

To care for the wide variation in the flow of sewage, from winter low to summer peak, it was found necessary to design the disposal plant, - septic tanks and contact beds, in three units of different capacity. Septic tank "A" has a sewage capacity of 900 gallons which will give a period of detention of from 12 to 24 hours and is designed to care for the winter load. Septic tanks "B" and "C" have each a capacity of 6430 gallons. One of these tanks alone will care for an ordinary summer flow of from 6,000 to 12,000 gallons. "A" and "B" combined would take care of the peak summer load of say 12,000 to 18,000 gallons with a detention period of from 18 to 24 hours.

Under ordinary conditions septic tank "A" would be cleaned after the winter's use and allowed to remain empty, during the summer season, but could be cut in to care for peak summer loads if it ever became necessary, as each tank inflow pipe will be fitted with a gate valve where it leaves the main manhole at the end of the 8" main sewer line.

Under winter load conditions the effluent from septic tank "A" will be discharged by means of a syphon in syphon chamber "A" directly into contact bed "A", which is estimated to have a pore space in the rock or ground equivalent to from 900 to 1050 gallons.

Under summer load conditions the effluent from septic tank "B", or "B" and "C" in combination, will be retained in syphon chamber "B" until the liquid reaches a depth of 7 feet, equivalent to a liquid content of 3675 fallons, when the contents will be discharged through the syphon and main and distributing troughs into contact bed "B".

With septic tanks "A", "B" and "C" in operation, the effluent when syphoned, approximately 4725 gallons would be applied to contact beds "A" and "B" in combination. Under this condition the valve controlling the discharge of syphon "A" would be closed and the 4" by-pass valve between syphon chambers "A" and "B" opened.

Whenever it becomes necessary to clean contact beds "A" and "B", the flow can be applied to contact bed "C", or it may be found to be more efficient if the application is made to the beds in rotation.

With septic tanks "A", "B" and "C" all in operation and a flow 12,000 to 18,000 gallons per day, the syphon from chamber "B" would unload every 6 to 9 hours or from 3 to 4 times per day. This would give a minimum contact bed cycle of six hours under peak load which will probably be regulated as follows:

Inflow until 5 ft. depth of liquid is reached, approximately	1 hour.
Period liquid is retained in contact bed	2.0 hours.
Time of emptying	1 to 1½ hours.
Rest period	1½ to 2 hours.

The maximum rate of filling the contact beds, 60 minutes at 80 gallons per minute, is to be controlled by the small galvanized iron slide gates that cover the 1" x 4" openings in the main distribution trough. These gates will also apportion the total flow from the main trough to the wooden troughs that cross the contact beds on 13" centers. The flow through the sides of these wooden troughs will be controlled and evenly distributed along the whole length of the trough by means of other galvanized iron slide gates covering 3/4" holes spaced 12" apart along the length of the trough on one side at the bottom.

The period of retention of the effluent in the contact bed is controlled by the timed syphon "C".

As the contact bed fills with liquid from the distributing troughs the liquid will rise in the syphon chamber to the high water line. At this point syphon "C" will be held in balance with a head of 33 inches in the short leg of the main trap and a head of 33 inches above the final liquid elevation in the bell. As soon as the liquid in the syphon chamber

has reached

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