
Guidelines for Onsite Wastewater Treatment System (OWTS) Installation in a Floodplain or Floodway

Purpose: To provide guidance and clarification for properties which include a designated floodplain area and require the installation of an OWTS as a means for wastewater treatment and dispersal.

Rationale:

Development of an OWTS on a property within a designated floodplain or floodway presents a public health risk and may impact water quality during a flooding event. Additionally, damage to the OWTS may occur during a flooding event resulting in the release of contaminated wastewater into floodwaters. The El Paso County Board of Health (EPCBoH) Chapter 8 OWTS regulations require an OWTS to be installed outside the floodplain whenever possible. However, in the event this is not possible the regulations require a property owner to follow Federal Emergency Management Agency (FEMA) requirements. These Guidelines provide specific standards that will be applied and enforced by El Paso County Public Health (EPCPH) to ensure compliance with FEMA and EPCBoH requirements.

For purposes of installing an OWTS within a floodway or floodplain, when it is not feasible to install it outside of the floodway, or floodplain zones AE, AH, and AO, the installation will be considered high risk. The current floodplain/floodway map can be found at <https://www.pprbd.org/> selecting floodplain and then Current effective floodplain map.

Chapter 8 Regulations section 8.4.K.1-2:

K. Floodplains

1. A new, expanded, modification or repair/replacement OWTS installed in a 100-year floodplain must meet or exceed the requirements of the Federal Emergency Management Agency and the El Paso County emergency agency. Repairs of an existing system must meet the requirements as feasible. The system as approved by EPCPH must be designed to minimize or eliminate infiltration of floodwaters into the system and discharge from the system into the floodwaters. The OWTS must be located to avoid impairment to floodwaters or contamination from them during flooding.
2. A new or expanded or modification OWTS must not be installed in a floodway designated in a 100-year floodplain where a conforming OWTS outside the floodway can be installed. For any new OWTS or system repair that may affect the floodway delineation, appropriate procedures must be followed including revision of the floodway designation, if necessary.

Definitions:

1. “Base Flood Elevation (BFE)”: The elevation of surface water resulting from a flood that has a 1% chance of equaling or exceeding that level in any given year. The BFE is shown on the Flood Insurance Rate Map (FIRM) for zones AE, AH, A1–A30, AR, AR/A, AR/AE, AR/A1– A30, AR/AH, AR/AO, V1–V30 and VE *[FEMA definition]*
2. “Floodplain (100-year)” means an area adjacent to a stream which is subject to flooding as the result of the occurrence of a one hundred (100) year flood, and is so adverse to past, current or foreseeable construction or land use as to constitute a significant hazard to public or environmental health and safety or to property or is designated by the Federal Emergency Management Agency (FEMA) or National Flood Insurance Program (NFIP). In the absence of FEMA/NFIP maps, a professional engineer must certify the flood plain elevations.
 - a. Zones: A, AE, AH, AO on the El Paso County (EPC) floodplain map
3. “Floodway” means the channel of a river or other watercourse and the adjacent land areas that must be reserved in order to discharge the base flood without cumulatively increasing the water surface elevation more than one foot or as designated by the Federal Emergency Management Agency or National Flood Insurance Program. In the absence of FEMA/NFIP maps, a professional engineer must certify the floodway elevation and location.
4. “Limiting Condition”: means a horizon or condition in the soil profile or underlying strata that limits the treatment capability of the soil or severely restricts the movement of fluids. This may include any other condition not identified as a limiting layer that would require separation in the determination of El Paso County Public Health, such as BFE.
5. “Limiting Layer”: means a horizon or condition in the soil profile or underlying strata that limits the treatment capability of the soil or severely restricts the movement of fluids. This may include soils with low or high permeability, impervious or fractured bedrock, or a seasonal or current ground water surface.
6. “High-risk”: determination made based on published information, site observations, design submission, site and physical features which create an increased risk to public health and groundwater resources. High risk sites will include but are not limited to any property within 100’ of an active water way.
7. “Zone A”: Areas subject to inundation by the 1-percent-annual-chance flood event generally determined using approximate methodologies. Because detailed hydraulic analyses have not been performed, no Base Flood Elevations (BFEs) or flood depths are shown. Mandatory flood insurance purchase requirements and floodplain management standards apply *[FEMA definition]*
8. “Zone AE” The base floodplain where base flood elevations are provided. AE Zones are now used on new format FIRMs instead of A1-A30 Zones.

9. “Zone AH” Areas subject to inundation by 1-percent-annual-chance shallow flooding (usually areas of ponding) where average depths are between one and three feet. Base Flood Elevations (BFEs) derived from detailed hydraulic analyses are shown in this zone. Mandatory flood insurance purchase requirements and floodplain management standards apply. *[FEMA definition]*
10. “Zone AO” River or stream flood hazard areas, and areas with a 1% or greater chance of shallow flooding each year, usually in the form of sheet flow, with an average depth ranging from 1 to 3 feet. These areas have a 26% chance of flooding over the life of a 30-year mortgage. Average flood depths derived from detailed analyses are shown within these zones. *[FEMA definition]*

EPCPH Floodway Requirements:

Applies to all properties with a designated floodway on the [EPC Floodplain map](#). These areas are typically denoted by a dark blue solid shading and contain BFE designations. Additionally, these requirements shall apply to the following floodplain designations AE, AH, and AO. These areas are typically denoted by a light blue solid shading with BFE designations (AE), no shading with black dashes (AH), no shading with blue dots (AO)

1. All OWTS Permit applications will be reviewed for floodway designations on a property.
 - a. EPCPH Water Quality Program Manager, or their designee, will review each application and parcel against the EPC Floodplain Maps to determine if property will be subject to floodplain requirements.
2. Installation of a new, repair or replacement OWTS and all associated components of the OWTS must be installed outside any floodway.
 - a. No allowance to install within the floodway will be provided when a property can accommodate an OWTS outside of designated floodway area.
3. Installation of a new, repair, or replacement OWTS which cannot be installed outside of the floodway must meet the following:
 - a. The OWTS must be designed by a professional engineer.
 - b. Determination of high-risk within a floodway
 - i. When property is in a floodway and determined to meet the definition of high-risk, installation requires a minimum treatment level of TL2N or higher prior to final effluent dispersal into the soil treatment area in addition to this floodway section.
 - ii. When property is in a floodway but determined not to meet the definition of high-risk, installation can be based on the floodplain section requirements.
 - c. The septic tank and any other treatment tanks must be anchored in the ground or be shown by calculation to be capable of resisting buoyant uplift at the proposed soil cover depth at a factor of safety of at least 1.05. All openings must be water-tight, including risers and lids.
 - i. Burial depth of any septic tank, dosing or treatment tank will be considered when the engineer provides the required minimal burial depth necessary to provide the downward force within the design. As well as the documentation to demonstrate

the burial depth meets manufacturer requirements and is able to meet the appropriate required depth.

- d. The soil treatment area (STA) must be installed with a minimum required vertical separation to all limiting layers or limiting conditions.
 - i. If no BFE is provided on the FEMA mapping the engineer or professional surveyor must certify the floodplain elevation as a part of the design and submission.
 - ii. Floodplain code can be referenced when no depths are provided.
- e. The control panel for pump systems must be installed at a minimum of 3' above grade, as measured to the bottom of the panel.
- f. The OWTS approval will be subject to the requirements of OWTS Operation and Maintenance; Chapter 8 Regulations section 8.14.

EPCPH Floodplain Requirements:

Applies to all properties with a designated floodplain on the EPC Floodplain map. These areas are typically denoted as no shading with blue markings(A) and do not contain BFE designations.

- 1. All OWTS Permit applications will be reviewed for floodplain designations on a property.
 - a. EPCPH Water Quality Program Manager, or their designee will review each application and parcel against the EPC Floodplain Maps to determine if property will be subject to floodplain requirements.
- 2. Installation of a new, repair or replacement OWTS and all associated components of the OWTS must be installed outside any floodway or floodplain designation when feasible.
 - a. No allowance to install within the floodplain will be provided when a property can accommodate an OWTS outside of designated floodplain and floodway areas.
- 3. Installation of a new, repair, or replacement OWTS which cannot be installed outside of the floodway or floodplain must meet the following:
 - a. A licensed professional engineer must provide a letter indicating that a conforming OWTS cannot be installed outside the designated floodplain. The letter must indicate that the property has been fully evaluated and reviewed for installation outside of the floodplain and the site was unable to accommodate this.
 - b. The current home/property owner must provide a notarized statement of understanding that the OWTS system is being installed within a floodplain. This must also include a statement acknowledging the risk of installation within the floodplain.
 - c. The septic tank and any other treatment tanks must be anchored in the ground or be shown by calculation to be capable of resisting buoyant uplift at the proposed soil cover depth at a factor of safety of at least 1.05. All openings must be water-tight, including risers and lids.
 - i. Burial depth of any septic, dosing or treatment tank will be considered when the engineer provides the required minimal burial depth necessary to provide the downward force within the design. As well as the documentation to demonstrate the burial depth meets manufacturer requirements and is able to meet the appropriate required depth.

- d. The soil treatment area (STA) infiltrative surface and design will be evaluated based on current OWTS regulations. Below grade installation is permissible pending review and evaluation of all limiting layers or limiting conditions.
- e. Any electrical or pump design system must install the control panel a minimum of 3' above grade, as measured to the bottom of the panel.