

SECTION VI

Drip Dispersal Installation & Construction Techniques

General Layout Requirements Drip System

The tanks, treatment units and distribution fields are subject to set back regulations to keep required distances from wells, property lines building foundations and bodies of water according to local regulations. Prevent damage to distribution areas by traffic and follow plans, which should be provided for all larger systems.

Site Preparation

On sites where a majority of the vegetation needs to be removed, care must be taken to minimize the impact on the soils natural permeability. Clearing and removal should be by hand, with minimal machine assistance, under optimum soil moisture conditions. Track machines are preferred to those with rubber tires. Soil moisture conditions need to be confirmed prior to beginning clearing and system installation by the soil scientist of record.

NOTE: *The preservation of the original structure of the soil in the absorption area is essential to maintaining the percolative capacity of the soil. No activity other than the construction of the system is permitted within the absorption area.*

The absorption system is not to be constructed during periods of wet weather when the soil is sufficiently wet at the depth of installation to exceed its plastic limit. The plastic limit is exceeded when the soil can be rolled between the palms of the hands to produce threads 1/8 inch in diameter without breaking and crumbling.

All trees and brush, as necessary, should be cut flush with the ground surface. Depending upon the density of the root zone, there maybe a need to grub out the smaller stumps. The grub tooth depth should not exceed 12".

Grubbing pulls and tears out the stumps, with digging and pushing being more detrimental to the soils infiltrative characteristics. Selective grubbing of the site coupled with chisel plowing, and raking is required prior to the establishment of turf. Once cleared, seed the area liberally with native grasses. The standard VDOT specification is acceptable consisting of perennial rye and fescue.

Larger stumps may remain or if there are many, ground out as necessary.

There is to be no cutting, filling, or storage of material on or within 20' of the adsorption areas

Topography

The dripper tubing should be placed on contour. Dripper tubing along any given lateral should not be off grade by more than 6" in 100 feet. Tubing installed on sloping sites should have Top Feed manifolds for supply and return and with sub zones per design to minimize draindown which may overload the down slope laterals. Since pressure compensating dripper emission rates are consistent at varying pressures, no special design requirements are needed to ensure proper soil loading rates.

The filtration unit must be positioned to allow the backflush and field flush water to be discharged back to the treatment tank with minimum backpressure. The waste line from the filter unit is recommended to be gravity. If this line needs to go up hill or is over 30' long a special design may be necessary. Call American for special design considerations.

Each zone should be fed from the lowest elevation top feed manifold of the zone and the air release should be placed at the highest elevation. Accumulate the return manifold piping to a common return line to save pipe costs.

General Installation Information Requirements Summary

The site layout will determine those items of information needed. The installation contractor should be familiar with the following information in order to prove proper installation and operation of the system after installation:

1. NUMBER OF ZONES
2. LATERAL CONNECTIONS IN EACH ZONE
3. GPM PER ZONE BOTH DOSING AND FLUSHING
4. FILTER BACKWASHING REQUIREMENTS

The above information is needed to perform the simple pump test to determine if the pump which is necessary to backflush the disc filters is also adequate for dosing and field flushing. Standard head loss tables are used to compare to the pump curve.

Filtration Unit

The self-contained units have a 25 gpm capacity. The capacity includes dosing and field flush flow rates. Skid mounted units need to be enclosed in a heated and floor drained building. They start at 40 gpm and increase in increments of twenty gpm or more. Each filtration series has unique operating conditions so the individual manual must be referenced for each installation.

REMEMBER: Always configure the layout to avoid draindown of the zones. On sloped sites zones are feed from the top and return to the top using the Top Feed supply and return manifolds.

Flow Rate during Absorption Field Dosing

The flow rate during absorption field dosing depends on the amount of dripper line required for any particular installation. The units of measure used are GPH = Gallons per Hour and GPM = Gallons per Minute. The flow rates are easily calculated as follows:

Note: Dripper Line Length in Absorption Field / 2 Foot Emitter Spacing = Number of Emitters
 Number of Emitters x .61 GPH = Absorption Field Dosing Rate in GPH
 GPH / 60 minutes = Absorption Field Dosing Rate in GPM

Field Flushing Flow Rates

Since automatic flushing of the dripper lines in the absorption field is an integral function of the total system, it should be considered as part of the overall flow rate generated by the system. It has been established that proper scouring and flushing of any pipe system will require at least **1.6 gallons per minute** flow at the outflow end (distal end) of any pipe. Therefore, we should design for a flow of at least 1.6 gallons per minute out of each dripper line connection that has been made to the return flush manifold pipe. Multiply each return manifold connection by 1.6 GPM to get the field flushing flow requirement.

Total Flow Requirement of System

The total flow used in calculating the operating flow requirement of the absorption field would be the combination of both the field dosing flow and the field flushing flow.

Field dosing flow + field flushing flow = total hydraulic design flow