

Special Specification 1007

Irrigation Wells, Gates, and Valves



1. DESCRIPTION

Furnish and install irrigation wells, gates, and valves as shown on the plans or as directed.

2. MATERIALS

Furnish materials in accordance with the following:

- Item 421, "Hydraulic Cement Concrete,"
- Item 440, "Reinforcement for Concrete," and
- Item 464, "Reinforced Concrete Pipe."

- 2.1. **Brick.** Use brick for irrigation wells that conforms to the requirements of "Sewer and Manhole Brick (made from clay or shale), Grade SM" in accordance with ASTM Designation: C32.
- 2.2. **Cement.** Use Type I hydraulic cement in accordance with ASTM Designation: C150.
- 2.3. **Lime.** Use hydrated lime of an established brand as approved.
- 2.4. **Sand.** Use sand that is composed of clean, hard, durable, uncoated grains, free from lumps, soft or flaky particles, loam, organic matter or other injurious substances as approved.
- 2.5. **Water.** Use water suitable for drinking or for ordinary household use without being treated.
- 2.6. **Concrete.** Use Class A concrete or as shown on plans that conforms to the requirements of Item 421, "Hydraulic Cement Concrete."
- 2.7. **Reinforcing Steel.** Use reinforcing steel that conforms to the requirements of Item 440, "Reinforcement for Concrete."
- 2.8. **Reinforced Concrete Pipe.** Use reinforced concrete pipe that conforms to the requirements of Item 464, "Reinforced Concrete Pipe."
- 2.9. **Well Gates.** Use approved gates.
- 2.10. **Irrigation Valves.** Use approved valves.

3. GENERAL

Construct irrigation wells either with brick or reinforced concrete pipe. If brick is used, then construct the inlet square with inside dimensions as specified for the size of the inlet and construct the walls a minimum of 8 in. thick. If reinforced concrete pipe is used, then construct the inside diameter of the pipe as specified for the size of the inlet and Class III pipe required.

4. CONSTRUCTION METHODS

- 4.1. **Brick Masonry.** Use brick masonry that consists of whole, sound, straight, hard bricks, laid in freshly mixed mortar to the forms and section required. Wet and lay bricks true to line in parallel courses, properly bonded

with face joints flush. Lay each brick in full, close joints of mortar on its bed, end and side at one operation. Plaster all exposed surfaces of brick irrigation wells with 1/2 in. of mortar.

Mix mortar in the proportions, by volume, of 1 part cement, 1 part lime, and 4 parts of sand. First mix the sand, cement, and lime dry in a tight box until the mixture assumes a uniform color, after which add water as the mixing continues until the mortar attains a consistency such that it can be easily handled and spread with a trowel. Use mechanical mixing instead of hand mixing if desired.

- 4.2. **Irrigation Wells.** Construct irrigation wells as shown on the plans under miscellaneous structural details.
- 4.3. **Concrete Foundation.** Construct concrete foundations as shown on the plans under miscellaneous structural details.
- 4.4. **Gates and Valves.** Install gates and valves at locations shown on the plans. Install gates and valves in such a manner as to completely seal the ends of the concrete pipe and be securely anchored. Furnish drive extensions for gates that extend to the hand wheel above the top of wells, headwalls, or concrete canal lining to facilitate operation.

5. MEASUREMENT

These Items will be measured by the each of the various sizes specified.

6. PAYMENT

The work performed and materials furnished in accordance with this Item and measured as provided under "Measurement" will be paid for at the unit price bid for "Irrigation Well," "Well Gate," or "Irrigation Valve," of the specified sizes. This price shall be full compensation for furnishing, transporting, and installing all materials, labor, tools, equipment, and incidentals.

Unless otherwise shown on the plans, structural excavation for irrigation wells, well gates, and irrigation valves will not be measured but will be considered subsidiary to the various bid items.