

The quantity of water that will be drawn into the inner forebay when the entire capacity of the plant is being generated has been calculated to be in the neighborhood of 12,000 cubic feet per second. The depth of water in the headworks under normal conditions of river gradually increases from 13 feet at the intake to 30 feet at the gate house. The velocity of flow is about three feet per second at the intake; it is swiftest, 4.7 feet per second, through the central portion of the outer forebay, and it drops to two feet at the screens, then gradually increases to 3.4 feet per second at the gate house.

The gates at the entrance to the conduits are three in number, one for each of the main conduits. They are of the Stoney pattern, of square form, full size of their respective conduit and counterbalanced to run between roller guides. A substantial and artistic building covers the gates, and an equipment of boilers and steam pipes provides against freezing.

The design of all buildings throughout the works has met the approval of the Park Commissioners, who require preservation or enhancement of the aesthetic effects that prevailed in the Park before present construction began, and it is felt that their object is fully attained.

THE MAIN CONDUITS AND PENSTOCKS

Starting from the gate house, the main conduits, three in number, follow the river bank through the park to the top of the cliff opposite Goat Island. The distance to the nearest penstock is 6,180 feet, in which length the fall in grade is 28 feet. The first of the three conduits which is now nearing completion, is 18 feet in interior diameter. When flowing at full capacity it will pass about 3,900 cubic feet of water per second.

The main conduit now constructing is built of steel plates $\frac{1}{2}$ inch in thickness with double riveted joints. To secure additional stiffness, seven inch bulb tees or deck beams are riveted to the upper half of the circumference of the pipe at intervals of four feet throughout its length. The pipe is erected in a trench excavated in the Park, and before backfilling, is thoroughly cleaned with sand blast and covered with three coats of paint both inside and out. Conductors are arranged to protect the steel conduit from stray electric currents, which might otherwise cause damage by electrolysis. An open relief and spillway through a tunnel to the river is provided at the lower end to reduce fluctuations of head and pressure at increase and decrease of loads.