

SUBSURFACE DRAIN

Operation and Maintenance

GENERAL

A subsurface drainage system properly installed requires little maintenance to keep it operational. Inspection of the drains, especially after heavy rains should be made to see if they are working properly and if maintenance is required.

OUTLETS

The outlet of the system must be kept clean if the maximum benefits from the drain are to be obtained. Sediment and debris sometimes gather over the outlet and may entirely plug the outlet. A good subsurface drainage system may fail because the outlet ditch fills up with silt and vegetation. The outlet ditch should be improved to permit free flow from the drain outlet.

The animal guard should be checked to determine if it is functioning properly and if any debris is present, if debris is found it shall be removed.

SURFACE-WATER INLETS

Surface water inlets are subject to damage and may require frequent repairs. If holes wash around the inlets, they should be repaired. Any trash which seals over the inlet gratings or trash racks should be removed. Frequent inlet inspection will insure prompt removal of surface water. Catch basins used for surface water should be cleaned periodically to remove sediment build up in the bottom of the basin.

BLOWOUTS

Often holes develop over the tile drains. These holes known as blowouts may be caused in construction by crushing of the conduit or improperly made connections. Blowouts may be caused by insufficient cover and high pressures within the drain. Drains crushed by heavy farm equipment may cause holes which

result in the drain filling with the soil. If repairs are not made immediately, damage will increase. To make repairs the drain must be exposed at the point of the blowout and the drain replaced or properly connected.

TREE ROOTS

If trees near the drain are not removed at the time of construction, the drain may become plugged by tree roots. If the drain is not functioning and the outlets is open, the drain should be checked where any trees are located near the drain. To repair the line, dig it up, clean the drain and re-lay it. Unless the trees near the drain are removed or killed, problems will continue. Another way to prevent a recurrence would be to replace the part that is clogged with non-perforated conduit with watertight joints.

WATERWAYS OVER DRAINS

Drains are often laid under or at one side of waterways. Drains laid under the center of the waterways are not recommended because surface water seeps into perforations or joints in the drain and carries soil into the drain. When enough soil is displaced, a large hole develops. Where it has been necessary to place a drain under a waterway, it should be inspected regularly.

MINERAL DEPOSITS

Malfunctioning of drains has been caused by mineral deposits in the drains. Accumulation of insoluble black or red precipitate, mainly manganese or iron oxide may be found in the line. The mineral deposits do not seriously affect the operation of the drain unless the perforations or joints become sealed or the line becomes entirely clogged with precipitates. Indication of the presence of the deposits may be seen at the outlets or at junction boxes and inspection holes. Sulphur dioxide gas injected

into the upper end of the drain from tanks of compressed gas has proven successful in opening the drain. The gas should be held in the line for 24 hours after the air has been replaced by the gas. High pressure hydraulic cleaner are also used to clean the drain. Where these conditions are expected, it is recommended to use a non-limestone bedding material.

MISCELLANEOUS

Inspection wells or catch basins installed in a drainage system or water ponded on the surface may be used to locate the portion of the system which is not operating properly. Examining the drains after heavy flows should give enough information so that the trouble can be located.

Failure of a drain installation to operate as expected may result from other factors such as:

- a. Drains installed with insufficient capacity, drains placed too shallow or a lack of auxiliary structures.
- b. Drains of insufficient strength or lacking in other qualities necessary for installation.
- c. Poor construction resulting in such inadequacies as improper bedding; poor grade and alignment; improper backfilling and substandard connections.