Section 6

ECOLOGY

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6.1 Introduction

6.1.1 The Contractor is responsible for the implementation of ecological mitigation measures recommended in the EIA to minimise both direct and indirect ecological impacts from site activities. During construction activities, the following mitigation measures shall be undertaken by the Contractor which will be audited during the site environmental audit inspections (see *Section 9*). The ET Leader shall be responsible for ensuring that mitigation measures are fully implemented by the Contractor throughout construction.

6.2 Mitigation Measures

6.2.1 The Contractor is responsible for implementation of the following mitigation measures:

Terrestrial Ecology

1. The following mitigation measures shall be undertaken to minimise disturbance to the surrounding environment:

   (a) Fences shall be erected along the boundary of construction sites, before the commencement of works, to prevent tipping, vehicle movements, and encroachment of personnel into the scrubland patches on the hill slope where the protected plant species are located;
   (b) Regular checks shall be undertaken on a weekly basis to ensure that the work site boundaries are not exceeded and that no damage occurs to surrounding areas;
   (c) Wild and uncontrolled open fires within the work site boundary shall be prohibited and fire fighting equipment shall be installed in the work area;
   (d) The alignment of temporary works area shall avoid the scrubland grassland mosaic area in the northern end of the Study Area, where practicable, so as to protect the Chinese New Year Flower and maintain the integrity of the habitat;
   (e) A survey and collection of individuals of the protected Chinese New Year Flower *Enkianthus quinqueflorus* shall be undertaken prior to construction work commencement for transplanting to unaffected scrubland grassland mosaic area outside the work site boundary if, during the deliniation of the work site areas, the scrubland grassland mosaic area will be affected. The survey shall be carried out by a qualified personnel (eg botanist, while the transplanting works should be carried out by Government listed Landscape Specialist Contractor. The survey area should include areas within 10 m of the proposed work site areas.
   (f) Noisy activities should be programmed to avoid as much as practicable the breeding season (approximately January to April) of the Black Kite to minimise indirect impact on them.
   (g) Planting works should be incorporated into the construction programme as early as possible. These planting works would be undertaken by TDD and maintained by RSD. Tree species used for planting should take reference from the species listed in *Section 8.7*, and the location of planting is shown in *Figure 8.23* of the EIA.

Marine Ecology

2. Operational constraints during construction of the TKO Section have been recommended in order to avoid impacts to marine ecological and fisheries resources by minimising impacts to water quality.

   (a) The use of containment structures such as silt curtains or screens around the construction site;
   (b) The use of closed clamshell grab dredgers to remove seriously

contaminated (Class C) material;

(c) The prohibition of stockpiling of any moderately or seriously contaminated (Class B and C) material, and careful control of stockpiling of any uncontaminated (Class A) material to prevent runoff, resuspension and odour nuisances;

(d) At times when the tidal currents are too high (>0.5 m s^{-1}) for effective deployment of silt curtains the works should be suspended; and,

(e) Mitigation measures shall also include, but not limited to, construction method and phasing, control over dredging and filling rates, restriction on fine content of fill materials, filling and reclamation to be conducted behind completed seawall, pretreatment of effluent arising from construction activities for compliance with EIAO-TM standards.

6.2.2 Should adverse impacts to water quality be detected during the construction activities then the appropriate mitigation measures shall be introduced (ie a reduction of the allowable dredging rate). These constraints, recommended to control water quality impacts to within acceptable levels, are also expected to control impacts to marine ecological resources.

6.2.3 In order to assist in post-construction rehabilitation of the WCR seawalls tetrapods will be used. The total surface area provided by the tetrapod seawalls along the length of the WCR will exceed 6 ha. Tetrapod seawalls offer a highly heterogeneous habitat which will provide a large surface area (larger than 3 ha) and a wide variety of habitats for marine organisms to colonise. It has been demonstrated that marine organisms have recolonised such seawalls after construction[2]. The "HJack" structure on the seaward side of the High Island Reservoir has recently been surveyed as part of an ongoing Study on Hong Kong's coral communities by Hong Kong University. The site has a well established coral community dominated by two species, *Montipora* and *Acropora*. The latter species has become rare in the Territory and this represents one of the last remaining mature and reproductive populations. This indicates that seawalls of this design would be useful in recreating habitats lost through development of the WCR. It is anticipated that assemblages of soft corals, gorgonians and hard corals will settle on and recolonise the newly constructed seawalls, as environmental conditions would be similar to existing conditions that have allowed the growth of the hard and soft corals, and gorgonians reported from field surveys in the area. The habitat provided by the total surface area of the tetrapod seawalls is expected to effectively mitigate (>3 ha) the loss of low density assemblages of gorgonians and soft and hard corals within the reclamation area (3 ha). The location of these tetrapod seawalls is shown on *Figure 7.6b*.

6.2.4 The Fish Culture Zone is not predicted to be impacted by either the Yau Tong reclamation or the reclamation along TKO coastline and, therefore, specific mitigation measures for this area are not required.

[2] Binnie Consultants Ltd (1997) Chek Lap Kok Qualitative Survey Final Report. For the Geotechnical Engineering Office, Civil Engineering Department, December 1997.