

# MUNICIPAL DEPARTMENT

## TO MUNICIPAL OFFICERS.

The CONTRACT RECORD is desirous of publishing, as far as possible, advance information regarding projected works of construction in all parts of Canada, such as sewerage and waterworks systems, railways, street pavements, public and private buildings, etc. Municipal officers would confer a favor upon the publisher by placing at our disposal particulars of such undertakings which are likely to be carried out in their vicinity, giving the name of the promoter, character of the work, and probable cost. Any information thus furnished will be greatly appreciated.

## CLEANING RESERVOIRS.\*

Cleaning a reservoir is not the kind of a job that one is anxious to do, but, when the necessity exists, the sooner it is done the better. If the reservoir has a hard, smooth bottom, with sufficient fall to the waste pipe to carry off the mud and water rapidly, the task is not a difficult one. The writer has had experience in cleaning two reservoirs; one is used for settling purposes in connection with a filter plant, and is seventy by seventy feet, seven feet six inches to nine feet six inches deep, with a fall of two feet from the point most distant to the waste pipe. After using for several months it is necessary to wash out the sediment, which at the point of inlet is usually about four to six inches deep, the balance being covered to a depth of from twelve inches to seven inches deep. After the reservoir has been drained, pumping is resumed; the filters being supplied direct from the pump, and the surplus water used for washing the mud. With nine men the sediment is removed in about three hours. The other reservoir is used for storing filtered water, and is 246 by 343 feet at the bottom, twenty-five feet deep. The bottom is of clay puddle, nearly level, except within a radius of thirty feet of the waste pipe, where the fall is about eighteen inches in that distance. The inlet has been changed, but at the time of the cleaning it was in the south-west corner, while the opening into the waste pipe is in the north-west corner, or directly opposite the inlet. There is only one hydrant accessible, and to get sufficient pressure for effective washing streams it would have been necessary to run the pressure to about 175 pounds, possibly higher in the lower districts.

It was finally decided to wash the mud with water pumped into the reservoir at the inlet, and have plenty of laborers to stir the mud in the stream of water as it flowed to the waste pipe. While the reservoir was empty the city was supplied by direct pressure; the inlet valve is

\* Paper by Dow R. Gwinn, Superintendent Waterworks, Quincy, Ill., read before the American Waterworks Association.

twenty inches in diameter, requires 196 turns to open, and while cleaning was done it was open twelve turns. To prevent any damage from suddenly increased pressure or water hammer, the hydrant near the reservoir was opened, and to it was attached 150 feet of two and one-half inch hose, laid to the top of the reservoir embankment. To move and stir the mud twenty laborers were employed, who were provided with wooden scrapers such as are used to scrape snow. We tried several sizes, and found that the men did the best work with the board or blade eight inches wide and one foot six inches long, the handle being one and one-half inches square. In cleaning a reservoir in this manner it is of the utmost importance to wash that portion of the reservoir first which is not on the natural route for the water from the inlet to the waste valve. We began by making a channel in the mud about eight feet wide, commencing at the inlet and running along the foot of the south bank, thence along the north bank to the waste pipe in the north-west corner; the mud from this channel or trench made a kind of embankment, which prevented the water from making short cuts to the waste pipe. Water was then admitted, and the men scraped the mud with the stream until the space covered by the water was free from mud. The clay puddle was distinct from the mud, and there was no difficulty in deciding where the mud left off and the puddle began. Once away from the bank, it was necessary to confine the water where needed for washing; to do this we used two-inch and three-inch planks one foot wide and twenty feet long, placed on edge and end to end; near the end of each plank was nailed a triangular board, which held the plank on edge.

In preparing to clean a section two lines of these planks were used, and they were placed parallel, about eight feet apart; the upper end or inlet started at the trench along the east bank, and the lower end or outlet was near the waste pipe. The water was then admitted into this section, and the mud scraped along with it as it flowed to the waste pipe. When this space was cleaned the boards were moved south to the next section, and so on until the whole surface had been cleaned. The planks when in position were bedded into the mud and puddle with a maul, a few strokes being necessary on each plank. Where the pressure on a particular plank was

unusually heavy a stake or two was driven on the lower side. Iron clamps made of one and one-half inch iron six inches wide, shaped like a letter "U," say, ten inches long, to go over the joints where the ends of the planks come together, would be of service in keeping the line intact; stakes would not be necessary if clamps were used.

Considerable time could be saved by having sufficient boards to make three lines, so that one set of boards could be moved ahead, and as soon as one section was washed another would be ready for the water to be admitted. As stated before, the average depth of the mud in the reservoir was nine inches, and what has been written applies more particularly to that depth, but, if the mud were much deeper, it would not be necessary to have a row of planks on the side in the direction in which the work was moving, as the material itself would be a sufficient dam. We learned that it was desirable to keep the mud from drying, as it washed much easier when soft, and at night the waste pipe valve was closed and sufficient water admitted to flood the bottom. There were 2,000 cubic yards of mud removed, and the time required was eight days. The expense of removing the mud, including cost of planks, rubber boots, etc., but exclusive of water, was fifteen cents per cubic yard. The amount paid for labor was about ten cents per cubic yard.

I will say by way of explanation that this reservoir has been in use for about sixteen years—the last six years filtered water, before that raw water as taken from the river. The accumulation of mud in that time was about nine inches.

The many suggestions made for a big meeting (during the Paris Exhibition of 1900) of the firemen of the world have resulted in a determination to hold what will be called a grand International Fire Congress and Exhibition. The programme embraces a tournament, with very valuable prizes for competing brigades, and an exhibition of the engines and fire-fighting apparatus of all nations. The Duke of Marlborough and district presidents of fire brigades have promised to attend, and the success of the meeting is already virtually assured. One of the largest buildings in Paris has been secured, and the intention is to entertain the firemen selected to represent each country competing at the tournament with free board and lodging. The French government has promised the utmost assistance to the scheme.

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