

CONCRETE PIPE CONDUITS AND DRAINS

1. APPLICABILITY

Construction Specification 42 is applicable to all types of concrete pipe conduits except principal spillway conduits for earth dams or conduits under deep fills. It may be applied to culverts, to pipe collector systems in structure drains, to irrigation pipelines, or to portions of land drainage systems.

2. MATERIAL SPECIFICATIONS

The following specifications are complementary to Construction Specification 42:

- a. Reinforced Concrete Pressure Pipe. Material Specification 541
- b. Concrete Culvert Pipe. Material Specification 542
- c. Concrete Irrigation Pipe, Drainage Pipe, and Drain Tile. Material Specification 543
- d. Joint Sealing Compound. Material Specification 536
- e. Preformed Expansion Joint Filler. Material Specification 535
- f. Portland Cement Concrete for Bedding and Cradles. Construction Specification 31, Concrete for Major Structures or Construction Specification 32, Structure Concrete.

3. ITEMS TO BE INCLUDED IN CONTRACT SPECIFICATIONS AND DRAWINGS

- a. Line and grade of the conduit. Include statement in Section 11 that pipe shall be laid so that there is no reversal of grade between joints unless shown on the drawings.
- b. Details of concrete bedding or cradle, including class of concrete, joint details, and type of expansion joint filler.
- c. Details of earth, sand, or gravel bedding, including description and grading limits of the bedding material.
- d. Excavation and backfill requirements, if applicable.
- e. Pay limits or actual limits for excavation and backfill, if required.
- f. Special requirements for foundation preparation.
- g. Kind of pipe or tile by name and class. (See appropriate reference specifications.)
- h. Size of pipe or tile.

- i. Type of cement for pipe or tile if a certain type is necessary because of soil, water, or other environmental conditions.
- j. Strength of pipe, if not covered by reference specifications, in terms of three-edge-bearing load and internal pressure as appropriate.
- k. Type of joint and details of banded joints or other special joints.
- l. Details of wall fittings and other special fittings and appurtenances.
- m. Test pressure, if applicable.
- n. Method of measurement and payment if the standard specification includes more than one method.

4. DISCUSSION OF METHODS

a. Section 5a, Rubber Gasket Joint, Pressure Pipe.

(1) Method 1 is the preferred method of stating the instructions for connecting pipe sections.

(2) Method 2 is intended for use when special problems are anticipated or when the pipe to be furnished requires special methods of connection.

b. Section 9, Pressure Testing.

The methods are self-explanatory. The choice of method must be consistent with the function of the conduit and the required operating pressure.

c. Section 10, Measurement and Payment.

(1) Method 1 must be used when it is desired to base payment on the measurement of the laid length of the conduit.

(2) Method 2 must be used when it is desired to base payment on the summation of the nominal laying lengths of the pipe sections used.

d. Sections 5a, 9 and 10

When specifications are prepared using electronic procedures and all but one method are deleted for use in the contract specification, delete the following and left justify the remaining text.

(1) Section 5a "Use with Either Method"

(2) Section 9 "For Methods 2, 3, 4" (Delete the entire paragraph when Methods 2, 3 and 4 are deleted.)

(3) Section 10 "All Methods The following provisions apply to all methods of measurements and payment."