

809 SEWERAGE SYSTEM

809-1 Description

Sewerage system includes all the structures and procedures required for collecting, treating, and disposing of sewage. The Arizona Department of Environmental Quality must approve all sewerage system design and grant approval to construct the sewerage system. The Standard Specification Section 809 has been developed for the design and construction of rest area sewerage systems.

Layout

The location of the sewerage system components shall be staked out before start of construction. These components may include: manholes, septic tanks, clean outs, diverter valves, inspection ports, disposal trenches, evapotranspiration beds, and evaporation ponds.

809-2 Materials

All components intended for use in a sewerage system must receive approval from the Resident Engineer prior to their incorporation into the project.

Approval of items is determined from information supplied by the Contractor within the specified time period as indicated in the Special Provisions. All components of the sewerage system shall be listed and identified by their corresponding bid item number where applicable. Sufficient information must be included to positively identify each item listed. Each item shall be identified by size, catalog number and the name of the manufacturer.

809-3 Construction Requirements

809-3.01 General

Seven copies of catalog cuts of all items listed shall accompany the Contractor's submittals. One copy of submittals shall be retained. The other six copies should be sent to Roadside Development Services for their review. Roadside Development Services will keep two of these and the others will be returned to the Resident Engineer. Roadside Development Services will either approve or reject the items. The Resident Engineer should exercise caution when advising the Contractor as to how to revise a rejected submittal. Re-submittal until approval is achieved is necessary. Do not allow a questionable item to be installed on a project.

If samples are requested for preliminary evaluation, it will be the Contractor's responsibility to obtain and submit the designated items to the Resident Engineer for testing by the appropriate testing facility. Unless destructive testing is required, all items will be returned to the Contractor upon completion of testing, at which time approved items may be incorporated into the project.

All system components shall be installed in accordance with the Project Plans and documents, using methods or techniques recommended by the respective component manufacturers. Careful inspection and enforcement of assembly procedures are essential.

The sewerage system shall be set at the proper elevations according to the Project Plans. Final adjustments after the finish grade is established must be expected.

The testing of the sewerage system shall conform to the requirements of the Special Provisions and the manufacturer's recommendations. Unless otherwise specified, all sewerage systems shall be completed, tested and approved before the backfilling operation is done.

As-Built Plans & System Orientation

Accurate as-built plans are a valuable and necessary aid in designing and constructing future projects for the area, and for maintenance and repair of the sewerage system. Therefore, it is imperative that these as-built plans show the true location, size, and quantity of components installed.

The Contractor is responsible for supplying working drawings, corrected shop drawings, schematic circuit diagrams, or the drawings necessary for the Resident Engineer to prepare corrected plans to show the work as constructed. To ensure accuracy of this information requires that the Contractor or his field representative record each change as it is completed. In addition, the Inspector shall inspect and verify this information prior to the commencement of backfilling. Upon completion, all working drawings and pertinent information shall be submitted to the Resident Engineer for his approval and use in preparing the as-built plans.

GLOSSARY OF SEWAGE SYSTEM TERMINOLOGY

Clean out

A surface access to a sewer line or disposal field line to provide for cleaning of the sewer line or for treating the disposal field.

Disposal field

A system of disposal trenches, disposal pits or evapotranspiration beds.

Disposal pit

A covered pit with an approximate diameter of 3 feet (1 meter), filled with clean coarse aggregate and a perforated pipe to allow the wastewater effluent to seep into the surrounding soil.

Diverter valve

A valve used to direct wastewater effluent into alternate sections of the disposal field.

Evaporation pond

A reservoir used for holding and treating wastewater and/or wastewater effluent through bacterial action on the solids and the evaporation of the liquid into the atmosphere.

Evapotranspiration bed

A covered bed filled with mainly clean, fine sand and a series of perforated pipes to allow the wastewater effluent to seep into the bed, and then through capillary action to rise up through the bed and be evaporated into the atmosphere.

Inspection port

A vertical pipe placed in a disposal field to monitor the operation and performance of the disposal system.

Pond aerator

A floating mechanical aerator used on the surface of the pond to mix and to introduce additional oxygen into the wastewater to enhance bacterial action and increase the evaporation rate.

Septic tank

A water-tight, covered receptacle designed and constructed to receive the discharge of sewage from a building sewer, separate solids from the liquid, digest organic matter and store digested solids through a period of detention, and allow the clarified liquids to discharge for final disposal.