

**NATURAL RESOURCES CONSERVATION SERVICE  
CONSERVATION PRACTICE GENERAL SPECIFICATION  
IRRIGATION SYSTEM, TAILWATER RECOVERY  
(No.)**

**Code 447**

**CONSTRUCTION SPECIFICATIONS**

Site Preparation, excavation, borrow, earthfill placement, cutoff trench, and materials shall comply with the OK NRCS Conservation Practice Specification, Pond (378).

Dispersive soils shall not be used in embankment or berm fill or as backfill for mechanical inlet structures. Soils high in salts (resistivity of less than 2000 ohm/cm for uncoated steel or less than 1200 ohm/cm for galvanized steel) shall not be used as backfill where steel pipes are used as part of the mechanical inlet.

If used, concrete shall be 3000 psi (28 days), Type I unless soils testing indicate any of the following conditions: pH less than 5.0, sodium and/or magnesium sulfate greater than 7000 parts per million (ppm), sodium chloride greater than 10,000 ppm, or electrical conductivity (EC) greater than 15.6 mmho/cm.

When pipes are used as the inlet structure, the following actions will be utilized for pipe installations:

1. The entire length of the pipe shall be bedded on (i) a minimum of two feet of compacted material, (ii) firm earthen material at least two feet below the natural ground surface, or (iii) a combination of (i) and (ii).
2. Material located within 6 inches of the pipe (including rocks, clods, or foreign materials) shall be less than an inch in diameter.
3. If the bed surface will not readily conform to the shape of the pipe or contains slick or impervious areas, it shall be broken up to a minimum depth of 3 inches.
4. Materials located within the upper 3 inches of the pipe foundation and within 3 inches of the pipe shall be wet enough to effectively compact and fill all voids adjacent to the pipe. Water will be added when needed to ensure adequate compaction.
5. Water-packing is an option for materials having a predominance of sand (classifying as SM or SC) if the following procedures are utilized:
  - a) Water-packing may proceed in distances not to exceed 10 feet in length.
  - b) Earthen dikes not exceeding 3 feet in width will be constructed on both sides of the pipe to the same height.
  - c) Water shall be added to the area upstream of the dike, and soil shall be added until the water is displaced by soil.
  - d) The entire length of the pipe will be water-packed to at least the spring line.
6. Water-packing or hand or mechanical tamping will be required to extend 2.0 feet above the pipe before placing or compacting fill over the pipe with earth moving equipment.

**VEGETATIVE SPECIFICATIONS**

If vegetation is required, refer to Oklahoma NRCS Conservation Practice Standard, *Critical Area Planting (342)* and/ or the *Oklahoma Plant Materials Technical Note 21* for seeding criteria and as needed, use the criteria in Oklahoma NRCS Conservation Practice Standard, *Mulching (484)*. Vegetation must be in accordance with the recommendations documented in the Vegetative Data Worksheet (OK-ECS-4) for the given field location and conservation plan, or according to specifications developed for the project.