

This update is intended to clarify the design and installation requirements for disposal field systems based on the specifications provided in the Supplementary Information Manual (2010). The requirements for the following disposal field systems shall be interpreted as follows.

Interpreting Soil Lab Analysis Reports

- When reviewing soil lab analysis reports for soils comprised mainly of sand, the percentage of gravel shall be added to the percentage of sand to determine the total sand percentage. This procedure is necessary because gravel sized material is not included in the “soil texture triangle” and it has an important impact on the soil infiltration rate and effluent treatment. When the combined percentage of sand and gravel is equal to or greater than 85% , the disposal field must be lined and pressure distribution is required.

85 - 100% sand

- Sand lined trenches (graded stone/pipe and chambers) are to be pressurized as per Figure 9 in the Supplementary Information Manual.
- Sand lined total area fields can use gravity distribution when graded stone and pipe is used as per Figure 7. If chambers are used the system must be pressurized as per Figure 8.
- Sand lined systems (Figures 7, 8 and 9) must use ASTM C33 sand media or sand having a texture classification of “loamy sand” since they can accept the same wastewater effluent application rate as soil having 85% or more sand. Analysis of the sand is required to confirm its suitability and the analysis report must be submitted with the registration application. Research in the use of ASTM C33 sand has shown it allows a better bio-mat to form which enhances treatment and offers better protection to groundwater.

40 – 60% Clay

- Modified (shallow) trenches with graded stone and pipe can use gravity distribution as per Figure 5. Chamber systems have not consistently required pressure distribution as shown in Figure 6 due to inconsistencies between the specifications in the Soil Texture Classification Matrix and Figure 6. Starting in the 2022 construction season modified (shallow) trenches using chambers will require the use of pressure distribution systems as shown in Figure 6.

Pressure Distribution

- Environment Officers will provide direction if a squirt test is required to be demonstrated prior to covering a system that uses pressure distribution. For the purpose of verifying the squirt test the squirt height shall be a minimum of 5.0 feet for orifices ranging in size from 1/8" – 3/16". The squirt height shall be a minimum of 2.0 feet for orifices larger than 3/16". The maximum variation in pressure head throughout the piping system should be a maximum of 15% and a maximum of 10% within any individual pressure distribution lateral.
- Pressure distribution lateral pipe orifices are typically spaced 3.0 to 5.0 feet apart and need to be orientated both "up" (12 o'clock position) and "down" (6 o'clock position) in an alternating pattern. This will minimize freezing by allowing effluent to drain from the laterals between pump cycles.
- Orifice shields are required on all orifices in graded stone systems and on down-facing orifices in chamber systems. They are not required on orifices facing up in chambers.
- For additional information on pressure distribution system design, please consult the Saskatchewan or Alberta design manuals.

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