

## **4.0 WATER QUALITY**

### **4.1 Introduction**

4.1.1 The proposed sewer network will serve to collect the sewage from the villages and by a series of pumping stations transfer the sewage to the principal sewer which passes along the existing Castle Peak Road. This will achieve the effect of eliminating the untreated sewage discharges to surface water courses along this part of the coast and so improve stream water quality and reduce the bacterial counts at the bathing beaches in the area which frequently fail to meet the Bathing Beach Quality Standards.

4.1.2 The most significant potential impact on water quality will be due to suspended solids runoff from excavation sites and spoil heaps and from dewatering of trenches and foundations, when water containing high concentration of suspended solids may be discharged to water courses. The EIA has recommended a series of mitigation measures which will be capable of reducing any impacts to acceptable levels. The Contractor shall be responsible for the design and implementation of the measures below. These recommended construction water quality mitigation measures are summarised in the Environmental Mitigation Implementation Schedule presented in Appendix A and presented below:

- (i) stockpiles of excavated should be kept to a minimum and covered during times of heavy rainfall;
- (ii) any trench dewatering should be passed through a portable sand/silt removal traps prior to discharge;
- (iii) disturbance to the So Kwun Wat Tsuen stream bed should be minimised within the site limits;
- (iv) excavation works should be carried out in the stream during periods of low water flow;
- (v) excavation works should be carried out in the main estuary and small tributary during the dry season;
- (vi) dredging in the main estuary will be carried out within a cofferdam to minimise suspended solids dispersion;
- (vii) when works are carried out during the rainy season exposed slopes, stockpiles should be covered with tarpaulin and temporary access roads protected with a layer of gravel or crushed stone;
- (viii) surface run off should be discharged to storm drains via sand/silt removal traps;
- (ix) channels, bunds or sand bags should be used to direct any storm water to the traps and perimeter channels should be constructed before the main works begin to prevent external run off from crossing the site;

- (x) silt removal structures, channels and manholes should be maintained to remove accumulated material, specifically at the onset and end of rainy periods;
- (xi) trenches for the sewer main should be dug and backfilled in short sections to minimise the quantities of rain water which will need to be pumped from them and upslope bunding provided to prevent surface water from flowing into the trenches;
- (xii) rainwater pumped from the trenches should be discharged to storm drains via sand/silt removal traps;
- (xiii) discharges to natural water courses should only take place when the effluent can be shown to comply with the relevant specified standards;
- (xiv) all plant should be in proper working order and maintained such that there is no leakage of fuel or oil. Any waste oils should be collected in designated tanks prior to disposal off site;
- (xv) all mechanical plant maintenance and refuelling areas shall be sited on paved areas. All storm water run-off from these areas should be discharged via oil separators/petrol separators and sand/silt removal traps;
- (xvi) groundwater pumped out of excavations for the construction of pump sumps should only be discharged following removal of silt by sand/silt removal traps;
- (xvii) water from drilling of rock should be discharged following removal of silt by sand/silt removal traps;
- (xviii) the wheels of all vehicles leaving the construction site should be washed before leaving the site to minimise the carry over of mud onto public roads. Wheel wash water should be recycled and only discharged following removal of silt by sand/silt removal traps;
- (xix) run off from the roofs of site buildings should be conveyed in closed drains to the nearest surface water course to prevent the generation of excessive quantities of surface water run off carrying suspended solids;
- (xx) all spillages should be cleaned up immediately to prevent their downward migration into the groundwater; and
- (xxi) sewage arising from any toilets and kitchens in the construction site should be treated via a septic tank and soakaway system. If this is not practicable, chemical toilets should be provided and the effluent and waste arising from these facilities, together with any other 'grey water' generated from the site, should be removed on a daily basis for disposal at an appropriate receiving point.

## **4.2 Monitoring**

- 4.2.1 Construction phase EM&A is recommended to ensure that the mitigation measures are being implemented and are effective. Operational EM&A is not required.
- 4.2.2 Prior to construction, surveys shall be undertaken of the watercourses which are within the influence of construction works at least once per week for a period of two weeks. The surveys should include a description of the stream course, influencing factors, photographs of the watercourse and a map showing areas of project construction works.
- 4.2.3 During the construction phase, surveys shall be undertaken in areas of active construction works and other areas with stock piled materials on exposed ground surfaces at least once per week.
- 4.2.4 Any noticeable change to water quality should be recorded in the watercourse survey reports and should be investigated and remedial actions shall be undertaken to reduce impacts. The ET Leader shall pay particular attention to the Contractor's incorporation of mitigation measures.
- 4.2.5 If the above mitigation measures are not sufficient to restore the water quality to an acceptable levels upon the advice of the ET Leader, the Contractor shall liaise with the ET Leader on some other mitigation measures, propose to the IC(E) and ER for approval and carry out the mitigation measures.