

while this dredging was in progress; to drive the temporary cofferdam across the ends of the bulkheads, immediately the dredging was completed; to pump out the water and mud from the basin thus enclosed; to drive a line of 20" permanent sheet piles along the outer and inner face of the aprons; to further excavate within this box to the white clay stratum and upon it start the concrete foundations for the masonry; to build the masonry abutments, pump well, engine pit, powerhouse and main body of the dock.

This plan was modified considerably as will appear from the description to follow.

Contracts were signed in June 1899, and the contractors went to work almost immediately. By the following Spring the dock site had been cleared and dredged out to the required lines, and the permanent protection work finished, except that portion about the head of the dock which was never completed. This will be noted later when we come to consider the changes made from the original plans, when constructing the head of the dock.

The temporary cofferdam was driven into place and the basin was then ready for pumping out. Meanwhile a pile driving machine, mounted upon a scow, had been floating about within the enclosure and, driving the outer row of slope piles along both sides of the dock. Why these piles were driven at this time is not quite clear to the writer, unless it was thought that they could be driven more easily then, than by using a land machine at a later period, or possibly because there was nothing else for the machine to do for the time being.

Afterward when the dock basin was pumped out, most of these piles slid into the bottom of the dock, along with the side slopes, or bent so far out of correct line that it was necessary to pull them out or saw them off and drive others. This gave rise to "extra" claims on the part of the Contractor, who maintained that having once driven them to the lines given by the Engineer, any necessary re-driving should be paid for as extra work. If the writer's memory serves him correctly, the original driving was done under protest from the field Inspector, and the claims for extras were never entertained.

Pumping out the enclosure began. As the water level within sank a few feet, those portions of the permanent bulkheads extending beyond the original shore line, started inward toward the center of the basin, crowding before them the undredged slopes and the piles which had just been driven.

Pumping was hastily discontinued and the basin permitted to fill to the level of the water outside. The floating pile driving rig