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

Quarterly Environmental Monitoring & Audit (EM&A) Report for July to September 2006

(Report No. 382210/Q_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) Quarterly Report Jul - Sept 06 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 Quarterly Report Jul - Sept 06 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 

_____
Independent Environmental Checker

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Date 31 October 2006

Executive Summary

This is the third quarterly 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 third quarter of 2006 from July to September 2006.

In the reporting quarter, the following activities took place for the Project:

- Vegetation Clearance (Holes 3-11, 16-18)
- Earthworks
  - Holes 3-12, 16-18
  - Desalination plant (site formation and related pipelines but no dredging of pipelines)
  - Operation of concrete batching plant (located at Hole 2)
  - Operation of sewage treatment work (site office)
  - Operation of wastewater treatment plants (near Hole 1 and Contractor's site office)
- Operation of temporary barging point at EP location
- Demarcation of Stream buffer zone of Streams B (B1 and B2) and C (one side near to the work)
- Construction of permanent bridge no. 5 (near the freshwater inland marsh)
- Operation of temporary bridges no. 9 at Stream A, no. 10 at Stream B1 and B2 and no. 5 at freshwater inland marsh
- Temporary drainage system implementation
- Permanent close low flow drainage implementation including lakes, gravity drains, rising mains, pumping stations
- Operation of wheel washing facility near maintenance building
- No major earthwork has been carried out at Holes 12, 13, 14 and 15 (part of haul road only).

Variation of the Environmental Permit for the temporary stream crossings at Stream B (B1 & B2) during wet seasons was approved on 18 August 2006 and construction at the southern portion of the third golf course was commenced after approval was obtained. Construction of temporary crossings at Streams B2 and B1 were completed in late August 2006 and early September 2006 respectively. The decking of the two temporary crossings was paved with concrete. Vegetation clearance and haul road formation were started in early September 2006 at Holes 11, 12 and 14-16. Bulk earthwork was commenced in mid-September 2006 at Hole 11.

Contamination Assessment Report (CAR) and Remediation Action Plan (RAP) were approved on 18 August 2006. A pilot scale for the remedial work of the contaminated soil at Hole 18 was carried out during the reporting month. The full scale remediation work will be carried out on 4 October 2006 and a Final Site Remediation Report (FSRR) will be prepared by the Contractor in the next reporting month.

According to the EM&A manual, a grave (G20) located at Hole 2 is required to be preserved by record and will be carried out during the next reporting month (23 October 2006). Archaeology watching brief was started at Holes 11, 12, and 16 in September 2006.

For northern and central portions of the third golf course, most of the bulk earthworks were completed at Holes 1-9 and 17 during the reporting month. It will move to the next phases of the construction sequence which are mainly the drainage system installation, irrigation system installation, turfing and furnishing. For southern portions of the third golf course, major construction works are vegetation clearance, haul road formation and bulk earthworks. The expected turf establishment period will be started in December 2006 but it will totally depend on the availability and water quality of the water source from desalination plant, existing reservoir and water storage from rain water on site. There is no conclusive planting date

yet. However, Holes 3, 5 & 8 will be the three targets golf holes for earliest turfing.

Environmental Monitoring Works

A summary of the monitoring activities in this quarter is listed below:

24-hour Total Suspended Particulates (TSP) monitoring at GCA B1	16 times
Water quality monitoring (marine + freshwater)	18 times
Terrestrial Ecology	3 times
Marine Ecology	1 time
Landscaping & Visual	6 times

Air Quality

All measured 24-hour TSP concentrations in the reporting quarter were below the Action and Limit (AL) Levels.

Water Quality

During the third quarterly period (Jul to Sept 2006), exceedances were recorded, mainly suspended solids and turbidity, at M_RO1, KLW, M_Marsh, TTC, M_BP and KS (marine monitoring stations). Only exceedances recorded at M_Marsh and M_BP were considered project-related. The other exceedances were considered not attributed to the works and therefore no further action was required.

For freshwater monitoring stations, exceedances were recorded, mainly suspended solids and turbidity, at all monitoring locations (Streams A, B, C and downstream of freshwater inland marsh). There is long term exceedances trend of suspended solids and turbidity at freshwater inland marsh since late April 2006 after the first rainstorm occurred on 24th April 2006. Exceedances were mainly contributed due to the heavy rainstorm events and insufficient temporary drainage system implemented on site. There is also sharp increase of suspended solids and turbidity at Stream C once commencement of work at Holes 14 and 16. This is mainly attributed to insufficient temporary drainage system implemented on site.

Ecology

Terrestrial

Non-compliance was recorded at downstream end of Stream A during the previous reporting quarter (June 2006). The incident was due to the rock fill slope failure located adjacent to the Stream A of Hole 17 after several rainstorm events. Different size of rocks were being washed away and filled at the downstream end of the Stream A. The main stream course of Stream A was found to be filled up with rubbles to the level of the weir at its downstream end. Remedial work was not implemented by the Contractor to clear the rubbles and restore the channel by hand during the reporting quarter.

Several rainfalls in September 2006 had significantly increased the flow in the streams, but the advance of works fronts also increased the sediment inside the streams, especially in Stream C. It was observed that the water in Stream C was not clear but with a certain degree of turbulence. This observation coincided with the suspended solids and turbidity exceedances of water quality record during the reporting quarter.

Marine

According to the additional three month coral monitoring at Site B2, Site C and Control Site (Apr to June 06) due to the coral damage incident happened on 26th Mar 06, no exceedance was recorded on corals. The quarterly coral monitoring has been resumed in September 2006. In the quarterly coral survey, most of these tagged corals at Site B2 were in similar conditions as in last monitoring (June 2006), but two

tagged corals were missing (B-59 & B-60) and B-42 was found upside down on the seabed. Mortality was also found on B-19. There were also damages (mortality and anchor damages) on two tagged corals at Site C (C-04 and C-10). The partial mortality of those colonies should not be considered as a consequence of the operation of the temporary barging point. It is considered that coral damages were cause by the vigorous waves action induced by the typhoon occurred between July to September 2006. The Control Site still remained in similar conditions as during the Baseline Survey (no mortality, sedimentation or bleaching was found).

Environmental, Landscape and Visual Audit, Watching Brief, Land Contamination

Environmental Audit

Site audit was carried out on a weekly basis to monitor environmental issues on the construction sites. The Contractor generally implemented the mitigation measures recommended in the EIA report to minimise the environmental impacts due to the construction works. Weekly site inspection and *ad hoc* site inspection were carried out to identify the potential source of dust, silt and waste management. However, the monitoring results revealed that the temporary drainage system implemented and dust suppression measures were insufficient during reporting quarter. Waste management was unsatisfactory during the reporting quarter.

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

- Water/modify the haul road during rock breaking, loading/unloading of dusty materials in order to minimize dust generation;
- Minimize the water quality impact when undertaking cut-and-fill works. It is important to provide sufficient temporary drainage at critical areas to confine, collect and provide proper treatment before discharging to marine water and stream courses to ensure that the water quality is complied with WPCO requirements;
- 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;
- Provide mitigation measures to the large stockpiles located near Hole 9 & 18 to prevent silty runoff and dust generation;
- Minimize the cut-and-fill areas especially during wet seasons;
- Properly dispose of the vegetation stockpiles, general refuse and construction waste off-site;
- Strengthen the preventive/interim measures for avoiding silty runoff from the exposed areas to the low lying areas. More frequent maintenance of the silt fence is necessary;
- Enhance the wheel washing facility;
- Provide chemical storage areas on site;
- Provide temporary drainage at the temporary bridges;
- Provide treatment facilities especially at water sensitive areas before water discharges from construction site;
- Maintain the integrity of silt curtains and remove of settled silt within the silt curtain which have been installed outside the fresh water inland marsh, near Hole 2 and Hole 4;
- Commission the wastewater treatment plants;
- Remove of rocks at downstream A by hand; and
- Protect the retain trees with sufficient watering mainly located at the Administration Building.

Landscaping & Visual

Bi-weekly site audits were conducted in respect of landscape and visual mitigation measure in the reporting quarter. Tree protection on site was satisfactory. The Contractor should take measures to improve the condition of damaged trees. Damaged trees next to the administration building were unprotected after being damaged by the adjacent construction activities since July 2006. All transplanted trees were in fair condition. Mal-pruning of transplanted trees had not been rectified. Construction

material was still stockpiled within tree protection zones. A statement on the cause of death of tree T925 recorded was still outstanding since July 2006.

Watching Brief

Watching Brief was carried out at Hole 2 in February 2006. The major activity carried out at part of the Hole 2 (60%) was rock breaking activity. Other Hole 2 areas were remained the same as after vegetation clearance. Vegetation clearance and excavation were carried out at Holes 11, 12, 14 and 16 during the reporting quarter. Archaeology watching brief was resumed since September 2006.

Land Contamination

Contamination Assessment Report (CAR) and Remediation Action Plan (RAP) were approved on 18 August 2006. A pilot scale for the remedial work of the contaminated soil at Hole 18 was carried out on September 2006. The full scale remediation work will be carried out on 4 October 2006 and a Final Site Remediation Report (FSRR) will be prepared by the Contractor in the next reporting quarter.

Environmental Complaints and Prosecution

One environmental complaint was received from Tai Tau Chau and Kai Lung Wan fish farmers about the silty runoff from the construction site and fish death at second reporting quarter. Investigation report on the cause of the fish death had been completed and negotiation on the fish compensation was in progress during the reporting quarter.

One environmental complaint was received from the golfers on 6 September 2006 (this reporting quarter) about the dust generation from the construction site in this reporting period. No environmental summon was received in this reporting period.

Environmental Licensing and Permitting

License/Permits granted to the Project include the Environmental Permit (EP), construction noise permit (CNP) and chemical waste producer. The water discharge licences for the construction site and sewage treatment plant were in progress during this reporting quarter.

Future Key Issues

Key issues to be considered in the coming reporting quarter include:

- Minimize potential dust generation from activities on-site : bulk earthworks at Holes 10 to 16, concrete batching plant operation, exposed/bare slope areas/stockpiles and temporary haul roads;
- Resume archaeology watching brief at Holes 11, 12, 14, 15 & 16;
- Carry out preservation by record of grave (G20) at Hole 2;
- Provide sufficient temporary drainage for construction temporary crossing at Streams B1, B2 and C;
- Carry out full scale remedial work for the contaminated soil at Hole 17 from Hole 18 (Hotspot L3);
- Implement sufficient and improve the temporary drainage system on site to prevent silty runoff discharging to marine and stream courses;
- Implement sufficient temporary drainage system before carrying out any newly exposed area;
- Implement permanent closed low flow drainage system, irrigation system, furnishing work and turf establishment at Northern and Central part of the golf course;
- Carry out land formation works for the desalination plant near to the existing pier;
- Carry out coral transplantation at the temporary barging point due to pipeline construction;
- Store chemicals/fuel and chemical waste/waste oil on site; and
- Dispose of construction wastes, vegetation and general refuse.

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 is the third quarterly EM&A report which summarises the environmental monitoring and audit works for the Project in the third quarter of 2006 from July to September 2006.

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 14th November 2005 under the EIAO. An Environmental Permit (EP-224/2005) was granted on 28th 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 16th January 2006 and are scheduled to be completed by end of July 2007.

2.5 Summary of EM&A Requirements

2.5.1 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.

Monitoring Parameters and Locations

2.5.2 24-hour TSP was the monitoring parameter for dust monitoring. One location for monitoring air quality was identified.

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

- Marine water quality (9 monitoring locations) - dissolved oxygen (DO), temperature, turbidity, suspended solids (SS), pH and salinity
- Freshwater water quality (7 monitoring locations) - dissolved oxygen (DO), temperature, turbidity, suspended solids (SS) , pH and salinity

2.5.4 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.

2.5.5 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.

2.5.6 Aquatic fauna and integrity of stream buffer zone at Streams A, B and C were identified to monitor the potential land formation impact on terrestrial ecology especially stream courses. For coral monitoring, there were one control and three impact monitoring locations were identified to monitor the marine construction activities.

2.5.7 Watching Brief (archaeology) monitoring locations are identified at the cut areas of Holes 2, 11, 12, 14, 15 & 16.

2.5.8 The monitoring locations for air, water, ecology and watching brief (archaeology) are depicted in **Annex B**.

Monitoring Methodology and Calibration Details

2.5.9 All monitoring works were conducted and monitoring equipment was regularly calibrated in accordance with the EM&A Manual. Calibration records were shown in the monthly EM&A reports for July to September 2006.

Environmental Quality Performance Limits (Action and Limit Levels)

2.5.10 The environmental quality performance limits, i.e. Action and Limit Levels (AL Levels) were derived from the baseline monitoring results and make reference to EIA report and latest EPD monitoring data. If the measured environmental quality parameters exceed the AL Levels, the respective action plan would be implemented. The AL Levels for each environmental parameter are given in **Annex C**.

3. Monitoring Result & Site Audit

3.1 Air Quality

3.1.1 Graphical presentation of the trend of the monitoring results of 24-hour TSP is provided in **Annex D**. All measured 24-hour TSP in the reporting quarter was below the Action and Limit (AL) Levels.

3.2 Water Quality

3.2.1 Graphical presentations of the trends of the monitoring results of water quality are provided in **Annex D**. Sixteen action level and eleventh limit level exceedances were recorded for marine water quality during the reporting quarter. Nineteen action level and fifty three limit level exceedances were recorded for stream courses quality during the reporting quarter.

3.3 Ecology

3.3.1 Construction work was approached to the Stream B & C, the riparian vegetation of Stream B and C was in natural conditions similar to the condition during the Baseline Survey. For Stream A, rocks were washed from Stream A2 near Hole 17 and filled the downstream of Stream A within the buffer zone area after the several rainstorm events occurred in June 2006. No rectification work has been carried out during the reporting quarter.

3.3.2 Additional three month monitoring was carried out in April, May and June 2006 at Site B2, Site C and Control Site during the reporting quarter. No exceedance and incident report was recorded. Minor sedimentation on some corals was recorded. Damaged corals were repaired and recently deposit boulders were removed at the temporary baring point in mid-May 2006. The conditions of the tagged corals during the quarterly survey (September 2006) was compared with the conditions during the Baseline Survey. Only 48 tagged corals were recovered. These two missing corals (B59-B60) were probably removed by the wave actions during the adverse weather conditions such as typhoons between July to September 2006 this year. The partial mortality of few coral colonies was considered not a consequence due to the operation of the temporary barging point. No mortality, sedimentation and bleaching was recorded at Site C and Control Site for corals during the reporting quarter.

3.4 Landscape and Visual

3.4.1 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. 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 rectify the mal-pruning practice of the transplanted trees and maintain all transplanted trees in good health condition with sufficient buffer zone protection and watering. In addition, the Contractor was also reminded to replant the dead hydroseeding grass (mainly due to fungi infection) on the bare slope area near Contractor's site office, Hole 1 and Hole 3.

3.5 Archaeology (Watching Brief)

3.5.1 Watching brief at Holes 11-12, 14-16 was resumed during the reporting quarter. No further excavation was carried out at Hole 2. The summary report will be available during the next reporting quarter.

3.6 Land Contamination

3.6.1 The Contaminated soil will be transferred from the cut area of Hole 18 (hotspot L3) to major fill area of Hole 17 for soil remediation. The full scale remediation work will be carried out at Hole 17 and Final Site Remediation Work (FSRR) will be prepared by the Contractor during the next reporting quarter.

4. Environmental Audit

4.1 Implementation Status of Environmental Mitigation Measures

4.1.1 Major construction works of the third golf course were (i) vegetation clearance at Hole 11, 12 and 16, (ii) major filling work at Holes 1 & 17, (iii) drainage system installation at Hole 7 was completed and Hole 5 was on-going, (iv) gravity drain from Lake 1D to existing reservoir was in progress, (v) rock breaking activities were carried out mainly at Holes 6, 10 and 18 and (vi) construction of the permanent bridge no.5 at the downstream of freshwater inland marsh. Sheet piles have been installed at both sides of bridge abutment.

4.1.2 The weather is approaching to dry season. The Contractor concentrates more on the dust suppression mitigation measures than the silty runoff impact to water sensitive receivers. According to the approved Temporary Drainage Management Plan, installation of temporary drainage is still required on site during the dry season. Silt fence was implemented along the site boundary (major component of the temporary drainage system) for most of the newly exposed areas once after vegetation clearance was completed. However, maintenance frequency of the silt fence was not satisfactory. Most of the formerly installed silt fence were collapsed and not installed properly and recorded during the site audit. The Contractor was reminded to rectify the situation to prevent silty runoff to the water sensitive areas. Potential heavy rain(s) could occur during the dry season.

4.1.3 The wheel washing facility provided on site was still not effective to mitigate the silty water discharge since the Aug and Sept 2006, silty runoff was observed from this area to the freshwater inland marsh for all site audits. The sewage treatment plant was started to operate at the end of May 2006. Discharge licence for the construction site was obtained from EPD on 12 September 2006.

4.1.4 For dust suppression, the Contractor was providing mainly at Hole 6 (with water sprayer) during rock breaking activities. The water source was mainly pumped from the downstream of the fresh water inland marsh which could dry up during the dry season. The Contractor has already successfully applied water supply from WSD one month ago and the water supply outlet is located mainly at Hole 18. The slope of the haul road to Hole 18 was very steep, water trucks were not able to drive up in order to fill up their water tanks. However, no diversion of the water source to other areas for dust suppression was done by the Contractor.

4.1.5 Dust suppression measures for loading/unloading activities, rough shaping and haul road (truck traffic) were insufficient. Only three watering trucks were provided on site for the dust suppression at haul road mainly. According to the site observation and air quality results, it demonstrated that the provided mitigation measures on site were insufficient for dust suppression. Heavy dust emissions were observed at the road between the existing administration buildings to the construction site which could highly affect the golfers when playing near to the practice green and staffs working near to those areas.

4.1.6 Hydroseeding was observed at part of stockpile near Hole 17, stockpile at Hole 18 was covered by tarpaulin but no mitigation measure provided for the stockpile at Hole 9. Insufficient watering to the hydroseeded areas led to poor growth to minimize the dust generation and silty runoff properly.

4.1.7 Vegetation stockpile, general refuse and construction waste stockpiles were temporary stored on site for long time without proper disposal. No chemical storage area was available on site since the start of this project. No mobile toilets were available on site at remote area to the site office.

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

4.1.9 Summary of implementation status is provided in **Annex E**.

4.2 Status of Environmental Licensing and Permitting

4.2.1 Valid environmental licenses and permits for the project during the reporting quarter are summarised in **Annex F**.

4.3 Advice on Solid and Liquid Waste Management Status

4.3.1 The solid waste generated from the construction site was mainly dry vegetation after clearance and general refuse. Disposal record submitted by the Contractor in Sept 2006 indicated that disposal was only started during Sept 2006 with small quantity since the start of this project in January 2006. Construction waste stockpile (Hole 2 mainly), general refuse collection point (Hole 2 mainly) and vegetation stockpiles (Holes 1 and 4) were not disposed properly and frequently for months. The Contractor was repeatedly reminded to dispose the vegetation and construction waste as soon as possible and agreed to speed up the disposal in Nov 2006.

5. Non-compliance (Exceedances) of the Environmental Quality Performance Limits (Action and Limit Levels)

5.1 Air Quality

5.1.1 No non-compliance of 24-hr TSP was recorded at air monitoring location GCA B1 during the reporting quarter.

5.2 Water Quality

5.2.1 Rainstorm events occurred on 8th July, 16th July, 27th July, 10th Aug, 19th Aug, 9th Sept and 19th Aug 2006 during the reporting quarter. The marine water exceedances were summarised in **Table 5.2-2.**

Table 5.2-1 Marine Water Exceedance Summary Jul - Sept 2006

Monitoring Station	Exceedance Level	Date	Parameters	Project-related
KLW	Action Level	8th Jul 06	SS	No
KLW	Action Level	16th Jul 06	SS	No
KLW	Limit Level	23rd Aug 06	SS	No
KLW	Action Level	4th Sept 06	SS	No
KLW	Limit Level	12th Sept 06	SS	No
KLW	Action Level	14th Sept 06	SS	No
KS	Action Level	23rd Aug 06	SS	No
KS	Action Level	12th Sept 06	SS	No
KS	Action Level	14th Sept 06	SS	No
M_BP	Action Level	27th Jul 06	SS, Turbidity	Yes
M_BP	Limit Level	4th Sept 06	SS, Turbidity	Yes
M_Marsh	Limit Level	16th Jul 06	SS, Turbidity	Yes
M_Marsh	Limit Level	27th Jul 06	SS, Turbidity	Yes
M_Marsh	Limit Level	9th Sept 06	SS	Yes
M_Marsh	Limit Level	12th Sept 06	SS	Yes
M_Marsh	Action Level	14th Sept 06	SS, Turbidity	Yes
TTC	Action Level	8th Jul 06	SS	No
TTC	Action Level	16th Jul 06	SS	No
TTC	Limit Level	4th Sept 06	SS	No
TTC	Limit Level	9th Sept 06	SS	No
TTC	Action Level	12th Sept 06	SS	No
TTC	Limit Level	14th Sept 06	SS	No

Freshwater

5.2.1 The freshwater water exceedances were summarised in **Table 5.2-2.**

Table 5.2-2 Freshwater Exceedance Summary Jul - Sept 2006

Monitoring Station	Exceedance Level	Date	Parameters	Project-related
F_DA	Limit Level	30th Jun 06	Turbidity	Yes
F_DA	Action Level	30th Jun 06	SS	Yes
F_DA	Limit Level	5th Jul 06	Turbidity	Yes
F_DA	Action Level	5th Jul 06	SS	Yes
F_DA	Limit Level	8th Jul 06	SS, Turbidity	Yes
F_DA	Limit Level	16th Jul 06	Turbidity	Yes
F_DA	Action Level	18th Jul 06	Turbidity	Yes

Monitoring Station	Exceedance Level	Date	Parameters	Project-related
F_DA	Limit Level	27th Jul 2006	SS, Turbidity	Yes
F_DA	Action Level	31st Jul 2006	SS	Yes
F_DA	Limit Level	31st Jul 2006	Turbidity	Yes
F_DA	Action Level	7th Aug 2006	Turbidity	Yes
F_DA	Action Level	10th Aug 2006	Turbidity	Yes
F_DA	Action Level	19th Aug 2006	SS	Yes
F_DA	Action Level	19th Aug 2006	Turbidity	Yes
F_DA	Limit Level	23rd Aug 2006	SS, Turbidity	Yes
F_DA	Limit Level	14th Sept 06	Turbidity	Yes
F_DA	Action Level	14th Sept 06	SS	Yes
F_DB	Action Level	16th Jul 06	Turbidity	No
F_DB	Limit Level	27th Jul 2006	SS, Turbidity	No
F_DB	Limit Level	31st Jul 2006	SS, Turbidity	No
F_DB	Action Level	9th Sept 06	Turbidity	Yes
F_DB	Action Level	14th Sept 06	Turbidity	Yes
F_DC	Limit Level	9th Sept 06	Turbidity	Yes
F_DC	Limit Level	12th Sept 06	Turbidity	Yes
F_DC	Limit Level	14th Sept 06	Turbidity	Yes
F_DC	Limit Level	18th Sept 06	Turbidity	Yes
F_DC	Action Level	9th Sept 06	SS	Yes
F_DC	Action Level	12th Sept 06	SS	Yes
F_DC	Action Level	14th Sept 06	SS	Yes
F_DC	Action Level	18th Sept 06	SS	Yes
F_Inland M	Limit Level	30th Jun 06	SS, Turbidity	Yes
F_Inland M	Limit Level	5th Jul 06	SS, Turbidity	Yes
F_Inland M	Limit Level	8th Jul 06	SS, Turbidity	Yes
F_Inland M	Limit Level	12th Jul 06	SS, Turbidity	Yes
F_Inland M	Limit Level	16th Jul 06	SS, Turbidity	Yes
F_Inland M	Limit Level	18th Jul 06	SS, Turbidity	Yes
F_Inland M	Limit Level	24th Jul 06	SS, Turbidity	Yes
F_Inland M	Limit Level	27th Jul 2006	SS, Turbidity	Yes
F_Inland M	Limit Level	31st Jul 2006	SS, Turbidity	Yes
F_Inland M	Limit Level	7th Aug 2006	SS, Turbidity	Yes
F_Inland M	Limit Level	10th Aug 2006	SS, Turbidity	Yes
F_Inland M	Action Level	14th Aug 2006	SS	Yes
F_Inland M	Limit Level	14th Aug 2006	Turbidity	Yes
F_Inland M	Limit Level	19th Aug 2006	SS, Turbidity	Yes
F_Inland M	Limit Level	23rd Aug 2006	SS, Turbidity	Yes
F_Inland M	Limit Level	31st Aug 06	Turbidity	Yes
F_Inland M	Limit Level	4th Sept 06	Turbidity	Yes
F_Inland M	Limit Level	9th Sept 06	Turbidity	Yes
F_Inland M	Limit Level	12th Sept 06	Turbidity	Yes
F_Inland M	Limit Level	14th Sept 06	Turbidity	Yes
F_Inland M	Limit Level	18th Sept 06	Turbidity	Yes
F_Inland M	Action Level	31st Aug 06	SS	Yes
F_Inland M	Action Level	4th Sept 06	SS	Yes
F_Inland M	Action Level	9th Sept 06	SS	Yes
F_Inland M	Limit Level	12th Sept 06	SS	Yes
F_Inland M	Limit Level	14th Sept 06	SS	Yes
F_Inland M	Limit Level	18th Sept 06	SS	Yes

5.2.2 The exceedances recorded at Streams A, B & C and freshwater inland marsh were mainly attributed to insufficient temporary drainage system during reporting quarter. The non-compliance was attributed to the works and therefore further action was required.

5.2.3 The exceedances at M_Marsh and M_BP were considered project-related because silty runoff was confirmed by site observation during the sampling. The exceedances at TTC, KLW and KS were considered natural variation of the marine water and considered not project-related.

5.2.4 The Contractor was reminded to improve and provide sufficient temporary drainage system and treatment facilities on site before water discharge to marine and stream water.

5.3 Ecology

5.4.1 The Contractor was reminded to remove the boulders within the stream buffer zone area at the downstream end of Stream A by hand. No equipment was allowed entering to the stream buffer zone area to rectify the situation.

5.4.2 No exceedance or incident during the additional monitoring period at Site B2, Site C and Control Site during the quarterly coral monitoring (September 2006).

5.4 Summary of Environmental Complaint

5.4.1 One environmental complaint was received on the dust generation from the construction site during the reporting quarter. Site investigation report was submitted to EPD. The Contractor was reminded to provide sufficient dust suppression measures on site to minimize the nuisance to the golfers.

5.5 Summary of Environmental Summons

5.5.1 There was no notification of summons with respect to environmental issues registered in this reporting quarter.

6. Recommendations and Conclusions

6.1.1 This Quarterly Environmental Monitoring and Audit (EM&A) Report presents the EM&A works undertaken during the period from July to September 2006 in accordance with EM&A Manual and the requirement under EP-224/2005.

6.1.2 No exceedance of the Action Level was recorded for 24-hour TSP.

6.1.3 Water quality exceedances, suspended solids and turbidity, at marine and stream monitoring locations were mainly due to the heavy rainstorm events, insufficient temporary drainage system implemented and treatment facilities provided on site.

6.1.4 The Contractor was reminded to rectify the Stream A (rock fill at downstream portion) as soon as possible without using any equipment/machinery within the buffer zone. For Streams B & C, the riparian vegetation was in natural conditions similar to the condition during the Baseline Survey.

6.1.5 No exceedance or incident was recorded at the Site B2 during the quarterly coral monitoring in Sept 2006. For Site C and the Control Site, the tagged corals still remained similar conditions as during the Baseline Survey. No mortality, sedimentation or bleaching was found on the tagged corals in these two sites.

6.1.6 Tree protection is satisfactory. Stockpiles of cleared vegetation were found stored on site and required removal. The Contractor was reminded to proper dispose the vegetation stockpiles and construction waste. The Contractor was also reminded to rectify the mal-pruning practice of the transplanted trees and maintain all transplanted trees in good health condition in particular provision of tree buffer zone and sufficient watering. In addition, the Contractor was also reminded to replant the dead hydroseeding grass (mainly due to fungi infection) on the bare slope area near Contractor's site office, Hole 1 and Hole 3.

6.1.7 Environmental non-compliance on silty water discharge (mainly from the freshwater inland marsh) 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.

6.1.8 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.