KLAARSTROOM WWTP – PROPOSED UPGRADE

PROPOSED SEQUENCE OF CONSTRUCTION

This document serves as the Engineers interpretation of how the sequence of events during the proposed construction could take place. Contractors are usually free to program events as they see to be most beneficial given the constraints on the site.

Constraints

1. The incoming raw wastewater must be dealt with continuously throughout the construction period.
2. The existing raw sewage rising main will need to be temporarily re-routed to allow space for the construction of Aerobic Pond No.1.
3. The treated effluent will need to be disposed of as is it currently has been done until the completion of all the ponds, that is, collected in the Green Jojo tanks downstream of the existing Facultative Pond, chlorinated and pumped to the irrigation area in the veld, north of the existing works.

Proposed sequence of construction

1. Temporary diversion of the existing rising main to the East of the site using a 110mm diameter above ground HDPE pipeline to continue to discharge into the existing Anaerobic Pond and from there through the old Facultative Pond to discharge into the existing veld irrigation system.
2. Commence earthworks and construction of Aerobic Pond No.2., Horizontal Flow reedbed and Final Effluent Storage Ponds complete with connector piping, outlet structures, wave protection and manholes.
3. Once Aerobic Pond No.2, Horizontal Flow Reedbed and Final Effluent Storage Ponds have been constructed, the incoming raw sewage can be diverted to pump into the new Aerobic Pond.
4. At the same time, the existing contents of the old Anaerobic Pond can be pumped into the new Aerobic Pond No.2. In this way, all the wastewater is continuously contained and exposed to a degree of treatment.
5. The existing Jojo Tank and Irrigation Pump can then be temporarily connected to the outlet of the Final Effluent Storage Pond and continue to discharge the effluent to the veld irrigation area as before.
6. Once the old Anaerobic Pond and Facultative Ponds have been emptied of liquid, the remaining sludge can be dealt with.
7. Prepare temporary drying beds for the disposal of sludge
8. Sludge to be pumped from the Anaerobic Pond and Facultative Ponds for drying

9. Construction of the earthworks for the two new Anaerobic Ponds. Aerobic Pond 1 and the adjacent reshaping of the new Facultative Pond can now commence.
10. Parallel to Activity 8 above, the new Inlet Works concrete structure can be constructed.
11. During the duration of Activities 8 and 9, the incoming wastewater will be passed through Aerobic Pond 2, the Horizontal Flow Reedbed and Final Storage Pond and then irrigated into the veld as is current practice.
12. On completion of the earthworks construction of the new Anaerobic Ponds, the reshaped Facultative Pond and Aerobic Pond 1, complete with Outlet Structures, wave protection, connector piping and manholes, the incoming flow can be diverted temporarily to the inlet of the new Anaerobic Ponds until completion of the new Inlet Works is done.
13. At this stage, all process units will be operational and flow will be as designed.
14. On completion of the concrete works at the new Inlet Structure, a new permanent rising main will be constructed and connected to the new Inlet works permanently.
15. At this point, finishing of the site, disposal of the sludge and fencing of the works can be commenced with.

The above is not a definitive program or sequence of works, but a proposal put up for discussion to deal with the situation. It is in our opinion a logical sequence of events that is practically execution able. The appointed contractor may have a variance or two depending on how he sees the most economical manner in which to deal with the situation.

We trust that you will see your way open to grant us at least permission to try and execute this, given the explanation above.


Inlet Works
Dual Anaerobic Ponds
Aerobic Pond 1
Rising Main from Pump Station
Refurbished Facultative Pond
Aerobic Pond 2
Horizontal Flow Reedbed
Final Effluent Storage Pond
Gravity Main to sports field