

6. SEDIMENT CONTAMINATION

- 6.1.1** Three reclamation options including the no dredged, dredged for ex-situ treatment and minimum dredged reclamation options have been proposed. It has been demonstrated that these reclamation options are technically feasible.
- 6.1.2** Generally, the soft materials underneath the seawall, either vertical or sloping seawall, have to be removed to improve the stability of the seawall under the recommended minimum dredged option. At reclamation area, ground treatment would be required if the marine deposits / softer alluvium deposits were to be left in place. DCM method is recommended as one of the ground treatment techniques without the need for dredging at seawall position. A pilot scheme is proposed to test for its effectiveness.
- 6.1.3** Breakwater structures, unlike seawalls, do not require retaining reclamation fill. However, ground treatment may still be required if the structure were to be founded on the soft marine deposits or alluvium deposits.
- 6.1.4** Typical value of soil parameters have been employed for stability checking on seawalls, the results show that dredging is essential to provide the required stability against slip failure during reclamation and surcharging from an engineering point of view.
- 6.1.5** The use of vertical drains and surcharging is recommended for general reclamation as ground treatment method. Dredging would be carried out in the areas where sea wall, breakwater and tunnel will be constructed. The proposed rock bund at To Kwa Wan Typhoon Shelter would also be dredged to provide a stable ground condition for supporting the gas main.
- 6.1.6** Both the no dredged reclamation option with *in-situ* treatment and the dredged for ex-situ treatment reclamation option have been proposed to the KTAC reclamation. Treatment of sediments is recommended to reduce risk of biogas emission. Pilot tests would be carried out to determine either *in-situ* or *ex-situ* treatment is more suitable for applying to the KTAC sediments. The no-dredge reclamation is most preferable and provision of gas protection measures for development serves as a fallback option in case the trial results of both *in-situ* and *ex-situ* treatment are unfavourable.
- 6.1.7** The minimum dredged reclamation option has been recommended for the Kwun Tong Typhoon Shelter (KTTS) reclamation and the To Kwa Wan Typhoon Shelter reclamation. The preferred approach is to first backfill the reclamation and to apply *in-situ* treatment to the potential hotspots with high methane potential after the reclamation. Concurrently, methane gas monitoring would be carried out to cover the treated hotspots and the remaining reclaimed areas without treatment and to determine the existence of any additional hotspots in the reclaimed land that require treatment. Provision of protection measures serves as a backup system to deal with the residual impacts that may not be effectively reduced through *in-situ* treatment. *Ex-situ* treatment may also be required to treat the dredged sediments in the sea wall, earth bund, tunnel and breakwater locations.
- 6.1.8** The proposed reclamation options would minimise dredging. Sediment plume dispersion could be easily controlled in the KTAC reclamation if dredging for *ex-situ* treatment is to be carried out by suction dredging. Odour emission could be minimised through suction dredging and in-pipe chemical oxidation as part of the *ex-situ* treatment process for fully dredged and minimum dredged options. *In-situ* treatment would minimise the disturbance to the sediments. Therefore, odour emission is unlikely to be a critical issue. The application of *in-situ* or *ex-situ* treatment in the proposed reclamation options would not cause any significant environmental impacts to pose a constraint to the SEKD. It is anticipated that there would be no insurmountable impacts as a result of the development.