



Houston's Big Culvert Is Seen Coming Out Under the Levee Into the Bayou

Houston Ends Flood Ravages

BATTLING floods gives many golf clubs problems that frequently call for so much of an outlay in construction that the decision generally is to make the best of a necessary evil and become reconciled to loss of play and course damage.

The Houston Country club, one of the deluxe southern layouts, has triumphed over a poorly drained section by engineering work that gives every assurance of permanently eliminating the flood peril.

The land lying around the fairway of hole No. 18, directly in front of the clubhouse, is traversed by Slaughter Pen Bayou, which in turn empties into Brays Bayou. During the wet seasons the water in Brays Bayou backs up into Slaughter Pen Bayou and overflows the banks of the latter. This condition makes it impossible to play the 18th hole during flood stage and results in a deposit of silt which is disagreeable to play across until dried out.

To eliminate this condition the directors of the club had surveys run and an engineer's estimate of cost prepared for con-

structing a levee along the bank of Brays Bayou adjacent to the Country Club, between high points, a total distance of approximately 1,100 feet. The levee was designed by R. G. Hamaker, chief engineer of the Humble Oil Company. The amount of earth embankment in the levee is 10,000 cubic yards. The crown is 10 feet in width, with slopes $1\frac{1}{2}$ to 1. The greatest height of the levee is 22 feet.

The levee crosses Slaughter Pen Bayou at right angles, which necessitated a culvert structure through the levee to drain this bayou. A 72-inch diameter No. 10 gauge Armco corrugated culvert was selected. Attached to this pipe is a Calco automatic drainage gate, which operates as a valve and permits the water to run out from Slaughter Pen Bayou before the Brays Bayou water rises perceptibly. When the water level in Brays Bayou reaches an elevation greater than the water level in Slaughter Pen Bayou the gate closes automatically, preventing backflow into the bayou and eliminating the overflow.

This long-lived iron drainage pipe is making itself popular in course construction.

