

Appendix 6-4

References of Sewage Treatment Systems

Reference of MBR / RO

In Hong Kong, Drainage Services Department (DSD) completed a pilot trial for testing the integral MBR/RO system for wastewater treatment and reuse at Shek Wu Hui Sewage Treatment Works (SWHSTW) in 2005. The objective of the pilot trial was to evaluate the quality of the RO permeate and explore the feasibility of wastewater reuse. MBR/RO system has excellent and stable performance to treat local municipal wastewater. The testing results from the physical, chemical, and microbiological aspects confirmed that the RO permeate also meets the USEPA and WHO drinking water qualities. As such, DSD has also successfully commissioned MBR/RO reclamation facilities at 8 local sewage pumping stations / sewage treatment works (e.g. Stonecutters Island STW and Siu Ho Wan STW) in 2010, which showed the local acceptance and maturity of the MBR/RO technologies. The reclaimed water is used for non-potable applications such as facility washing, toilet flushing, chemical preparation, and landscape irrigation.

Reference of Biological Treatment – Stanley Sewage Treatment Works

The Stanley STP employs the conventional biological treatment process. Although the discharge license is quite loose compared with the proposed Effluent Quality in this Project, the actual effluent quality is much better than the discharge license, as shown in the table of effluent quality next page.

The BOD, TSS and ammonia level in effluent of Stanley STP is as low as 3 mg/L, 3mg/L and 0.1mg/L respectively, which is even better than the proposed target effluent quality in this Project. The effluent TN is slightly higher than 4mg/L as post-denitrification is not provided in the Stanley STP. For this Project, to achieve the target effluent quality, we employed post-denitrification for TN removal and chemical addition to aid TP removal.

Reference of UF/RO – Reclaimed Water Facilities in Shatin Sewage Treatment Works (STSTW)

Reclaimed Water Facilities in STSTW is commissioned in 2011, with a daily reclaimed water output of 1000m³, mainly for irrigation use and preparation of chemical solution in STSTW. The facilities employ **UF and RO** system. The reclaimed water standards is shown in below table. The parameter of TSS is as stringent as 2mg/L.

Parameter	pH value	Total suspended solid	Total dissolved solid	E. Coli	Turbidity
Water quality requirement	6.2 – 8.0	< 2 mg/L	< 200 mg/L	Not detectable	<= 2 NTU

More information on the Reclaimed Water Facilities in STSTW could be found via the following links:

http://www.dsd.gov.hk/EN/Files/Technical_Manual/technical_papers/SP1101.pdf

<http://wqrc.epd.gov.hk/en/water-conservation/effluent-reuse.aspx>