system as drainage to be diverted to protect the onsite wastewater system.

The depth of the 10-year event must be determined by the onsite wastewater system designer. A hydrology study may be performed. It should be performed in accordance with the requirements of the Coconino County Drainage Design Criteria and will be reviewed by the Engineering Division. On a FEMA mapped channel, the profile depth for the 10-year event may be used on the existing topographic contours. In Fort Valley the IEA depth for the 10-year event shall be used rather than the FEMA profile.

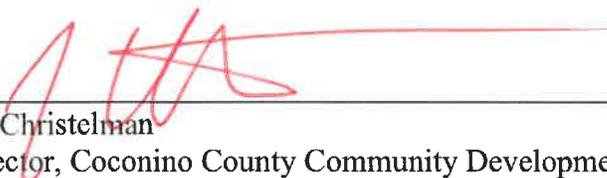
Some designers have used the 100-year event rather than the 10-year event which is conservative.

No modification of the AAC R18-9 Article 3 is proposed in this policy.

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

9.27.19

Date