

4.23 In-Trench Sand Filter

Revision: July 22, 2015

Installer registration permit: Property owner or standard and basic (complex if pretreated and pressurized enveloped)

Licensed professional engineer required: No (yes if pressurized enveloped)

4.23.1 Description

An in-trench sand filter is a standard trench or bed system receiving effluent by either gravity or low-pressure flow, under which is placed a filter of medium sand meeting the definitions provided in section 3.2.8.1.2. There are two classifications of an in-trench sand filter:

- Standard in-trench sand filter
- Enveloped in-trench sand filter

The standard design is typically used to excavate through impermeable or unsuitable soil layers down to suitable permeable soils. The standard design may also have clean pit run sand and gravel placed between the medium sand and the suitable permeable soils or ground water as long as minimum medium sand depths are used. A basic installer's permit may be used to install gravity flow in-trench sand filters that are not preceded by any complex alternative system components.

A modified design to the standard in-trench sand filter is known as the enveloped in-trench sand filter. Enveloped in-trench sand filters consist of a disposal trench with medium sand placed below and to the sides of the drainfield and are used for sites with native soils consisting of coarse to very coarse sand or gravel. The enveloped in-trench sand filter has three subcategories based on effluent distribution and treatment (section 4.23.3.2).

The term drainfield only applies to the aggregate as defined in IDAPA 58.01.03.008.08 or the gravelless trench components approved in section 5.7 of this manual. Medium sand and pit run may be installed deeper than 48 inches below grade as long as the drainfield maintains a maximum installation depth of 48 inches below grade in compliance with IDAPA 58.01.03.008.04. Minimum installation depths must meet the capping fill trench requirements as outlined in section 4.3.

4.23.2 Approval Conditions

1. Except as specified herein, the system must meet the dimensional and construction requirements of a standard trench, bed, or pressure distribution system.
2. Any subclassification of an in-trench sand filter may be used over very porous strata, coarse sand and gravel, or ground water.
3. A basic permitted installer may install standard or standard enveloped gravity flow in-trench sand filters that are not preceded by any complex alternative system components.
4. A permitted complex installer is required to install a pretreated enveloped in-trench sand filter, pressurized enveloped in-trench sand filter, or any other in-trench sand filters that are preceded by, or contain, a complex system component.
5. Medium sand used in filter construction must conform to the gradation requirements as described in section 3.2.8.1.2.