



THE STATE  
of **ALASKA**  
GOVERNOR BILL WALKER

**Department of  
Environmental Conservation**

DIVISION OF WATER

Wastewater Engineering Support and Plan Review

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Anchorage, Alaska 99501  
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February 6, 2017

To All Licensed Professional Engineers, Certified Installers and Approved Homeowners

Re: Interim Guidance to *Onsite Wastewater System Installation Manual* dated January 27, 2016

Due to revisions to Title 18, Chapter 80 of the Alaska Administrative Code (18 AAC 80), three revisions to the *Onsite Wastewater System Installation Manual* (OWSIM) dated January 27, 2016 are required to ensure the OWSIM and guidance in 18 AAC 80 are aligned.

Effective February 11, 2017, revisions to 18 AAC 80 will repeal Class C public water systems, and will also modify the definition of private water systems. Due to these revisions, the following interim guidance changes were made to the OWSIM:

- Division 20, Article 4.1 removes reference to separation distances to “other public water systems” which was in reference to Class C systems.
- Division 20, Minimum Separation Distances Table removed the definition of Class C systems, and changed the definition of private water systems to the definition in 18 AAC 80 effective February 11, 2017, and removed all separation distances listed for “other water systems”
- Division 30, Article 1.5.A. replaced the term “individual drinking water wells” with “private drinking water wells” for consistency.

These changes will be incorporated into the OWSIM permanently during the next regulatory revision process. Until the revisions are adopted, please remove the original pages and use the enclosed pages to insert into the January 27, 2016 OWSIM. A bar in the margin indicates areas where changes were made with this interim guidance.

Sincerely,

A handwritten signature in black ink, appearing to read "Gene McCabe".

Gene McCabe  
Section Manager

Enclosure: Revised OWSIM Pages

### **Article 3.19 Lift Stations or STEP Systems**

Lift Stations or STEP (Septic Tank Effluent Pumping) systems shall be an approved package system that includes UL listed controls and panel with visible and audible high water alarms. Check with the local ADEC office for lift station packages that are approved for use. The electrical service and wiring shall be provided by a licensed electrician, licensed in the State of Alaska. Use of a lift station pump chamber within a septic tank requires the addition of 250 gallons to the minimum septic tank size.

The Lift Station or STEP system can be installed by a Certified Installer, Engineer or Approved Homeowner, provided it is a package system approved by ADEC, pumps only septic tank effluent with the discharge to a conventional soil absorption system. Special attention should be focused on freeze protection, preventing unwanted access, conformance to the National Electrical Code (NEC), and maintainability of the system.

### **Article 3.20 Monitor Tubes**

Monitor tubes or vent pipes shall be installed on both compartments of the septic tank (except for community systems – see Section 20.03, Article 3.1, B) and are required as shown in Division 40 in each drainfield. Additional monitor tubes above the recommended minimum amount is highly recommended.

## **SECTION 20.04 MINIMUM SEPARATION DIST. REQUIREMENTS**

### **Article 4.1 Drinking Water Wells**

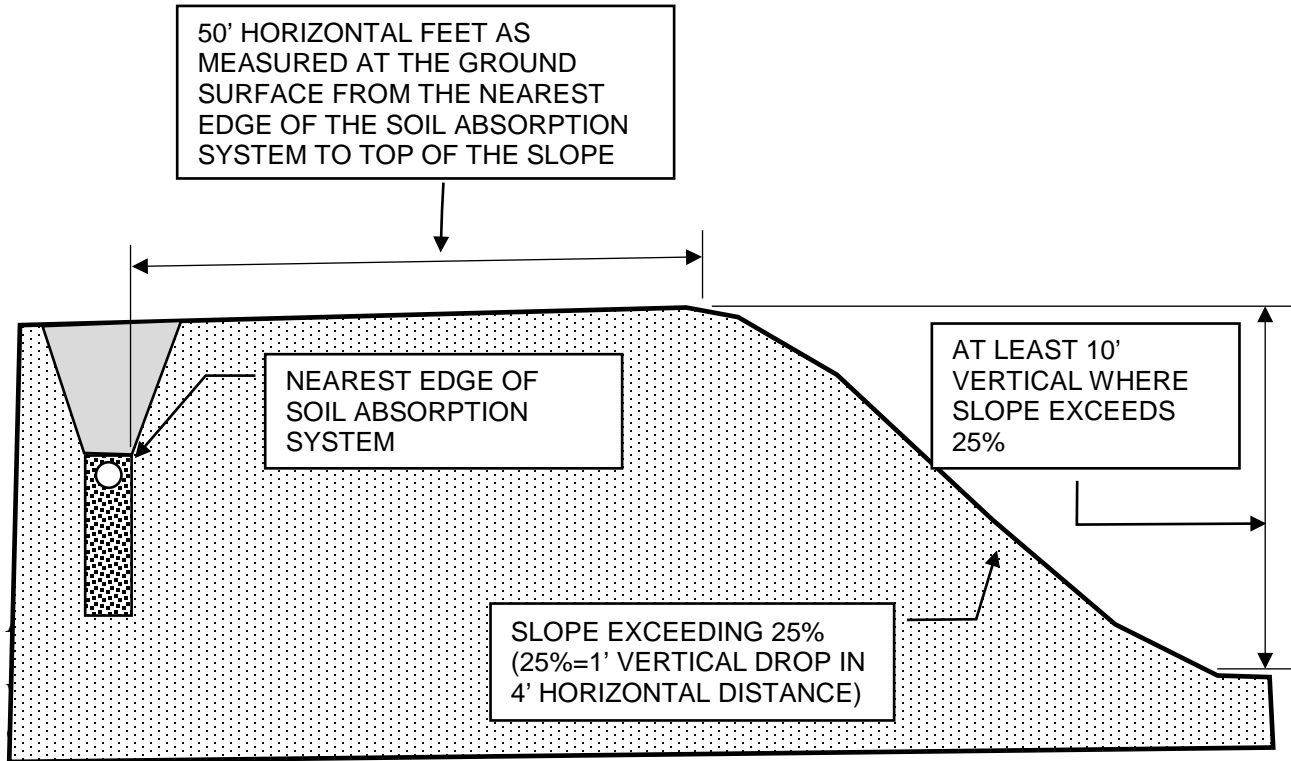
Regulations require a minimum separation distance of 200 feet between public Community Wells and on-site sewer systems. Regulations also require a minimum separation distance of 200 feet between public Non-Community Wells and on-site sewer systems. 100 feet is required between private wells and on-site sewer systems. For help classifying a public well, contact the Drinking Water Program at your local ADEC office.

### **Article 4.2 Surface Water**

Regulations prohibit installing a lift station, holding tank, septic tank, soil absorption system, seepage pit, pit privy or other waste water collection, treatment, or disposal system within 100 feet measured horizontally, of the mean annual high water level of a lake, river, stream, spring or slough or the mean higher high water level of coastal waters. Note that this includes a slough which is further defined as a swamp, bog or marsh.

### Article 4.3 Slopes & Cut Banks

Regulations require a 50 feet set back, measured at the ground surface, from the nearest edge of any type of soil absorption area and a slope exceeding 25% that has more than 10' of elevation change.



### Article 4.5 Other Components

Other components of onsite wastewater systems such as private sewer lines, community sewer lines, cleanouts and manholes on community sewer pipes, lift stations and similar appurtenances must be separated from drinking water wells by the distances shown in the table below. Separation distances are measured from the nearest edge of the soil absorption system, seepage pit, septic tank, holding tank, or privy to a drinking water source or to surface water.

### Article 4.6 Obstacles

Objects such as trees, boulders, gardens, or man-made structures may be located inside the area selected for the onsite sewer system. If the property owner does not want these items removed, the system can be redesigned or laid out to go around them.

## MINIMUM SEPARATION DISTANCES

### WELL CLASSIFICATION AND ABBREVIATED DEFINITIONS (SEE 18 AAC 80 FOR COMPLETE DEFINITIONS)

**Private Water System:** means a potable water system that is not a public water system.

**Public Water System:** a potable water system serving 25 or more people at least 60 days per year (formerly known as Class "A" and Class "B" Water Systems). Public Water Systems are either:

1. Community Water Systems
2. Non-Community Water Systems

**Waterline:** means a distribution main line (see 18 AAC 80.1990)

**Water Service Line:** has the meaning found in 18 AAC 80.1990

**Private Water Service Line:** means a line or pipe serving a Private Water System (see 18 AAC 80.1990)

Distance From Well	Distance To Private Sewer Line or Cleanout	Distance To Community Sewer Line	Distance To Community Sewer Cleanout	Distance To Septic Tank	Distance To Holding Tank	Distance To Absorption Field	Distance To Fuel Tank		
Public Water System Well	100 feet	200 feet	200 feet	200 feet	200 feet	200 feet	100 feet		
Private Water System Well	25 feet	75 feet	100 feet	100 feet	75 feet	100 feet	25 feet		
Waterline	10 feet	10 feet	10 feet	10 feet	10 feet	10 feet	10 feet		
Water Service Line	No State of Alaska separation distance requirement to sewer components. Please refer to the Uniform Plumbing Code for the current separation distance requirements.						10 feet		
Private Water Service Line							10 feet		

Distance From Sewer Component	Distance To River, Lake, Stream, Spring, Slough	Distance To Lot Line	Distance To Foundation	Distance To Absorption Field	Distance To Ground Surface (cover)	Other Absorption Fields	Seasonal High Water Table (vertically)	Impermeable Soil (vertically)	Slopes Greater than 25%
Septic Tank	100 feet	recommend 10 feet	10 feet	10 feet	See Note 1 Below	recommend 10 feet	Not Applicable	Not Applicable	Not Applicable
Absorption Field	100 feet	recommend 10 feet	10 feet	Not Applicable	See Note 1 Below	See Note 2 Below	4 feet	6 feet	50 feet

**Note 1**-Southwest Alaska (Kodiak and southwest of Chignik)=2 feet minimum ground cover; Southeast Alaska, Municipality of Anchorage & Valdez=3 feet minimum ground cover; All remaining areas of the State of Alaska=4 feet minimum ground cover **Note 2**-2x gravel depth or 6 feet whichever is greater.

## SECTION 20.05 SIZING THE ABSORPTION FIELD

### Article 5.1 Soil Classification/Investigation

Soil types are defined by the Unified Soil Classification System. Soils are classified as follows and are considered suitable for soil absorption systems:

- Well graded gravel (GW)
- Poorly graded gravel (GP)
- Silty gravel (GM)
- Well graded sand (SW)
- Poorly graded sand (SP)
- Silty sand (SM)
- Silt (ML)

In the Fairbanks area, an exception is the Fairbanks Silt Loam, as classified by the Natural Resources Conservation Service, which can be considered as a silty sand (SM) in regards to sizing. Other soil types that might be encountered are:

- Clay (CL or CH)
- Organic silt or clay (OL)
- Peat (PT)

These types of soils, classified as clays (CL or CH), organic silts and clays (OL), and peats (PT), are not considered suitable for soil absorption systems unless designed by a registered engineer. Systems installed in these soils must have engineering plan approval from ADEC prior to construction.

In order to identify subsurface soil conditions, a test hole or pit should be dug, preferably using a backhoe because a larger excavation provides the best opportunity to examine soils. The test hole(s) should be dug around the perimeter of the actual system site, rather than within. The test hole, however, should be within 25 feet of the perimeter of the proposed soil absorption area site. Equipment should be kept off the proposed system site to prevent compaction of the soil. When soil samples are taken, they shall be taken from the strata where the absorption field will be installed.

An alternate method of determining subsurface conditions is by boring, either by machine or by hand. This method should only be attempted by more experienced soil testers. Borings may be placed inside the perimeter of the system.

A preliminary assessment should be performed that consists of collecting all available information concerning the site and the surrounding area including the location of any public or private drinking water wells. Sources of information may be the local ADEC Office, the U.S. Department of Agriculture, Natural Resources Conservation Service, the State Division of Geological and Geophysical Surveys, aerial photos, local government offices, neighboring property owners, and local well driller's logs (available at ADNR's WELTS database online). When replacing an existing system, the local ADEC office should be checked for record information on the existing system as well as any plat approval restrictions. In some cases, percolation tests may have already been performed on the specific area in question, and could be used if appropriate.

<b>SITE CHARACTERISTICS</b>			
	SITE RATINGS GOOD	SITE RATINGS MODERATE	SITE RATINGS POOR
Texture	----	----	Permafrost and compacted silts
Flooding	None (protected)	Rare	Common
*Depth to Bedrock	>11 ft.	7-11 ft.	<7 ft.
*Depth to Cemented Soil (Clay-Silt)	>11 ft.	7-11 ft.	<7 ft.
*Depth to Seasonal High Water Table	>9 ft.	7-9 ft.	<7 ft.
Permeability (Percolation Rate)	3-10 min/in	1-3 or 10-45 min/in	<1 min/in or >45 min/in
Slope	0-10%	10-20%	>20%
Soil Classification	**GW, ** GP, SW SP	GM & SM	ML & CL
* Depth from ground level.			
** These soils require a sand liner, unless waived by the department.			

A preliminary field evaluation should then be performed that consists of a site inspection to locate areas on the lot best suited for a soil absorption system. Features such as gullies, surface water, onsite and neighboring wells, and roads must be noted in relation to proposed soil absorption system location. Once the most suitable site for the system is determined, a test pit or boring is dug within 25 feet of the perimeter of the proposed soil absorption system, to confirm subsurface conditions.

The test pit or boring needs to extend to at least 6 feet below the bottom of the proposed soil absorption system, to verify that no impermeable soil layers are within 6 vertical feet of the proposed bottom of the distribution rock. Data to be collected from the explorations include an estimate of soil texture or classification, soil structure, soil density, groundwater depth, location of any impermeable layers, and soil moisture conditions.

During the preliminary evaluation phase, a designer should be able to determine the type of system that may be required and whether ADEC plan approval is required. The installer should always look for the best possible site conditions when locating an onsite system.

## **B. Evaluating surface conditions**

In many cases topographic features limit where an on-site wastewater treatment and disposal system may be located. When evaluating a site, one of the first things that should be done is to locate all surface features that will limit the location of an on-site system as follows:

- **Drinking water wells:** All drinking water wells in the vicinity of the system should be located. This includes wells on the property itself and on adjacent properties. See Division 20, Minimum Separation Distance Requirements, for all separation distances. If the proposed onsite wastewater system is within 200 feet of any well, the classification of that well must be known before proceeding. ADEC files may contain information on well locations and classification. If in doubt about a well class, do not proceed until the classification and the required separation distances are known.
- **Surface water:** A lift station, holding tank, septic tank, soil absorption system, or other waste water collection, treatment, or disposal system shall be evaluated for the minimum separation distance requirement to surface water as shown in Division 20, Minimum Separation Distance Requirements.
- **Slope and cut banks:** A soil absorption system shall be evaluated for the minimum separation distance requirement to a slope exceeding 25% that has more than 10' of elevation change as shown in Division 20, Minimum Separation Distance Requirements.
- **Lot Lines:** The wastewater disposal should be 10 feet or more from the lot lines, and should be entirely within the boundaries of the lot the building is on.
- **Other wastewater systems:** Adjacent onsite system absorption fields should be horizontally separated from one another by the distances shown in Division 20, Minimum Separation Distance Requirements.
- **Other components of onsite wastewater systems** such as private sewer lines, community sewer lines, cleanouts and manholes on community sewer pipes, lift stations and similar appurtenances must be separated from drinking water wells by the distances shown in Division 20, Minimum Separation Distance Requirements.
- **Obstacles:** Objects such as trees, boulders, gardens, or man-made structures may be located inside the area selected for the onsite sewer system. If the property owner does not want these items removed, the system can be redesigned or laid out to go around them. Typically, a shallow or deep trench design would be used in these cases. Including curves or angles in the system layout would have negligible effects on the system's performance.