Proposed Extension of Public Golf Course at Kau Sai Chau Island, Sai Kung

Monthly Environmental Monitoring & Audit (EM&A) Report for March 2006

(Report No. 382210/003)

Report Authorized For Issue By:	For and on Behalf of Black & Veatch Hong Kong Limited

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Proposed Extension of Public Golf Course at Kau Sai Chau Island, Sai Kung
(Independent Environmental Checker)

CHECK CERTIFICATE

1. We certify that professional skill and care have been used in the checking of the Environmental Team's (ET) No.3 Monthly EM&A Report for March 2006 for the construction of Proposed Extension of Public Golf Course at Kau Sai Chau Island, Sai Kung.

2. We certify that the ET's EM&A programme for the reporting period has been satisfactorily executed and the No. 3 Monthly EM&A report for March 2006 has been verified.

3. We would comment that our evaluation of the ET's EM&A is based on a random audit process which cannot be guaranteed to have all non-conformities identified.

Signed 

_____
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Date 4 April 2006

Executive Summary

This is the third monthly Environmental Monitoring and Audit (EM&A) report prepared by Black & Veatch, the designated Environmental Team (ET), for the Project "Proposed Extension of Public Golf Course at Kau Sai Chau Island, Sai Kung". The construction works of golf course was commenced on 16th January 2006. This report presents the results of the EM&A works conducted in the month of March 2006 (25th February 2006 to 24th March 2006).

Summary of construction works undertaken during this report period

Vegetation clearance at Holes 1, 2 & 9 were completed. For Hole 17, approximate 30% of vegetation was cleared. Haul road from Hole 2 to Hole 3 was started to construction around second week of March 2006. Major cut & fill work was carried at Holes 1, 2, 9, 17 & 18 during the reporting month.

The temporary barging point was constructed around mid-March 2006 and the major work was rock filling to provide a platform as the temporary barging landing point. Site formation for the concrete batching plant was started during the reporting month and the predicted completion date will be by the first week of April 2006. The concrete production will be available end of April 2006. No site office and chemical storage area were available on site.

For the desalination plant, no dredging work for the desalination plant intake and outfall pipelines was carried out. Only land formation work for the desalination plant was carried out.

Stream buffer zone was demarcated at Stream A and partially at Stream B (tributary mainly). Construction of temporary bridge no. 9 was carried out starting from late March 2006 within the Stream A buffer zone area. The intrusion of buffer zone area was mainly the abutment area for the temporary bridge.

Environmental Monitoring and Audit Progress

A summary of monitoring activities in this reporting period is shown as follows:

24-hour Total Suspended Particulates (TSP) monitoring at GCA B1	5 times
Water quality monitoring (marine + freshwater)	12 times
Terrestrial Ecology	1 time
Marine Ecology	1 time
Landscaping & Visual	2 times

Air Quality

5 sets of 24-hour TSP monitoring were carried out on 1st, 7th, 13th, 18th and 24th March 2006 at Bungalow A (GCA B1) at Kau Sai Chau during this reporting month. No exceedance of action and limit levels of 24-TSP was recorded at GCA B1.

Water Quality

12 sets of water quality monitoring were carried out on 27th February, 1st, 3rd, 6th, 8th, 10th, 13th, 15th, 17th, 20th, 22nd and 24th March 2006 at 9 marine and 7 freshwater monitoring locations. Monitoring was performed on schedule. For marine water, one exceedance of action level for suspended solids (SS) was recorded at M_Coral location on 24th March 2006. The exceedance of measured SS was 6.7 mg/L. For freshwater, six action and one limit levels exceedance for suspended solids were recorded at F_DA (1st & 8th March 2006), F_DB (1st, 3rd, 8th, 24th March 2006) and F_DC (13th March 2006). The exceedance of measured SS value was ranging from 4 to 10 mg/L. Three action and one limit levels exceedance for

turbidity were recorded at F_DA (1st & 24th March 2006), F_DB (8th March 2006) and F_Inland Marsh (3rd March 2006). The exceedance of measured turbidity value was ranging from 3.5 – 15.6 mg/L. ET's assessment showed that the exceedance was not attributed to the works and therefore no further action was required. The exceedance is mainly due to variation of the streams and rain.

Ecology

Terrestrial ecology was conducted on 17th March 2006. The demarcation of the stream buffer zone had been established for Stream A and Stream B, and the works fronts were approaching Stream A at the time of the monitoring survey**.** Stream C buffer zone demarcation establishment will be finished by the Contractor before the works fronts reach Stream C. In general, the streams and the riparian vegetation were in natural conditions similar to the condition during the Baseline Survey.

Marine ecology was conducted on 23rd & 25th March 2006 at Site B2, Site C and Control Site. A seawall had constructed at Site B2 as the landing point of the temporary barging point. Some boulders and sand were found outside the seawall and some tagged corals were damage. Among the 20 tagged corals, 6 of them had more obvious damages, while another two tagged corals had minor damages. A remedial plan will be proposed by the Contractor. Site C and the Control Site still remained similar conditions as during the Baseline Survey. No mortality, sedimentation or bleaching was found on the tagged corals in these two sites.

Landscaping & Visual

The landscape and visual monitoring and site audit was carried on 6th and 20th March 2006. Vegetation clearance work is being carried out at present. Tree protection is satisfactory. Stockpiles of cleared vegetation were found stored on site and require removal.

Environmental Site Auditing

Four weekly joint environmental site audits were carried out on 3rd, 8th, 15th & 22nd March 2006 with the Contractor's representative. A monthly joint environmental site audit was carried out on 15th March 2006 by the Contractor's Representative ET's representative and Independent Environmental Checker (IC(E)).

Environmental Non-conformance

Freshwater

For freshwater, five action and one limit levels exceedance for suspended solids were recorded at F_DA (1st & 8th March 2006), F_DB (1st, 3rd & 8th March 2006) and F_DC (13th March 2006) in the reporting month. Three action and one limit levels exceedance for turbidity were recorded at F_DA (1st & 24th March 2006), F_DB (8th March 2006) and F_Inland Marsh (3rd March 2006) in the reporting month. However, such exceedances were not attributed to the project works.

Coral

There was one environmental non-conformance for coral damage at temporary barging point recorded in the reporting month. Such exceedance may attribute to the project works but subject to the confirmation of further site investigation for the incident provided by the Contractor. A remedial plan will be submitted to EPD and AFCD for comment and agreed on the proposed remedial actions.

Air Quality

A yellow form issued by EPD according the APCO was received on 30th March 2006.

Compliant

One environmental complaint was received in this reporting period. One of the compliant (fish pond holder) concerns was on the water quality that the construction activities may potentially pollute the water quality within their fish pond area (Tiu Cham Wan - inactive culture zone).

Summon

No environmental summon was received in this reporting period.

Implementation Status of Environmental Mitigation Measures

The Contractor was reminded the following issues and take actions if necessary

- Watering the haul road especially in conjunction to the existing golf course and during excavation work areas regularly.
- Minimize the water quality impact when undertaking excavation works. Temporary drainage system and contingency plan should be proposed to the Engineer's Representative (ER) for approval and ET for comment and installed before the wet season. It is important to provide sufficient temporary drainage at critical areas such as concrete batching plant and temporary bridges to confine, collect and provide proper treatment to the runoff before discharge to ensure the water quality is comply with WPCO requirement.
- Minimize the exposed areas by controlling the vegetation clearance area. Vegetation should be kept in-situ as much as possible until works require at the construction areas.
- Removal of the vegetation stockpiles when the temporary barging point is available.
- Minimize the access roads within the stream buffer zone areas and construction area for the temporary bridge across the sensitive streams.
- Strengthen the preventive/interim measures for the silty runoff along the boundary of the exposed areas especially at low areas. More frequency maintenance on the silt fence is necessary.
- Modification at major haul road to prevent the silty runoff is necessary.
- Providing wheel washing facilities.
- Erection of hoarding between the construction site boundary and existing golf course areas

Future Key Issues

Key issues to be considered in the coming month include:

- Generation of dust from activities on-site during dry season : mainly Holes 1, 2, 9 & 17, concrete batching plant construction, temporary haul road, installation of site office and storage areas, inland works for the desalination plant near to the existing pier;
- Silty runoff due to vegetation clearance and exposed excavated areas from construction site;
- Storage of chemicals/fuel and chemical waste/waste oil on site;
- Sewage and general refuse generated from workers.

Potential environmental impacts arising from the construction activities in the coming month are expected to be mainly associated with dust, site runoff and waste management.

1. Introduction

1.1 Background of the Project

1.1.1 Black & Veatch (hereinafter called the "ET") was appointed by Hong Kong Jockey Club (hereinafter called the "Project Proponent") to undertake Environmental Monitoring and Audit (EM&A) for "Proposed Extension of Public Golf Course at Kau Sai Chau Island, Sai Kung" (hereinafter called the "Project"). Under the requirements of Section 4 of Environmental Permit EP-224/2005, EM&A programme as set out in the EM&A Manual is required to be implemented. In accordance with the EM&A Manual, environmental monitoring of air quality, water quality, terrestrial and marine ecology, landscape and visual, archaeology (watching brief) and land contamination are required for the Project.

1.1.2 This report summarises the environmental monitoring and audit works for the Project in March 2006 (from 25th February to 24th March 2006).

1.2 Purpose of the Report

1.2.1 This is the third EM&A report which summarizes the impact monitoring results and audit findings for the EM&A programme during the reporting period from **25th February** to **24th March 2006.**

1.3 Structure of the Report

1.3.1 The structure of the report is shown in Table 1.1.

Table 1.1 Structure of the Report

Section		Description
1	Introduction	Details the scope and structure of the report
2	Project Information	Summarizes background and scope of the project, site description, project organization and contact details, construction programme, the construction works undertaken and the status of environmental permits/licenses during the reporting period.
3	Environmental Monitoring Requirement	Summarizes the monitoring parameters, programmes, methodology, frequency, location, action and limit levels, event action plans, environmental mitigation measures as recommended in the EIA report and relevant environmental requirements.
4	Implementation Status on Environmental Mitigation Measures	Summarizes the implementation of environmental protection measures during the reporting period.
5	Monitoring Results	Summarizes the monitoring results obtained in the reporting period.
6	Environmental Site Auditing	Summarizes the audit findings of the weekly site inspections undertaken within the reporting period.
7	Environmental Non-conformance	Summarizes any monitoring exceedance, environmental complaints and environmental summons within the reporting period.
8	Future Key Issues	Summarizes the impact forecast and monitoring schedule for the next three month (25 March – 24 June 2006).
9	Recommendations and Conclusions	Lists out any recommendations and provides an overall conclusion of the results and findings of the EM&A programme for the reporting period.

2. Project Information

2.1 Background

2.1.1 The Project comprises the following major components:

- Construction of a third 18-hole public golf course on the east side of the island, south of the existing golfing area;
- A new irrigation lake to collect surface runoff from new 18-hole golf course. Water stored at the new irrigation lake can also be diverted to existing reservoir for tertiary treatment and recycling;
- A new desalination plant adjacent to the existing pier to serve as an additional irrigation water supply for the new golf course during dry season; and
- Expansion of existing administration and maintenance buildings.

2.1.2 The potential environmental impacts of the Project have been studied in the Environmental Impact Assessment (EIA) report (EIAO Register No. AEIAR- 091/2005). The EIA was approved on 14 November 2005 under the EIAO. An Environmental Permit (EP-224/2005) was granted on 28 November 2005.

2.2 Site Description

2.2.1 A layout plan of the Project is provided in **Figure 1.1**.

2.3 Project Organization

2.3.1 Project organization and lines of communication are shown in **Figure 1.2**.

2.4 Construction Programme

2.4.1 The tentative construction programme for the Project is presented in **Annex A**. The construction works were commenced on 16 January 2006 and are scheduled to be completed by end of July 2007.

2.5 Status of Environmental Submission

2.5.1 A summary of the reporting requirement for compliance with EP conditions of the Project is listed in Table 2.1.

Table 2.1 Summary of Compliance with EP Conditions

EP-224/2005	Environmental Permit Submission	Status	Remarks
2.3	Management organization of the main construction companies and/or any form of joint ventures associated with the construction of the Project.	Submitted	At least one week before the commencement of construction of the Project.
2.4	Contamination Assessment Plan (CAP) submission. If land contamination is confirmed by the site investigation, submission of a Remediation Assessment	Submitted	The site investigation was carried out on 14th and 15th February 2006. The CAR was submitted on 23rd March 2006. Based on the results, all hotspots are not contaminated. Therefore, RAP is not

EP-224/2005	Environmental Permit Submission	Status	Remarks
	Plan (RAP) including a Contamination Assessment Report (CAR) is required.		required.
3.6	Detailed methodology for Coral Transplantation submission to the Director for approval.	In progress	At least one month before commencement of the Coral Transplantation.
4.1	EM&A Manual (revised)	Submitted	At least two weeks before commencement of construction of the Project.
4.3	Baseline Monitoring Report	Submitted	At least two weeks before commencement of construction of the Project
4.5	Monthly EM&A Report	Submitted	within 10 working days after the end of the reporting month
5.1	Set up a dedicated web site and notify the Director in writing the Internet address.	Completed	Within 6 weeks after the commencement of construction of the Project (http://www.kscgolf.com/ema/index.asp)

2.6 Summary of EM&A Requirements

2.6.1 The EM&A programme requires environmental monitoring for air quality, water quality, terrestrial and marine ecology, landscape and visual, archaeology (watching brief) and land contamination. The EM&A requirements for each parameter are described in subsequent sections, including:

- All monitoring parameters;
- Action and Limit Levels for all environmental parameters;
- Event and Action Plans; and
- Environmental mitigation measures, as recommended in the project EIA final report.

2.6.2 A summary of impact EM&A requirements is presented in Table 2.2.

Table 2.2 Summary of Impact EM&A Requirements

Impacts	Parameters/descriptions	Locations	Frequencies	Duration
Air Quality	24-Hour TSP	1 Location	Once every 6 days	During Construction
	1-Hour TSP	1 Location	Three times in every 6 days	During Construction (As required when complaint received)
Water Quality	Dissolved Oxygen, Temperature, Turbidity, pH, Salinity and SS	9 marine and 7 freshwater locations	**First 3 months** 3 times a week, mid-ebb and mid-flood tides. If there is no exceedance occurs for the first 3 months, reduce to once per week.	During Construction
	Dissolved Oxygen, Temperature, Turbidity, pH, Salinity, SS, NO3-N, NO2-N, NH3-N, TP and selected pesticides.	9 marine and 7 freshwater locations	Once per week. If there is no exceedance occurs, monitoring frequency is subjected to change and shall be agreed with EPD.	During Construction: turf establishment period (permanent low flow drainage is not completed)
	Dissolved Oxygen, Temperature, Turbidity, pH, Salinity, SS, NO3-N, NO2-N, NH3-N, TP, Chl-a and selected pesticides.	9 marine and 6 freshwater locations	A 2-year of monitoring period for the operation phase is proposed. Monitoring should be carried out on bi-weekly basis for the first 12 months, after when the frequency will be reviewed by EPD.	During Operation
	Dissolved Oxygen, Temperature, Turbidity, pH, Salinity, SS, NO3-N, NO2-N, NH3-N, TP, Chl-a and selected pesticides	8 marine locations	Additional water quality monitoring shall be carried out after heavy rain storm or when there is an overflow event from the reservoir, irrigation buffer lake or detention ponds/tanks.	During Construction and Operation
Terrestrial Ecology	Monitoring aquatic fauna	Streams B, C & D	Once a month	During Construction
	Environmental Site Inspection mainly on intact of buffer zones	Streams A, B and C	Once a week	During Construction

Impacts	Parameters/descriptions	Locations	Frequencies	Duration
Marine Ecology	Transplanted corals	Site D2	Quarterly for one year after transplantation	During construction
	Natural corals	Site C, Site B2, Site D2, and the Control Site.	**For Site D2 and the Control Site:** Weekly at the first two weeks of dredging works for the desalination plant pipelines. If no exceedance was recorded, the monitoring schedule would be changed to biweekly till the pipeline construction works are finished. **For Site C, B2 and the Control Site:** Monthly for the first three months of the construction phase. If no exceedance was recorded, the monitoring schedule would be changed to quarterly during the rest of the construction phase.	During Construction
		Site C, Site D2 and the Control Site.	First three months would be monthly conducted during the first two years of the operation phase. If no exceedance was recorded, the monitoring schedule would be changed to semi-annually, i.e. once in dry season and once in wet season.	During Operation
	Seagrass bed	Site D3, and at Site D2 if seagrasses were found during the baseline monitoring.	Weekly during the first two weeks of dredging works, and then biweekly till the pipeline construction works are finished.	During Construction
		Site D3, and at Site D2 if seagrasses were found during the baseline monitoring.	During the first two years of the operation phase. The monitoring schedule during the first three months would be monthly. After that, the monitoring schedule would be changed to semi-annually, i.e. once in dry season and once in wet season.	During Operation
Landscape and Visual	Audits to ensure effective implementation of mitigation measures	Project area and at visual sensitive receivers	Auditing inspections and reporting shall be undertaken once every two weeks of the construction phase and once every two months of the operation phase.	During Construction and Operation
Archaeology (Watching Brief)	Monitor archaeological potential sites at major cut areas	Hole 2, Hole 11, Hole 12, Hole 14, Hole 15 and Hole 16.	The archaeologist should keep the AMO informed of the progress of watching brief. The archaeologist should submit progress reports every 3 months during the programme of the watching brief.	During Construction
Land Contamination	Total Sulphur and Total Lead	Locations 2, 3, 6, 7 & 8	One month before commencement of work at the identified 5 hotspots	During Construction
General Site Conditions	Environmental Site Inspection	Works areas and areas affected by works	Periodically (weekly basis)	During Construction

3. Environmental Monitoring Requirements

3.1 Air Quality

Monitoring Requirement

3.1.1 24-hour TSP monitoring was carried out at GCA B1 to monitor the construction dust impact level in this reporting period.

3.1.2 The established Action/Limit Levels (AL levels) for the 1-hour and 24-hour TSP monitoring works are summarized in Table 3.1 and Table 3.2.

Table 3.1 Action and Limit Levels for 1-hour TSP

Location	Description	Action Level	Limit Level
GCA B1	**Bungalow A** adjacent to Kau Sai Chau Public Golf Course Administration Building	277.2 μg m^{-3}	500 μg m^{-3}

Note: The action levels for GCA B1 are developed based on baseline monitoring result.

Table 3.2 Action and Limit Levels for 24-hour TSP

Location		Action Level	Limit Level
GCA B1	**Bungalow A** adjacent to Kau Sai Chau Public Golf Course Administration Building	187.4 μg m^{-3}	260 μg m^{-3}

Note: The action levels for GCA B1 are developed based on baseline monitoring result.

Monitoring Parameters, Frequency and Programme

3.1.3 The monitoring parameters and frequency are summarized in Table 3.3. The monitoring programme for the reporting period is shown in **Annex B**.

Table 3.3 TSP Monitoring Parameter and Frequency

Parameter	Frequency
24-hour TSP	Once every 6 days
1-hour TSP	3 times every 6 days (as required in case of complaints)

Monitoring Locations

3.1.4 In accordance with the EM&A Manual, one monitoring station (GCA B1) was selected and shown in **Figure 3.1**.

Monitoring Equipment

3.1.5 24-hour and 1-hour TSP (in case of complaints received) were performed using High Volume Samplers (HVS) and measured in-situ respectively. 24-hour TSP level of samples will be collected using filters and High Volume Sampler and the collected samples will be determined by a local HOKLAS accredited laboratory upon receipt of the samples and 1-hour TSP level will be performed in-situ.

3.1.6 High volume samplers (HVS - Model GS-2310 Accu-vol) complete with the appropriate sampling inlets were installed for 24-hour TSP sampling. The HVS is composed of a motor, a filter holder, a flow controller and a sampling inlet and its performance specification complies with USEPA Standard Title 40, Code of Federation Regulations Chapter 1 (Part 50 Appendix B). A portable dust meter was used for the 1-hour TSP monitoring. Table 3.4 summarises the equipment used.

Table 3.4 Air Quality Monitoring Equipment

Equipment	Model
HVS Sampler	GS 2310 Accu-vol system
Calibrator	GMW 25
1-hour TSP Dust Meter	Laser Dust Monitor – Model LD-1 (L)

Monitoring Methodology and Calibration Details

24-hour TSP Monitoring

(i) Field Monitoring, Operation & Analytical Procedures

3.1.7 Operating/analytical procedures for the operation of HVS are as follows. The sampler was placed on a horizontal platform with appropriate supporting structure such that:

- the filter was at least 1.3 meters above ground;
- no two samplers should be placed less than 2 metres apart;
- the distance between the sampler and an obstacle, such as buildings, would be at least twice the height that the obstacle protrudes above the sampler;
- a minimum of 2 metres separation from walls, parapets and penthouses would be required for the rooftop samplers;
- a minimum of 2 metres separation from any supporting structure, measured horizontally would be required;
- airflow around the sampler would be unrestricted;
- no furnaces or incineration flues would be operating near the sampler;
- the sampler would be more than 20 metres from the dripline; and
- any wire fence and gate, to protect the sampler, should not cause any obstruction during monitoring.

3.1.8 Prior to the commencement of the dust sampling, the flow rate of the high volume sampler was properly set (between 1.1 m3/min. and 1.4 m3/min.) in accordance with the manufacturer's instruction to within the range recommended in USEPA Standard Title 40, CFR Part 50.

3.1.9 For TSP sampling, fibreglass filters (G810) were used [Note: these filters have a collection efficiency of > 99% for particles of 0.3 mm diameter].

3.1.10 The power supply was checked to ensure the sampler worked properly.

3.1.11 On sampling, the sampler was operated for 5 minutes to establish thermal equilibrium before placing any filter media at the designated air monitoring station.

3.1.12 The filter holding frame was then removed by loosening the four nuts and carefully a weighted and conditioned filter was centered with the stamped number upwards, on a supporting screen.

3.1.13 The filter was aligned on the screen so that the gasket formed an air-tight seal on the outer edges of the filter. Then the filter holding frame was tightened to the filter holder with swing bolts. The applied pressure should be sufficient to avoid air leakage at the edges.

3.1.14 The shelter lid was closed and secured with the aluminum strip.

3.1.15 The timer was then programmed. Information was recorded on the record sheeting, which included the starting time, the weather condition, and the filter number (the initial weight of the filter paper can be found out by using the filter number).

3.1.16 After sampling, the filter was transferred from the filter holder of the HVS to a sealable plastic bag and sent to the laboratory for weighing. The elapsed time was also recorded.

3.1.17 Before weighing, all filters were conditioned for 24 hours before weighing under temperature of 25°C ±3°C and the relative humidity (RH) < 50% ±5%, preferably 40%. The HOKLAS laboratory (ALS Technichem (HK) Pty Ltd) has comprehensive quality assurance and quality control programmes.

(ii) Maintenance

3.1.18 Proper maintenance would be provided for the HVS as described below:

3.1.19 The HVS motors and their accessories have been properly maintained. Appropriate maintenance such as routine motor brushes replacement (time interval for replacement is about 500 hours) and electrical wiring checking have been conducted to ensure that the equipment and necessary power supply were in good working condition.

3.1.20 Initial calibration of HVS was conducted upon installation of equipment. The subsequent calibration would be provided at 2-month intervals using GMW-25 Calibration Kit.

1-hour TSP Monitoring

(i) Measuring Procedures

3.1.21 The measuring procedures of the 1-hour dust meter have been in accordance with the Manufacturer's Instruction Manual as follows:

- Set POWER to "ON", push BATTERY button, make sure that the meter's indicator is in the range with a red line and allow the instrument to stand for about 3 minutes (Then, the air sampling inlet has been capped).
- Push the knob at MEASURE position.
- Push "O-ADJ" button. (Then meter's indication is 0).
- Push the knob at SENSI ADJ position and set the meter's indication to S value described on the Test Report using the trimmer for SENSI ADJ.
- Pull out the knob and return it to MEASURE position.
- Push "START" button.
- All measurement procedures in section 2.3 of the approved EM&A Manual are followed during the reporting period.

(ii) Maintenance

3.1.22 The 1-hour TSP meter would be checked at 3 month intervals and calibrated at 1-year intervals throughout all stages of the air quality baseline monitoring.

Event and Action Plans

3.1.23 The Event and Action Plan (EAP) for air quality monitoring is presented in **Annex C**.

3.2 Water Quality

Monitoring Requirement

3.2.1 Water quality monitoring was conducted in accordance with the EM&A Manual. Tables 3.5 & 3.6 show the established Action/Limit Levels for the water environmental monitoring parameters.

Table 3.5 Derived Summaries of Action and Limit Levels for Marine Water Quality

Parameters	Location	Action	Location	Limit
DO (Surface & Middle)	FCZ	6.0 mg/L	FCZ	5.3 mg/L
	All except FCZ	4.9 mg/L	All except FCZ	4.6 mg/L
DO (Bottom)	All	3.7 mg/L	All	3.4 mg/L
pH (depth-averaged)		N/A	All	6.5 - 8.5
SS (Depth-averaged)☆	FCZ	4.5 mg/L	FCZ	5.6 mg/L
	All except FCZ	6.1 mg/L	All except FCZ	10.6 mg/L
SS (Depth-averaged) Dredging for submarine pipelines⊕	M_RO1	6.1 mg/L	M_RO1	10.6 mg/L
Turbidity (Tby) (depth-averaged) ☆	FCZ	2.9 NTU☼	FCZ	3.9 NTU☼
	All except FCZ	3.3 NTU☼	All except FCZ	6.2 NTU☼
Ammonia Nitrogen (depth-averaged)	FCZ	0.02 mg/L	FCZ	0.03 mg/L
	All except FCZ	0.05 mg/L Δ	All except FCZ	0.05 mg/L Δ
Nitrate Nitrogen (depth-averaged)	FCZ	0.08 mg/L	FCZ	0.09 mg/L
	All except FCZ	0.09mg/L Δ	All except FCZ	0.09 mg/L Δ
Nitrite Nitrogen (depth-averaged)	FCZ	0.02 mg/L θ	FCZ	0.02 mg/L θ
	All except FCZ	0.02 mg/L	All except FCZ	0.04 mg/L
TIN (depth-averaged)	FCZ	0.12 mg/L	FCZ	0.14 mg/L
	All except FCZ	0.16 mg/L	All except FCZ	0.18 mg/L
Total Phosphorus (depth-averaged)	All	0.09 mg/L Δ	All	0.09 mg/L Δ

Remarks:
☆ : Action and limit levels are subjected to review especially for wet season throughout the construction phase of the project.
⊕ : Action and limit levels are subjected to review before the dredging works.
☼ : All are based on EM&A baseline monitoring data due to marked difference between EPD turbidity data and those from the baseline survey.
Δ : For nutrient monitoring (except NO_2-N) at non-FCZ stations, the trigger level has made reference to the existing golf course guideline values. The guideline value of NO_2-N is below the current detection limit of 0.01mg/L and thus not used.

θ : The same action and limit level of 0.02 mg/L is determined from the EM&A baseline data as 78% of the NO_2-N data are <= 0.01 mg/L and all remaining 22% equal to 0.02 mg/L.
FCZ including fish culture zones of Kai Lung Wan, Tai Tau Chau and Kau Sai
All except FCZ including remaining impact monitoring station of M_RO1, M_Marsh, M_BP and M_Coral.
Control monitoring locations: M_A & M_B

Table 3.6 Derived Summaries of Action and Limit Levels for Freshwater Water Quality

Parameters	Location	Action	Location	Limit
DO (mid-depth)		6.3 mg/L	All	4 mg/L ξ
pH (mid-depth)		N/A	All	6.0 - 9.0
SS (mid-depth) ☆	All	3.8 mg/L or 120% of upstream control station's SS at the same tide of the same day	All	8 mg/L or 130% of upstream control station's SS at the same tide of the same day
Turbidity (Tby) (mid-depth) ☆	All	3.1 NTU or 120% of upstream control station's Tby at the same tide of the same day	All	4 NTU or 130% of upstream control station's Tby at the same tide of the same day
Ammonia Nitrogen (mid-depth)		N/A	All	0.01 mg/L
Nitrate Nitrogen (mid-depth)	All	0.10 mg/L	All	0.11 mg/L
Nitrite Nitrogen (mid-depth)		N/A	All	0.01 mg/L
TIN (mid-depth)	All	0.12 mg/L	All	0.13 mg/L
Total Phosphorus (mid-depth)		N/A	All	0.02 mg/L

Remarks:
☆ : Action and limit levels are subjected to review especially for wet season.
Freshwater monitoring locations: F_UA, F_DA, F_UB, F_DB, F_UC, F_DC and F_Inland Marsh
As most of the freshwater samples were reported of NH_3-N, NO_2-N levels below the detection limit of 0.01 mg/L, limit level is set at 0.01 mg/L. Similarly for TP, a limit level of 0.02 mg/L (the detection limit of TP) is imposed.
ξ : Water Quality Objectives of the Port Shelter

Monitoring Parameters, Frequency and Programme

3.2.2 For marine water quality, measurements shall be taken at both mid-flood and mid-ebb tides and at three water depths (1 m below water surface, mid-depth and 1 m above sea bed, except where the water depth is less than 6 m, in which case the mid-depth station may be omitted). Should the water depth be less than 3 m, only the mid-depth station will be monitored.

3.2.3 For the stream course, measurements shall be taken at mid-water depth.

3.2.4 The water quality parameters which need to be monitored are as follows:

- Marine water quality - dissolved oxygen (DO), temperature, turbidity, suspended solids (SS), pH and salinity
- Freshwater water quality - dissolved oxygen (DO), temperature, turbidity, suspended solids (SS) , pH and salinity

3.2.5 Additional marine and freshwater water quality monitoring parameters for the impact monitoring during construction include nitrate nitrogen (NO_3-N), nitrite nitrogen (NO_2-N), ammonia nitrogen (NH_3-N), total phosphate (TP) and selected pesticides.

3.2.6 The ET Leader shall propose the additional monitoring parameters for approval by IC(E), Engineer, EPD and AFCD, and shall submit such information for approval at least 2 weeks before the turf establishment period.

3.2.7 Additional water quality monitoring at Tai Tau Chau FCZ (TTC), Kai Lung Wan FCZ (KLW), Kau Sai FCZ (KS), downstream of the existing marsh (M_Marsh), marine water of Port Shelter (M_Coral), existing reservoir (F_Inland M) and Control stations (M_A and M_B) shall be carried out after heavy rain storm or when there is an overflow event from the reservoir, irrigation buffer lake or detention ponds/tanks. The heavy rain storm shall be defined when there is an amber/red/black rainstorm warning signal issued by the Hong Kong Observatory. The water sample shall be taken within 24 hours after the black/red/amber rainstorm warning signal is cancelled. Please refer to revised EM&A manual for the sampling condition requirement after a heavy rain storm event occurs. The monitoring parameters shall include dissolved oxygen, temperature, turbidity, suspended solids, pH and salinity. Additional parameters shall be the same as stated in paragraphs 3.2.5-3.2.6.

Monitoring Frequency

3.2.8 The monitoring parameters and frequency are summarized in Table 3.7. The monitoring programme for the reporting period is shown in **Annex B**.

Table 3.7 Water Quality Monitoring Parameter, Frequency and Locations

Parameters	Frequency	Location
Dissolved Oxygen (mg/L)	**3 days per week** Marine water : 2 times per day – 1 for mid-flood and 1 for mid-ebb Freshwater : once per day	**Marine Water** Fish culture zone stations: TTC, KLW, KS Control stations: M_A, M_B Impact stations: M_BP, M_RO1, M_Marsh, M_Coral **Freshwater Water** Stream A (F_UA, F_DA) Stream B (F_UB, F_DB) Stream C (F_UC, F_DC) Inland Marsh (F_lnland_M)
Temperature (ºC)		
Turbidity (NTU)		
pH		
Salinity (ppt)		
Suspended Solids (mg/L)		

Monitoring Locations

3.2.9 The water quality monitoring locations for marine and freshwater (**Figure 3.2**) are summarized in Table 3.8.

Table 3.8 Water Quality Monitoring Locations during Construction Phase

Identification Number	Location	Co-ordinates		Approx. Water Depth	No. of Depth
Marine Water (9 stations)		**latitude**	**longitude**		
TTC	Tai Tau Chau Fish Culture Zone	22° 22' 03.7"	114° 19' 19.6"	9.5 m	3
KLW	Kai Lung Wan Fish Culture Zone	22° 22' 10.6"	114° 18' 01.4"	13 m	3
KS	Kau Sai Fish Culture Zone	22° 20' 26.5"	114° 18' 59.9"	11 m	3
M_BP	Temporary barging point	22° 21' 50.6"	114° 19' 16.7"	9.6 m	3
M_RO1	Desalination plant south of the existing pier	22° 21' 51.8"	114° 18' 17.7"	5 m	2
M _ Marsh	Discharge point at the existing marsh	22° 22' 19.8"	114° 19' 05.4"	7.7 m	3
M _ Coral	Marine water of Port Shelter	22° 21' 21.3"	114° 19' 42.7"	10.2m	3
M _ A	Water Control Station of Port Shelter	22° 22' 51.3"	114° 18' 34.5"	7.5 m	3
M _ B	Water Control Station of Port Shelter	22° 20' 26.4"	114° 20' 11.8"	16.5 m	3
Fresh Water (7 stations)					
F_UA	Upstream and downstream of stream A	22° 21' 32.3"	114° 19' 06.5"	-	1
F_DA		22° 21' 33.5"	114° 19' 06.8"		1
F_UB	Upstream and downstream of stream B	22° 21' 23.9"	114° 19' 16.1"	-	1
F_DB		22° 21' 27.2"	114° 19' 16.0"		1
F_UC	Upstream and downstream of stream C	22° 21' 14.8"	114° 19' 26.4"	-	1
F_DC		22° 21' 03.5"	114° 19' 32.0"		1
F _ Inland M	Downstream of the existing marsh (Inland)	22° 22' 17.9"	114° 18' 59.1"	-	1

Monitoring Equipment

3.2.10 The equipment listed below shall be supplied by the ET and approved by the IC(E) and the Engineer for water quality monitoring.

Dissolved Oxygen and Temperature Measuring Equipment

3.2.11 The instrument shall be a portable and weatherproof DO measuring instrument complete with cable and sensor, and use a DC power source. The equipment shall be capable of measuring:

- dissolved oxygen levels in the range of 0 - 20 mg L^{-1} and 0 - 200% saturation; and
- a temperature of 0 - 45 degrees Celsius.

3.2.12 It shall have a membrane electrode with automatic temperature compensation complete with a cable. Sufficient stocks of spare electrodes and cables shall be available for replacement where

necessary. (For example, YSI model 59 meter, YSI 5739 probe, YSI 5795A submersible stirrer with reel and cable or an approved similar instrument).

3.2.13 Should salinity compensation not be built-in in the DO equipment, in-situ salinity shall be measured to calibrate the DO equipment prior to each DO measurement.

Turbidity Measurement Instrument

3.2.14 Turbidity shall be measured in situ by the nephelometric method. The instrument shall be portable and weatherproof turbidity measuring instrument using a DC power source complete with cable, sensor and comprehensive operation manuals. It shall have a photoelectric sensor capable of measuring turbidity between 0 - 1000 NTU (for example, Hach model 2100P or an approved similar instrument). The cable shall not be less than 25m in length. The meter shall be calibrated in order to establish the relationship between NTU units and the levels of suspended solids.

Suspended Solids

3.2.15 A water sample at least 2.5L in capacity with messenger and using a 10m line should be collected. Samples should be submitted to HOKLAS accredited laboratory as soon as possible for gravimetric analysis for suspended.

Sampler

3.2.16 A water sampler is required. It shall comprise a transparent PVC cylinder, with a capacity of not less than 2 litres, which can be effectively sealed with latex cups at both ends. The sampler shall have a positive latching system to keep it open and prevent premature closure until released by a messenger when the sampler is at the selected water depth (for example, Kahlsico Water Sampler or an approved similar instrument).

Water Depth Detector

3.2.17 A portable, battery-operated echo sounder shall be used for the determination of water depth at each designated monitoring station. This unit can either be hand held or affixed to the bottom of the work boat, if the same vessel is to be used throughout the monitoring programme.

Salinity

3.2.18 A portable salinometer capable of measuring salinity in the range of 0 - 40 parts per thousand (ppt) shall be provided for measuring salinity of the water at each monitoring location.

pH

3.2.19 The instrument shall consist of a potentiometer, a glass electrode, a reference electrode and a temperature-compensating device. It shall be readable to 0.1pH in a range of 0 to 14. Standard buffer solutions of at least pH 7 and pH 10 shall be used for calibration of the instrument before and after use. Details of the method shall comply with APHA, 19th ed. 4500-HTB.

Flow Rate Meter

3.2.20 A portable, battery-operated flow meter should be used for the determination of water depth at each designated monitoring location and record in m^3/s. A hand held or meter fixed to the underside of the survey boat may be used.

Sample Containers and Storage

3.2.21 Water samples for laboratory analysis shall be stored in high density polythene bottles with no preservative added, packed in ice (cooled to 4°C without being frozen) and delivered to the laboratory and analysed as soon as possible after collection. Sufficient volume of samples shall be collected to achieve the required detection limit.

Monitoring Position Equipment

3.2.22 A hand-held or boat-fixed type digital Differential Global Positioning System (DGPS) with way point bearing indication or other equipment instrument of similar accuracy, shall be provided and used during marine water monitoring to ensure the monitoring vessel is at the correct location before taking measurements.

Monitoring Methodology and Calibration Details

3.2.23 Dissolved oxygen (DO), temperature, turbidity, pH and salinity were measured in situ at the designated water quality monitoring stations. General observation, weather conditions, with the sampling time, date and location were marked on the field record sheet.

3.2.24 Water samples were taken from each monitoring station for laboratory analysis. The sample identification number, sampling location, date, time, project name and analyses were required.

3.2.25 The samples were placed in a cooler with ice (to 4°C without being frozen) and kept away from sunlight. Samples were submitted to a Hong Kong Laboratory Accreditation Scheme (HOKLAS) or other international accredited laboratory for analysis within 24 hours of sampling.

Calibration of In-Situ Instruments

3.2.26 All in situ monitoring instruments were checked, calibrated and certified by a laboratory accredited under HOKLAS or any other international accreditation scheme before use and subsequently re-calibrated at three monthly intervals throughout all stages of the water quality monitoring programme. Responses of sensors and electrodes were checked with certified standard solutions before each use. Wet bulb calibration for a DO meter were carried out before measurement at each monitoring location.

Laboratory Analysis

3.2.27 All laboratory work were carried out by ALS Technichem Pty Ltd (HOKLAS accredited laboratory). Water samples were collected at the monitoring and control stations for carrying out the laboratory determinations. The determination work will start within 24 hours after collection of the water samples. The analysis shall follow the standard methods according to APHA Standard Methods for the Examination of Water and Wastewater, 19th Edition, or an equivalent method approved by EPD.

Table 3.9 Analytical Methods to be applied to Water Quality Samples

Determinant	Standard Method	Reporting Limit
Suspended Solids	APHA 2540 D	2 mg/L
Nitrate Nitrogen	APHA 4500-NO_3^-	0.01 mg/L
Nitrite Nitrogen	APHA 4500-NO_2^-	0.01 mg/L
Ammonia Nitrogen	APHA 4500-NH_3(D)	0.01 mg/L
Total phosphorus	ASTM D515-88B	0.02 mg/L*
Chlorophyll a	APHA 10200 H2 &3	0.5 µg/L

Remarks: *After review baseline data, the detection limit report will be revised to 0.02 mg/L.

QA/QC Procedure

3.2.28 ALS Technichem Pty Ltd. has comprehensive quality assurance and quality control programmes. For QA/QC procedures of parameters, one duplicate sample was analysed for every batch of 20 samples as required by HOKLAS.

Event and Action Plans

3.2.29 The Event and Action Plan (EAP) for water quality monitoring is presented in **Annex C**.

3.3 Ecology

Introduction

3.3.1 The marine and terrestrial ecological monitoring surveys for the ecological EM&A were conducted in accordance with the EM&A manual.

3.3.2 As stipulated in the EM&A Manual, the ecological monitoring surveys for terrestrial ecology would be conducted monthly during the construction phase. Monitoring survey would consist of aquatic fauna survey. While the majority of the Project Area would be subject to site formation, natural streams would be partially or fully preserved and protected by buffer zones, and therefore would constitute the primary target of the terrestrial ecological monitoring. Special attention should thus be paid to ecologically sensitive streams to ensure minimum damage to existing vegetation and streams. The purpose of the monitoring survey was to check the conditions of the stream habitat and the associated aquatic fauna communities.

3.3.3 While the ecological monitoring surveys for marine ecology included coral monitoring at both the eastern and western coasts of Kau Sai Chau Island. The coral monitoring at the western coast would be conducted concurrently with the dredging works which has yet to conduct, and therefore had not been commenced. The coral monitoring at the eastern Kau Sau Chau would be monthly during the construction phase. Monitoring survey would consist of checking tagged corals at both impact sites and control site. The purpose of the monitoring survey was to check the conditions of the tagged corals and the impact sites.

Ecological Mitigation Measures and Implementations

3.3.4 Ecological mitigation measures to be implemented during the construction phase include the following:

- Establishment of buffer zones for the natural stream courses during both construction phase.
- Provision of temporary bypass channels or pipes during construction phase for stream courses subject to pipe culverting.
- Protection of water quality of the natural stream courses and temporary bypass channels or pipes.
- Transplantation of coral colonies within the dredging area for the desalination plant prior to the dredging works.
- Avoidance of corals when the anchoring points are deployed, and to shift the floating temporary barging point to the location with least corals within the mapping area.
- Regular site audit of ecological mitigation measures and good site practice.

Monitoring Frequency and Schedule

Terrestrial Ecology

3.3.5 As reported in the EIA Report, there were four perennial natural streams (Streams A-D) within the Assessment Area for the EIA Study. Streams A, B & C were located within the Project Area, while Stream D was outside the Project Areas and acted as the main stream draining the western part of the Assessment Area. Buffer Zone would be established for the three streams within the Project Area along their partial length (Stream A) or full length (Streams B & C) (**Figure 3.3**). Moreover, Streams B, C & D would be monitored for aquatic fauna monthly during the construction phase. Monitoring on the implementation of the mitigation measures for stream protection, the effectiveness of stream buffer zones, and the aquatic fauna in streams would be conducted during the entire construction phase.

3.3.6 The objectives of the monitoring survey are to check the status of *Caridina trifasciata* and *Nanhaipotamon hongkongensis*. The surveys covered natural stream courses within the assessment area (Streams A to D), and aquatic fauna were studied by various sampling methods depending upon site conditions. Methods included direct observation, active searching, and sample collection using hand-nets. Hand nets were used to collect swimming organisms such as shrimps and fish. Where necessary boulders on the stream beds were overturned to locate aquatic organisms such as crabs. Aquatic species encountered was recorded, with special attention to rare or protected species.

Marine Ecology

3.3.7 As required in the EM&A Manual, prior to the commencement of all construction works, a baseline survey of natural corals were conducted in December 2005. At each of the Site C, Site B2, Site D2 and a Control Site near the AFCD's Coral Buoy at Sharp Island (**Figure 3.4**), 20 natural coral colonies in good conditions (i.e. generally intact and no sign of bleaching) and significant sizes (over 20 cm in diameter) were selected and tagged. Each of the tagged coral colonies was identified to species level and their conditions, in terms of percentages of survival, sedimentation and bleaching, were recorded. Each coral was attached with a plastic label with assigned number and then photographed. The species and the size of each tagged corals were also recorded. The species of corals to have been tagged included the following 15 species: *Cyphastrea serailia, Favia speciosa, Favites abdita, Favites pentagona, Goniastrea aspera, Goniopora columna, Hydnophora exesa, Leptastrea pruinosa, Lithophyllon undulatum, Pavona decussate, Platygyra acuta, Platygyra carnosus, Plesiastrea versipora, Psammocora superficialis, and Turbinaria peltata.* All tagged corals were in good conditions, without significant sign of bleaching or being covered by sediments. The seagrass beds in Site D3 were also surveyed for their extent, coverage percentage and health conditions. The results of the baseline survey were presented in the Baseline Report.

3.3.8 The reporting month (March 2006) was the Month Three of the construction programme. As the dredging works for the desalination plant had not been commenced, the impact sites to be monitored in this monitoring survey were Site B2 and Site C (impact sites on the eastern Kau Sai Chau Island for the new golf course) only, while Site D2 and Site D3 (impact sites on the western Kau Sai Chau Island for desalination plant) were not required in this survey. The coral transplantation, which should be conducted prior to the commencement of dredging works, had not been performed. The monitoring on transplanted corals on the bedrock at Site D2 (see **Figure 3.5**) therefore was not needed in this survey.

3.3.9 The schedule for the impact sites on the eastern Kau Sai Chau Island during construction would be monthly in the first three months of the construction programme, and then quarterly till the

end of the construction and then. The present survey was the third monitoring survey (the third monthly survey). The survival and health conditions of the coral colonies were recorded.

3.3.10 During the weekly site inspection, ET monitored and audited the implementation of the recommended mitigation measures for terrestrial and marine ecology. Monitoring locations for ecology are shown in **Figures 3.3 – 3.5**. The monitoring programme for the reporting period is shown in **Annex B**.

Event and Action Plans

3.3.11 The Event and Action Plan (EAP) for ecology monitoring is presented in **Annex C**.

3.4 Landscape and Visual

3.4.1 The EIA concluded that the landscape and visual impacts associated with the construction of the third golf course are anticipated to be acceptable with mitigation. In order to ensure that the effective management and implementation of landscape mitigation measures developed and defined in the EIA, the ET conducted regular site inspections of the construction work sites.

3.4.2 Auditing inspections and reporting are undertaken once every two weeks of the construction phase. The effectiveness of the mitigation works has been audited in order to ensure impact reduction levels are achieved as described in the EIA report for this monitoring month. The monitoring programme for the reporting period is shown in **Annex B.**

3.5 Archaeology (Watching Brief)

Introduction

3.5.1 The archeological impact assessment conducted in the EIA concluded that some potential for archaeological material remains at the Wan Chai Archaeological Site and a watching brief is recommended during the construction phase.

3.5.2 A watching brief is a process whereby a qualified and licensed archaeologist monitors the excavation works during the construction phase in areas identified (and agreed with the Antiquities and Monuments Office (AMO)) to be of archaeological potential.

3.5.3 The archaeologist conducting the watching brief should obtain a licence prior to commencement of works as stipulated in Section 12 of the Antiquities and Monuments Ordinance (Cap. 53). The licence was granted on 22nd December 2005.

Monitoring Location

3.5.4 The monitoring locations include Hole 2, Hole 11, Hole 12, Hole 14, Hole 15 & Hole 16. The monitoring locations are present in **Figure 3.6**.

Monitoring Frequency

3.5.5 A total of 18 days of monitoring is considered as minimum, and additional arrangement for watching brief should be made in consultation with AMO in case significant archaeological findings are unearthed in the course of excavation work.

Progress Report

3.5.6 Archaeologist should submit progress reports every 3 months during the programme of the watching brief.

3.5.7 A summary table for categories of archaeological find and recommended action is presented in **Annex C**.

3.6 Land Contamination

Potential Areas Recommended for Further Investigation

3.6.1 Contamination Assessment Plan (CAP) shall be submitted to EPD for approval before site investigation. If land contamination is confirmed by the site investigation, submission of a Remediation Assessment Plan (RAP) including a Contamination Assessment Report (CAR) is required. Potential 5 land contamination hotspots are presented in **Figure 3.7**.

4. Implementation Status on Environmental Protection Requirements

4.1.1 The major works at construction site were (i) excavation at Holes 1, 2, 9 and 17, (ii) construction of temporary barging point, (iii) land formation for the concrete batching plant and site office at Hole 2 and (iv) land formation for desalination plant during this monitoring month.

4.1.2 The Contractor has provided interim/minimum preventive mitigation measures (silt fence mainly, rock bund covered with geotextile fabric at some low areas) to control silty runoff. For dust suppression, the Contractor was providing mainly at Hole 2 excavation (with water sprayer). Dust suppression on other areas was mainly controlled by water trucks on haul roads.

4.1.3 No dredging work has been carried out near to the existing pier for the desalination plant pipelines.

4.1.4 No chemical storage area and site office were available on site.

4.1.5 Stream buffer zone at Stream A and part of Stream B (tributary mainly) have been demarcated to prevent any works/equipment intrusion. As discussed with the Contractor, no work will be approach to the Streams B and C during this reporting month. The purpose is to minimize any disturbance to the stream due to the installation of the fencing which will strip a minimum amount of vegetation off along the edge of buffer zones areas. Contractor agreed that the demarcation of stream buffer zones at B and C will be carried out until works approach to those sensitive areas.

4.1.6 The revised construction programme has been submitted by the Contractor and under review by Jockey Club, ER and ET. The Contractor was reminded to ensure the revised programme should indicate minimize the exposed area in wet season, control vegetation clearance at sensitive areas and provide sufficient mitigation measures to minimize the potential silty runoff from the construction site. In addition, turf establishment should not be concentrated in a short period of time to reduce the potential nutrients and pesticides runoff to freshwater and marine water sensitive receivers. The Temporary Drainage Master Plan has not yet been submitted by the Contractor for approval during this reporting month.

4.1.7 Summary of implementation status is provided in **Annex D**.

5. Monitoring Results

5.1 Air Quality

5.1.1 Dust monitoring was conducted as scheduled in the reporting month. Monitoring of air quality was conducted on 5 occasions in February and March 2006. All monitoring data are provided in **Annex E**. Monitoring of 24-hour TSP was conducted at GCA B1 on 1st, 7th, 13th, 18th & 24th March 2006. The QA/QC results for laboratory testing in the reporting month were acceptable. The QA/QC results are summarised in **Annex F**.

5.1.2 All measured 24-hour TSP concentration was below the Action/Limit Levels. No exceedance was recorded in the reporting month. No 1-hour TSP measurement was required due to no complaint was received during this monitoring month.

5.2 Water Quality

5.2.1 Marine and freshwater water quality monitoring were conducted at the 9 and 7 designated monitoring stations respectively. All monitoring data are provided in **Annex E**.

5.2.2 Monitoring of marine and freshwater locations was conducted on 12 occasions in February and March 2006 (27th February, 1st, 3rd, 6th, 8th, 10th, 13th, 15th, 17th, 20th, 22nd and 24th March 2006). The QA/QC results for laboratory testing in the reporting month were acceptable. The QA/QC results are summarised in **Annex F**.

Marine Water

5.2.3 One exceedance of action level for suspended solids (SS) was recorded at M_Coral location on 24th March 2006 during this monitoring month. The exceedance of measured SS was 6.7 mg/L.

Freshwater

5.2.4 Six action and one limit levels exceedance for suspended solids were recorded at F_DA (1st & 8th March 2006), F_DB (1st, 3rd, 8th, 24th March 2006) and F_DC (13th March 2006). The exceedance of measured SS value was ranging from 4 to 10 mg/L. Three action and one limit levels exceedance for turbidity were recorded at F_DA (1st & 24th March 2006), F_DB (8th March 2006) and F_Inland Marsh (3rd March 2006). The exceedance of measured turbidity value was ranging from 3.5 – 15.6 mg/L. ET's assessment showed that the exceedance was not attributed to the works and therefore no further action was required. The exceedance is mainly due to variation of the streams and rain.

5.2.5 The ET considered that exceedances were not attributed to construction work. Major cut-and-fill work was conducted at Holes 1, 2, 9 & 17. No intrusion of buffer zone areas for the temporary bridge at Stream A during the reporting month. The exceedances were considered as the natural variation for the dry season and rain. Explanation of the SS exceedances at the impact monitoring locations are as follows:

- No construction work was carried out near to Streams B, C and existing marsh during this reporting month.
- The measured maximum exceedances of SS and turbidity at F_DA on 1st March 2006 were 10 mg/L and 15.6 NTU. The increase of SS and turbidity of upstream of Stream A (F_UA) are 7 mg/L and 16.1 NTU also recorded respectively. The increase of SS and

turbidity for the upstream and downstream was mainly due to the series of patchy of rain in the past few days.

- The baseline data represents a good dry season water quality that was measured in Nov and Dec 2005. The action and limit levels of SS and turbidity are subjected to further review (especially before wet season) in order to ensure the action and limit levels are sufficient to protect the streams form adverse impacts. With the consideration of the natural variation by the long-term monitoring results in future, a more representative action and limit levels can be establish to distinguish between the natural variation and actual impact from the construction site.

5.3 Ecology

5.3.1 Terrestrial and marine ecology monitoring photos are provided in **Annex E**.

Terrestrial Ecology

5.3.2 The Monitoring Survey for the reporting month was conducted on 17th March 2006. Site clearance works were advancing eastward and southward, and some earth works had been being conducted at the northern part of the new golf course site (areas closer to the existing golf course). There were also pathways beyond the works fronts to facilitate the land surveying works and the EM&A sampling on environmental parameters such as water quality and air quality by ET personnel.

5.3.3 Although the surveyed streams have not been previously affected by developments or pollution sources, they are relatively small. Water depth was less than 0.3m in most of the stream reaches even during wet season. Currently (still within dry season) these streams had very small surface flow or even had no surface flow for most of the length.

5.3.4 Stream A is located within the Project Area. Its main stream section (downstream to the confluence of two tributaries) would be protected by stream buffer zone (**Figure 3.3**). Stream A was heavily silted with sediments from eroded hillsides all year round, particularly at the main stream section. The stream had low flow.

5.3.5 Stream B is located within the Project Area. It had clear flow (with little sediment in the stream beds) of moderate volume during the wet season. This stream also has two main tributaries, B1 and B2. The full length of Stream B (two tributaries and the main stream) would all be protected by buffer zone (**Figure 3.3**). Stream B also contains a long estuarine section of muddy sandy substrate.

5.3.6 Stream C is located within the Project Area. This stream also has two main tributaries. It has had low but clear flow. In contrast to Stream B, Stream C drains to a sandy beach at Kau Chung Wan, and therefore lacks a clear estuarine zone. The full length of Stream C (two tributaries and the main stream) would all be protected by buffer zone (**Figure 3.3**)

5.3.7 Stream D is located outside the Project Area but within the Assessment Area and is the main stream draining the west side of the Assessment Area. It had clear water and moderate flow levels. Stream D is the only stream with deeper water depth among the four streams (water depth over 0.3 m in some of the stream reaches). As Stream D is outside the construction area, buffer zone would not be needed for this stream.

5.3.8 In general, the streams and the riparian vegetation were in natural conditions similar to the condition during the Baseline Survey. Water levels in the 4 streams were very low due to dry season. For the two tributaries in Stream B, B1 tributary was dry but there was flow in B2

tributary. The majority of Stream C was also dry, with limited number of isolated (not connected by surface flow) shallow pools in the downstream section. Stream D also had isolated shallow pools at the most upper reach. Photos of Streams A to D were shown in **Photo Plate 5.3-1 (Annex E)**.

5.3.9 The habitats and vegetation generally remained intact within a large potion of the project site (beyond the works fronts), within the stream buffer zone and outside the project area. No earthwork, human disturbance or fire disturbance was observed beyond the works fronts other than the historical erosion of hillsides and the access paths to the project site,.

5.3.10 Aquatic fauna communities were checked during the monitoring survey. Atyid shrimp *Caridina trifasciata* were found in Stream B, Stream C & Stream D during the present monitoring survey (**Annex E - Photo Plate 5.3-1**). Abundance was low in all streams but slightly higher in Stream B & Stream C. Stream D had been of higher shrimp abundance in the January and February 2006 survey, but became much dryer in the present survey. The shrimp abundance had also become very low.

5.3.11 Other aquatic fauna and flora encountered during the monitoring included Freshwater snail *Brotia hainanensis*, which is usually found in streams with good water quality, found at B2 tributary of Stream B, and Long-armed Palemond shrimp *Macrobrachia hainanensis* in the isolated shallow pools in Stream C, and Sundew. Some wild boar footprints were also found at the stream bed of Stream A (**Annex E - Photo Plate 5.3-1**).

5.3.12 The demarcation of the stream buffer zone had been fully established at Stream A main stream and Tributary B2 of Stream B at the time of the monitoring survey. Riparian vegetation within the buffer zone was not disturbed by construction works. As the construction works fronts had not exceeded Stream A, it is anticipated that the establishment of stream buffer zone demarcation will be finished before the works fronts reach Tributary B1 and Stream C.

Marine Ecology

5.3.13 The present Marine Ecological Monitoring Survey was conducted during high tide on 23rd & 25th March 2006. The weather conditions were cloudy but calm, the underwater visibility was fine (approximately 5m). Less much macro algae were found at all three monitored sites on the surfaces of boulder or corals than in the last (February 2006) monitoring. At each site to be monitored for corals, the 20 colonies of natural corals selected during the Baseline Survey were recovered and checked for conditions.

5.3.14 Site B2 was the location for the temporary barging point. Although the temporary barging point had not been installed when the present monitoring survey was conducted, some site formation works had been being conducted at the nearby abandoned pier and the intertidal zone of the barging point location. Some rectangular concrete blocks were deployed along the seaward side of the intertidal zone to form a seawall, and the area landward to this wall was filled with boulders. This will be used as the landing point of the temporary barging point. Road surface was formed near the abandoned pier and connected to the landing point. It was found that some boulders and sand present outside the seawall, and some tagged corals were damaged. The conditions of the tagged corals during the present survey were compared with the conditions during the Baseline Survey (**Annex E - Photo Plates 5.3-2 to 5.3-5**). Among the 20 tagged corals, 6 of them had more obvious damages (i.e. B-03, B-04, B-06, B-07, B-09 and B-10, see **Table 5-3-1** below), while another two tagged corals (i.e. B-08 & B-15) had minor damages. An assessment survey will be proposed and then formulate practicable remedial plan.

5.3.15 Site C was on the south-eastern coast of Kau Sai Chau Island and had a high coral coverage among the sites investigated during the EIA Study. The sizes of coral colonies at Site C were

also larger than those at other sites. Site C was away from the boundary of the new golf course and would not be subject to direct impacts during construction. The site and its vicinity still remained similar conditions as during the Baseline Survey. All 20 tagged corals were recovered. No mortality, sedimentation or bleaching was found on any of the tagged corals (see **Table 5.3-2**). The corals remained similar conditions as during the Baseline Survey (**Annex E - Photo Plates 5.3-6 to 5.3-9**).

5.3.16 The Control Site is the buoy of coral marker established by AFCD in Sharp Island. Similar with Site C, both the coral coverage percentage and the sizes of coral colonies were high at this site and would not be impacted by the Project. The site and its vicinity still remained similar conditions as during the Baseline Survey. All 20 tagged corals were recovered. No mortality, sedimentation or bleaching was found on any of the tagged corals (see **Table 5.3-3**). The corals remained similar conditions as during the Baseline Survey (**Annex E - Photo Plates 5.3-10 to 5.3-13**).

5.3.17 **Photo Plates 5.3-2** to **5.3-13** showed the photos of each tagged corals. The assigned numbers, species, mortality percentage, sedimentation coverage percentage and bleaching percentage of the tagged corals during baseline survey and the present survey were presented in **Tables 5.3-1** to **5.3-3** below. Damages on tagged corals at Site B2 were identified.

Table 5.3-1 Conditions of tagged corals at Site B2

Code of tagged corals	Species*	Baseline Survey (December 2005)			Month Three (March 2006)		
		Mortality (%)	Sedimentation (%)	Bleaching (%)	Mortality (%)	Sedimentation (%)	Bleaching (%)
B-01	*Platygyra acuta*	0	0	0	0	0	0
B-02	*Favia speciosa*	0	0	0	0	0	0
B-03	***Turbinaria peltata***	0	0	0	*	0	0
B-04	***Leptastrea pruinosa***	0	0	0	0	*	0
B-05	*Cyphastrea serailia*	0	0	0	0	0	0
B-06	***Favia speciosa***	0	0	0	*	0	0
B-07	***Favia speciosa***	0	0	0	*	0	0
B-08	***Turbinaria peltata***	0	0	0	*	0	0
B-09	***Favia speciosa***	0	0	0	*	0	0
B-10	***Favia speciosa***	0	0	0	*	0	0
B-11	*Turbinaria peltata*	0	0	0	0	0	0
B-12	*Plesiastrea versipora*	0	0	0	0	0	0
B-13	*Plesiastrea versipora*	0	0	0	0	0	0
B-14	*Goniastrea aspera*	0	0	0	0	0	0
B-15	***Lithophyllon undulatum***	0	0	0	0	*	0
B-16	*Favia speciosa*	0	0	0	0	0	0
B-17	*Favia speciosa*	0	0	0	0	0	0
B-18	*Turbinaria peltata*	0	0	0	0	0	0
B-19	*Favia speciosa*	0	0	0	0	0	0
B-20	*Favia speciosa*	0	0	0	0	0	0

*** show sign of damage**

Table 5.3-2 Conditions of tagged corals at Site C

Code of tagged corals	Species	Baseline Survey (December 2005)			Month Three (March 2006)		
		Mortality (%)	Sedimentation (%)	Bleaching (%)	Mortality (%)	Sedimentation (%)	Bleaching (%)
C-01	*Platygyra carnosus*	0	0	0	0	0	0
C-02	*Platygyra carnosus*	0	0	0	0	0	0
C-03	*Favia speciosa*	0	0	0	0	0	0
C-04	*Favites abdita*	0	0	0	0	0	0
C-05	*Turbinaria peltata*	0	0	0	0	0	0
C-06	*Favia speciosa*	0	0	0	0	0	0
C-07	*Platygyra acuta*	0	0	0	0	0	0
C-08	*Platygyra acuta*	0	0	0	0	0	0
C-09	*Favia speciosa*	0	0	0	0	0	0
C-10	*Platygyra acuta*	0	0	0	0	0	0
C-11	*Favia speciosa*	0	0	0	0	0	0
C-12	*Platygyra acuta*	0	0	0	0	0	0
C-13	*Platygyra carnosus*	0	0	0	0	0	0
C-14	*Favia speciosa*	0	0	0	0	0	0
C-15	*Goniopora columna*	0	0	0	0	0	0
C-16	*Platygyra carnosus*	0	0	0	0	0	0
C-17	*Goniopora columna*	0	0	0	0	0	0
C-18	*Platygyra carnosus*	0	0	0	0	0	0
C-19	*Favites pentagona*	0	0	0	0	0	0
C-20	*Favia speciosa*	0	0	0	0	0	0

Table 5.3-3 Conditions of tagged corals at Control Site

Code of tagged corals	Species	Baseline Survey (December 2005)			Month Three (March 2006)		
		Mortality (%)	Sedimentation (%)	Bleaching (%)	Mortality (%)	Sedimentation (%)	Bleaching (%)
X-01	*Platygyra carnosus*	0	0	0	0	0	0
X-02	*Platygyra carnosus*	0	0	0	0	0	0
X-03	*Platygyra carnosus*	0	0	0	0	0	0
X-04	*Pavona decussata*	0	0	0	0	0	0
X-05	*Hydnophora exesa*	0	0	0	0	0	0
X-06	*Platygyra carnosus*	0	0	0	0	0	0
X-07	*Platygyra carnosus*	0	0	0	0	0	0
X-08	*Favites abdita*	0	0	0	0	0	0
X-09	*Cyphastrea serailia*	0	0	0	0	0	0
X-10	*Cyphastrea serailia*	0	0	0	0	0	0
X-11	*Platygyra carnosus*	0	0	0	0	0	0

Code of tagged corals	Species	Baseline Survey (December 2005)			Month Three (March 2006)		
		Mortality (%)	Sedimentation (%)	Bleaching (%)	Mortality (%)	Sedimentation (%)	Bleaching (%)
X-12	*Platygyra acuta*	0	0	0	0	0	0
X-13	*Platygyra acuta*	0	0	0	0	0	0
X-14	*Platygyra acuta*	0	0	0	0	0	0
X-15	*Platygyra acuta*	0	0	0	0	0	0
X-16	*Platygyra acuta*	0	0	0	0	0	0
X-17	*Favia speciosa*	0	0	0	0	0	0
X-18	*Platygyra acuta*	0	0	0	0	0	0
X-19	*Goniastrea aspera*	0	0	0	0	0	0
X-20	*Cyphastrea serailia*	0	0	0	0	0	0

5.4 Landscape and Visual

5.4.1 The only landscape resource change during the site clearance work is the loss of scrubland. As the construction progress, more vegetation and shrubs will be cleared, which will be followed by planting works.

5.5 Archaeology (Watching Brief)

5.5.1 Excavation was carried out at Hole 2 during this monitoring month and watching brief monitoring was carried out. The proposed construction progarmme of cut-and-fill for Hole 2 will start from January and completed in May 2006. For the proposed construction programme at Holes 11, 12, 14, 15 and 16 within the watching brief area will be starting from Dec 2006, Oct 2006, Jul 2006, Mar 2007 & Jul 2006 respectively. The tentative submission of the first progress report to AMO will be on April 2006 (quarterly basis).

5.6 Land Contamination

5.6.1 The Contamination Assessment Plan (CAP) was approved by EPD 17th February 2006. Site investigation was carried out on 14th and 15th February 2006. Site audit was carried out with IEC on 14th February 2006 with the Contractor's representatives. The CAP was approved on 17th February 2006. Contamination Assessment Report (CAR) was submitted to EPD for approval on 23rd March 2006. Based on the results, all 5 hotspots are not contaminated by Lead and Sulfur. Therefore, Remediation Assessment Plan (RAP) is not required.

6. Environmental Site Auditing

6.1.1 A joint site inspection was conducted with EPD, IEC and Contractor's representatives on 10th March 2006. During the site inspection, EPD has verbally raised their following concerns:

(i) Dust emission was observed during the rock filling activities at the temporary barging point. No dust suppression measures were applied and the Contractor has been reminded to rectify.

(ii) EPD considers the plastic fencing area adjacent to the existing Hole S6 is not sufficient for dust suppression mitigation measures and hoarding shall be provided in that area.

(iii) EPD also enquired the progress of installation of the temporary drainage system on site.

In addition, EPD was also concern about the temporary drainage system for the concrete batching plant on how to confine, recycle and reuse of concrete washing out of the concrete batching site.

The Contractor has been reminded to ensure no discharge of concrete washing from the concrete batching plant according to their submission on 2nd March 2006 (ref. no.: CHEC/KSC3/9.1/0327) to EPD.

6.1.2 The weekly site inspections were conducted by the ET with Contractor's representative and/or Jockey Club's representative on 3rd, 8th, 10th, 15th, 22nd March 2006 and the monthly joined site inspection with IEC and the Contractor's representative undertaken on 22nd March 2006. The following observations and recommendations were made.

Dust Mitigation Measures

6.1.3 Excavation work was carried out at Holes 1, 2, 9 & 18. Sprinklers were provided when the rock breaking activities were carried out for dust suppression at Hole 2 only. A standby water tank was available on site. The Contractor was reminded to minimize the dust generated by the site vehicles moving along the haul road between Holes 1 and 2 near to the existing golf course (S6 and S7). For other excavation or earth moving areas, the Contractor was reminded to provide dust suppression measure.

6.1.4 The Contractor was repeatedly reminded to properly install hoarding near to existing S6. No hoarding was installed on site at area near to existing S6 during this reporting month. The Contractor was recommended to further discuss with Jockey Club and ER for the installation of hoarding under the APCO requirement where the construction site area is close to the existing golf holes.

Water Quality

6.1.5 A temporary drainage master plan had not been formally submitted by the Contractor for ER to review during this monitoring month. Project proponent, ER and ET had reminded Contractor to submit the plan for comment and approval. It is recommended that installation of approved temporary drainage system at the construction site shall be available before the wet season.

6.1.6 Silt fences and rock bund covered with geotextile fabric were installed and strengthen some of at the relative some low areas (vulnerable to silty runoff) of the construction site boundary at Holes 1, 2, 9 and 17 as a preventative silty runoff measure. Some installed silt fence areas along the site boundary were poorly maintained. The Contractor was reminded to maintain the

integrity and function of the silt fences on regular basis to prevent the silty runoff from construction site.

6.1.7 For the construction of temporary bridge no.9 across the Stream A, intrusion of buffer zone for abutment of the bridge was required and unavoidable. Due to the site condition (slope of both side buffer zone are downward towards the stream), runoff from the construction work is a major potential impact. Based on the site observation on the implemented mitigation measure (silt fence at the lowest part of the works boundary only), it cannot cater for the polluted water runoff from construction site to Stream A. The Contractor was reminded to provide adequate facilities on site to ensure no polluted runoff discharge from the construction works to Stream A. A sufficient temporary drainage should also be provided to confine and divert away any polluted runoff from the temporary bridge away from the stream. Any direct and indirect discharge of polluted runoff to the stream is prohibited.

6.1.8 The Contractor was repeatedly reminded to provide adequate temporary drainage system at haul road between temporary barging point to Hole 2. Based on the site observation, sediment in the sump has been accumulated. The Contractor was recommended to frequently remove the accumulated sediment and maintain in a clean condition before and after rain.

6.1.9 Construction of temporary barging point was started in mid-March 2006. The major construction method was rock filling to construct a temporary platform for the floating pontoon. Two incidents were recorded that silty plume was observed adjacent to the temporary barging point during construction. The Contractor was reminded to prevent any silty water discharge to the marine water during construction by providing sufficient silty water preventive measure.

6.1.10 Wheel washing facility was not available on site. The Contractor was suggested to provide at the following exit/entrance.
(i) Adjacent to the existing maintenance building,
(ii) Desalination plant exit/entrance; and
(iii) Temporary barging point

Ecology

6.1.11 Only Stream buffer zone at Stream A has been established during this reporting month. The whole buffer zone aims to protect the streams and avoid any works/equipment intrusion into the buffer zone. No work has been carried out near Streams B and C. The Contractor was reminded to demarcate Streams B and C buffer zones before any construction work close to the buffer zone areas.

6.1.12 The Contractor was reminded to minimize the footprint area for the temporary bridge construction at Stream A. When the disturbance to vegetation is unavoidable, all disturbed areas should be hydroseeded or planted with suitable vegetation to blend in with natural environmental upon completion of construction works.

6.1.13 For the construction of floating pontoon, the Contractor was reminded to locate all anchoring points on the shore and/or at least 40m seaward to avoid coral communities near shore according to EP.

Waste / Chemical Management

6.1.14 Cleared vegetation was stockpile and located mainly in Holes 1 and 17 or along the site boundary (outside the silt fences) for wind/sun drying before proper disposal. The Contractor was reminded to remove the vegetation stockpiles and construction waste and dispose off-site properly according to the waste management plan.

6.1.15 No chemical storage area was available on site during the reporting month. Some oil tanks were required as the standby fuel. Drip trays were provided underneath the oil tanks to prevent leakage on the bare ground. The Contractor was reminded to provide chemical storage areas for chemical storage.

6.1.16 Site office is not available on site. Mobile chemical toilets were provided on site. The number of workers could be increased up to 200 persons on site. The Contractor was reminded to provide sufficient sewage treatment facility and/or mobile chemical toilets on site to cater for the needs.

Landscape and Visual

6.1.17 The landscape and visual monitoring and site audits were carried out on 3rd and 20th March 2006. During the site audit, site formation and vegetation clearance works were being carried out. Trees within the construction area were protected properly.

6.1.18 First root pruning of Tree T1230 and T1233 next to the administrative building were carried out in early March 2006. These trees were in fair condition during the second inspection. Stockpiles of cleared vegetation were still recorded on site and should be removed as soon as possible.

6.1.19 Green hoardings were erected near the desalinization plant and next to administrative building to reduce visual impacts.

Status of Environmental Licensing and Permitting

6.1.20 Permits / licences submission and approval status are summarised in Table 6.1.

Table 6.1 Summary of Environmental Licensing and Permit Status

Permit/licence/notification form title	Submission date	Status	Registration No./ Remarks
Application for a construction noise permit for the use of powered mechanical equipment for the purpose of carrying out construction work other than percussive pilling and/or the carrying out of prescribed construction work.	21st Jan 2006	Approved on 16th February 2006	GW-RE0012-06 (valid until 3rd July 2006)
Notification of the air pollution control (construction dust) regulation	21st Jan 2006	Acknowledge receipt from EPD on 27th Feb 2006	Ref. no.: 001006902
Registration as a chemical waste producer	10th Jan 2006	Register on 7th February 2006	WPN-5213-813-C1186-04
Application for a permit to dump material at sea under the Dumping at Sea Ordinance	10th Jan 2006	Deferred by CHEC on 17th March 2006 (CHEC/KSC3.9.1/0459)	No dredging work will be carried out between May to December 2006.
Application of exemption account for the construction waste charging scheme	12th Jan 2006	Approved on 16th January 2006	A/C no. 5005322 (valid until 2nd August 2007)
Application for a licence for production pursuant to Section 14 of Air pollution Control Ordinance	2nd Mar 2006	The total silo capacity for the cement works was 45 tonnes which is lower than 50 tonnes. It is not a specified process, application is	EPD letter refer. no.: EP640/EA/SK/015

Permit/licence/notification form title	Submission date	Status	Registration No./ Remarks
		not required.	
Application for a licence under Water Pollution Ordinance – Sewage treatment for toilets and pantry	14th Mar 2006	Awaiting for approval (CHEC/KSC3/9.1/0414)	
Application for a licence under Water Pollution Ordinance – temporary drainage	16th Mar 2006	Awaiting for approval (CHEC/KSC3/9.1/0460)	

7. Environmental Non-Conformance

7.1 Summary of Environmental Non-Compliance

Water Quality

7.1.1 For marine water, one exceedance of action level for suspended solids (SS) was recorded at M_Coral location on 24th March 2006.

7.1.2 For freshwater, six action and one limit levels exceedance for suspended solids were recorded at F_DA (1st & 8th March 2006), F_DB (1st, 3rd, 8th, 24th March 2006) and F_DC (13th March 2006).

7.1.3 In addition, three action and one limit levels exceedance for turbidity were recorded at F_DA (1st & 24th March 2006), F_DB (8th March 2006) and F_Inland Marsh (3rd March 2006) for freshwater monitoring locations. The exceedance of measured turbidity value was ranging from 3.5 – 15.6 mg/L.

7.1.4 ET's assessment showed that the exceedance was considered not project related and therefore no further action was required. The exceedance is mainly due to variation of the streams and rain.

Coral

7.1.5 Non-compliance was recorded on the coral damage (23rd March 2006) for the construction of temporary barging point (Site B2) (rock filling activity) during this reporting month. Six tagged corals at Site B2 were found damaged to various extends.

7.2 Summary of Environmental Complaint

7.2.1 One compliant was received during this reporting month. A copy of compliant letter (forward by Contractor) from the fish pond holder (Tiu Cham Wan) was received on 11th March 2006 in this monitoring month. One of their concerns was on the water quality that the construction activities may potentially pollute the water quality within their fish pond area.

7.2.2 The Contractor has been reminded to modify the haul road to minimize the potential silty runoff and some progresses have been observed during the site audit. The Contractor was again reminded to install sufficient temporary drainage before wet season. Site audit and monitoring was routinely carried out in January and February 2006 (nearest monitoring location is M_BP). No non-compliance was recorded. In addition, on-site observation reveals no evidence of fish culture activity in the mentioned area.

7.3 Summary of Environmental Summons

7.2.3 There was no notification of summons with respect to environmental issues registered in this month.

8. Future Key Issues

8.1 Key Issues for coming month

8.1.1 Works to be taken for the coming monitoring period are summarized as follows.

- Construction and operation of temporary barging point
- Construction of haul road (GH 3 to 8)
- Construction of temporary bridge no.9 at Stream A
- Construction of site office
- Construction of concrete batching plant
- Land formation for desalination plant
- Cut and fill at Golf Holes 1, 2, 3, 8, 9 & 17

8.2 Monitoring Schedule for the coming month

8.2.1 The tentative schedule of air, water, ecology and landscape & visual monitoring for the next three months is presented in **Annex F**. The environmental monitoring will be conducted at the same monitoring locations in this reporting month. The monitoring programme has been reviewed and was considered as adequate to cater the nature of works to be undertaken.

8.3 Construction programme for the next three month

8.3.1 The construction programme for the next three months is presented in **Annex G.**

9. Recommendations and Conclusions

9.1.1 The Environmental Monitoring and Audit (EM&A) Report presents the EM&A works undertaken during the period from 25th February 2006 to 24th March 2006 in accordance with EM&A Manual and the requirement under EP-224/2005.

9.1.2 No exceedance of the Action and Limit Levels of 24-hour TSP.

9.1.3 One exceedance of action level for suspended solids was recorded at M_Coral.

9.1.4 Six action and one limit levels exceedance for suspended solids were recorded at F_DA, F_DB and F_DC.

9.1.5 Three action and one limit levels exceedance for turbidity were recorded at F_DA, F_DB, F_Inland Marsh for freshwater monitoring locations.

9.1.6 For freshwater and marine water quality, all of the exceedances were considered not project related and mainly contributed by natural variation.

9.1.7 For terrestrial ecology, the streams and the riparian vegetation were in natural conditions similar to the condition during the Baseline Survey.

9.1.8 Six tagged corals at Site B2 were found damaged to various extends. This has been report relevant parties, incident report and remedial action proposed by Contractor will be submitted to EPD and AFCD for comments. For Site C and the Control Site still remained similar conditions as during the Baseline Survey. No mortality, sedimentation or bleaching was found on the tagged corals in these two sites.

9.1.9 Vegetation clearance work is being carried out at present. Tree protection is satisfactory. Stockpiles of cleared vegetation were found stored on site and require removal. The Contractor was reminded to dispose the vegetation stockpiles and construction waste when temporary barging point is available on site.

9.1.10 No environmental non-compliance was recorded during the site audit. One environmental complaint and no environmental summons/prosecutions were received during the reporting period since the commencement of the Project.

9.1.11 The ET will keep track of the EM&A programme to ensure compliance of environmental requirements and the proper implementation of all necessary mitigation measures.