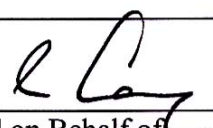


**Proposed Extension of Public Golf Course
at Kau Sai Chau Island, Sai Kung**

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

(Report No. 382210/006)

Report Authorized For
Issue By:



For and on Behalf of
Black & Veatch Hong Kong Limited

Black & Veatch Hong Kong Limited
Room 1201-11, Millennium City 5,
418 Kwun Tong Road,
Kowloon, Hong Kong

The Hong Kong Jockey Club
One Sports Road
Happy Valley
Hong Kong

July 2006

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	Name	Signature	Date
Prepared	Esther Tong		July 2006
Checked	Manuel Chua		July 2006
Reviewed	PK Lee		July 2006

Your ref : 40040032/CERT/07_06.doc
Our ref :

**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.6 Monthly EM&A Report for June 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.6 Monthly EM&A report for June 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



Independent Environmental Checker

Name Gary Tam

of Hong Kong Productivity Council
3/F., HKPC Building,
78 Tat Chee Avenue,
Kowloon

Date 4 July 2006

Executive Summary

This is the sixth 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 June 2006 (25th May 2006 to 24th June 2006).

Summary of construction works undertaken during this report period

Bulk earthworks were carried at Holes 1-5, 8-9 and 17-18 during the reporting month. Vegetation clearance and haul road were started to construct at Hole 7 and Hole 10 respectively. For Holes 6, 11-16, no construction has been carried out during the reporting month. Haul roads located at centre and northern part of the project was completed to link up Holes 1-10, 17-18.

The floating pontoon was located at the EP location. Concrete batching plant was started to operate. 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 near the existing Kau Sai Chau pier.

Stream buffer zone was demarcated at Stream A and partially at Stream B (tributary B2).

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)	7 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 27th May, 2nd, 8th, 14th and 20th Jun 2006 at Bungalow A (GCA B1) at Kau Sai Chau during this reporting month. No exceedance of 24-TSP was recorded at GCA B1.

Water Quality

7 sets of water quality monitoring were carried out on 29th May, 2nd, 8th, 9th, 13th, 16th and 21st Jun 2006 at 9 marine and 7 freshwater monitoring locations. Monitoring was performed on schedule.

Exceedances were recorded at stream courses and marine water and summarize as follows:

Marine water

- Six action and six limit level exceedances of turbidity were recorded at M_RO1, M_Marsh, TTC, M_BP and M_Coral; and
- Four action and six limit level exceedances of SS were recorded at M_RO1, KLW, M_Marsh, TTC, M_BP and M_Coral.

Freshwater

- One action and Thirteen limit level exceedances of turbidity were recorded at Stream A, B & freshwater inland marsh; and
- Two action and nine limit level exceedances of SS were recorded at Stream A, B & freshwater inland marsh.

Ecology

Terrestrial ecology was conducted on 29th June 2006. The demarcation of the stream buffer zone had been established for Streams A and tributary of Stream B2, the construction works fronts had reached Stream A, and a haul road was approaching Stream B 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 the present monitoring survey, the main stream course of Stream A (the section downstream to the confluence of tributaries A1 and A2) was found to be filled up by rubbles to the level of the weir at its downstream end. The rubbles were reported to be washed down from the upper Tributary A2 which was under pipe culvert construction. Although the riparian vegetation was not affected by the rubbles, this section of stream channel was temporarily lost. Remedial works should be implemented to clear the rubbles and restore the channel as the condition of this stream is expected to improve after the construction of the golf course extension (in which the eroded hill slopes would be replaced by turf).

Marine ecology was conducted on 15th June 2006 at Site B2, Site C and Control Site. For 20 colonies of natural corals recorded at Site C, all of them were recovered and checked. One of colonies out of 20 colonies at Control Site was lost in the present monitoring survey, probably due to the strong wave actions in previous typhoon weather.

At Site B2, 50 tagged corals were also recovered and checked. B-19 was found toppled in the last monitoring survey (May 2006) and was then restored to the original posture. In the present monitoring, the mortality of B-19 was found about 70%. B-58 corals colony had significant mortality was recorded, which was approximate 60%. Two more coral colonies (B-52 and B-53) were found approximate 10% mortality. As there was no other coral showing significant mortality, it was unlikely that the mortality of B-58 was caused by the barging point operation or the construction of the golf course. Some minor sedimentation was recorded at some corals (B-14, B-15, B-34, B-44 and B-51) which were all below 10%. This may probably caused by the runoff of sediment after a few days of heavy rain with insufficient temporary drainage implemented on site. No difference was identified on the conditions of the three groups (i.e. B11 to B20 within the barge area; B21 to B-40 to the north of the barge, and B-50 to B-60 to the south of the barge) of tagged corals.

Due to the coral incident on 23rd March 2006 at the temporary baring point, coral remedial work was carried out by the Contractor on 13th and 14th May 2006. The Contractor is preparing the report for onward submission to EPD and AFCD for record and comments.

Additional three months coral monitoring results (April, May and June 06) revealed that no exceedance of sedimentation, bleaching and mortality was recorded. The Contractor was reminded to improve the temporary drainage at the temporary barging point to minimize the silty runoff to marine water. The coral monitoring will, therefore, reduce to quarterly basis (start at September 2006) until the end of the construction phase.

Landscaping & Visual

Landscape and visual monitoring and site audits were carried on 6th and 21st June 2006. Vegetation clearance and site formation were carried out during this reporting month. Some temporary hydroseeding works near site office, Holes 1 & 3 were dead and should be replaced.

Environmental Site Auditing

Four weekly joint environmental site audits were carried out on 30th May, 6th, 13th, 20th June 2006, with the Engineer and Contractor's representatives. A monthly joint environmental site audit was carried out on 20th June 2006 by the Contractor's Representative, ET's representative and Independent Environmental Checker (IC(E)).

Environmental Non-conformance

Air Quality

No exceedance of 24-TSP was recorded at GCA B1.

Marine Water Quality

For marine water, eight and eleven exceedances of SS and turbidity were recorded respectively at M_Marsh, TTC, M_BP and M_Coral and considered project-related. For exceedances at M_RO1 and KLW (two and one exceedances of SS and turbidity), both of them were not considered project-related. The exceedances were mainly due to the natural variation of marine water after rainstorm event (magnitude of the increase of SS and turbidity were similar to the control monitoring stations at M_A and M_B), therefore, considered not project-related.

Freshwater Quality

For freshwater, eleven and thirteen exceedances of SS and turbidity were recorded respectively at F_DA and F_Inland Marsh. The exceedances recorded at Stream A were mainly attributed to runoff from filling area of Hole 17. The exceedances recorded at freshwater inland marsh were mainly attributed to the runoff from Holes 1 & 18 to the existing freshwater inland marsh and considered project-related. For Stream B, the one exceedance of turbidity was considered not project-related as no construction work approach to the stream during this reporting month. No exceedances were recorded at Stream C during this reporting month.

All notifications of exceedances and the subsequent exceedance incident report had been forwarded to the relevant parties.

For those considered project-related freshwater and marine water exceedances, the Contractor was required to critically review the temporary drainage management plan and implement necessary improvement to prevent runoff from the construction site to the marine and stream courses. The Contractor was also requested to rectify the situation as soon as possible. The water quality monitoring results revealed that the temporary drainage installed on site was insufficient and should be improved especially at those concern areas.

One environmental complaint from the Tai Tau Chau fish farm representatives about the silty runoff from the construction golf course and fish dead was received on 2nd June 2006 in this reporting period. A joint site investigation with Hong Kong Jockey Club and Contractor was carried out in the afternoon after the heavy rainstorm. 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/modify the haul road, during rock breaking, loading/unloading of dusty materials in order to minimize the 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 discharge to marine water and stream courses 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;
- Minimize the cut-and-fill areas especially during wet seasons;
- Properly dispose of the vegetation stockpiles and construction waste off-site;
- Strengthen the preventive/interim measures for the silty runoff along the boundary of the exposed areas especially at low lying areas. More frequent maintenance on the silt fence is necessary;
- Providing wheel washing facilities;
- Provide chemical storage areas on site;
- Install temporary drainage system at the concrete batching plant area to ensure all wastewater will be recycled and reused on site and no wastewater discharge from the concrete batching plant outside the works boundary;
- Provide temporary drainage at the temporary bridges;
- Cover the bare slopes or other means to minimize the dust and runoff impacts to nearby sensitive receivers;
- Provide treatment facilities especially at water sensitive areas before water discharges from construction site;
- Maintenance of the silt curtains (integrity of the silt curtain and removal of settled silt deposited within the silt curtain) installed outside the fresh water inland marsh, near Hole 2 and near Hole 4; and
- Commission of the wastewater treatment plant.

The Contractor has provided the following major mitigation measures during the reporting month to minimize the silty runoff to water sensitive receivers:

- Cut-off drains at Holes 1 & 17;
- Installation of silt curtains at the outlet of fresh water inland marsh, near Hole 2 and near Hole 4.

Future Key Issues

Key issues to be considered in the coming month include:

- Implementation of sufficient and improve the temporary drainage system on site to prevent silty runoff to marine and stream courses;
- Implementation of sufficient temporary drainage system before carry out any newly exposed area;
- Potential dust generation from activities on-site : cut-and-fill at mainly Holes 1-10 & 17-18, concrete batching plant operation, exposed/bare slope areas/stockpiles and temporary haul roads;
- Wastewater discharge from construction site : operation of sewage treatment work for the site office (near maintenance building) and concrete batching plant (located at Hole 2);
- Temporary drainage system installation at temporary bridges no. 5 (freshwater inland marsh) and 9 (Stream A);
- Land formation works for the desalination plant near to the existing pier;
- Storage of chemicals/fuel and chemical waste/waste oil on site; and
- Construction wastes, vegetation, general refuse generated from workers.

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 June 2006 (from 25th May to 24th June 2006).

1.2 Purpose of the Report

1.2.1 This is the sixth EM&A report which summarizes the impact monitoring results and audit findings for the EM&A programme during the reporting period from **25th May to 24th June 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 Jul – 24 Sept 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	CAR was submitted to EPD for approval on 23 rd March 2006. According to the EPD comments, a revised CAR will be submitted in July 2006. Base on the preliminary results, lead contamination at surface levels was found and quantified at hotspot location

EP-224/2005	Environmental Permit Submission	Status	Remarks
	Plan (RAP) including a Contamination Assessment Report (CAR) is required.		L3. RAP is, therefore, also required for EPD approval. The revised CAR and RAP are under preparation by Contractor during the reporting month.
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

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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.
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 $\mu\text{g m}^{-3}$	500 $\mu\text{g m}^{-3}$

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	Description	Action Level	Limit Level
GCA B1	Bungalow A adjacent to Kau Sai Chau Public Golf Course Administration Building	187.4 $\mu\text{g m}^{-3}$	260 $\mu\text{g m}^{-3}$

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 $25^{\circ}\text{C} \pm 3^{\circ}\text{C}$ and the relative humidity (RH) $< 50\% \pm 5\%$, 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_ROI	6.1 mg/L	M_ROI	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 NO₂-N) at non-FCZ stations, the trigger level has made reference to the existing golf course guideline values. The guideline value of NO₂-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 NO₂-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 NH₃-N, NO₂-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 (NO₃-N), nitrite nitrogen (NO₂-N), ammonia nitrogen (NH₃-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	<u>Marine Water</u> Fish culture zone stations: TTC, KLW, KS
Temperature (°C)		Control stations: M_A, M_B
Turbidity (NTU)		Impact stations: M_BP, M_RO1, M_Marsh, M_Coral
pH		
Salinity (ppt)		<u>Freshwater Water</u> Stream A (F_UA, F_DA) Stream B (F_UB, F_DB) Stream C (F_UC, F_DC) Inland Marsh (F_Inland_M)
Suspended Solids (mg/L)		
	<p><u>Marine water</u> : 2 times per day – 1 for mid-flood and 1 for mid-ebb</p> <p><u>Freshwater</u> : once per day</p>	

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
		latitude	longitude		
<i>Marine Water (9 stations)</i>					
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
<i>Fresh Water (7 stations)</i>					
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 m³/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 for the first three months of the construction phase, and if no exceedance was recorded, the monitoring schedule would be changed to quarterly during the rest of the construction phase. As a coral damage incident was recorded in March 2006, the monthly monitoring was extended for another three months from April 2006 to June 2006. If no exceedance was recorded during these three months, the monitoring schedule would be changed to quarterly after that till the end of 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 (preferably 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 during the baseline survey, without significant sign of bleaching or being covered by sediments, and therefore were all recommended as the monitored coral colonies (all 80 tagged corals, 20 from each site). The seagrass beds in Site D3 were also surveyed for their extent, coverage percentage and health conditions during the baseline survey. The results of the baseline survey has presented in the Baseline Monitoring Report. The original 20 tagged corals at Site B2 were re-organised in April 2006, with B-11 to B-20 retained, but 40 new tagged corals (B-21 to B-60) were established. The number of tagged corals at Site B2 was therefore increased from 20 nos. to 50 nos. The baseline conditions of these newly tagged corals (40 nos.) were presented in the monthly monitoring report of April 2006.
- 3.3.8 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 if no exceedance was recorded then quarterly till the end of the construction. As coral damage incident was reported in Month Three of the construction programme, AFCD requested the monthly monitoring should be extended to cover another three months (April, May and June 2006).

3.3.10 During the weekly site inspection, ET also 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) bulk excavation at Holes 1-5, 8-9 and 17-18, (ii) erection and operation of concrete batching plant at Hole 2 and (iii) land formation for desalination plant near existing KSC pier.
- 4.1.2 The Contractor has provided mitigation measures on site to control silty runoff. Silt fence implemented along the site boundary (major component of the temporary drainage system), rock bunds, a wastewater treatment plant at Hole 1, cut-off drains at Holes 1 (not fully function) & 17 and sedimentation basins at Holes 1, 17 & 18 were provided.
- 4.1.3 For dust suppression, the Contractor was providing mainly at Hole 9 (with water sprayer) during rock breaking activities. Other areas (Holes 3, 4, 5, 8 & 18) were not provided sufficient dust suppression measures during the rock breaking activities and unloading/loading activities. Watering of haul road was observed during the site audit.
- 4.1.4 During the site audit after rain, the settlement pit (collection of wastewater for recycle) provided within the concrete batching plant was insufficient and wastewater discharged to the marine water was observed. According to the submitted layout plan for the concrete batching plant, the wastewater from settlement pit will be pumped to the sedimentation columns for sedimentation and the water will be reused for wheel washing purpose. The settled sludge will be dried out in the dry pit area and used as a fill material if the quality is suitable. The Contractor was reminded to implement sufficient temporary drainage in early June 06 but no cut-off drains and peripheral drainage along the concrete batching plant was observed during this reporting month.
- 4.1.5 No dredging work has been carried out near to the existing pier for the desalination plant pipelines.
- 4.1.6 The sewage treatment plant was started to operate at the end of May 2006. No approved/valid water discharge licence(s) for this project was submitted by the Contractor for record.
- 4.1.7 Hydroseeding was observed at part of Holes, 1, 3 & 18 of bare/exposed slopes. Some of them were dead and should be replaced or provided with other means of mitigation measures to prevent silty runoff.
- 4.1.8 Vegetation and construction waste stockpiles were observed on site without proper disposal. No chemical storage area was available on site.
- 4.1.9 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 May to April 2006. All monitoring data are provided in **Annex E**. Monitoring of 24-hour TSP was conducted at GCA B1 on 27th May, 2nd, 8th, 14th and 20th Jun 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 No exceedance of 24-TSP was recorded at GCA B1 on 4th April 2006 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 7 occasions in May to June 2006 (29th May, 2nd, 8th, 9th, 13th, 16th and 21st Jun 2006). The QA/QC results for laboratory testing in the reporting month were acceptable. The QA/QC results are summarised in **Annex F**.

5.2.3 On 2nd, 9th and 13th June 2006, rainstorm signals were hoisted (ranging from 65 mm/day to 137 mm/day). Approximate 70% are rainy days during the reporting month.

5.2.4 Exceedances were recorded at stream courses and marine water and summarize as follows:

Marine water

- Six action and six limit level exceedances of turbidity were recorded at M_RO1, M_Marsh, TTC, M_BP and M_Coral; and
- Four action and six limit level exceedances of SS were recorded at M_RO1, KLW, M_Marsh, TTC, M_BP and M_Coral.

Freshwater

- One action and thirteen limit level exceedances of turbidity were recorded at Stream A, B & freshwater inland marsh; and
- Two action and nine limit level exceedances of SS were recorded at Stream A, B & freshwater inland marsh.

5.2.5 The marine water exceedances were summarised in **Table 5.2-1**. For the exceedances at M_RO1 and KLW were considered not project-related. The exceedances were mainly due to the natural variation of marine water after the rainstorm. The magnitude of the increase of SS and turbidity were similar to the control monitoring stations at M_A and M_B.

Table 5.2-1 Marine Water Exceedance Summary May - Jun 2006

Monitoring Station	Exceedance Level	Date	Parameters	Project-related
M RO1	Action Level	9 th Jun 06	SS, Turbidity	No
KLW	Action Level	9 th Jun 06	SS	No
M Marsh	Action Level	29 th May 06	Turbidity	No
	Limit Level	2 nd Jun 06	SS, Turbidity	Yes
	Limit Level	9 th Jun 06	SS, Turbidity	Yes
TTC	Action Level	29 th May 06	Turbidity	No
	Limit Level	2 nd Jun 06	SS, Turbidity	Yes
	Limit Level	9 th Jun 06	SS, Turbidity	Yes
M BP	Action Level	29 th May 06	Turbidity	No
	Limit Level	2 nd Jun 06	SS, Turbidity	Yes
	Limit Level	9 th Jun 06	SS, Turbidity	Yes
M Coral	Action Level	2 nd Jun 06	SS, Turbidity	Yes
	Action Level	9 th Jun 06	SS, Turbidity	Yes

Remarks: Exceedances on 2nd and 9th Jun 06 were mainly due to the cause of heavy rainstorm event.

- 5.2.6 Silty runoff was observed after the heavy rainstorm event (2nd, 9th and 13th June 2006) from Hole 17 to Stream A2, temporary barging point, Hole 2, Hole 4 and existing freshwater inland marsh to marine water.

Freshwater

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

Table 5.2-2 Freshwater Exceedance Summary May – Jun 2006

Monitoring Station	Exceedance Level	Date	Parameters	Project-related
F DA	Limit level	29 th May 2006	SS, Turbidity	Yes
	Limit level	2 nd Jun 2006	SS, Turbidity	Yes
	Limit level	8 th Jun 2006	SS, Turbidity	Yes
	Limit level	9 th Jun 2006	SS, Turbidity	Yes
	Limit level	13 th Jun 2006	Turbidity	Yes
	Action Level	21 st Jun 2006	Turbidity	Yes
F DB	Limit Level	2 nd Jun 2006	Turbidity	No
F Inland M	Limit Level	29 th May 2006	SS, Turbidity	Yes
	Limit Level	2 nd Jun 2006	SS, Turbidity	Yes
	Limit Level	8 th Jun 2006	Turbidity	Yes
	Action Level	8 th Jun 2006	SS	Yes
	Limit Level	9 th Jun 2006	SS, Turbidity	Yes
	Limit Level	13 th Jun 2006	SS, Turbidity	Yes
	Limit Level	16 th Jun 2006	SS, Turbidity	Yes
	Limit Level	21 st Jun 2006	Turbidity	Yes
	Action Level	21 st Jun 2006	SS	Yes

Remarks: Exceedances were mainly due to the cause of during or after the heavy rainstorm event occur.

- 5.2.8 The exceedances recorded at Stream A were mainly attributed to insufficient temporary drainage system provided at the filling area of Hole 17 to Stream A2. No temporary drainage was provided to collect and divert the runoff from the temporary bridge located within the Stream A buffer zone during this reporting month.

5.2.9 As no construction work adjacent to the Stream B, those exceedances were considered natural variation of the streams and considered not project-related.

5.2.10 The exceedances recorded at freshwater inland marsh were mainly attributed to the silty runoff from Holes 1 & 18 to the existing freshwater inland marsh and considered project-related.

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 29th June 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 and within the existing golf course). There were also a haul road and 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 the present monitoring survey, the main stream course of Stream A (the section downstream to the confluence of tributaries A1 and A2) was found to be filled up by rubbles to the level of the weir at its downstream end (see **Photo Plate 5.3-1**). The rubbles were reported to be washed down from the upper Tributary A2 which was under pipe culvert construction. Although the riparian vegetation was not affected by the rubbles, this section of stream channel was temporarily lost. Stream A was of the lowest ecological value among the four natural streams as it was heavily silted with sediments from eroded hillsides all year round. No stream fish and only very limited aquatic fauna were recorded in Stream A before. The impact from this

temporary loss of stream channel would not be severe. But remedial works should be implemented to clear the rubbles and restore the channel as the condition of this stream is expected to improve after the construction of the golf course extension (in which the eroded hill slopes would be replaced by turf).

- 5.3.9 Water levels in the 4 streams were much higher than in previous monitoring surveys during dry season. For the two tributaries in Stream B, the flow in B2 tributary was similar and flow in B1 tributary was also observed at its lower reach. The majority of Stream C had been found dry in previous monitoring surveys, but in the present survey surface flow was present in even upstream section. Stream D had surface flow even at the most upper reach. Photos of Streams A to D were shown in **Photo Plate 5.3-1 (Annex E)**.
- 5.3.10 The habitats and vegetation generally remained intact within a large portion 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.
- 5.3.11 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**). The recent heavy rainfall had significantly increased the flow in the streams, but also increased the sediment inside the streams. It was observed that there were sediments (e.g. silts) covering some boulders inside the channels. But the stream flow was still clear.
- 5.3.12 Another species of Atyid shrimp, *Caridina cantonensis*, which is common and widespread in Hong Kong was found in Stream B, C and D. 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 Stream B.
- 5.3.13 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. Except at the temporary access bridge at Stream A, 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

- 5.3.14 The present Marine Ecological Monitoring Survey was conducted during high tide on 15th June 2006. The weather conditions were cloudy but calm, the underwater visibility was fair (approximately 2m). At Site C, the 20 colonies of natural corals selected during the Baseline Survey were recovered and checked for conditions, while at Site B2, 50 tagged corals (with 10 established in the Baseline Survey and 40 established in April 2006) were also recovered and checked. But one of the 20 tagged colonies at Control Site was found lost in the present monitoring survey, probably due to the strong wave actions in previous typhoon weather.
- 5.3.15 Site B2 was the location for the temporary barging point. 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 was used as the landing point of the temporary barging point. Road surface was formed near the abandoned pier and connected to the landing point.

- 5.3.16 The conditions of the tagged corals during the present survey were compared with the conditions during the Baseline Survey (for B-11 to B-20) or in April 2006 (for B-21 to B-60) (**Annex E - Photo Plates 5.3-2 to 5.3-6**). All 50 tagged corals were recovered. B-19 was found toppled in the last monitoring survey (May 2006) and was then restored to the original posture. In the present monitoring, the mortality of this colony was found about 70%, but the partial mortality of this colony should not be considered as a consequence of the operation of the temporary barging point. Another coral colony (B-58) had significant mortality was B-58 which was 60% mortality. Two more coral colonies also had minor mortality, i.e. B-52 and B-53 and both of them were recorded in 10% mortality. As there was no other coral showing significant mortality, it was unlikely that the mortality of B-58 was caused by the barging point operation or the construction of the golf course. One possibility was that B-58 also experienced toppled since the last monitoring, but the wave action turned it back to normal posture again. The partial mortality of this colony should also not be considered as a consequence of the operation of the temporary barging point.
- 5.3.17 Besides the two minor mortality of coral colonies on B-52 and B-53, there were also some minor sedimentation on some corals (including B-14, B-15, B-34, B-44 and B-51, all below 10%) (see **Table 5.3-1**). Other corals remained similar conditions with their baseline conditions during the Baseline Survey in December 2005 or in April 2006. No difference was identified on the conditions of the three groups (i.e. B11 to B20 within the barge area; B21 to B-40 to the north of the barge, and B-50 to B-60 to the south of the barge) of tagged corals.
- 5.3.18 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 5.3-7 to 5.3-8**).
- 5.3.19 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. Coral X-05 could not be recovered. It was probably washed out by the strong wave actions in previous typhoon weather. Other 19 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 5.3-9 to 5.3-10**).
- 5.3.20 **Photo Plates 5.3-2 to 5.3-10** showed the photos of each tagged corals. The assigned numbers, species, mortality percentage, sedimentation coverage percentage and bleaching percentage of the baseline conditions of tagged corals and their present conditions were presented in **Tables 5.3-1 to 5.3-3** below.

Table 5.3-1 Conditions of tagged corals at Site B2

Code of tagged corals	Species*	Baseline Survey (December 2005 or April 2006)			Month Six (June 2006)		
		Mortality (%)	Sedimentation (%)	Bleaching (%)	Mortality (%)	Sedimentation (%)	Bleaching (%)
Within the Temporary Barging Point Area							
B-11	<i>Turbinaria peltata</i>	0	0	0	0	0	0
B-12	<i>Plesiastrea versipora</i>	0	0	0	0	0	0
B-13	<i>Plesiastrea versipora</i>	0	0	0	0	0	0
B-14	<i>Goniastrea aspera</i>	0	0	0	0	3	0
B-15	<i>Lithophyllon undulatum</i>	0	0	0	0	10	0
B-16	<i>Favia speciosa</i>	0	0	0	0	0	0
B-17	<i>Favia speciosa</i>	0	0	0	0	0	0
B-18	<i>Turbinaria peltata</i>	0	0	0	0	0	0
B-19	<i>Favia speciosa</i>	0	0	0	70	0	0
B-20	<i>Favia speciosa</i>	0	0	0	0	0	0
To the North of the Temporary Barging Point Area							
B-21	<i>Favia speciosa</i>	0	0	0	0	0	0
B-22	<i>Cyphastrea serailia</i>	0	0	0	0	0	0
B-23	<i>Favia speciosa</i>	0	0	0	0	0	0
B-24	<i>Favia speciosa</i>	0	0	0	0	0	0
B-25	<i>Favites abdita</i>	0	0	0	0	0	0
B-26	<i>Cyphastrea serailia</i>	0	0	0	0	0	0
B-27	<i>Favia speciosa</i>	0	0	0	0	0	0
B-28	<i>Goniopora columna</i>	0	0	0	0	0	0
B-29	<i>Cyphastrea serailia</i>	0	0	0	0	0	0
B-30	<i>Favia speciosa</i>	0	0	0	0	0	0
B-31	<i>Platygyra acuta</i>	5	0	0	0	0	0
B-32	<i>Favia speciosa</i>	3	0	0	0	0	0
B-33	<i>Turbinaria peltata</i>	0	0	0	0	0	0
B-34	<i>Cyphastrea serailia</i>	0	0	0	0	5	0
B-35	<i>Cyphastrea serailia</i>	0	0	0	0	0	0
B-36	<i>Platygyra acuta</i>	0	0	0	0	0	0
B-37	<i>Favia speciosa</i>	0	0	0	0	0	0
B-38	<i>Cyphastrea serailia</i>	0	0	0	0	0	0
B-39	<i>Cyphastrea serailia</i>	0	0	0	0	0	0
B-40	<i>Favia speciosa</i>	0	0	0	0	0	0
To the south of the Temporary Barging Point Area							
B-41	<i>Leptastrea pruinosa</i>	0	0	0	0	0	0
B-42	<i>Goniastrea aspera</i>	0	0	0	0	0	0
B-43	<i>Favia speciosa</i>	0	0	0	0	0	0
B-44	<i>Cyphastrea serailia</i>	0	0	0	0	10	0
B-45	<i>Platygyra acuta</i>	0	0	0	0	0	0
B-46	<i>Favia speciosa</i>	0	0	0	0	0	0
B-47	<i>Favites abdita</i>	0	0	0	0	0	0
B-48	<i>Cyphastrea serailia</i>	0	0	0	0	0	0
B-49	<i>Goniopora columna</i>	0	0	0	0	0	0
B-50	<i>Favia speciosa</i>	0	0	0	0	0	0
B-51	<i>Psammocora superficialis</i>	0	0	0	0	3	0

Code of tagged corals	Species*	Baseline Survey (December 2005 or April 2006)			Month Six (June 2006)		
		Mortality (%)	Sedimentation (%)	Bleaching (%)	Mortality (%)	Sedimentation (%)	Bleaching (%)
B-52	<i>Favia speciosa</i>	0	0	0	10	0	0
B-53	<i>Favia speciosa</i>	0	0	0	10	0	0
B-54	<i>Favia speciosa</i>	0	0	0	0	0	0
B-55	<i>Goniastrea aspera</i>	0	0	0	0	0	0
B-56	<i>Platygyra carnosus</i>	0	0	0	0	0	0
B-57	<i>Goniastrea aspera</i>	0	0	0	0	0	0
B-58	<i>Favia speciosa</i>	5	0	0	60	0	0
B-59	<i>Favia speciosa</i>	0	0	0	0	0	0
B-60	<i>Favia speciosa</i>	5	0	0	0	0	0

* Damaged corals were bold.

Table 5.3-2 Conditions of tagged corals at Site C

Code of tagged corals	Species	Baseline Survey (December 2005)			Month Six (June 2006)		
		Mortality (%)	Sedimentation (%)	Bleaching (%)	Mortality (%)	Sedimentation (%)	Bleaching (%)
C-01	<i>Platygyra carnosus</i>	0	0	0	0	0	0
C-02	<i>Platygyra carnosus</i>	0	0	0	0	0	0
C-03	<i>Favia speciosa</i>	0	0	0	0	0	0
C-04	<i>Favites abdita</i>	0	0	0	0	0	0
C-05	<i>Turbinaria peltata</i>	0	0	0	0	0	0
C-06	<i>Favia speciosa</i>	0	0	0	0	0	0
C-07	<i>Platygyra acuta</i>	0	0	0	0	0	0
C-08	<i>Platygyra acuta</i>	0	0	0	0	0	0
C-09	<i>Favia speciosa</i>	0	0	0	0	0	0
C-10	<i>Platygyra acuta</i>	0	0	0	0	0	0
C-11	<i>Favia speciosa</i>	0	0	0	0	0	0
C-12	<i>Platygyra acuta</i>	0	0	0	0	0	0
C-13	<i>Platygyra carnosus</i>	0	0	0	0	0	0
C-14	<i>Favia speciosa</i>	0	0	0	0	0	0
C-15	<i>Goniopora columna</i>	0	0	0	0	0	0
C-16	<i>Platygyra carnosus</i>	0	0	0	0	0	0
C-17	<i>Goniopora columna</i>	0	0	0	0	0	0
C-18	<i>Platygyra carnosus</i>	0	0	0	0	0	0
C-19	<i>Favites pentagona</i>	0	0	0	0	0	0
C-20	<i>Favia speciosa</i>	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 Six (June 2006)		
		Mortality (%)	Sedimentation (%)	Bleaching (%)	Mortality (%)	Sedimentation (%)	Bleaching (%)
X-01	<i>Platygyra carnosus</i>	0	0	0	0	0	0
X-02	<i>Platygyra carnosus</i>	0	0	0	0	0	0
X-03	<i>Platygyra carnosus</i>	0	0	0	0	0	0
X-04	<i>Pavona decussata</i>	0	0	0	0	0	0
X-05	<i>Hydnophora exesa</i>	0	0	0	Lost	Lost	Lost
X-06	<i>Platygyra carnosus</i>	0	0	0	0	0	0
X-07	<i>Platygyra carnosus</i>	0	0	0	0	0	0
X-08	<i>Favites abdita</i>	0	0	0	0	0	0
X-09	<i>Cyphastrea serailia</i>	0	0	0	0	0	0
X-10	<i>Cyphastrea serailia</i>	0	0	0	0	0	0
X-11	<i>Platygyra carnosus</i>	0	0	0	0	0	0
X-12	<i>Platygyra acuta</i>	0	0	0	0	0	0
X-13	<i>Platygyra acuta</i>	0	0	0	0	0	0
X-14	<i>Platygyra acuta</i>	0	0	0	0	0	0
X-15	<i>Platygyra acuta</i>	0	0	0	0	0	0
X-16	<i>Platygyra acuta</i>	0	0	0	0	0	0
X-17	<i>Favia speciosa</i>	0	0	0	0	0	0
X-18	<i>Platygyra acuta</i>	0	0	0	0	0	0
X-19	<i>Goniastrea aspera</i>	0	0	0	0	0	0
X-20	<i>Cyphastrea serailia</i>	0	0	0	0	0	0

5.4 Archaeology (Watching Brief)

- 5.4.1 Excavation was carried out at Hole 2 during this monitoring month and watching brief monitoring was carried out. According to the latest construction programme, part of the Hole 2 will not be completed in May 2006. Approximate 40% of the Hole 2 area was being excavated and the watching brief at Hole 2 will have to further extend. The first progress report (January to March 2006) had been sent to AMO for comments on 31st March 2006. The progress report will be submitted to AMO on quarterly basis.
- 5.4.2 The Archaeological Watching Brief (AWB) will consist of 18 days of on-site monitoring of the construction work. An initial site visit was made on 20th January 2006 to inspect preliminary vegetation clearance at Hole 2. The second site visit was undertaken on 3rd February 2006. The first day of the monitoring was agreed on 14th February 2006 after the confirmation with the Contractor that the bulk excavation was being carried out at Hole 2.
- 5.4.3 Monitoring results on 14th February 2006 was shown as follows:
 Clearance of surface soil was monitored in Areas 1 and 2 (mainly the concrete batching plant and underground water tank location) which is around 60% of the actual bulk earthwork. All monitoring areas were filed walked after clearance and no archaeological material was identified. A thirty minute video of the works was recorded. No works have been undertaken outside the Areas 1 and 2 up the reporting period (January to March 2006).

- 5.4.4 For the excavation at watching brief concern areas (Holes 11, 12, 14, 15 & 16), the excavation programme could be further delay to next dry season. Under the EP requirement, construction works within the buffer zone area is restricted within the November to March. As no temporary bridge was being constructed within the Streams B and C buffer zone areas, no construction work at southern part of Kau Sai Chau is expected unless the successfully application for the Variation of EP.
- 5.4.5 The next reporting month is expected to be delayed further to November 2006. No further excavation outside the Areas 1 & 2 at Hole 2 was being carried out up to this reporting month.

5.5 Land Contamination

- 5.5.1 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 preliminary results and comments from EPD, further site investigation is required to quantify the lead contamination extent at the hotspot location 3. The additional soil samples were taken around mid May 2006 at Location 3. CAR is preparing by the Contractor and submitted to EPD. Remediation Assessment Plan (RAP) will also be prepared at the same time.

6. Environmental Site Auditing

6.1.1 The weekly site inspections were conducted by the ET with Contractor's representative and/or Jockey Club's representative on 30th May, 6th, 13th, 20th June 2006 and the monthly joined site inspection with IEC and the Contractor's representative undertaken on 20th June 2006. The following observations and recommendations were made.

Dust Mitigation Measures

6.1.2 Excavation work was carried out at Holes 1-5 8-9 and 17-18 during the reporting month. Haul road was constructed linking up Holes 1-10 and 17-18. Sprinklers were provided when the rock breaking activities were carried out for dust suppression at Hole 9 only. Dust generation from the haul road, during earth moving operation and excavation were observed at sunny and windy weather, insufficient mitigation measures was provided on site. The Contractor was reminded to minimize the dust generated by the site vehicles moving along the haul road. For other excavation or earth moving areas, the Contractor was reminded to provide sufficient dust suppression measure.

6.1.3 Concrete batching plant was started to operate during this reporting month. The estimated quantity of concrete produced was around 100m³/day.

Water Quality

Temporary Drainage Master Plan

6.1.4 A revised temporary drainage master plan (TDMP), which concentrates at Holes 1, 17 & 18 only, had been formally submitted in mid-Jun 2006 by the Contractor for ER to review during this monitoring month. Similar concept of the earlier submission (29th March 2006) was applied to the temporary drainage plan and summarizes below:

(i) Cut-off drains have been provided at Holes 1 & 17 as revealed during site audit. There are still some areas that part of the runoff from the natural catchment will mix up with the construction site runoff before directly discharge to marine or stream courses.

(ii) The TDMP indicates that there are many discharge points along the construction boundary to the marine water and streams. Same as the earlier submission, the basic temporary drainage principle submitted by CHEC is that the construction site contaminated runoff will pass through the silt fence / rock channel and then discharge/overflow to marine or stream courses. The construction site contaminated runoff will not be confined, collected and properly treat before water discharge.

6.1.5 According to the Environmental Permit condition 3.2, "The Permit Holder shall construct a closed low flow drainage system as indicated in Figure 3 to collect rainfall and irrigation water to the reservoir. Prior to the operation of the closed low flow drainage system, the Permit Holder shall provide a temporary drainage system to collect rainfall and irrigation water to the reservoir". Based on the latest CHEC submission, the temporary drainage layout plan cannot satisfy the EP condition 3.2 requirement.

6.1.6 As further discussed with EPD on the EP condition 3.2, EPD explained that reservoir is not necessary mean the existing golf course reservoir to use the only one collect point of runoff prior to the operation of the closed low flow drainage system. EPD recommended the Contractor to divert, collect (provide sufficient basins/facilities constructed on site to serve as a reservoir) and properly treat (treatment facilities if required) the runoff before discharge by

grouping/dividing the construction site into manageable sections and targeting on those concern silty runoff areas in order to control the runoff in a practical way. The discharge water quality from the construction site should comply with the Water Quality Objectives (WQO) of Port Shelter.

(iii) For Hole 10, the temporary drainage layout plan indicates

- (a) Part of the silt fence will be located within the Stream B2 buffer zone area;
- (b) Proposed silt pond near the permanent culvert bridge no. 10 will be inside Stream B1;
- (c) The buffer zones for Streams B1 do not follow the EP.

6.1.7 The Contractor was reminded to follow the buffer zone extent and location according to the EP.

6.1.8 For Hole 10, there are two sets of layout plan submitted by CHEC. Temporary drainage master plan (silt fence and silt pond mainly) and pre-installation of the permanent drainage (U-channels, stepped channels and drainage pipes). The Contractor did not clearly demonstrate installation logistic/sequence of both drainage systems installed on site to ensure the silty runoff can be controlled during the critical cut-and-fill stage which could have a major impacts on Stream B.

6.1.9 The present submitted TDMP is only for the control of silty runoff. The Contractor was reminded to prepare the temporary drainage plan before turf grass establishment. The pesticide is a prohibited substance which is not allowed to be discharged to any water bodies under the WPCO.

Water Quality

6.1.10 Due to the large volume of water runoff from the construction site, silty water was observed and discharged from the construction site to Stream A, temporary barging point, near Hole 2, near Hole 4 and freshwater inland marsh. In some lying areas, installed silt fence areas along the site boundary were poorly maintained and leading to silty runoff. The Contractor was reminded to improve the temporary drainage system and maintain the integrity and function of the silt fences on regular basis to prevent the silty runoff from construction site.

6.1.11 The Contractor was reminded to provide sufficient temporary drainage at the desalination plant to prevent any silty runoff. Silty water discharged to marine water was observed during the site audit.

6.1.12 The Contractor was reminded to provide adequate mitigation facilities on site and sufficient temporary drainage at temporary bridges no. 5 & 9 to ensure no polluted runoff discharge from the construction works to Stream A and freshwater inland marsh. Any discharge of polluted runoff to the stream is prohibited. After the rainstorm events, silty deposit was observed at the lower end of the haul road to the temporary bridges. The Contractor was reminded to clear the silty deposit as soon as possible.

6.1.13 Silt curtains were installed at the outlet freshwater inland marsh, near Hole 2 and near Hole 4. After the rainstorm event occurs, silty water overflow from the silt curtains were observed. During the site audit at ebb tide, the lower part of the silt curtain were not properly fixing by weight or concrete blocks to prevent the silty water leaking from the silt curtain according to the Contractor proposed design. In addition, silty water was enclosed after the rainstorm within the silt curtain and could contaminated the nearby marine water and inter-tidal habitats. The Contractor was reminded to maintain the silt curtain and desilt the settled solids within the silt curtain in a routine basis and ensure the effectiveness of its intended use.

- 6.1.14 As confirmed with the Contractor, the wastewater treatment plant located in Hole 1 near existing S6 will operate only when the rainstorm event occurs. According to the site observations, silty water was accumulated after the rainstorm for two weeks and the wastewater treatment plant was not operated in order to treat the silty water before direct discharge to freshwater inland marsh through existing drainage system. The Contractor was reminded to operate the wastewater treatment plant when any silty water was accumulated within the sedimentation basin before discharge.
- 6.1.15 The sedimentation basin located near the maintenance building was full and silt was unsettled two weeks after the rainstorms. The Contractor was reminded to clear the sedimentation basin by providing effective de-silting facility before discharge the water to the inlet of freshwater inland marsh. Otherwise, the capacity of the de-silting basin was full of water and silty which cannot function properly before next rainstorm comes.
- 6.1.16 Hydroseeding was observed at part of the bare slopes of Holes 1, 3 & 18 to prevent silty runoff but some of them were dead. The Contractor was reminded to re-plant or provide other means to prevent for the silty runoff on bare soil slopes.
- 6.1.17 No turf has been established during this reporting month. According to the construction programme, turf establishment will start in August 2006 at Hole 3, 5 & 8. The Contractor was reminded to provide temporary drainage system to collect and divert the runoff to the existing reservoir when the permanent drainage system is not completed yet. The Contractor was recommended that 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.

Ecology

- 6.1.18 Buffer zone at Stream A and part of Stream B (tributary B2) had been established. 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.
- 6.1.19 Some orange fencing was torn and damage of Stream A buffer zone. The Contractor was reminded to replace and maintain the integrity of the buffer zone as soon as possible.
- 6.1.20 Sediment plume was observed from temporary barging point which caused some tagged corals were affected by the sediment at Site B2. This may probably caused by the silty runoff after heavy rain with insufficient temporary drainage implemented on site. The Contractor was reminded to improve the temporary drainage system to prevent silty runoff.
- 6.1.21 Floating pontoon was berthed at EP location at the temporary barging point.
- 6.1.22 No dredging work was carried out at the desalination plant location. No monitoring and transplantation was carried at this area.

Waste / Chemical Management

- 6.1.23 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. Stockpile of construction waste was also observed located at Hole 2. The Contractor was repeatedly reminded to dispose the vegetation stockpiles and construction waste off-site properly according to the waste management plan.

- 6.1.24 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 confirmed that the chemical waste generated was in small amount and would be disposed by their sub-contractor or store on site. The Contractor was reminded to provide chemical storage areas for chemical storage on site. Improper handling of chemical for the wastewater treatment plant was observed. The Contractor was reminded to rectify the situation and provide proper chemical storage area for any chemical required to store on site.
- 6.1.25 Site office construction was completed and located near existing maintenance building. Mobile chemical toilets were provided on site. The number of workers on site was around 100 (excluding the management staff of the Contractor) 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. The sewage treatment plant for the site office was provided and the effluent was directly discharged to the freshwater inland marsh and ultimately to the marine water.

Landscape and Visual

- 6.1.26 The landscape and visual monitoring and site audits were carried out on 6th and 21st June 2006. During the site audit, site formation and vegetation clearance works were being carried out. Trees within the construction area were protected properly.
- 6.1.27 No new tree was transplanted during the reporting month. Previously commented transplanted tree T982 had recovered and was in fair condition. All transplanted trees were in fair condition. Mal-pruning of transplanted trees had still not been rectified.
- 6.1.28 Hydroseeded grass near site office was infected by fungus and died subsequently after the several rainy days in late May. The Contractor was reminded to remove all dead hydroseeded grass and re-planted the area as soon as possible.

Status of Environmental Licensing and Permitting

6.1.29 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 piling and/or the carrying out of prescribed construction work.	21 st Jan 2006	Approved on 16 th February 2006	GW-RE0012-06 (valid until 3 rd July 2006), supersede by GW-RE0067-06.
Application for a construction noise permit for the use of powered mechanical equipment for the purpose of carrying out construction work other than percussive piling and/or the carrying out of prescribed construction work.	6 th Apr 2006	Approved on 9 th Jun 06 (supersede the GW-RE0067-06)	GW-RE0157-06 (valid until 28 th Nov 2006)
Notification of the air pollution control (construction dust) regulation	21 st Jan 2006	Acknowledge receipt from EPD on 27 th February 2006	Ref. no.: 001006902
Registration as a chemical waste producer	10 th Jan 2006	Register on 7 th February 2006	WPN-5213-813-C1186-04
Application for a permit to dump material at sea under the Dumping at Sea Ordinance	10 th Jan 2006	Deferred by CHEC on 17 th 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	12 th Jan 2006	Approved on 16 th January 2006	A/C no. 5005322 (valid until 2 nd August 2007)
Application for a licence for production pursuant to Section 14 of Air pollution Control Ordinance	2 nd 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 not required.	EPD letter refer. no.: EP640/EA/SK/015
Application for a licence under Water Pollution Ordinance – Sewage treatment for toilets and pantry	14 th Mar 2006	Awaiting for approval (CHEC/KSC3/9.1/0414)	
Application for a licence under Water Pollution Ordinance – temporary drainage	16 th Mar 2006	Awaiting for approval (CHEC/KSC3/9.1/0460)	

7. Environmental Non-Conformance

7.1 Summary of Environmental Non-Compliance

Air Quality

7.1.1 No non-compliance of 24-TSP was recorded at GCA B1 in the reporting month.

Marine Water Quality

7.1.2 For marine water, eight and eleven exceedances of SS and turbidity were recorded respectively at M_Marsh, TTC, M_BP and M_Coral and considered project-related. For exceedances at M_RO1 and KLW (two and one exceedances of SS and turbidity) were not considered project-related.

Freshwater Quality

7.1.3 For freshwater, eleven and thirteen exceedances of SS and turbidity were recorded respectively at F_DA and F_Inland Marsh and considered project-related. For Stream B, the one exceedance of turbidity was considered not project-related as no construction work approach to the stream during this reporting month.

Marine Ecology

7.1.4 Two coral colonies mortality (B-19 and B-58) were recorded and considered not project-related. The mortality was mainly due to the wave action. Minor sedimentation was observed (Less than 10%) on five tagged corals at Site B2, but the percentages were smaller than the action level standard (i.e. 15%). The exceedance was considered project-related due to the silty runoff observed during the site audit after rainstorm.

7.2 Summary of Environmental Complaint

7.2.1 One environmental complaint was received during the reporting month. Tai Tau Chau fish farmers expressed their concern about the silty runoff from the construction site and fish death issues to Hong Kong Jockey Club on 2nd June 2006 afternoon after the rainstorm event. Site investigation was carried out on 2nd June 2006 at Tai Tau Chau fish farm with Environmental Team (ET), Hong Kong Jockey Club (HKJC) and Contractor in the afternoon. Further site investigations on the water quality and fish death were carried out by AFCD, EPD and loss adjustor (Contractor) between 2nd and 5th June 2006. Kai Lung Wai fish farmers also raised their concern on the fish death on 3rd June 2006. Further site investigations on the water quality and fish death were carried out by AFCD, HKJC and loss adjustor (Contractor) between 3rd and 5th June 2006. The investigation report on the cause of the fish death will be available in early July 2006.

7.3 Summary of Environmental Summons

7.2.2 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.

- Operation of temporary barging point
- Operation of sewage treatment plant
- Operation of concrete batching plant
- Operation of wastewater treatment plant
- Land formation for desalination plant
- Cut and fill at Golf Holes 1-10 & 17-18
- Implementation of temporary drainage master plan

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 May 2006 to 24th Jun 2006 in accordance with EM&A Manual and the requirement under EP-224/2005.
- 9.1.2 The Contractor was repeatedly reminded to improve the temporary drainage system on site to prevent silty runoff to marine and stream courses.
- 9.1.3 For terrestrial ecology, the main stream course of Stream A (the section downstream to the confluence of tributaries A1 and A2) was found to be filled up by rubbles to the level of the weir at its downstream end. The rubbles were reported to be washed down from the upper Tributary A2 which was under pipe culvert construction. Remedial works should be implemented to clear the rubbles and restore the channel as the condition of this stream is expected to improve after the construction of the golf course extension (in which the eroded hill slopes would be replaced by turf). The Contractor was reminded to control the construction work quality and prevent same incident happened in future.
- 9.1.4 Two coral colonies mortality (B-19 and B-58) were recorded and considered not project-related. The mortality was mainly due to the wave action. Minor sedimentation was observed (Less than 10%) on five tagged corals at Site B2, but the percentages were smaller than the action level standard (i.e. 15%). The exceedance was considered project-related due to the silty runoff observed during the site audit after rainstorm. The Contractor was repeatedly reminded to provide sufficient temporary drainage system at the temporary barging point.
- 9.1.5 The Contractor was reminded to rectify the mal-pruning practice of the transplanted trees since last month and maintain all transplanted trees in good health condition. 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.
- 9.1.6 One environmental complaint and no environmental summons/prosecutions were received during the reporting period.
- 9.1.7 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.

Annex A

Tentative Construction Programme

Activity ID	Activity Description	Orig Dur	Early Start	Early Finish	Total Float	2005												2006												2007											
						O	D	J	F	M	A	M	J	J	A	S	O	N	D	O	D	J	F	M	A	M	J	J	A	S	O	N	D	O	D	J	F	M	A	M	J
SUMMARY PROGRAMME																																									
SU00100	Possession of Site	0	03/01/06A			◆ Possession of Site																																			
SU00110	Completion of Section 1	0		09/12/06	-67	◆ Completion of Section 1																																			
SU00120	Completion of Section 2	0		26/06/07	-266	Completion of Section 2 ◆																																			
SU00130	Completion of Section 3	0		16/12/06	-11	◆ Completion of Section 3																																			
SU00140	Completion of Section 4	0		13/03/07	-7	◆ Completion of Section 4																																			
SU00150	Completion of Section 9	0		07/09/07	-37	Completion of Section 9 ◆																																			
SU00160	S1: Low level intake pumping station	183*	24/04/06	30/11/06	-56	S1: Low level intake pumping station																																			
SU00170	S1: Gravity drain & rising main	182*	06/05/06	09/12/06	-56	S1: Gravity drain & rising main																																			
SU00180	S1: Trench excavation (Provisional)	35*	20/07/06	29/08/06	29	S1: Trench excavation (Provisional)																																			
SU00190	S2: Desalination plant	354*	18/02/06A	02/05/07	-168	S2: Desalination plant																																			
SU00200	S2: Transformer/switch room	111*	08/05/06	15/09/06	7	S2: Transformer/switch room																																			
SU00210	S2: Seawater pumping station	100*	12/05/06	07/09/06	-4	S2: Seawater pumping station																																			
SU00220	S2: Seawater intake & discharge pipe	394*	24/02/06A	26/06/07	-213	S2: Seawater intake & discharge pipe																																			
SU00230	S2: Retaining wall No.1	93*	21/04/06	11/08/06	-12	S2: Retaining wall No.1																																			
SU00240	S2: Lake No.1 and pump house No.1	99*	24/05/06	18/09/06	-13	S2: Lake No.1 and pump house No.1																																			
SU00250	S2: Roundabout and access road	80*	15/07/06	18/10/06	-12	S2: Roundabout and access road																																			
SU00260	S3: Existing maintenace building	234*	07/03/06A	16/12/06	-10	S3: Existing maintenace building																																			
SU00270	S4: Existing admin. building area 1	290*	21/03/06A	13/03/07	-6	S4: Existing admin. building area 1																																			
SU00280	S4: Existing admin. building area 2	119*	14/07/06	02/12/06	14	S4: Existing admin. building area 2																																			
SU00290	S4: Existing admin. building area 3	172*	21/03/06A	18/10/06	14	S4: Existing admin. building area 3																																			
SU00300	S4: Existing admin. building area 4	214*	21/03/06A	07/12/06	-6	S4: Existing admin. building area 4																																			
SU00310	S4: Existing admin. building area 5	156*	07/03/06A	13/09/06	0	S4: Existing admin. building area 5																																			
SU00330	S9: Earth/slope construction works	364*	10/03/06A	05/06/07	-29	S9: Earth/slope construction works																																			
SU00350	S9: Drainage & Irrigation	343*	16/05/06	11/07/07	-23	S9: Drainage & Irrigation																																			
SU00360	S9: Sand Capping (GH3, 5, 8, 18)	43*	20/07/06	07/09/06	42	S9: Sand Capping (GH3, 5, 8, 18)																																			
SU00370	S9: Sand Capping (GH4, 6, 7)	48*	20/11/06	17/01/07	-23	S9: Sand Capping (GH4, 6, 7)																																			
SU00380	S9: Sand Capping (GH1, 2 & 9-17)	159*	18/01/07	03/08/07	-32	S9: Sand Capping (GH1, 2 & 9-17)																																			
SU00390	S9: Grassing (GH3, 5, 8, 18)	54*	23/08/06	26/10/06	88	S9: Grassing (GH3, 5, 8, 18)																																			
SU00400	S9: Grassing (GH4, 6, 7)	57*	12/01/07	22/03/07	4	S9: Grassing (GH4, 6, 7)																																			
SU00410	S9: Grassing (GH1, 2 & 9-17)	137*	23/03/07	07/09/07	-32	S9: Grassing (GH1, 2 & 9-17)																																			

2005												2006												2007																	
O	D	J	F	M	A	M	J	J	A	S	O	N	D	O	D	J	F	M	A	M	J	J	A	S	O	N	D	O	D	J	F	M	A	M	J	J	A	S	O	N	D

Start Date 28/12/05
 Finish Date 07/09/07
 Data Date 21/04/06
 Run Date 02/05/06 16:38

Summary Bar
 Progress Bar

KS04
 Sheet 1 of 1

China Harbour Engineering Co.
Third Golf Course at Kau Sai Chau
Summary Programme

Date	Revision	Checked	Approved
28/12/05	4th Final for Submission	Tim	
01/03/06	Ver 5th (KST5)	Tim	

Annex B

Monitoring Programme for the reporting month

Proposed Extension of Public Golf Course at Kau Sai Chau Island, Sai Kung
 Monthly EM&A Report

May 2006						
Sun	Mon	Tue	Wed	Thu	Fri	Sat
			24	25	26	27 AQ
28	29 WQ	30	31			

June 2006						
Sun	Mon	Tue	Wed	Thu	Fri	Sat
				1	2 AQ WQ	3
4	5	6 LV	7	8 AQ WQ	9 WQ	10
11	12	13 WQ	14 AQ	15 ME	16 WQ	17
18	19	20 AQ	21 LV WQ	22	23	24
25	26	27	28	29 TE	30	

Remarks: AQ = TSP, WQ = Freshwater and Marine water quality, TE = Terrestrial Ecology, ME = Marine Ecology,
 LV = Landscape & Visual

Annex C

Event Action Plan

Event / Action Plan for Air Quality

EVENT	ACTION			
	ET	IC(E)	Engineer	CONTRACTOR
ACTION LEVEL				
1. Exceedance for one sample	1. Identify source, investigate the causes of complaint and propose remedial measures; 2. Inform IC(E) and Engineer; 3. Repeat measurement to confirm finding; 4. Increase to daily monitoring.	1. Check monitoring data submitted by ET; 2. Check Contractor's working method.	1. Notify Contractor.	1. Rectify any unacceptable practice; 2. Amend working methods if appropriate.
2. Exceedance for two or more consecutive samples	1. Identify source; 2. Inform IC(E) and Engineer; 3. Advise Engineer on effectiveness of proposed remedial measures; 4. Repeat measurements to confirm findings; 5. Increase to daily monitoring; 6. Discuss with IC(E) and Contractor remedial actions required; 7. If exceedance continues, arrange meeting with IC(E) and Engineer; 8. If exceedance stops, cease additional monitoring.	1. Check monitoring data submitted by ET; 2. Check Contractor's working method; 3. Discuss with ET and Contractor possible remedial measures; 4. Advise ET on the effectiveness of proposed remedial measures; 5. Supervise implementation of remedial measures.	1. Confirm in writing receipt of notification of exceedance; 2. Notify Contractor; 3. Supervise proper implementation of remedial measures.	1. Submit proposals for remedial measures to Engineer within three working days of notification; 2. Implement agreed proposals; 3. Amend proposal if appropriate.
LIMIT LEVEL				
1. Exceedance for one sample	1. Identify source, investigate causes of exceedance and propose remedial measures; 2. Inform IC(E), Engineer, Contractor and EPD; 3. Repeat measurement to confirm finding; 4. Increase to daily monitoring; 5. Assess effectiveness of Contractor's remedial actions	1. Check monitoring data submitted by ET; 2. Check Contractor's working method; 3. Discuss with ET and Contractor possible remedial measures; 4. Advise Engineer on effectiveness of proposed remedial measures; 5. Supervise implementation of remedial measures.	1. Confirm in writing receipt of notification of exceedance; 2. Notify Contractor; 3. Supervise proper implementation of remedial measures.	1. Take immediate action to avoid further exceedance; 2. Submit proposals for remedial actions to IC(E) within three working days of notification; 3. Implement the agreed proposals; 4. Amend proposals if appropriate.

EVENT	ACTION			
	ET	IC(E)	Engineer	CONTRACTOR
	and keep IC(E), EPD and Engineer informed of results.			
2 Exceedance for two or more consecutive samples	<ol style="list-style-type: none"> 1. Notify IC(E), Engineer, Contractor and EPD; 2. Identify source; 3. Repeat measurement to confirm findings; 4. Increase to daily monitoring; 5. Carry out analysis of Contractor's working procedures to determine possible mitigation measures to be implemented; 6. Arrange meeting with IC(E) and Engineer to discuss remedial actions to be taken; 7. Assess effectiveness of Contractor's remedial actions and keep IC(E), EPD and Engineer informed of results; 8. If exceedance stops, cease additional monitoring. 	<p>Discuss amongst Engineer, ET, and Contractor the potential remedial actions;</p> <p>Review Contractor's remedial actions whenever necessary to assure their effectiveness, and advise Engineer accordingly;</p> <p>Supervise implementation of remedial measures.</p>	<p>Confirm receipt of notification of exceedance in writing;</p> <p>Notify Contractor;</p> <p>In consultation with the IC(E), agree with the Contractor the remedial measures to be implemented;</p> <p>Supervise proper implementation of remedial measures;</p> <p>If exceedance continues, consider what portion of the works is responsible and instruct the Contractor to stop that portion of work until exceedance has abated.</p>	<ol style="list-style-type: none"> 1. Take immediate action to avoid further exceedance; 2. Submit proposals for remedial actions to IC(E) within three working days of notification; 3. Implement the agreed proposals; 4. Resubmit proposals if problem still not under control; 5. Stop the relevant portion of works as instructed by Engineer until the exceedance is abated.

Event and Action Plan for Water Quality

Event	ET Leader	IC(E)	Engineer	Contractor
ACTION LEVEL				
Action level being exceeded by one sampling day	Repeat <i>in situ</i> measurement to confirm findings; Identify reasons for non-compliance and source(s) of impact; Inform IC(E) and Contractor; Check monitoring data, all plant, equipment and Contractor's working methods; Discuss mitigation measures with IC(E) and Contractor; Repeat measurement on next day of exceedance.	Discuss mitigation measures with ET and Contractor ; Review proposals on mitigation measures submitted by Contractor and advise the Engineer accordingly; Assess effectiveness of implemented mitigation measures.	Discuss proposed mitigation measures with IC(E); Make agreement on mitigation measures to be implemented. Assess effectiveness of the implemented mitigation measures.	Inform the Engineer and confirm in writing notification of the non-compliance; Rectify unacceptable practice; Check all plant and equipment; Consider changes in working methods; Discuss with ET and IC(E) and propose mitigation measures to IC(E) and Engineer; Implement agreed mitigation measures.
Action level being exceeded by more than two consecutive sampling days	Repeat <i>in situ</i> measurement to confirm findings; Identify reasons for non-compliance and source(s) of impact; Inform IC(E) and Contractor; Check monitoring data, all plant, equipment and Contractor's working methods; Discuss mitigation measures with IC(E) and Contractor; Ensure mitigation measures are implemented; Prepare to increase to daily monitoring; Repeat measurement on next day of exceedance.	Discuss mitigation measures with ET and Contractor ; Review proposals on mitigation measures submitted by Contractor and advise the Engineer accordingly; Assess effectiveness of implemented mitigation measures.	Discuss the proposed mitigation measures with IC(E); Make agreement on mitigation measures to be implemented; Assess effectiveness of implemented mitigation measures.	Inform Engineer and confirm in writing notification of the non-compliance; Rectify unacceptable practice; Check all plant and equipment; Consider changes in working methods; Discuss with ET and IC(E) and propose mitigation measures to IC(E) and Engineer within three working days; Implement agreed mitigation measures.
LIMIT LEVEL				
Limit level being exceeded by one sampling day	Repeat <i>in situ</i> measurement to confirm findings; Identify reasons for non-compliance and source(s) of impact; Inform IC(E) Contractor and EPD; Check monitoring data, all plant, equipment	Discuss mitigation measures with ET and Contractor; Review proposals on mitigation measures submitted by Contractor and advise the Engineer accordingly; Assess effectiveness of implemented	Discuss proposed mitigation measures with IC(E), ET and Contractor; Request Contractor to critically review the working methods; Make agreement on mitigation measures to be implemented;	Inform Engineer and confirm in writing notification of the non-compliance; Rectify unacceptable practice; Check all plant and equipment; Consider changes in working methods;

Event	ET Leader	IC(E)	Engineer	Contractor
	and Contractor's working methods; Discuss mitigation measures with IC(E), Engineer and Contractor; Ensure mitigation measures are implemented; Increase to daily monitoring until no exceedance of Limit level.	mitigation measures.	Assess effectiveness of implemented mitigation measures.	Discuss with ET, IC(E) and Engineer and propose mitigation measures to IC(E) and Engineer within three working days; Implement agreed mitigation measures.
Limit level being exceeded by more than two consecutive sampling days	Repeat <i>in situ</i> measurement to confirm findings; Identify reasons for non-compliance and source(s) of impact; Inform IC(E), Contractor and EPD; Check monitoring data, all plant, equipment and Contractor's working methods; Discuss mitigation measures with IC(E), Engineer and Contractor; Ensure mitigation measures are implemented; Increase to daily monitoring until no exceedance of Limit level for two consecutive days.	Discuss mitigation measures with ET and Contractor; Review proposals on mitigation measures submitted by Contractor and advise Engineer accordingly; Assess effectiveness of implemented mitigation measures.	Discuss proposed mitigation measures with IC(E), ET and Contractor; Request Contractor to critically review working methods; Make agreement on mitigation measures to be implemented; Assess effectiveness of implemented mitigation measures; Consider and if necessary instruct Contractor to slow down or to stop all or part of the construction activities until no exceedance of Limit level.	Inform Engineer and confirm in writing notification of the non-compliance; Rectify unacceptable practice; Check all plant and equipment; Consider changes of working methods; Discuss with ET, IC(E) and Engineer and propose mitigation measures to IC(E) and Engineer within three working days; Implement agreed mitigation measures; As directed by the Engineer, slow down or stop all or part of the construction activities until no exceedance of Limit level.

Action and Limit level and Event Action Plan for natural corals monitoring

Parameters	Action Level	Limit Level
Sedimentation	a 15% increase in the percentage of sedimentation on the hard corals occurs at more than 20% of the tagged coral colonies at one or more monitoring sites	a 25% increase in the percentage of sedimentation on the hard corals occurs at more than 20% of the tagged coral colonies at one or more monitoring sites
Bleaching	a 15% increase in the percentage of bleaching of hard corals occurs at more than 20% of the tagged coral colonies at one or more monitoring sites	a 25% increase in the percentage of bleaching of hard corals occurs at more than 20% of the tagged coral colonies at one or more monitoring sites
Mortality	a 15% increase in the percentage of partial mortality of corals occurs at more than 20% of the tagged coral colonies at one or more monitoring sites	a 25% increase in the percentage of partial mortality of corals occurs at more than 20% of the tagged coral colonies at one or more monitoring sites

Action	Action Level	Limit Level
Construction phase	If the Action Level is exceeded the ET Leader should inform all parties (Contractor, Project Proponent, EPD, AFCD and IEC). The data from the water quality monitoring should also be reviewed. If the water quality monitoring shows no attributable effects of the installation works, then the Action Level is not triggered. If the water quality data indicate exceedances (for SS and/or turbidity) the ET Leader should discuss with the Contractor the most appropriate method of reducing suspended solids during dredging (e.g. reduce the rate of dredging), and/or control sedimentation during earth works (e.g. check the intactness and effectiveness of the temporary drainage system and stream buffer zone). This mitigated method should then be enacted on the next working day.	If the Limit Level is exceeded the ET Leader should inform all parties (Contractor, Project Proponent, EPD, AFCD and IEC) immediately. Should the Limit Level be exceeded, the contractor should stop dredging and/or earth works immediately and work out the solution according to the requirements of EPD and AFCD. The ET Leader should inform the Contractor to suspend dredging and/or earth works until an effective solution is identified. Once the solution has been identified and agreed with all parties dredging and/or earth works may commence
Operation phase	If the Action Level is exceeded the ET Leader should inform Golf Course Operator, EPD, and AFCD. The data from the water quality monitoring should also be reviewed. If the water quality monitoring shows no attributable effects of the installation works, then the Action Level is not triggered. If the water quality data indicate exceedances (salinity and/or pesticides) the ET Leader should discuss with the Golf Course Operator the most appropriate method of reducing salinity (e.g. reduce the daily operation time of the desalination plant), and/or control chemicals from runoff (e.g. reduce the frequency and quantity of chemical applied, check the intactness and effectiveness of the closed drainage system and stream buffer zone). This mitigated method should then be enacted on the next working day.	If the Limit Level is exceeded the ET Leader should inform all parties Golf Course Operator, EPD, and AFCD immediately. Should the Limit Level be exceeded, the Golf Course Operator should stop the operation of the desalination plant and/or the application of chemicals immediately and work out the solution according to the requirements of EPD and AFCD. The operation of the desalination plant and/or the application of chemicals would be suspended until an effective solution is identified.

Categories of Archaeological Finds and Recommended Action

Categories of Archaeological Material	Retrieval Procedure
Human burial <ul style="list-style-type: none"> • Skeleton remains • Items associated with human burial, i.e. grave goods 	Full recording and recovering of human remains and associated features <ul style="list-style-type: none"> • Complete recording by photography, drawing, written description • Full measurement of burial and surrounding matrix • Retrieval of human remains and associated materials • Retrieval of surrounding soil for further analysis
Intact features <ul style="list-style-type: none"> • Structural/architectural remains • Undisturbed context, such as hearth, midden, habitation area, assemblages of artefacts and/or environmental material 	Limited recording and recovery of archaeological features <ul style="list-style-type: none"> • Recording and measurement of salient features by photography, drawing and written description • Retrieval of all archaeological material • Retrieval of samples from the surrounding matrix
Intact artefacts <ul style="list-style-type: none"> • Complete objects such as pottery, metal objects, stone and bone tools. The objects are complete but isolated and are no part of assemblages or feature. 	Recovery of artefacts <ul style="list-style-type: none"> • Recovery of objects • Sampling of the surrounding matrix • Proper treatment with cleaning, marking and packing under international acceptable standards
Isolated material <ul style="list-style-type: none"> • Sherds, non-human bone, artefact fragments (metal, pottery, glass). There are no complete objects, the material is isolated and fragmentary in nature. 	Recovery of artefact fragments/archaeological material <ul style="list-style-type: none"> • Recovery of material, such as artefact fragments, environmental material and sampling of surrounding matrix
Deposits with archaeological potential <ul style="list-style-type: none"> • Soil deposits which exhibit characteristics associated with archaeological remains in Hong Kong 	Sampling of the deposit <ul style="list-style-type: none"> • Collection of soil samples from deposits displaying archaeological potential

Annex D

Implementation status on Environmental Protection Requirements

IMPLEMENTATION SCHEDULE OF THE PROPOSED MITIGATION MEASURES

Table 1 Implementation Schedule of Air Quality Measures

EIA Ref	EM&A Ref	Environmental Protection Measures*	Location / Timing	Implementation Agent	Implementation Stages**			Relevant Legislation & Guidelines	Implementation Status
					D	C	O		
Air Quality - Construction Phase									
4.7.1		<p>In order that nuisance to air sensitive receivers is minimized, it is important to minimize dust emissions from construction activities including cut and fill operations and trucks movements on haul road.</p> <p>Dust control techniques should be considered to control dust to a level not exceeding the AQOs as well as the 1-hour TSP guideline level. These measures include:</p> <ul style="list-style-type: none"> • Adoption of good site practices; • Avoid practices likely to raise dust level; • Frequent cleaning and damping down of stockpiles, dusty areas of the Site and the haul roads; • Reduce the speed of the vehicles (say 10 kph) on the haul road; • Reducing drop height during material handling; • Provision of wheel-washing facilities for Site vehicles leaving the Site; • Regular plant maintenance to minimize exhaust emission; • If concrete batching plant or rock crushing plant is planned to used, a license from EPD may be required depending on the total silo capacity since they are specified processes under the APCO. Modern plant should be designed to limit emissions 	Work site / during construction	All contractors		√		EIAO-TM, APCO, Air Pollution Control (Construction Dust) Regulation	
									√
									√
									√
									√
									Not available on site
									√
									As confirmed by Contractor, the concrete batching plant is not a specific process.
4.7.2		Providing watering four times a day for dust suppression.							

* All recommendations and requirements resulted during the course of EIA Process, including ACE and/or accepted public comment to the proposed project.

** D=Design, C=Construction, O=Operation; N/A = Not applicable

Table 2 Implementation Schedule of Water Quality Control Measures

EIA Ref	EM&A Ref	Environmental Protection Measures*	Location	Implementation Agent	Implementation Stages**			Relevant Legislation and Guidelines	Implementation Status
					D	C	O		
Water Quality – Construction phase									
6.11.4		<u>Proposed 18 holes Golf Course Layout Design</u> 20 m buffer zones on both sides of the streams will be demarcated as a preventative mitigation measure to reduce the disturbance during construction phase of the golf course except for the portions of Streams A which is of low ecological value and an old tributary of Stream B. On one side of part of the Stream B, the buffer zone would be reduced to 5m.	Work site / During the construction period	All contractors		√		ProPECC PN 1/94; WPCO; TM-Effluent Standards for Effluents Discharged into Drainage and Sewerage Systems, Inland and Coastal Water	Stream A and Stream B2 tributary buffer zone were provided. Stream B1 and C will be demarcated in advance when works approach to those areas.
6.11.5		For the construction activity which is unavoidable near natural streams (within the buffer zone), mainly the construction of crossings, preventative mitigation measures during the construction stage should be follow by the Contractor, they are shown as follows: <ul style="list-style-type: none"> The proposed works site inside or in the proximity of natural streams should be temporarily isolated, through by placement of sandbags or silt curtains and properly supported by props, to prevent adverse impacts on the stream water qualities; The natural bottom and existing flow in the stream should be preserved to avoid disturbance to the stream habitats; No direct and indirect discharge into the natural stream is allowed from any construction work activities; Stockpiling of construction material, if any, should be properly covered and located away from any natural stream; Monitor rain forecast closely and cover any exposed spoil when rainstorms are forecated. Debris should be properly disposed of before rainstorm to avoid any inadvertent wash away into the stream; and Removal of existing vegetation alongside the stream should be avoided. When disturbance to vegetation is unavoidable, all disturbed areas should be hydroseeded or planted with suitable vegetation to blend in with the natural environmental upon completion of works. 						Temporary bridge no.9 across Stream A was constructed within the buffer zone areas. The Contractor was reminded to ensure no discharge/runoff to the Stream A from the construction activity especially within the buffer zone areas. Haul roads near Hole 9 and Hole 10 and bridge deck were paved with concrete to prevent silty runoff.	
									Temporary bridge no. 5 was constructed near at freshwater inland marsh. The Contractor was reminded to provide

EIA Ref	EM&A Ref	Environmental Protection Measures*	Location	Implementation Agent	Implementation Stages**			Relevant Legislation and Guidelines	Implementation Status
					D	C	O		
								<p>sufficient mitigation measures during construction to prevent silty runoff from the bridge. Bridge deck was paved with concrete.</p> <p>No permanent precast concrete bridge was constructed during the reporting month.</p>	
6.11.13		<p><u>Runoff and Drainage Management</u></p> <ul style="list-style-type: none"> ♦ Diversion of upstream flows around the works areas for stream crossings and underground pipes: To minimize the impact of upstream runoff on the Works area by preventing storm flows reaching the work areas. This will be done through provision of upstream cut-off drains to intercept the flows and divert them around the Works area. It would convey flows to downstream stream courses, or other elements of temporary drainage systems (such as storage facilities). ♦ Temporary covering the works areas during severe storm events: Significant rainstorm events can be reasonably well forecast and when heavy rain is predicted, mitigation measures should be provided for the vulnerable areas by using tarpaulins, plastic sheets or other temporary covering to protect works area and minimize damage and erosion. It is recommended not to cover the newly establishment grass areas, and if unavoidable, this should only be done on a short term basis (less than 24 hours). ♦ Silt traps and sedimentation tanks for main discharge routes form works area: Sufficient and suitably sized silt traps and/or sedimentation tanks should be provided at the 	Work site / During the construction period	All contractors		√		<p>ProPECC PN 1/94; WPCO; TM-Effluent Standards for Effluents Discharged into Drainage and Sewerage Systems, Inland and Coastal Water</p> <p>The latest temporary drainage plan was submitted by Contractor to ER around mid-Jun 06 for comments. The temporary drainage plan will be updated by the Contractor throughout the construction phase to cope with the change of site conditions.</p> <p>The implementation of temporary preventative measure for silty runoff were installation of silt fence along the site boundary (low lying area, provide some sedimentation basins at Hole 1 low lying areas, cut-off drains</p>	

EIA Ref	EM&A Ref	Environmental Protection Measures*	Location	Implementation Agent	Implementation Stages**			Relevant Legislation and Guidelines	Implementation Status
					D	C	O		
		<p>downstream ends of the systems to remove suspended solids prior to discharge. The discharge water quality shall be compliant with the <i>TM on Standards for Effluents Discharged into Drainage and Sewerage Systems, Inland and Coastal Waters</i> under the WPCO. The required volume of the sedimentation tanks will depend on the catchment area served. Multiple tanks in series may also be required where runoff might be expected to be silty.</p> <ul style="list-style-type: none"> The design details of the temporary drainage system at turf establishment area follow the same principles of the permanent drainage system. However the component pipes, tanks, lakes and/or pumps may differ in size, shape, location, etc. from that of the permanent system, dependent upon the temporary runoff areas as compared with those of the permanent system. Additionally or alternatively, the temporary drainage system may consist of other methods to control soil erosion and/or to facilitate the collection of surface water runoff. <p>The temporary drainage system will function during the period of time in which the permanent system is not yet completed. This circumstance will arise from the fact that the golf holes, inclusive of the permanent drainage system, will be constructed individually. As a result, the permanent drainage system may not be completed in its entirety until connection is made from each respective golf hole area to the lake/reservoir. As the permanent drainage system is completed for each hole, the corresponding temporary system will be decommissioned and reused elsewhere.</p> <p>The temporary drainage system will be in use until the permanent system is functional in a given area. Once the permanent system is functional in a given area, the temporary system will be decommissioned and, wherever possible, the components re-used in another temporary drainage system installed elsewhere. It is anticipated that the maximum</p>						<p>provided at Hole 17 and wastewater treatment plant was provided at Hole 1. Some of the silt fence areas are poorly maintain which could cause potential runoff to marine and stream courses. The heavy rainstorm incident on 2nd and 9th Jun 2006 reflected on deficiency of the temporary drainage leading to silty runoff.</p> <p>No turf was establishment yet. The expected turfing period will be around Aug 06 at Holes 3, 5 & 8.</p>	

EIA Ref	EM&A Ref	Environmental Protection Measures*	Location	Implementation Agent	Implementation Stages**			Relevant Legislation and Guidelines	Implementation Status
					D	C	O		
		<p>duration of use for the temporary drainage system in any given area will be one-year.</p> <p>The storage tanks and/or lakes will be designed to segregate suspended solids (or pollutants as may be the case in plant/equipment storage and refueling areas) as may be necessary by contract requirements and reuse.</p> <ul style="list-style-type: none"> • No irrigation, fertilizer and pesticide applications to the turf would be permitted during rainstorm events or when heavy rainstorm is predicted 24 hours before the application. • Runoff from materials storage areas, particularly fuel and chemicals storage area should be separated from the main drainage systems (bunded, if necessary) and provided with dedicated facilities throughout the construction period, such as petrol interceptors. 				√			
6.11.14		The Contractor shall follow good site practices and be responsible for the design, construction, operation, and maintenance of all the mitigation measures as specified in	Work site / During the construction	All Contractor		√		ProPECC PN 1/94; WPCO; TM-Effluent Standards	The latest temporary drainage plan was submitted by

EIA Ref	EM&A Ref	Environmental Protection Measures*	Location	Implementation Agent	Implementation Stages**			Relevant Legislation and Guidelines	Implementation Status
					D	C	O		
		<p><i>ProPECC PN1/94</i> on construction site drainage through the construction period. These practices include:</p> <ul style="list-style-type: none"> • Temporary ditches should be provided to facilitate run-off discharge into appropriate watercourses, via a silt retention pond. • All drainage facilities and erosion and sediment control structures should be inspected monthly and maintained to ensure proper and efficient operation at all times. • Excavation of soil that cannot be avoided during the wet season, and exposed surface or open stockpiles should be covered with tarpaulin or other means. Other measures that need to be implemented before, during and after rainstorms are summarized in <i>ProPECC PN1/94</i>. • Exposed soil areas should be minimized to reduce potential for increase siltation and contamination of runoff. • Earthwork final surfaces should be well compacted and subsequent permanent work (turf establishment) should be immediately performed. • The Contractor shall contain within the site all surface runoff generated from the construction works, concreting works, dust control and vehicle washing, etc. • The Contractor shall arrange other measures, such as provision of sand bags or temporary diversion systems to prevent washing away of soil, silt or debris into any nearby natural streams. Any runoff shall be diverted into appropriate sediment traps before discharging to the nearby drainage system. The discharge water quality shall be compliant with the <i>TM on Standards for Effluents Discharged into Drainage and Sewerage Systems, Inland and Coastal Waters</i> under the WPCO. • The Contractor shall observe and comply with the Water Pollution Control Ordinance (WPCO) and its subsidiary regulations by implementing environmental protection measures (such as the use of silt traps) and preventing any point or non-point source of pollution. 	period				for Effluents Discharged into Drainage and Sewerage Systems, Inland and Coastal Water	Contractor to ER around mid-Jun 06 for comments. The temporary drainage plan will be updated by the Contractor throughout the construction phase to cope with the change of site conditions.	
		<u>Concrete bridge construction</u>	Work site / During the	All contractors		√		ProPECC PN 1/94; WPCO; TM-	No concrete bridge/pipe culvert

EIA Ref	EM&A Ref	Environmental Protection Measures*	Location	Implementation Agent	Implementation Stages**			Relevant Legislation and Guidelines	Implementation Status
					D	C	O		
6.11.15		No work is allowed to come into contact with the underlying stream bed during the concrete bridge construction. During the construction of precast concrete bridge, if necessary, precaution measures should be taken to ensure no potentially polluting liquid or solid wastes fall into the stream. This is essential to avoid water quality impacts within ecologically sensitive streams.	construction period				Effluent Standards for Effluents Discharged into Drainage and Sewerage Systems, Inland and Coastal Water	was under construction during the reporting month.	
6.11.16		<p>The Contractor shall good site follow practices, including, but no limited to::</p> <ul style="list-style-type: none"> • Construction work area for the precast concrete should be outside the designated stream buffer zone area; • The designated work area for precast concrete work should be covered to minimize the potential water runoff during rain from the construction area; • All water used within the concrete work area should be collected, stored and recycled to reduce resource consumption. Stormwater runoff from the works areas fro precast concreting works should drain under gravity towards a sedimentation basin. The overlying water from the sedimentation basin should be recycled for reuse within the plant. The deposited sediment should be dewatered and the dry matter should require disposal off-site. No water should be discharged outside the boundary of the precast concrete works area; • The use of tarpaulin sheet or other means (water impermeable texture) should be placed beneath precast concrete beam level (must be above the stream bed level) to capture any falling object during installation of precast concrete bridge on the footings or abutments; • Prohibition of any direct and indirect discharge into the streams; • The concrete bridge and footings of abutments must be completely above the high water mark; • All equipment and machinery must be free of leaks or excess oil and grease; • Equipment refueling or servicing or storage of fuel must be 							

EIA Ref	EM&A Ref	Environmental Protection Measures*	Location	Implementation Agent	Implementation Stages**			Relevant Legislation and Guidelines	Implementation Status
					D	C	O		
		undertaken at a minimum of 30 meters from the stream; <ul style="list-style-type: none"> Prevent soil and trash from getting into stream during construction by use of silt fence, fiber rolls, gravel bags and other effective means; All bare soil (abutment slope or temporary stockpile) must be covered with tarpaulin or other means before forecast rain; and Wash out concrete trucks or pumps only into designated washout pits. 							
6.11.19		<u>Dredging during Construction of Desalination Plant's intake and outfall</u> The intake and outfall pipelines will be constructed by dredging the seabed to form a trench and backfilled with a layer of bedding material (quarry run stone) before putting the pipelines in place. Once in place, the pipelines are covered with layers of rock armour on top of the pipelines to protect the pipelines against damage by wave action. The alternative backfilling material is from rock excavated during site formation if suitable.	Work site / During the construction period	All contractors		√		ProPECC PN 1/94; WPCO; TM-Effluent Standards for Effluents Discharged into Drainage and Sewerage Systems, Inland and Coastal Water	No dredging work for the desalination plant pipelines was carried out. The only work for the desalination plant was the land formation for the desalination plant during the reporting month.
6.11.20		The materials used for the backfilling at the intake and outfall pipelines are stone and rock armour only. Transfer of backfilling materials onto the seabed from barge should be conducted by careful grabbing and unloading to seabed (to minimize sediment migration), thereby minimize impacts on water quality to nearby water sensitive receivers. As a preventative measures, silt curtain will also be required during the backfilling activities. The expected backfilling duration is approximate 2 months.							
6.11.21		The Contractor shall use backhoe for dredging works at a water depth of less than 2m and use close grab dredger for works with water depth of more than 2m. The estimated dredging works is about 50m long (where backhoe should be used for water less than 2m deep) and 70m long (where close grab dredger should be used for water more than 2m deep). Only one dredging method should be used at any one time.							

EIA Ref	EM&A Ref	Environmental Protection Measures*	Location	Implementation Agent	Implementation Stages**			Relevant Legislation and Guidelines	Implementation Status
					D	C	O		
6.11.22		<p>In order to avoid pollution during dredging, transporting and dumping of marine mud. Pollution avoidance measures shall include but not be limited to the following:</p> <ul style="list-style-type: none"> • The maximum daily dredging rate for closed grab dredger should be 45m³/day; • The maximum daily dredging rate for backhoe should be 20m³/day; • Silt curtain should be installed for any dredging methods to protect the WSRs; • Closed grabs or sealed grabs should only be used for locations with water depths ≥ 2m; • Backhoe should only be used for locations with water depths ≤ 2m; • All equipment should be designed and maintained to minimise the risk of silt and other contaminants being released into the water column or deposited in locations other than designated location; • Mechanical grabs should be designed and maintained to avoid spillage and should seal tightly while being lifted; • No trailing suction hopper dredgers would be deployed for the dredging of marine mud; • All vessels should be sized such that adequate clearance is maintained between vessels and the sea bed at all states of the tide to ensure that undue turbidity is not generated by turbulence from vessel movement or propeller wash; • All pipe leakages should be repaired promptly and plant shall not be operated with leaking pipes; • Before moving the vessels which are used for transporting dredged materials excess material should be cleaned from the decks and exposed fittings of vessels and the excess materials should never be dumped into the sea except at the approved locations; • Adequate freeboard should be maintained on barges to ensure that decks are not washed by wave action; • The Contractor should monitor all vessels transporting 							

EIA Ref	EM&A Ref	Environmental Protection Measures*	Location	Implementation Agent	Implementation Stages**			Relevant Legislation and Guidelines	Implementation Status
					D	C	O		
6.11.23		<p>material to ensure that no dumping outside the approved location takes place. The contractor should keep and produce logs and other records to demonstrate compliance and that journey times are consistent with designated locations and copies of such records should be submitted to the engineer;</p> <ul style="list-style-type: none"> • All bottom dumping vessels should be fitted with tight fitting seals to their bottom openings to prevent leakage of material; • Loading of barges and hoppers should be controlled to prevent splashing of dredged material to the surrounding water, and vessels should not be filled to a level which will cause overflowing of material or polluted water during loading or transportation; and • The engineer may monitor any or all vessels transporting material to check that no dumping outside the approved location nor loss of material during transportation takes place. The contractor should provide all reasonable assistance to the engineer for this purpose. <p>In addition, baseline water quality monitoring before commencement of the marine works shall be carried out in the nearby waters to obtain baseline information for subsequence monitoring. Regular and frequent water quality monitoring shall be carried out throughout the whole construction period to ensure the water quality during construction is well within the established environmental guidelines and standards.</p>							
6.11.24		<p>Silt Curtain</p> <p>In order to minimize impacts during the whole construction period of desalination plant's intake and discharge outfall, silt curtains should be utilized to minimize sediment migration. The Contractor shall be responsible for the design, installation and maintenance of the silt curtains to minimize the impacts on the water quality and the protection of water sensitive receivers. The design and specification of the silt curtains shall be submitted by the Contractor to the Engineer for approval. Area of the silt curtain to enclose the works area should be minimized in order to reduce the disturbance of ecological sensitive areas nearby.</p>							

EIA Ref	EM&A Ref	Environmental Protection Measures*	Location	Implementation Agent	Implementation Stages**			Relevant Legislation and Guidelines	Implementation Status
					D	C	O		
6.11.25		A typical suspended solids reduction of 75% can be achieved with the incorporation of silt curtain. Two-layer silt curtains have generally been used for dredging projects of larger scale to further ensure this reduction. However, as the scale of proposed project is considered small, it is recommended to use single layer silt curtain which can achieve a minimum 75% suspended solids reduction.							
6.11.26		Silt curtains shall be formed from tough, abrasion resistant, permeable membranes, suitable for the purpose, supported on floating booms in such a way as to ensure that the sediment plume shall be restricted to within the limit of the works area.							
6.11.27		The silt curtain shall be formed and installed in such a way that tidal rise and fall are accommodated, with the silt curtains always extending from the surface to the bottom of the water column. The removal and reinstallation of such curtains during typhoon conditions shall be as agreed with the Director of Marine Department.							
6.11.28		The Contractor shall regularly inspect the silt curtains and check that they are moored and marked to avoid danger to marine traffic. Any damage to the silt curtain shall be repaired by the Contractor promptly and the works shall be stopped until the repair is effected to the satisfaction of the Engineer.							
6.11.29		<u>General Construction Activities</u> Debris and refuse generated on-site should be collected, handled and disposed of properly to avoid entering adjacent watercourse. Stockpiles of construction materials should be kept covered when not being used.	Work site / During the construction period	All contractors		√	ProPECC PN 1/94; WPCO; TM-Effluent Standards for Effluents Discharged into	√	

EIA Ref	EM&A Ref	Environmental Protection Measures*	Location	Implementation Agent	Implementation Stages**			Relevant Legislation and Guidelines	Implementation Status
					D	C	O		
6.11.30		Oils and fuels should only be stored/handled in designated areas with pollution prevention facilities. Oil interceptors need to be regularly inspected and cleaned to avoid wash-out of oil during storm conditions.						√	
6.11.31		Contractor should provide a safe storage area for chemicals on site. The Contractor is required to register as a chemical waster producer if chemical wastes would be produced from the construction activities.						Not available on site during this reporting month	
6.11.32		All fuel tanks should be provided with locks and be sited on sealed areas within bunds of capacity equal to 110% of the storage capacity of the largest tank.						Drip trays were provided underneath the oil tanks.	
6.11.33		Good housekeeping practices and staff training are required to minimize careless spillage and keep the work space in a tidy and clean conditions at all times. Accidental spillage of chemicals in the works area would directly affect the aquatic environment. It is recommended that the Contractor should develop management procedures for chemical and implement an emergency plan to deal with chemical spillage in case of an accident.						N/A	
6.11.34		Disposal of chemical wastes should be carried out in compliance with the Waste Disposal Ordinance. The chemical waste should be transported to a facility licensed to receive chemical waste, such as the Chemical Waste Treatment Facility at Tsing Yi. The Code of Practice on the Packaging, Labelling and Storage of Chemical Wastes details the requirements to deal with chemical wastes.						No waste disposal was recorded for this reporting month.	
6.11.35		<u>On-Site Sewage Effluents</u> In order to prevent sewage effluents affecting water courses, the following mitigation measures should be provided by the Contractor:-	Work site / During the construction	All contractors		√		ProPECC PN 1/94; WPCO; TM- Effluent Standards	

EIA Ref	EM&A Ref	Environmental Protection Measures*	Location period	Implementation Agent	Implementation Stages**			Relevant Legislation and Guidelines	Implementation Status
					D	C	O		
		<ul style="list-style-type: none"> Temporary sanitary facilities, such as portable chemical toilets, should be employed on-site to handle sewage from the workforce; The toilet facilities should be more than 30 m from any watercourse; Temporary storage tank should be provided to collect wastewater from kitchens or canteen, if any; A licensed waste collector should be deployed to clean the chemical toilets on a regular basis which will be and disposed of at government sewage treatment facilities; Regular environmental audit on the construction site can provide an effective control of any malpractices and can achieve continual improvement of environmental performance on site. It is anticipated that sewage generation during the construction phase of the project would not cause water pollution problem after undertaking all required measures; and Notices should be posted at conspicuous locations to remind the workers not to discharge any sewage or wastewater into the nearby environment during the construction phase of the project. 						for Effluents Discharged into Drainage and Sewerage Systems, Inland and Coastal Water	✓. A sewage treatment plant was provided at the site office. ✓ N/A (no canteen on site) ✓ ✓ ✓
6.11.36		<p><u>Concrete batching plant</u></p> <p>All water used within the concrete batching plant will be collected, stored and recycled to reduce resource consumption. This includes water used in the concrete batching process, truck cleaning, yard washing and dust suppression spraying. All spent dust suppression effluent will be collected and recycled. To minimize the potential water quality impacts that may generate from the concrete batching plant, a drainage system should be provided in this site. The batching plant area should be channelled to collect concrete washings for further treatment before reuse on-site and prevent concrete washings from directly entering the any stream or seawater. Site runoff should also be collected through the drainage system. To minimize the</p>	Work site / During the construction period	All contractors		✓		ProPECC PN 1/94; WPCO; TM-Effluent Standards for Effluents Discharged into Drainage and Sewerage Systems, Inland and Coastal Water	The concrete batching plant was started to operate during the reporting month. Temporary drains to cut-off the water from haul road and peripheral drainage system to collect the wastewater were not observed. There was a sedimentation pit within the concrete batching plant area to

EIA Ref	EM&A Ref	Environmental Protection Measures*	Location	Implementation Agent	Implementation Stages**			Relevant Legislation and Guidelines	Implementation Status
					D	C	O		
6.11.37		<p>generation of contaminated site runoff from concrete production area, the concrete batching plant should be sheltered.</p> <p>Concrete washings and site runoff should be pumped to a wastewater treatment system with a sedimentation unit for removal of suspended solids such as waste concrete particles, silt and grit in order to achieve the discharge standards. pH adjustment should also be applied if the pH value of the collected concrete washings and site runoff is higher than the pH range specified in the discharge licence. This can be achieved by adding neutralizing reagents, i.e. acidic additive. A discharge licence should be applied from EPD for discharge of effluent from the site. Analysis of effluent quality may be required as one of the licensing conditions of the discharge licence. The Contractor should collect effluent samples at the final discharge point in accordance with the required sampling frequency to test the specified water quality parameters. The quality of the discharged effluent should comply with the discharge licence requirements. It is recommended to reuse the treated effluent for dust suppression and general cleaning on site, wherever possible.</p>						<p>collect the wastewater and used as a wheel waste facilities. The collected water will pump to sedimentation columns for recycle. The Contractor was reminded to provide sufficient temporary drainage on site.</p>	
6.11.38		<p>The drainage system should be maintained on a regular basis to remove the deposits on the channels. The sedimentation and pH adjustment systems should also be checked and maintained by competent persons to ensure that the systems are functioning properly at all times.</p>							
6.11.39		<p>The deposited sediment will be dewatered and the dry matter will require disposal off-site. The estimated maximum concentrate batching operation period during construction is 20 months.</p>							
6.11.40		<p>Sand, gravel and other bulk materials will be delivered from the production area by conveyor boats or derrick barges to the temporary barging point, and the material will then be loaded onto dump trucks by loaders and delivered to the on-site storage areas.</p>							

EIA Ref	EM&A Ref	Environmental Protection Measures*	Location	Implementation Agent	Implementation Stages**			Relevant Legislation and Guidelines	Implementation Status
					D	C	O		
6.11.41		Regular environmental inspections should be conducted to check the environmental performance of daily operation. These inspections will ensure proper installation and maintenance of pollution control measures, such as checking of sedimentation basin, wastewater recycling facility and enclosure of stockpiles, and the implementation of other mitigation measures.							

* All recommendations and requirements resulted during the course of EIA/EA Process, including ACE and/or accepted public comment to the proposed project.

** Des - Design, C = Construction, O = Operation

N/A Not applicable

Table 3 Implementation Schedule of Waste Management Measures

EIA Ref	EM&A Ref	Environmental Protection Measures*	Location / Timing	Implementation Agent	Implementation Stages **			Relevant Legislation & Guidelines	Implementation Status
					D	C	O		
Waste Management - Construction Phase									
7.7.2		<p>Good site practice to minimize solid waste generation, including:</p> <ul style="list-style-type: none"> • nomination of approved personnel, such as a site manager, to be responsible for good site practices, and making arrangements for collection of all wastes generated at the site and effective disposal to an appropriate facility; • training of site personnel in proper waste management and chemical waste handling procedures; • provision of sufficient waste disposal points and regular collection for disposal; • appropriate measures to minimise windblown litter and dust during transportation of waste by either covering trucks or by transporting wastes in enclosed containers; • regular cleaning and maintenance programme for drainage systems, sumps and oil interceptors; • a Waste Management Plan should be prepared and should be submitted to the Engineer for approval. One may make reference to ETWB TCW No. 15/2003 for details; and • a recording system for the amount of wastes generated, recycled and disposed (including the disposal sites) should be proposed. 	Work site / During the construction period	All Contractors		√		WDO; Public Health and Municipal Services Ordinance; The Land (Miscellaneous Provisions) Ordinance; ETWB TCW NO. 15/2003.	√
7.7.4		<p>Good management and control can prevent the generation of significant amounts of waste. Waste reduction is best achieved at the planning and design stage, as well as by ensuring the implementation of good site practices. Recommendations to achieve waste reduction include:</p> <ul style="list-style-type: none"> • segregation and storage of different types of waste in different containers, skips or stockpiles to enhance reuse or recycling of materials and their proper disposal; • separate labelled bins shall be provided to segregate aluminium cans from other general refuse generated by the work force, and to encourage collection of by individual collectors; • any unused chemicals or those with remaining functional capacity shall be recycled; 	Work site / During the construction period	All Contractors		√		WDO; Public Health and Municipal Services Ordinance; The Land (Miscellaneous Provisions) Ordinance; ETWB TCW NO. 15/2003.	√ √ √

EIA Ref	EM&A Ref	Environmental Protection Measures*	Location / Timing	Implementation Agent	Implementation Stages **			Relevant Legislation & Guidelines	Implementation Status
					D	C	O		
		<ul style="list-style-type: none"> maximising the use of reusable steel formwork to reduce the amount of C&D material; prior to disposal of C&D waste, it is recommended that wood, steel and other metals shall be separated for re-use and / or recycling to minimise the quantity of waste to be disposed of to landfill; proper storage and site practices to minimise the potential for damage or contamination of construction materials; plan and stock construction materials carefully to minimise amount of waste generated and avoid unnecessary generation of waste; minimize over ordering of concrete, mortars and cement grout by doing careful check before ordering. 							√ √ √ √ √
7.7.6		<p><u>Site Clearance Waste</u> Scrub and other vegetation will be stripped for the tees, fairways, greens and access roads. The normal route for disposal for such material is landfill but in this case it is proposed that vegetation is passed through a "chipper" to break down the material into a medium that can be used as mulch / compost and provide a seed-bank for natural hydroseeding of exposed areas.</p>	Work site / During the construction period	All Contractors		√		WDO; Public Health and Municipal Services Ordinance ; The Land (Miscellaneous Provisions) Ordinance; ETWB TCW NO. 15/2003.	√ The Contractor was reminded to dispose the vegetation stockpiles properly.
7.7.7		Non-inert materials should be kept separate and reused on-site as fill in preference to disposal at public filling areas which are operated by CEDD or disposal at landfill.							√
7.7.8		<p><u>Excavated Materials</u> Material generated during open cut works, and access route formation will comprise rock and soil and all this material will be reused in the site shaping process. It is anticipated that there will be no material requiring disposal off-site in public filling areas.</p>	Work site / During the construction period	All Contractors		√		WDO; Public Health and Municipal Services Ordinance; The Land (Miscellaneous Provisions) Ordinance; ETWB TCW NO. 15/2003.	√
7.7.9		<p><u>Construction and Demolition (C&D) Material</u> The C&D material generated from the site formation and demolition works should be sorted on-site into inert C&D material and C&D waste.</p>	Work site / During the construction	All Contractors		√		WDO; Public Health and Municipal	√

EIA Ref	EM&A Ref	Environmental Protection Measures*	Location / Timing	Implementation Agent	Implementation Stages **			Relevant Legislation & Guidelines	Implementation Status
					D	C	O		
		In order to minimise the impact resulting from collection and transportation of C&D material for off-site disposal, the excavated material comprising fill material should be reused on-site as backfilling material. C&D waste, such as wood, plastic, steel and other metals should be reused or recycled and, as a last resort, disposed of to landfill. A suitable area(s) should be designated within the site for temporary stockpiling of C&D material and to facilitate the sorting process. The stockpiling/sorting area should be located far away from the identified sensitive receivers.	period					Services Ordinance; The Land (Miscellaneous Provisions) Ordinance; ETWB TCW NO. 15/2003.	
7.7.10		<u>Site fencing</u> Some site fencing may be required. Attention should be paid to WBTC No. 19/2001 which introduces a new policy requiring the use of metallic site hoardings and signboards in order to reduce the amount of timber used on construction sites.	Work site / During the construction period	All Contractors		√		WBTC No. 19/2001	√ Plastic fencing / metallic hoarding was used on site.
7.7.12		<u>Chemical Waste</u> Where the construction processes produce chemical waste, the Contractor must register with EPD as a Chemical Waste Producer. Wastes classified as chemical wastes are listed in the <i>Waste Disposal (Chemical Waste) (General) Regulation</i> . These wastes are subject to stringent disposal routes. EPD requires information on the particulars of the waste generation processes including the types of waste produced, their location, quantities and generation rates. A nominated contact person must be provided.	Work site / During the construction period	All Contractors		√		Waste Disposal (Chemical Waste) (General) Regulation	Chemical waste storage area was not available on site. Improper storage of chemicals was observed near to the wastewater treatment plant.
7.7.14		Hard standing surfaces draining via oil interceptors shall be provided in works area compounds. Interceptors will be regularly emptied to prevent release of oils and grease into the surface water drainage system after accidental spillages. The interceptor should have a bypass to prevent flushing during periods of heavy rain. Oil and fuel bunkers should be bunded to prevent discharge due to accidental spillages or breaches of tanks. Waste collected from any grease traps should be collected and disposed of by a licensed contractor.							
7.7.15		Any construction plant which is likely to leak oil, should have absorbent inert material e.g. sand, placed beneath it. This material should be							

EIA Ref	EM&A Ref	Environmental Protection Measures*	Location / Timing	Implementation Agent	Implementation Stages **			Relevant Legislation & Guidelines	Implementation Status
					D	C	O		
7.7.16		replaced on a regular basis and the contaminated material should be stored in a designated, secure place. Any sand used for soaking oil waste is classified as chemical waste and should be disposed of in accordance with the <i>Waste Disposal (Chemical Waste) (General) Regulations</i> .							
7.7.17		Lubricants and waste oils are likely to be generated during the maintenance of vehicles and mechanical equipment. Used lubricants will be collected and stored in individual containers which are fully labelled. The containers should be stored in a designated secure place. If possible such waste should be sent to oil recycling companies; there are also companies which collect empty oil drums for reuse or refill.							
7.7.18		Oil and lubricant wastes are classified as chemical wastes, and if not recycled, should be collected by licensed collector and should be treated at the Chemical Waste Treatment Centre, Tsing Yi, or other sites licensed for disposal of waste oil. A trip ticket system operates to control the movement of such chemical waste and tickets have to be produced upon the request of EPD.							
7.7.19		Some paints and solvents are classified as chemical waste and, if used on site, will be subject to the stringent requirements of the <i>Waste Disposal (Chemical Waste) (General) Regulation</i> . Empty paint cans should be recycled or collected as waste. Any dry paint waste should be swept up and collected in containers for disposal.							
7.7.20		<u>Sewage</u> An adequate number of portable toilets should be provided for the on-site construction workforce. The portable toilets shall be maintained in a state that will not deter the workers from using them.	Work site / During the construction period	All Contractors		√		WDO; Public Health and Municipal Services Ordinance; The Land (Miscellaneous Provisions) Portable toilets were available on site. Site office was available on site with provision of flushing toilets for workers and staffs.	

EIA Ref	EM&A Ref	Environmental Protection Measures*	Location / Timing	Implementation Agent	Implementation Stages **			Relevant Legislation & Guidelines	Implementation Status
					D	C	O		
								Ordinance; ETWB TCW NO. 15/2003.	
7.7.21		<u>General Refuse</u> General refuse should be stored in enclosed bins or compaction units separate from C&D material. A reputable waste collector should be employed by the contractor to remove general refuse from the site, separately from C&D material. An enclosed and covered area is preferred to reduce the occurrence of 'wind blown' light material.	Work site / During the construction period	All Contractors		√		WDO; Public Health and Municipal Services Ordinance; The Land (Miscellaneous Provisions) Ordinance; ETWB TCW NO. 15/2003.	Temporary stored in three defined areas on site and dispose regularly.
7.7.22		Solid and liquid wastes will be generated by the construction workers during the clearance/construction period. The refuse (mainly non-recyclable materials) will be collected regularly in black refuse bags and delivered to the existing solid waste disposal system and transferred to landfill for disposal.							
7.7.23		<u>Marine Sediments</u> The basic requirements and procedures for dredged mud disposal are specified under the ETWB TCW No. 34/2002. The management of the dredging, use and disposal of marine mud is monitored by the Marine Fill Committee (MFC), while the licensing of marine dumping is the responsibility of the Director of Environmental Protection (DEP). The dredged marine sediments will be loaded onto barges and transported to the designated disposal site.	Marine Dredging area / During the construction period	All Contractors		√		ETWB TCW NO. 34/2002.	No dredging works was carried out during the reporting month.
7.7.25		During transportation and disposal of the dredged marine sediments, the following measures should be taken to minimise potential impacts on water quality: <ul style="list-style-type: none"> Bottom opening of barges shall be fitted with tight fitting seals to prevent leakage of material. Excess material shall be cleaned from the decks and exposed fittings of barges and hopper dredgers before the vessel is moved. Monitoring of the barge loading shall be conducted to ensure that loss of material does not take place during transportation. Transport barges or vessels shall be equipped with automatic self-monitoring devices as specified by the DEP. 							

* All recommendations and requirements resulted during the course of EIA Process, including ACE and/or accepted public comment to the proposed project.

** D=Design, C=Construction, O=Operation; N/A = Not applicable

Table 4 Implementation Schedule of Ecological Impact Measures

EIA Ref	EM&A Ref	Environmental Protection Measures*	Location / Timing	Implementation Agent	Implementation Stages			Relevant Legislation & Guidelines	Implementation Status
					D	C	O		
Construction Phase									
8.7.1		<u>Terrestrial Ecology</u> Haul roads would be located on future fairway and cart paths alignments to minimise temporary disturbance of habitats.	Work site / During the construction period	All Contractor		√		-	√
8.6.39		Avoid disturbance of stream bed during the construction of the permanent bridges by using precast unit of the bridge segments transported from other locations and installed to the proposed locations.	Stream crossing/ During the construction period	All Contractor		√		-	√
8.7.4		Good site practice. Construction materials must be stored at locations away the stream courses. Site runoff would be desilted in settling ponds to reduce the potential for suspended sediments, organics and other contaminants to enter stream and marine environment.	Work site / During the construction period	All Contractor		√		-	Part of the site has provided sedimentation basin to control the silty runoff (Holes 1 & 17).
8.9	Table 4.1	Streams B, C, and D will be monitored monthly during the construction phase to determine the status of <i>Caridina trifasciata</i> (shrimp) and <i>Nanhaipotamon hongkongensis</i> (freshwater crab). Stream condition will be recorded with reference to the protective buffer zone. Encroachment onto the buffer zone will be reported to the ER/ET. Sheet piling will be installed at the buffer zone perimeter as needed to prevent further encroachment. Stream sedimentation will be reported to the ER/ET, the agent causing sedimentation will be discovered, and sedimentation will be stopped.	Stream B, C & D/ During the construction phase	All Contractor		√			Monitoring has been carried out during this reporting month. Filling rocks from Hole 17 rock fill was washed into the downstream A. The Contractor was requested to manually remove those rocks from the stream and no disturbance to the stream bed and plantation of the buffer zone is allowed. Mitigation measures were provided near Hole 9 (rock filter was provided) and Hole 10 (rock filling and concrete paved haul road) provided within the Stream A buffer zone area.

EIA Ref	EM&A Ref	Environmental Protection Measures*	Location / Timing	Implementation Agent	Implementation Stages			Relevant Legislation & Guidelines	Implementation Status
					D	C	O		
9.7.22		<u>Marine Ecology</u> The temporary drainage system, which would receive flows from all areas subject to earth works, would collect all site runoff. The collected runoff would be retained for turf grass irrigation.	Work site / During the construction period	All Contractor		√			On-going with enhancement on the effectiveness of temporary drainage system for silty runoff. Turf establishment was not started yet.
9.8.5		Dredging for the two pipelines for the desalination plant would be require 50 days and would be scheduled to the extent possible from January to April 2006. This would avoid the flowering season for the seagrass <i>Halophila ovalis</i> , i.e. November and December (Fong et al. 2005) and the spawning season for corals, i.e. July to October (Lam 2000; Storlazzi, C. D. 2004).	Dredging area/ during dredging period	All Contractor		√			N/A
9.8.2	4.2.12	Coral colonies within the silt curtain, in particular the 79 colonies identified during the coral mapping survey, (see Appendix A9.2) would be transplanted. Prior to commencement of any marine construction works for the proposed project, the affected coral colonies would be tagged using plastic labels and a number would be assigned to each. The tagged corals in the dredging area at D2 site will be transplanted to the bedrock area about 80 m south of the ferry pier. All these transplantation works should be conducted by experienced marine ecologist(s) and should be completed before the commencement of marine construction works.	Dredging area/ Prior to dredging	All Contractor		√			N/A
9.8.5		Silt curtains will be deployed during dredging for the desalination plant. With the deployment of silt curtains around the dredging area for the desalination plant, adverse water quality impacts associated with the dredging and backfilling would be controlled to acceptable levels.	Dredging area/ Prior to dredging	All Contractor		√			N/A
		All anchoring points/structures of the floating pier would be located on the shore and/or at least 40m seaward to avoid the coral colonies at Site B2 which are concentrated within the first 15m seaward from the coastline and none recorded over 35m seaward.	Temporary barging point/ during construction of the barging point	All Contractor		√			Floating pontoon was located at designated location according to EP during the reporting month.

EIA Ref	EM&A Ref	Environmental Protection Measures*	Location / Timing	Implementation Agent	Implementation Stages			Relevant Legislation & Guidelines	Implementation Status
					D	C	O		
		The location of the floating pier would also be shifted from the original location for barging point at Zone 2 and Zone 3 of the mapping area in Site B2 (see Figure 2 in Appendix A9.2), to Zone 5 to further protect corals. Impacts to corals are not expected.	Temporary barging point/ during the entire construction phase	All Contractor		√		√	

* All recommendations and requirements resulted during the course of EIA Process, including ACE and/or accepted public comment to the proposed project.

** D=Design, C=Construction, O=Operation

N/A Not applicable

Table 5 Implementation Schedule of Fisheries Impact Measures

EIA Ref	EM&A Ref	Environmental Protection Measures*	Location / Timing	Implementation Agent	Implementation Stages**			Relevant Legislation & Guidelines	Implementation Status
					D	C	O		
10.8.2		<u>Construction phase</u> In addition to the temporary drainage system which would collect site runoff for re-use for irrigation, site runoff would also be controlled by general site practices during the construction period.	Work site / During the construction period	All Contractor		√		N/A	On-going and not sufficient during the reporting month.
10.8.3		Silt curtains will be deployed during dredging for the desalination plant. With the deployment of silt curtains around the construction area, adverse water quality impacts associated with the dredging and back-filling would be controlled.	Work site / During the construction period	All Contractor		√		N/A	No dredging work for the desalination plant was carried out during the reporting month.
10.7.12		The majority of the heavy construction works, in particular, the cut and fill earth works, would be conducted within the 2005-2006 dry season.	Work site / During the construction period	All Contractor		√		N/A	Master Programme indicates that excavation will be carried out throughout the year 2006 to Jul 2007.

* All recommendations and requirements resulted during the course of EIA Process, including ACE and/or accepted public comment to the proposed project.
 ** D=Design, C=Construction, O=Operation
 N/A Not applicable

Table 6 Implementation Schedule of Landscape and Visual Impact Measures

EIA Ref	EM&A Ref	Environmental Protection Measures*	Location / Timing	Implementation Agent	Implementation Stages **			Relevant Legislation & Guidelines	Implementation Status
					D	C	O		
Landscape and Visual Impact - Construction Phase									
Table 12.13	MC1	Site offices and construction yards: <ul style="list-style-type: none"> Site offices and the construction yard shall be decommissioned after construction. Haul roads shall be decommissioned and restored with hydroseeding works after construction. 	All site offices	All contractors		√		EIAO Guidance Note No. 8/2002	To commence
Table 12.13	MC2	Height of site offices: <ul style="list-style-type: none"> The height of site offices shall be controlled in order to avoid visual impacts. 	All site offices	All contractors		√		EIAO Guidance Note No. 8/2002	Complied. A two-storey high site office painted in green color has been constructed.
Table 12.13	MC3	Hoarding and screening: <ul style="list-style-type: none"> Where practical the site offices areas, construction yards and storage areas shall be screened using olive green coated hoarding or vegetation around the peripheries of the works area until the completion of relevant construction phases. 	All site office and construction yard areas.	All contractors		√		EIAO Guidance Note No. 8/2002	Complied. Green hoarding erected.
Table 12.13	MC4	Construction plant and building material: <ul style="list-style-type: none"> Shall be orderly and carefully stored in order to appear neat and avoid visibility from outside where practical; Excess materials shall be removed from site as soon as practical; All construction plant shall be removed from site upon completion of construction works. 	In all construction yards.	All contractors		√		EIAO Guidance Note No. 8/2002	Complied.

EIA Ref	EM&A Ref	Environmental Protection Measures*	Location / Timing	Implementation Agent	Implementation Stages **			Relevant Legislation & Guidelines	Implementation Status
					D	C	O		
Table 12.13	MC5	Construction light: <ul style="list-style-type: none"> To be oriented away from the viewing location of VSRs; and All lighting shall have frosted diffusers and reflective covers. While construction at night might be required from time to time, this should be controlled and minimised. 	All construction lights.	All contractors		√		EIAO Guidance Note No. 8/2002	No construction lights at present.
Table 12.13	MC6	Vegetation: <ul style="list-style-type: none"> Temporary construction sites shall be restored to standards as good as, or better than, the original condition. In this respect, areas that are not covered by golf course grassing works shall be hydro seeded; The potential for soil erosion shall be reduced at the construction stage by minimizing the extent of vegetation disturbance on site and providing a protective cover over exposed ground; and No plant or building materials shall be stored under the dripline of retained trees and no vehicle movement or other construction activities like washing, concrete mixing etc shall be carried out under the dripline of trees. 	All temporary construction sites.	All contractors		√		EIAO Guidance Note No. 8/2002	Complied. Hydroseeding has been carried out for erosion control. Hydroseeding at site office are dead and shall be replaced.
Table 12.13	MT1	Compensation for losses: <ul style="list-style-type: none"> The tree compensation to tree loss ratio shall be between 1:2 and 1:3; At least 700 new trees shall have be of light standard or larger size. 	As shown on mitigation measures plans.	All contractors	√	√		EIAO Guidance Note No. 8/2002	Design Stage: Complied Construction Stage: To commence.
Table 12.13	MT2	The majority of compensation species shall comprise species that already occurs within the LIA boundaries;	General.	All contractors	√	√		EIAO Guidance Note No. 8/2002	Design Stage: Complied Construction Stage: To commence.

EIA Ref	EM&A Ref	Environmental Protection Measures*	Location / Timing	Implementation Agent	Implementation Stages **			Relevant Legislation & Guidelines	Implementation Status
					D	C	O		
Table 12.13	MT3	Where practical, trees that require removal shall be transplanted on Site;	General.	All contractors	√	√		EIAO Guidance Note No. 8/2002	Design Stage: Complied Construction Stage: Partial completed of transplantation works on site.
Table 12.13	MT4	New trees shall be planted in groups in order to screen visual impacts and to provide additional shade at the administration building, rain shelters and halfway houses.	As shown on mitigation measure plans.	All contractors	√	√		EIAO Guidance Note No. 8/2002	Design Stage: Complied Construction Stage: To commence.
Table 12.13	MT5	Tree Planting on Slopes: <ul style="list-style-type: none"> New slopes with a gradient larger than 30° shall have whip tree planting. Such whip trees shall comprise tree species with shrub-like characteristics, such as <i>Gordonia axillaries</i> (大頭茶) and <i>Raphiolepis indica</i> (車輪梅). 	General.	All contractors	√	√		EIAO Guidance Note No. 8/2002	Design Stage: Complied Construction Stage: To commence.
Table 12.13	MT6	Tree planting works at the hill where the desalination plant will be located shall be carefully positioned in order to represent its original profile.	At the desalination plant.	All contractors	√	√		EIAO Guidance Note No. 8/2002	Design Stage: complied Construction Stage : To commence.
Table 12.13	MT7	Tree Preservation: <ul style="list-style-type: none"> No tree shall be transplanted or felled without prior approval by relevant Government departments in accordance with WBTC 24/94, WBTC 14/2002 and ETWB 2/2004; All trees that are marked for retention shall be fenced off with a 1.2m high fence around the dripline of trees or larger area; Transplant preparation works shall be carried as soon as possible after commencement of construction. Rootball and crown pruning shall be carried out over at least 1 month. 	All areas with existing trees	All contractors	√	√		WBTC 24/94, WBTC 14/2002, ETWB 2/2004	Design Stage: Tree felling approved. Construction Stage : Tree near site clearance are protected. Tree transplantation commenced.

EIA Ref	EM&A Ref	Environmental Protection Measures*	Location / Timing	Implementation Agent	Implementation Stages **			Relevant Legislation & Guidelines	Implementation Status
					D	C	O		
Table 12.13	MT8	<p>Buffer Areas</p> <ul style="list-style-type: none"> For streams the width of the buffer zones will be 20m from the stream bank. The only exception would be the buffer zone in the reach of upper tributary of stream B lying between the two parts of Hole 10, where the buffer will zone will be 5m, the dry tributary of stream B that will be converted to an underground culvert and the secondary tributary of stream A that will also be converted to an underground culvert. No construction activities will be allowed in the buffer zones, except for site formation works, which are required for the construction of bridge footings. 	At streams	All contractors	√	√		EIAO Guidance Note No. 8/2002	<p>Design Stage: complied</p> <p>Construction Stage : No works in buffer areas at present.</p>
Table 12.13	MS1	<p>Bulk hydroseeding:</p> <ul style="list-style-type: none"> Bulk site formation works shall be followed with bulk hydroseeding as soon as practical. 	General.	All contractors		√		EIAO Guidance Note No. 8/2002	<p>Design Stage: Complied</p> <p>Construction Stage: Temporary hydroseeding commence.</p>
Table 12.13	MS2	<p>Grassing:</p> <ul style="list-style-type: none"> In the case of golf course areas, grassing shall be carried out as soon as practical after sanding and shaping; and Sanding, shaping and grassing works shall be phased in sections. 	At proposed grassing areas.	All contractors		√		EIAO Guidance Note No. 8/2002	To commence.

EIA Ref	EM&A Ref	Environmental Protection Measures*	Location / Timing	Implementation Agent	Implementation Stages **			Relevant Legislation & Guidelines	Implementation Status
					D	C	O		
	MS3	Restoration: <ul style="list-style-type: none"> In the case of residual areas that were disturbed during construction, which will not be part of the golf course areas, detailed site formation works and shaping shall be followed by hydroseeding and shrub planting as soon as practical; and The hydroseeding mix shall be composed of the following grass species: <i>Erograstic curvula</i> <i>Lolium Perenne</i> <i>Neyraudia reynaudiana</i> <i>Pennisetum purpureum</i>; and the following shrub / small tree species: <i>Gordonia axillaries</i>, <i>Rhaphiolepis indica</i> and <i>Rhodomyrtus tomentosa</i>. 	At all residual areas.	All contractors		√		EIAO Guidance Note No. 8/2002	To commence.
Table 12.13	ME1	Screening: <ul style="list-style-type: none"> Bridges and pumping stations shall be screened by tree and shrub planting; and Retaining wall shall be covered with climber plants. 	All bridges and pumping stations.	All contractors	√	√		EIAO Guidance Note No. 8/2002	Design Stage: Complied Construction Stage: To commence.
Table 12.13	ME2	Abutments of bridges shall be surfaced with stone of volcanic origin with a colour and texture similar to that of rock in the surrounding landscape;	All bridges.	All contractors	√	√		EIAO Guidance Note No. 8/2002	Design Stage: Complied Construction Stage: To commence.
Table 12.13	ME3	Above-ground walls and foundations of pumping stations shall be surfaced with stone of volcanic origin with a colour and texture similar to that of rock in the surrounding landscape.	All pumping stations.	All contractors	√	√		EIAO Guidance Note No. 8/2002	Design Stage: Complied Construction Stage: To commence.
Table 12.13	ME4	Above-ground covers of pumping stations shall have an olive green coating.	All pumping stations.	All contractors	√	√		EIAO Guidance Note No. 8/2002	Design Stage: Complied Construction Stage: To commence.

EIA Ref	EM&A Ref	Environmental Protection Measures*	Location / Timing	Implementation Agent	Implementation Stages **			Relevant Legislation & Guidelines	Implementation Status
					D	C	O		
Table 12.13	ME5	The desalination plant shall be located within the hill behind the pier. Slope cutting of this hill shall have a natural appearance with hydroseeding cover.	As shown on the mitigation measure plans.	All contractors	√	√		EIAO Guidance Note No. 8/2002	Design Stage: Complied Construction Stage: Site formation is being carried out.
Table 12.13	ME6	Water tanks shall be located below surface level. Above-ground components shall be coated in olive green.	All water tanks.	All contractors	√	√		EIAO Guidance Note No. 8/2002	Design Stage: Complied Construction Stage: To commence.
Table 12.13	MB1	Extensions of the clubhouse shall have a surface cover that is in visual harmony with the clubhouse itself.	All new extensions of the clubhouse.	All contractors	√	√		EIAO Guidance Note No. 8/2002	Design Stage: Complied Construction Stage: To commence.
Table 12.13	MB2	Shrub planting shall be implemented in front of the new golf cart parking area in order to screen low-level views.	The new golf cart parking area.	All contractors	√	√		EIAO Guidance Note No. 8/2002	Design Stage: Complied Construction Stage: To commence.
Table 12.13	MB3	Tree and shrub planting shall be implemented on the peripheries of the maintenance building and its extensions.	At the maintenance building.	All contractors	√	√		EIAO Guidance Note No. 8/2002	Design Stage: Complied Construction Stage: To commence.
Table 12.13	MB4	Halfway houses and rain shelters shall be surfaced with either stone or beige and olive green paint.	At all halfway houses and rain shelters.	All contractors		√		EIAO Guidance Note No. 8/2002	Design Stage: Complied Construction Stage: To commence.

* All recommendations and requirements resulted during the course of EIA Process, including ACE and/or accepted public comment to the proposed project.

** D=Design, C=Construction, O=Operation

N/A Not applicable

Table 7 Implementation Schedule of Cultural Heritage Mitigation Measures

EIA Ref	EM&A Ref	Environmental Protection Measures*	Location / Timing	Implementation Agent	Implementation Stages **			Relevant Legislation & Guidelines	Implementation Status
					D	C	O		
Construction Phase									
Table 13.4		Wan Chai Archaeological Site - Archaeological Watching Brief	Site formation and construction works	All Contractors		√		EIAO	√
Table 13.4		Grave #1 – Preservation in-situ - Fenced off three metre buffer zone around the grave	Site formation and construction works	All Contractors		√		EIAO	N/A
Table 13.4		Grave #5 - Preservation by record; and recovery of structural elements (if required by AMO)	Construction phase (prior to commencement of works)	All Contractors		√		EIAO	N/A
Table 13.4		Grave #20 - Preservation by record; and recovery of structural elements (if required by AMO)	Construction phase (prior to commencement of works)	All Contractors		√		EIAO	N/A
Table 13.4		Any, as of yet unidentified graves at Kap Lo Kok. If a grave is found works will stop in the immediate vicinity of the grave until it can be inspected by AMO staff.	Site formation and construction works	All Contractors		√		EIAO	√

* All recommendations and requirements resulted during the course of EIA Process, including ACE and/or accepted public comment to the proposed project.

** D=Design, C=Construction, O=Operation

N/A Not applicable

Table 8 Implementation Schedule of Land Contamination Mitigation Measures

EIA Ref	EM&A Ref	Environmental Protection Measures*	Location / Timing	Implementation Agent	Implementation Stages **			Relevant Legislation & Guidelines	Implementation status
					D	C	O		
Land Contamination - Construction Phase									
11.9.2		<p>Since the exact cut areas on site during construction by the Contractor have not been determined at this stage, the Contractor should implement the suitable precautions and preventive measures for the discovery of buried or abandoned ordnance during the construction. Moreover, it is recommended that standard good practice should be implemented during the construction phase in order to minimize any potential exposure to contaminated soils or groundwater. These measures include:</p> <ul style="list-style-type: none"> • The Contractor should sweep the area of intended excavation with a metal detector to check any ordnance underneath the ground prior to any excavation. • For any detection of metals under the ground, the Contractor should cease work immediately before confirming the identity of the cause. For any suspect of artillery ordnance, Hong Kong Police Force should be informed. • The use of bulk earth-moving excavator equipment would minimise construction workers' potential contact with the contaminated materials; • Exposure to any contaminated materials can be minimised by the wearing of appropriate clothing and personal protective equipment such as gloves (when interacting directly with suspected contaminated material), providing adequate hygiene and washing facilities and preventing smoking and eating during such activities; • Stockpiling of contaminated soil should be avoided. If this cannot be avoided, the stockpile of contaminated materials should be segregated from the uncontaminated ones. Moreover, the contaminated materials should be properly covered with waterproof material (e.g. tarpaulin sheet) to avoid leaching of contaminants, especially during rainy season. • Vehicles containing any excavated materials should be suitably covered to limit potential dust emissions or contaminated wastewater run-off, and truck bodies and tailgates should be 	Work site / During the construction period	All Contractors		√		Waste Disposal Ordinance (Cap 354), Waste Disposal (Chemical Waste) (General) Regulation (Cap 35); Water Pollution Control Ordinance (Cap 358).	CAR was submitted to EPD for approval on 23 rd March 2006. According to the EPD comments, a revised CAR will be submitted in July 2006. Base on the results, Pb contamination at surface levels was found. RAP is also required for EPD approval. The revised CAR and RAP are under preparation by Contractor during the reporting month.

EIA Ref	EM&A Ref	Environmental Protection Measures*	Location / Timing	Implementation Agent	Implementation Stages **			Relevant Legislation & Guidelines	Implementation status
					D	C	O		
		sealed to prevent any leakage during transport or during wet conditions; <ul style="list-style-type: none"> Only licensed waste haulers should be used to collect and transport any contaminated material to an appropriate disposal site and procedures should be developed to ensure that illegal disposal of waste does not occur; Necessary waste disposal permits should be obtained, as required, from the appropriate authorities, in accordance with the <i>Waste Disposal Ordinance (Cap 354)</i>, <i>Waste Disposal (Chemical Waste) (General) Regulation (Cap 35)</i>, as required; Records of the quantities of wastes generated and disposed of should be maintained; Adequate washing facilities should be provided on site; and In accordance with good construction practice, silt traps should be used to reduce the impact to drainage caused by suspended solids arising from disturbed ground, or any construction materials such as cement and gravel. Groundwater should be disposed of in accordance with the <i>Water Pollution Control Ordinance (Cap 358)</i>. 							
11.11.1		Based on preliminary site investigation, the site is considered as a potentially land contaminated site as hotspots of contamination of lead and sulphur were identified. Further investigation for land contamination at this site is therefore required and is detailed in the Contamination Assessment Plan (CAP) of this section to be undertaken prior to commencement of excavation works. A Contamination Assessment Report (CAR) should be prepared and if the results of the site investigation reveal contamination at the subject site, a Remediation Action Plan (RAP) should also be prepared and submitted together with the CAR to EPD for approval.	Work site / During the construction period	All Contractors		√		Waste Disposal Ordinance (Cap 354), Waste Disposal (Chemical Waste) (General) Regulation (Cap 35); Water Pollution Control Ordinance (Cap 358).	Same as above.

* All recommendations and requirements resulted during the course of EIA Process, including ACE and/or accepted public comment to the proposed project.

** D=Design, C=Construction, O=Operation

N/A Not applicable

Annex E

Monitoring results

Air Quality

Proposed Extension of Public Golf Course at Kau Sai Chau Island, Sai Kung
 Monthly EM&A Report

Date		Weather description	Temp (°C)	Relative Humidity (%)	Mean amount of cloud (%)	Total Rainfall (mm)	Wind direction
5月25日	Thu	Sunny periods.	26.7	83	73	-	S to SE
5月26日	Fri	Sunny periods.	27.7	80	82	Trace	S to SE
5月27日	Sat	Mainly fine.	26.9	86	88	5.5	S to SE
5月28日	Sun	Mainly fine.	25	90	89	59.7	S to SE
5月29日	Mon	Cloudy with rain.	23.1	94	91	4.2	S to SE
5月30日	Tue	Cloudy with rain.	24	94	88	13	S to SE
5月31日	Wed	Cloudy with scattered squally heavy showers.	26.2	90	90	27.7	S to SE
6月1日	Thu	Cloudy with scattered squally heavy showers.	27.1	88	88	33.2	S
6月2日	Fri	Mainly Cloudy with scattered showers.	26.5	93	91	80.2	S
6月3日	Sat	Sunny intervals with a few showers.	27.7	86	89	0.6	S to SE
6月4日	Sun	Sunny periods with a few showers.	28.2	82	87	1.5	SW
6月5日	Mon	Sunny periods with a few showers.	28.5	81	87	Trace	SW
6月6日	Tue	Heavy rain with squalls.	28.9	81	87	0.8	SW
6月7日	Wed	Heavy rain with squalls.	28.8	81	88	0.4	S to SE
6月8日	Thu	Heavy rain with squalls.	28.6	84	88	12.4	SW
6月9日	Fri	Heavy rain with squalls.	26.4	92	90	136.7	SW
6月10日	Sat	Isolated rainstorms.	24	91	89	26.4	SW
6月11日	Sun	Isolated rainstorms.	24	89	89	9.5	S to SE
6月12日	Mon	Cloudy with rain. A few squally thunderstorms in the morning.	24.4	92	89	9.4	E
6月13日	Tue	Sunny intervals and a few showers.	27.4	89	88	65.2	S
6月14日	Wed	Sunny periods and a few showers.	28.5	82	81	0.4	S
6月15日	Thu	Sunny periods and isolated showers.	28.4	84	92	0.2	SW
6月16日	Fri	Sunny periods and isolated showers.	28.8	82	80	0.1	S to SW

Proposed Extension of Public Golf Course at Kau Sai Chau Island, Sai Kung
 Monthly EM&A Report

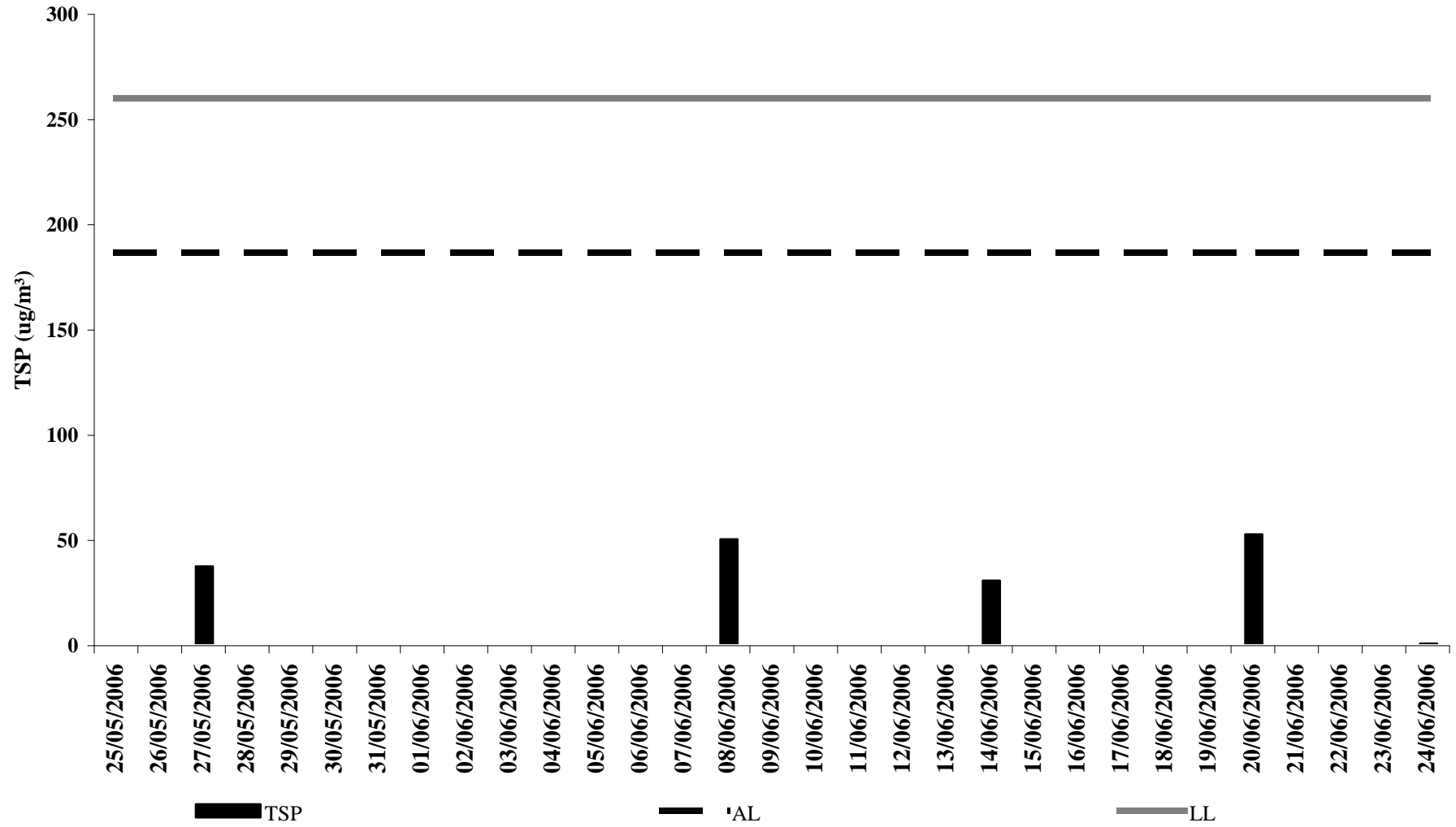
Date		Weather description	Temp (°C)	Relative Humidity (%)	Mean amount of cloud (%)	Total Rainfall (mm)	Wind direction
6月17日	Sat	Mainly fine with isolated showers.	29.3	79	66	Trace	S
6月18日	Sun	Sunny periods with a few showers.	29	83	78	Trace	S to SW
6月19日	Mon	Showers and squally thunderstorms.	27.7	86	85	0.6	SE
6月20日	Tue	Sunny periods and a few showers.	28	85	70	Trace	E to SE
6月21日	Wed	Mainly fine with one or two showers.	28.2	87	62	10	E to SE
6月22日	Thu	Fine and hot.	27.6	90	68	10.4	SE
6月23日	Fri	Fine and hot.	29.2	78	43	1	SE
6月24日	Sat	Fine and hot.	29.8	74	34	-	SE

Proposed Extension of Public Golf Course at Kau Sai Chau Island, Sai Kung
24-hour TSP Monitoring Results at Station GCA B1

Date	Filter Weight (g)		Flow Rate (m ³ /min.)		Elapse Time		Sampling Time(hrs.)	Conc. (µg/m ³)	Weather Condition	Particulate weight(g)	Av. flow (m ³ /min)	Total vol. (m ³)
	Initial	Final	Initial	Final	Initial	Final						
27-May-06	3.6186	3.6874	1.31	1.31	10006.9	10030.6	23.7	36.9	Cloudy	0.07	1.31	1862.0
02-Jun-06	3.6409	3.7014	1.52	1.52	10030.6	10054.6	24.0	27.6	Cloudy	0.06	1.52	2191.7
08-Jun-06	3.6344	3.7487	1.60	1.60	10054.6	10078.6	24.0	49.8	Cloudy	0.11	1.60	2296.8
14-Jun-06	3.5771	3.6339	1.31	1.31	10078.6	10102.6	24.0	30.1	Cloudy	0.06	1.31	1886.4
20-Jun-06	3.6065	3.7263	1.60	1.60	10102.6	10126.6	24.0	52.2	Sunny	0.12	1.60	2296.8
								Min	27.6			
								Max	52.2			
								Average	39.3			

Remark: **Bold** value indicated an Action level exceedance
 Bold & Italic value indicated an Limit level exceedance

24-hour TSP Monitoring Results at Station GCA B1



Water Quality

M_RO1		Surface							
tide condition	Date	time	Water depth (m)	Sampling depth (m)	Temp (°C)	Salinity (ppt)	DO (mg/L)	pH	Turbidity (NTU)
Mid-Ebb	29/05/2006	13:46	5.8	1.0	26.3	32.7	6.6	8.1	1.0
Mid-Ebb	02/06/2006	13:31	5.7	1.0	24.3	28.4	6.7	8.2	3.1
Mid-Ebb	08/06/2006	08:31	5.7	1.0	26.8	27.5	6.8	8.0	1.0
Mid-Ebb	09/06/2006	09:36	5.3	1.0	26.6	24.1	6.7	8.1	2.3
Mid-Ebb	13/06/2006	13:01	5.8	1.0	26.2	25.2	7.3	8.1	1.0
Mid-Ebb	16/06/2006	13:31	5.7	1.0	27.5	26.3	8.3	8.2	1.0
	21/06/2006	08:31	5.8	1.0	28.4	22.6	8.3	8.2	1.0

M_RO1		Surface							
tide condition	Date	time	Water depth (m)	Sampling depth (m)	Temp (°C)	Salinity (ppt)	DO (mg/L)	pH	Turbidity (NTU)
Mid-Flood	29/05/2006	09:01	5.5	1.0	25.6	30.7	6.9	8.1	1.0
Mid-Flood	02/06/2006	11:46	5.7	1.0	24.5	28.9	6.2	8.3	2.7
Mid-Flood	08/06/2006	13:16	5.3	1.0	26.6	28.1	6.7	8.2	1.1
Mid-Flood	09/06/2006	14:01	5.0	1.0	25.9	18.5	6.5	8.2	18.7
Mid-Flood	13/06/2006	08:31	5.4	1.0	25.8	26.3	7.1	8.1	1.0
	16/06/2006	08:31	5.3	1.0	27.1	26.6	8.1	8.2	1.0
	21/06/2006	13:01	5.5	1.0	29.2	24.8	7.5	8.3	1.0

Remarks:

Action level	<i>Bold & Italic</i>
Limit level	Bold
< detection limit	Grey

M_RO1		Middle							
tide condition	Date	time	Water depth (m)	Sampling depth (m)	Temp (°C)	Salinity (ppt)	DO (mg/L)	pH	Turbidity (NTU)
	29/05/2006								
	02/06/2006								
	08/06/2006								
	09/06/2006								
	13/06/2006								
	16/06/2006								
	21/06/2006								

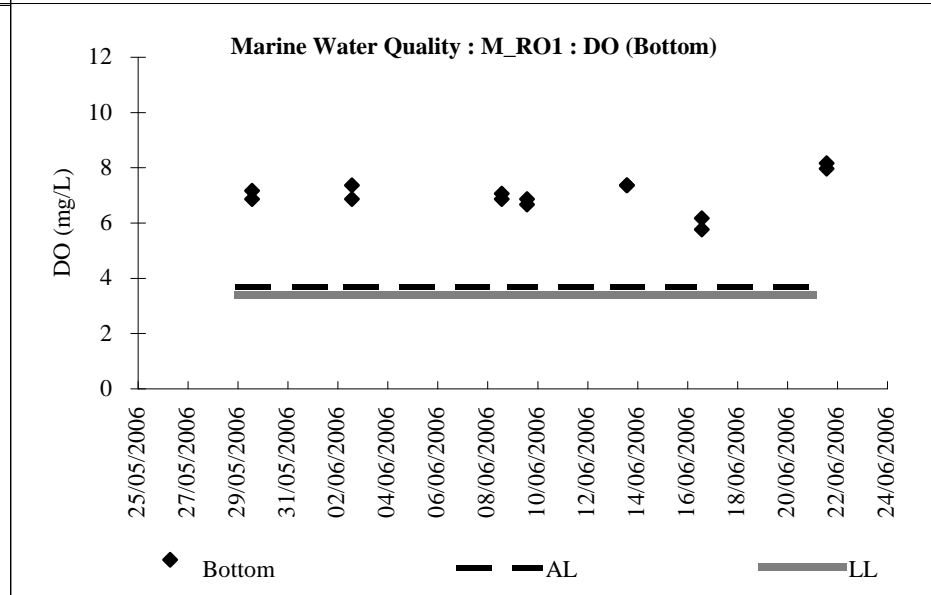
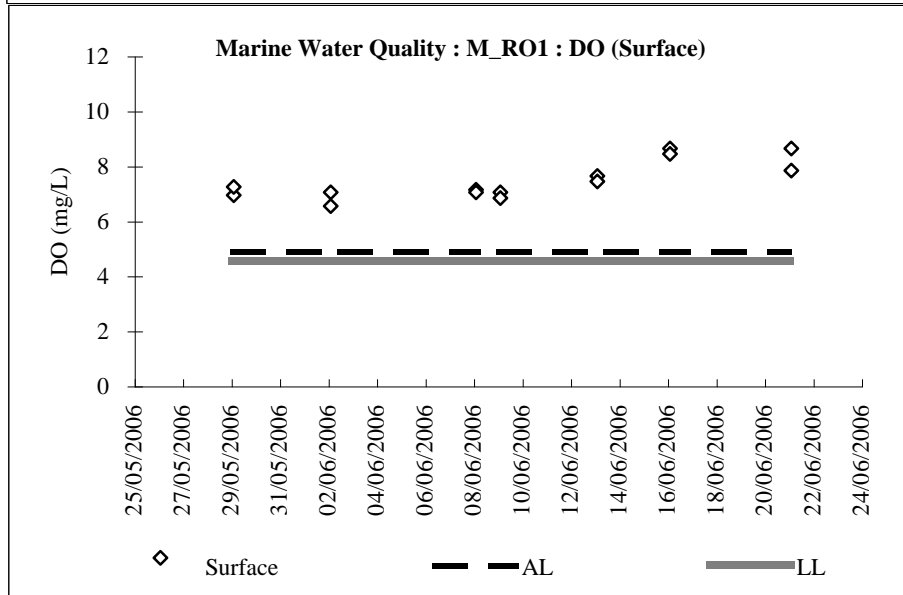
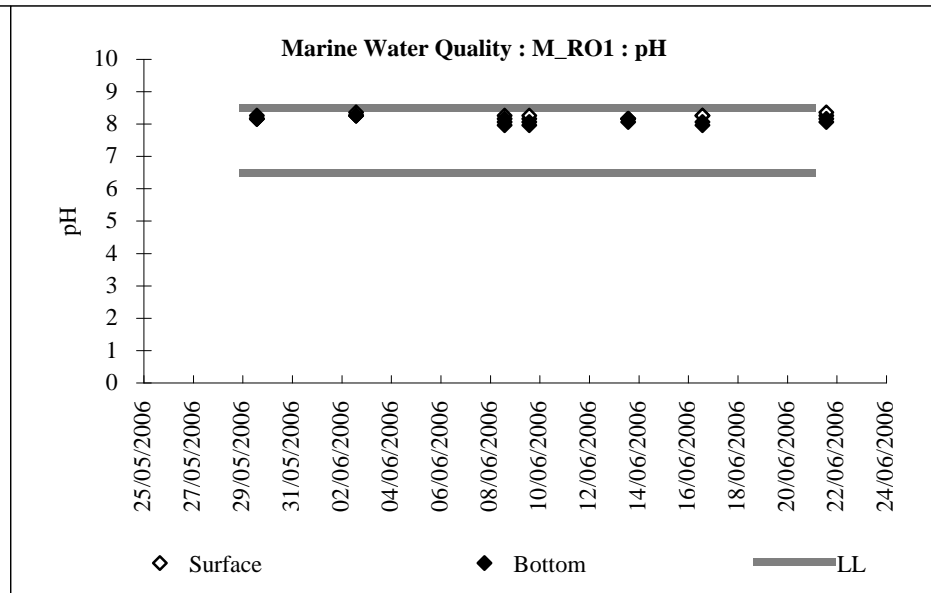
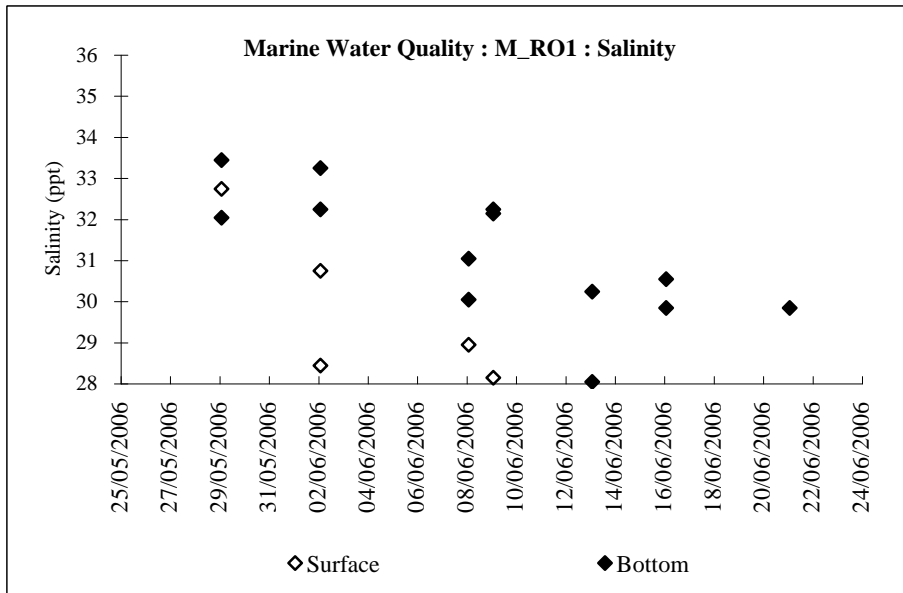
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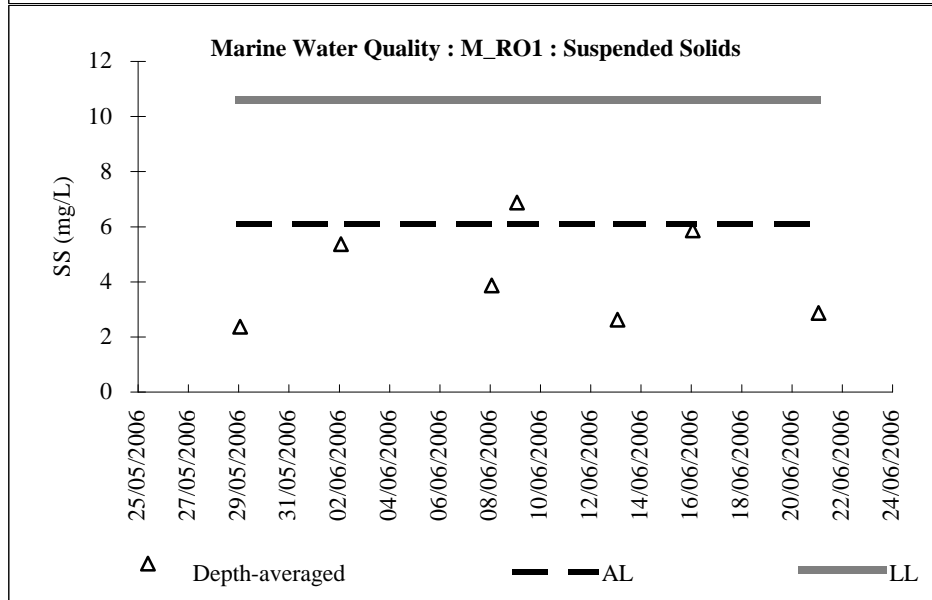
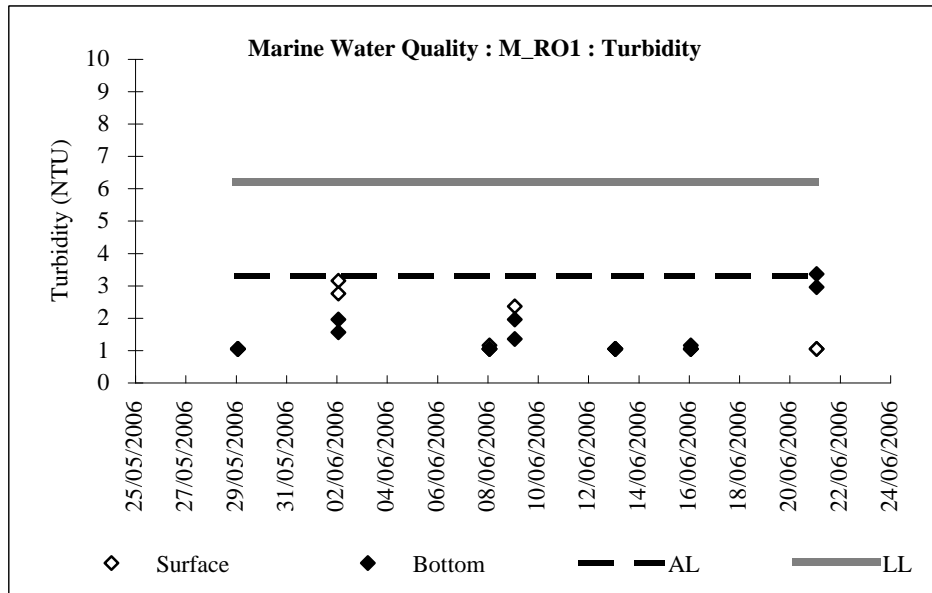
M_RO1		Middle							
tide condition	Date	time	Water depth (m)	Sampling depth (m)	Temp (°C)	Salinity (ppt)	DO (mg/L)	pH	Turbidity (NTU)
	29/05/2006								
	02/06/2006								
	08/06/2006								
	09/06/2006								
	13/06/2006								
	16/06/2006								
	21/06/2006								

M_RO1		Bottom							
tide condition	Date	time	Water depth (m)	Sampling depth (m)	Temp (°C)	Salinity (ppt)	DO (mg/L)	pH	Turbidity (NTU)
Mid-Ebb	29/05/2006	13:45	5.8	4.8	26.0	33.4	6.5	8.2	1.0
Mid-Ebb	02/06/2006	13:30	5.7	4.7	25.3	32.2	7.0	8.2	1.5
Mid-Ebb	08/06/2006	8:30	5.7	4.7	26.4	30.0	6.7	7.9	1.0
Mid-Ebb	09/06/2006	9:35	5.3	4.3	24.9	32.1	6.3	7.9	1.3
Mid-Ebb	13/06/2006	13:00	5.8	4.8	25.7	28.0	7.0	8.0	1.0
	16/06/2006	13:30	5.7	4.7	26.3	29.8	5.4	8.0	1.0
	21/06/2006	8:30	5.8	4.8	28.7	27.3	7.6	8.0	3.3

M_RO1		Bottom							
tide condition	Date	time	Water depth (m)	Sampling depth (m)	Temp (°C)	Salinity (ppt)	DO (mg/L)	pH	Turbidity (NTU)
Mid-Flood	29/05/2006	9:00	5.5	4.5	25.1	32.0	6.8	8.1	1.0
Mid-Flood	02/06/2006	11:45	5.7	4.7	25.3	33.2	6.5	8.2	1.9
Mid-Flood	08/06/2006	13:15	5.3	4.3	26.3	31.0	6.5	8.1	1.0
Mid-Flood	09/06/2006	14:00	5.0	4.0	25.1	32.2	6.5	8.0	1.9
Mid-Flood	13/06/2006	8:30	5.4	4.4	25.5	30.2	7.0	8.1	1.0
	16/06/2006	8:30	5.3	4.3	25.9	30.5	5.8	7.9	1.1
	21/06/2006	13:00	5.5	4.5	28.3	29.8	7.8	8.1	2.9

M_RO1	Mid-Ebb			Mid-Flood			Depth-averaged
	Surface	Middle	Bottom	Surface	Middle	Bottom	SS (mg/L)
29/05/2006	2.0	-	2.0	2.0	-	2.0	2.0
02/06/2006	7.0	-	4.0	6.0	-	3.0	5.0
08/06/2006	4.0	-	6.0	2.0	-	2.0	3.5
09/06/2006	5.0	-	2.0	16.0	-	3.0	6.5
13/06/2006	2.0	-	3.0	2.0	-	2.0	2.3
16/06/2006	4.0	-	5.0	10.0	-	3.0	5.5
21/06/2006	2.0	-	4.0	2.0	-	2.0	2.5





KLW		Surface							
tide condition	Date	time	Water depth (m)	Sampling depth (m)	Temp (°C)	Salinity (ppt)	DO (mg/L)	pH	Turbidity (NTU)
Mid-Ebb	29/05/2006	13:57	14.3	1.0	26.2	32.5	7.2	8.1	1.0
Mid-Ebb	02/06/2006	13:42	14.8	1.0	24.7	26.3	7.3	8.0	3.1
Mid-Ebb	08/06/2006	08:42	14.6	1.0	26.7	27.5	6.8	8.0	1.0
Mid-Ebb	09/06/2006	09:47	14.7	1.0	26.6	25.7	6.5	8.1	1.0
Mid-Ebb	13/06/2006	13:12	13.9	1.0	26.2	26.6	7.1	8.1	1.0
	16/06/2006	13:42	14.2	1.0	27.6	25.8	8.2	8.2	1.0
	21/06/2006	08:42	13.8	1.0	28.4	23.2	7.9	8.2	1.0

KLW		Surface							
tide condition	Date	time	Water depth (m)	Sampling depth (m)	Temp (°C)	Salinity (ppt)	DO (mg/L)	pH	Turbidity (NTU)
Mid-Flood	29/05/2006	09:12	14.0	1.0	25.9	30.2	7.1	8.2	1.0
Mid-Flood	02/06/2006	11:57	15.0	1.0	24.6	27.3	7.1	8.1	2.8
Mid-Flood	08/06/2006	13:27	14.3	1.0	26.5	28.3	6.4	8.2	1.3
Mid-Flood	09/06/2006	08:11	14.0	1.0	25.8	24.0	6.7	8.2	2.1
Mid-Flood	13/06/2006	08:42	14.0	1.0	25.7	27.3	6.9	8.2	1.0
	16/06/2006	08:42	14.3	1.0	27.1	26.5	7.9	8.2	1.0
	21/06/2006	13:12	14.2	1.0	29.2	24.7	7.4	8.3	1.0

Remarks:

Action level	<i>Bold & Italic</i>
Limit level	Bold
< detection limit	Grey

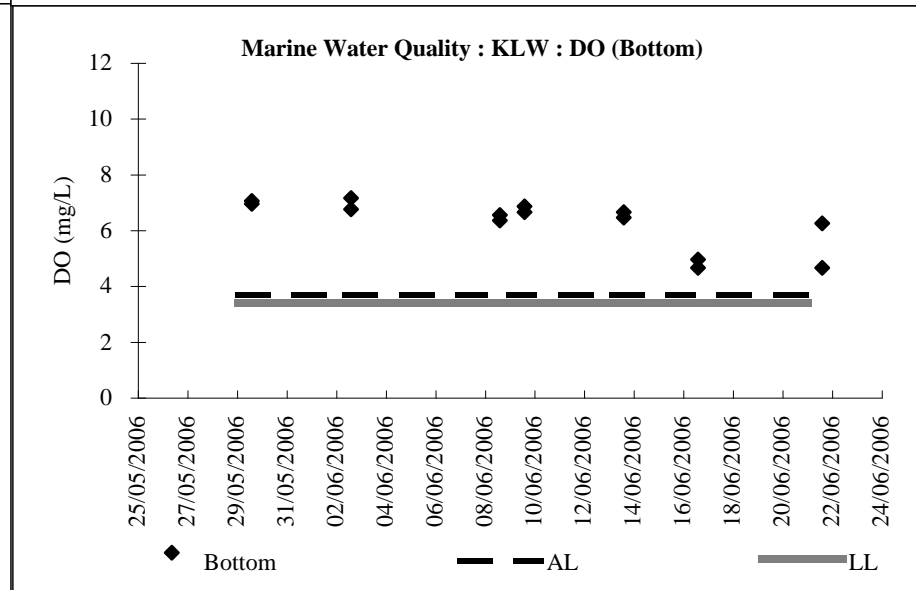
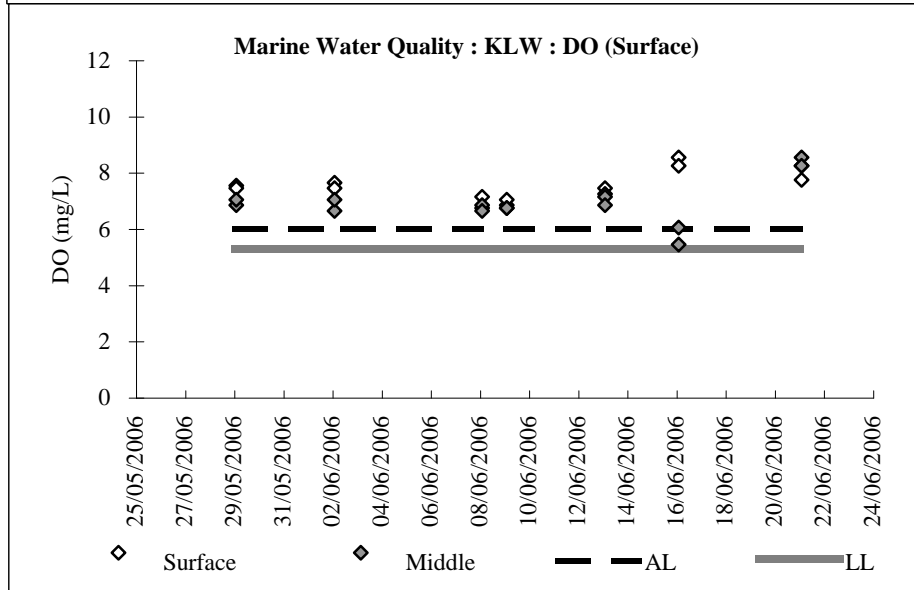
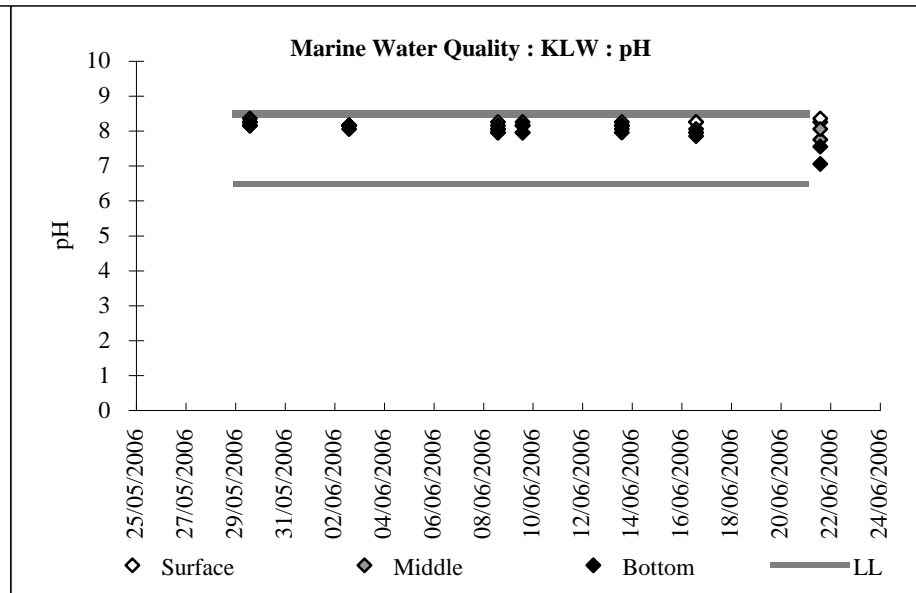
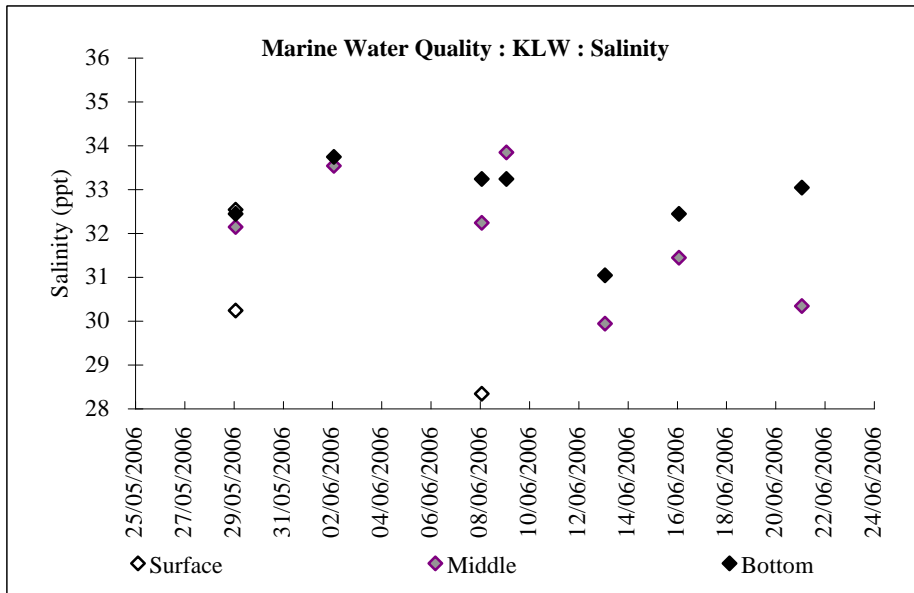
KLW		Middle							
tide condition	Date	time	Water depth (m)	Sampling depth (m)	Temp (°C)	Salinity (ppt)	DO (mg/L)	pH	Turbidity (NTU)
Mid-Ebb	29/05/2006	13:56	14.3	7.2	25.3	31.2	6.5	8.3	1.0
Mid-Ebb	02/06/2006	13:41	14.8	7.4	25.2	32.1	6.3	8.1	2.2
Mid-Ebb	08/06/2006	08:41	14.6	7.3	25.0	31.6	6.5	7.9	1.0
Mid-Ebb	09/06/2006	09:46	14.7	7.4	25.1	32.3	6.4	7.9	1.0
Mid-Ebb	13/06/2006	13:11	13.9	7.0	25.8	27.9	6.8	8.0	1.0
	16/06/2006	13:41	14.2	7.1	25.9	30.8	5.7	8.0	1.0
	21/06/2006	08:41	13.8	6.9	27.2	29.0	8.2	7.7	1.0

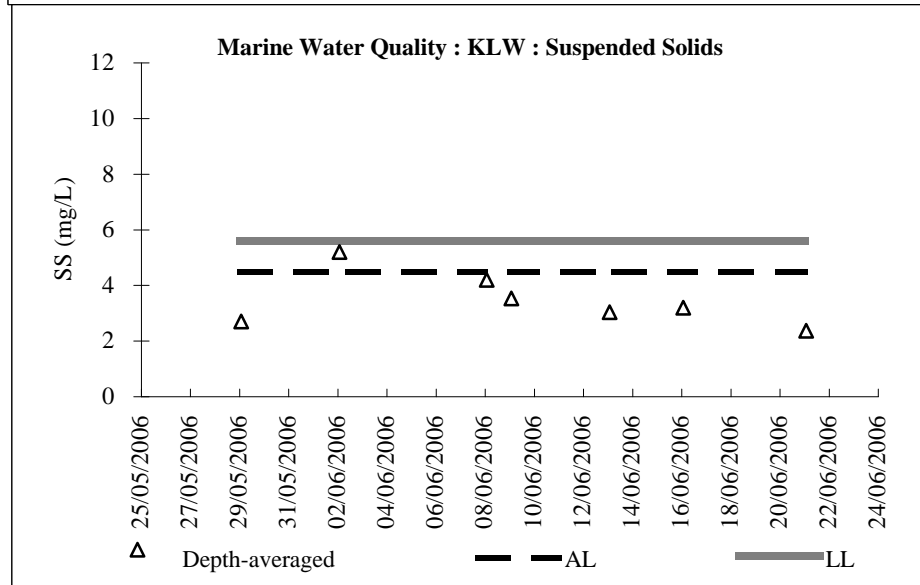
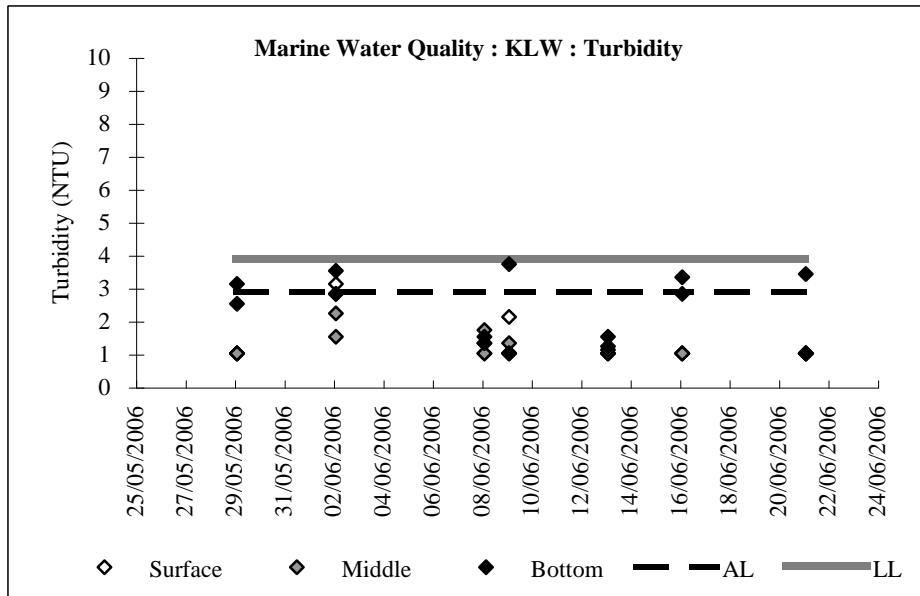
KLW		Middle							
tide condition	Date	time	Water depth (m)	Sampling depth (m)	Temp (°C)	Salinity (ppt)	DO (mg/L)	pH	Turbidity (NTU)
Mid-Flood	29/05/2006	09:11	14.0	7.0	25.0	32.1	6.7	8.2	1.0
Mid-Flood	02/06/2006	11:56	15.0	7.5	25.0	33.5	6.7	8.1	1.5
Mid-Flood	08/06/2006	13:26	14.3	7.2	25.0	32.2	6.3	8.1	1.7
Mid-Flood	09/06/2006	08:10	14.0	7.0	25.2	33.8	6.4	8.1	1.3
Mid-Flood	13/06/2006	08:41	14.0	7.0	25.7	29.9	6.5	8.1	1.1
	16/06/2006	08:41	14.3	7.2	25.6	31.4	5.1	7.9	1.0
	21/06/2006	13:11	14.2	7.1	28.0	30.3	7.9	8.0	1.0

KLW		Bottom							
tide condition	Date	time	Water depth (m)	Sampling depth (m)	Temp (°C)	Salinity (ppt)	DO (mg/L)	pH	Turbidity (NTU)
Mid-Ebb	29/05/2006	13:55	14.3	13.3	25.0	31.8	6.7	8.1	2.5
Mid-Ebb	02/06/2006	13:40	14.8	13.8	25.3	32.8	6.8	8.1	2.8
Mid-Ebb	08/06/2006	8:40	14.6	13.6	24.8	32.1	6.0	7.9	1.5
Mid-Ebb	09/06/2006	9:45	14.7	13.7	25.2	32.5	6.3	7.9	3.7
Mid-Ebb	13/06/2006	13:10	13.9	12.9	25.7	29.2	6.1	7.9	1.2
	16/06/2006	13:40	14.2	13.2	25.6	33.0	4.3	7.9	2.8
	21/06/2006	8:40	13.8	12.8	24.7	31.7	4.3	7.0	3.4

KLW		Bottom							
tide condition	Date	time	Water depth (m)	Sampling depth (m)	Temp (°C)	Salinity (ppt)	DO (mg/L)	pH	Turbidity (NTU)
Mid-Flood	29/05/2006	9:10	14.0	13.0	24.6	32.4	6.6	8.1	3.1
Mid-Flood	02/06/2006	11:55	15.0	14.0	25.2	33.7	6.4	8.1	3.5
Mid-Flood	08/06/2006	13:25	14.3	13.3	24.6	33.2	6.2	8.0	1.3
Mid-Flood	09/06/2006	14:10	14.0	13.0	25.1	33.2	6.5	8.1	1.0
Mid-Flood	13/06/2006	8:40	14.0	13.0	25.7	31.0	6.3	8.1	1.5
	16/06/2006	8:40	14.3	13.3	25.2	32.4	4.6	7.8	3.3
	21/06/2006	13:10	14.2	13.2	25.5	33.0	5.9	7.5	1.0

KLW	Mid-Ebb			Mid-Flood			Depth-averaged
	Surface	Middle	Bottom	Surface	Middle	Bottom	SS (mg/L)
29/05/2006	2.0	2.0	3.0	2.0	2.0	3.0	2.3
02/06/2006	5.0	3.0	4.0	6.0	8.0	3.0	4.8
08/06/2006	2.0	3.0	6.0	2.0	4.0	6.0	3.8
09/06/2006	3.0	4.0	5.0	2.0	2.0	3.0	3.2
13/06/2006	2.0	2.0	2.0	3.0	2.0	4.0	2.7
16/06/2006	2.0	2.0	4.0	2.0	2.0	5.0	2.8
21/06/2006	2.0	2.0	2.0	2.0	2.0	2.0	2.0





M_A		Surface							
tide condition	Date	time	Water depth (m)	Sampling depth (m)	Temp (°C)	Salinity (ppt)	DO (mg/L)	pH	Turbidity (NTU)
Mid-Ebb	29/05/2006	14:17	8.3	1.0	25.8	30.2	7.4	8.1	1.0
Mid-Ebb	02/06/2006	13:57	8.0	1.0	24.2	20.3	7.2	8.2	12.5
Mid-Ebb	08/06/2006	09:02	7.8	1.0	26.9	24.8	6.7	8.1	1.0
Mid-Ebb	09/06/2006	10:07	7.9	1.0	26.6	26.0	6.7	8.1	1.9
Mid-Ebb	13/06/2006	13:32	7.5	1.0	26.1	26.9	7.0	8.0	1.0
	16/06/2006	14:02	8.1	1.0	28.2	26.0	9.5	8.2	1.0
	21/06/2006	09:02	7.5	1.0	28.7	24.3	7.9	8.3	1.0

M_A		Surface							
tide condition	Date	time	Water depth (m)	Sampling depth (m)	Temp (°C)	Salinity (ppt)	DO (mg/L)	pH	Turbidity (NTU)
Mid-Flood	29/05/2006	09:32	8.3	1.0	25.3	28.8	7.3	8.2	1.0
Mid-Flood	02/06/2006	12:07	8.1	1.0	24.3	21.2	6.8	8.1	16.0
Mid-Flood	08/06/2006	13:47	7.5	1.0	25.7	25.3	6.7	8.2	1.2
Mid-Flood	09/06/2006	14:32	7.7	1.0	26.0	22.3	6.3	8.1	20.3
Mid-Flood	13/06/2006	09:02	7.8	1.0	25.7	27.3	7.1	8.1	1.0
	16/06/2006	09:02	8.3	1.0	27.4	26.0	9.3	8.3	1.5
	21/06/2006	13:32	7.7	1.0	29.5	26.1	7.5	8.3	1.0

Remarks:

Action level	<i>Bold & Italic</i>
Limit level	Bold
< detection limit	Grey

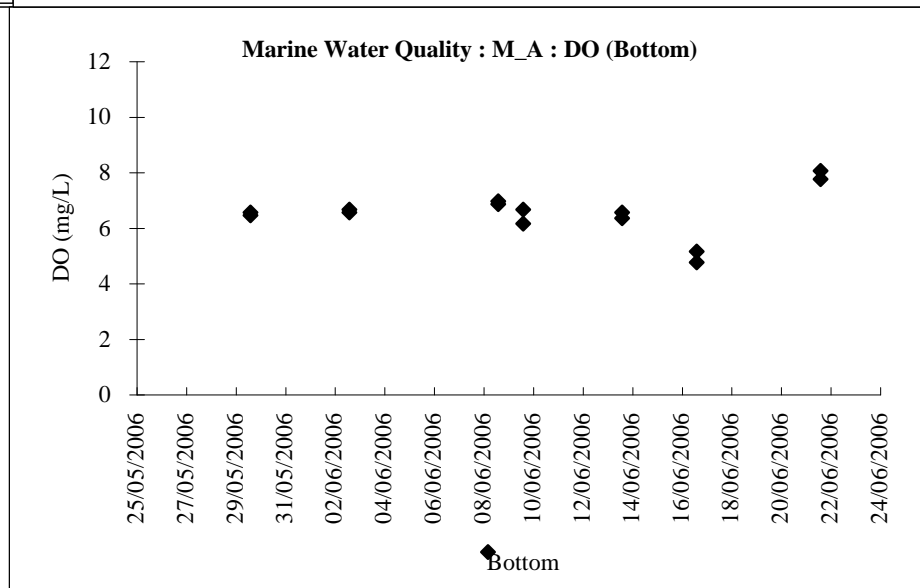
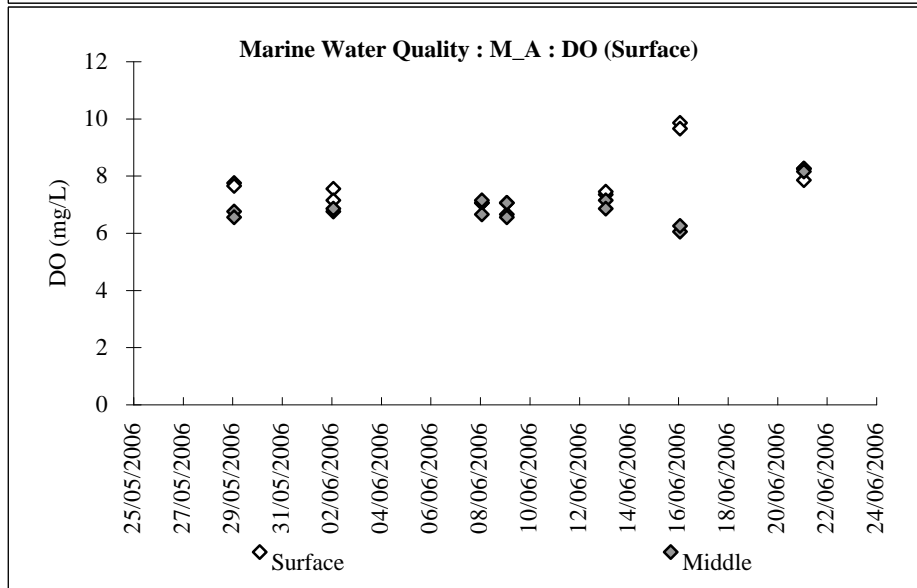
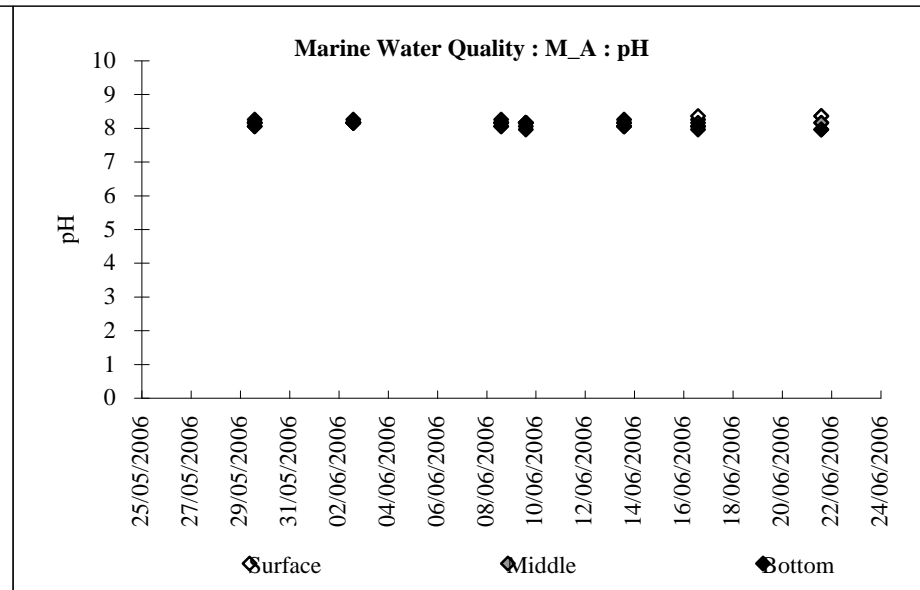
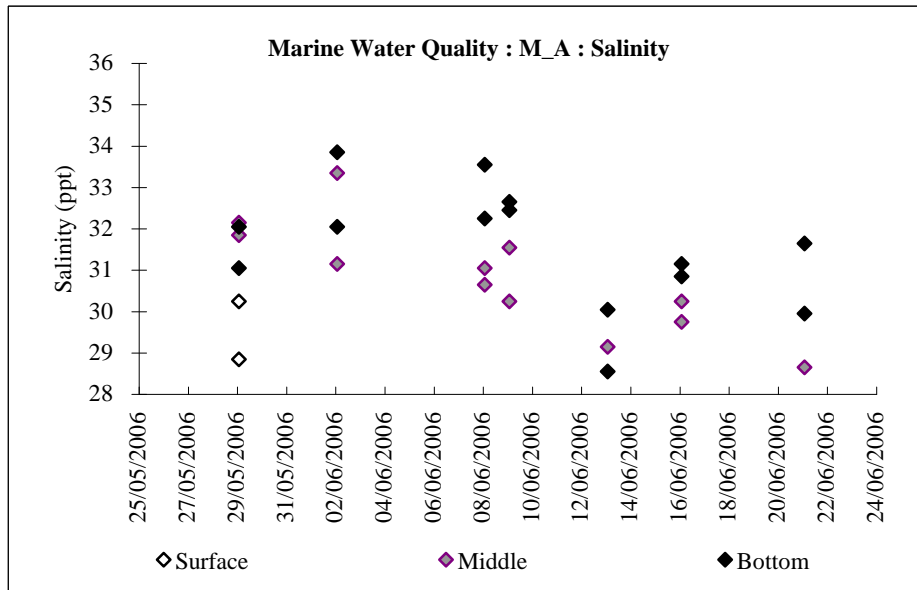
M_A		Middle							
tide condition	Date	time	Water depth (m)	Sampling depth (m)	Temp (°C)	Salinity (ppt)	DO (mg/L)	pH	Turbidity (NTU)
Mid-Ebb	29/05/2006	14:16	8.3	4.2	25.9	31.8	6.4	8.0	3.7
Mid-Ebb	02/06/2006	13:56	8.0	4.0	24.8	31.1	6.4	8.1	2.0
Mid-Ebb	08/06/2006	09:01	7.8	3.9	26.0	30.6	6.8	8.0	1.0
Mid-Ebb	09/06/2006	10:06	7.9	4.0	25.6	31.5	6.2	8.0	2.6
Mid-Ebb	13/06/2006	13:31	7.5	3.8	25.9	27.7	6.8	8.0	1.0
	16/06/2006	14:01	8.1	4.1	26.2	30.2	5.7	8.1	1.5
	21/06/2006	09:01	7.5	3.8	28.6	27.9	7.9	8.1	1.0

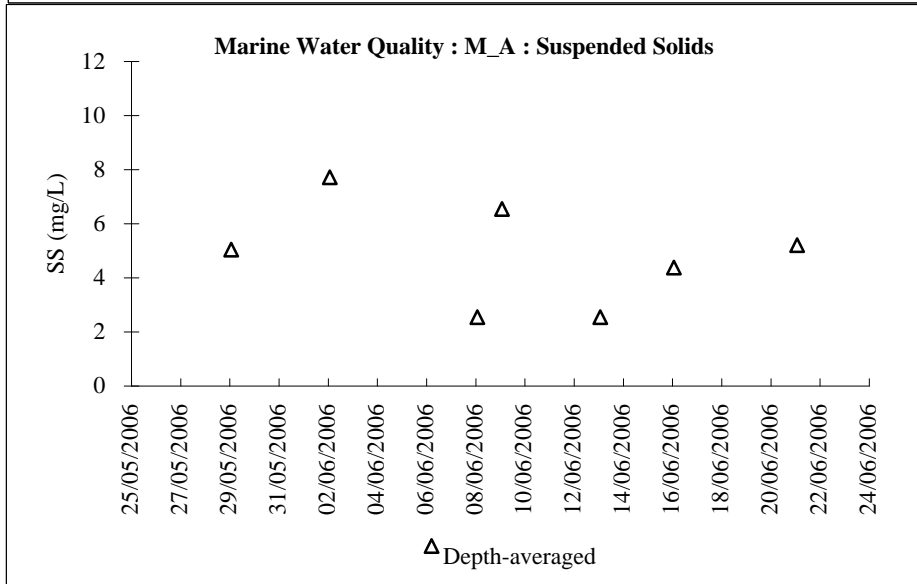
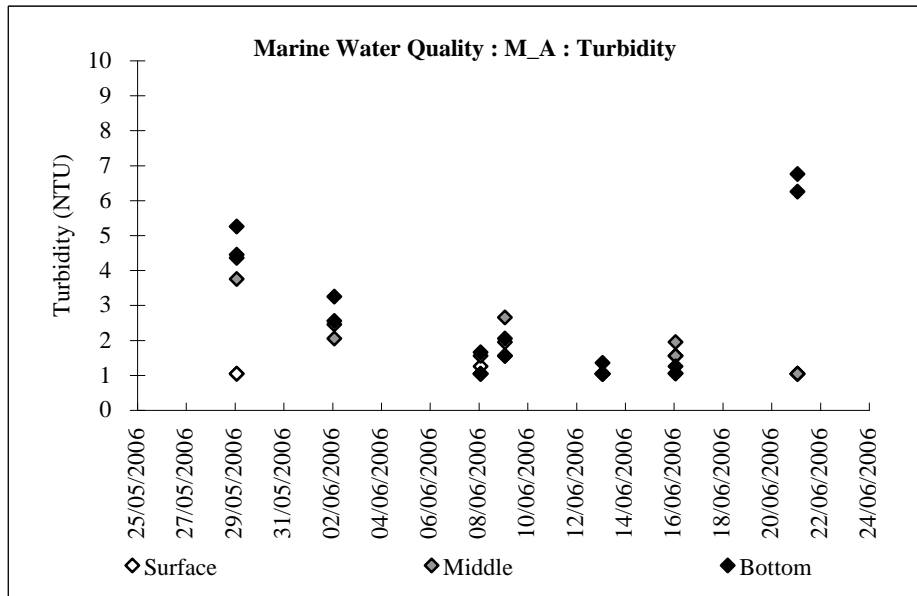
M_A		Middle							
tide condition	Date	time	Water depth (m)	Sampling depth (m)	Temp (°C)	Salinity (ppt)	DO (mg/L)	pH	Turbidity (NTU)
Mid-Flood	29/05/2006	09:31	8.3	4.2	25.3	32.1	6.2	8.1	4.4
Mid-Flood	02/06/2006	12:06	8.1	4.1	25.1	33.3	6.5	8.1	2.4
Mid-Flood	08/06/2006	13:46	7.5	3.8	25.2	31.0	6.3	8.1	1.5
Mid-Flood	09/06/2006	14:31	7.7	3.9	25.2	30.2	6.7	8.1	1.5
Mid-Flood	13/06/2006	09:01	7.8	3.9	25.8	29.1	6.5	8.1	1.0
	16/06/2006	09:01	8.3	4.2	26.0	29.7	5.9	8.0	1.9
	21/06/2006	13:31	7.7	3.9	28.8	28.6	7.8	8.1	1.0

M_A		Bottom							
tide condition	Date	time	Water depth (m)	Sampling depth (m)	Temp (°C)	Salinity (ppt)	DO (mg/L)	pH	Turbidity (NTU)
Mid-Ebb	29/05/2006	14:15	8.3	7.3	25.5	31.0	6.1	8.0	4.3
Mid-Ebb	02/06/2006	13:55	8.0	7.0	25.3	32.0	6.3	8.1	3.2
Mid-Ebb	08/06/2006	9:00	7.8	6.8	25.2	32.2	6.6	8.0	1.0
Mid-Ebb	09/06/2006	10:05	7.9	6.9	24.9	32.4	5.8	7.9	2.0
Mid-Ebb	13/06/2006	13:30	7.5	6.5	25.7	28.5	6.0	8.0	1.0
	16/06/2006	14:00	8.1	7.1	25.9	30.8	4.4	8.0	1.0
	21/06/2006	9:00	7.5	6.5	27.3	29.9	7.7	7.9	6.2

M_A		Bottom							
tide condition	Date	time	Water depth (m)	Sampling depth (m)	Temp (°C)	Salinity (ppt)	DO (mg/L)	pH	Turbidity (NTU)
Mid-Flood	29/05/2006	9:30	8.3	7.3	25.2	32.0	6.2	8.1	5.2
Mid-Flood	02/06/2006	12:05	8.1	7.1	25.2	33.8	6.2	8.1	2.5
Mid-Flood	08/06/2006	13:45	7.5	6.5	25.0	33.5	6.5	8.1	1.6
Mid-Flood	09/06/2006	14:30	7.7	6.7	25.0	32.6	6.3	8.1	1.5
Mid-Flood	13/06/2006	9:00	7.8	6.8	25.6	30.0	6.2	8.2	1.3
	16/06/2006	9:00	8.3	7.3	25.6	31.1	4.8	7.9	1.2
	21/06/2006	13:30	7.7	6.7	26.8	31.6	7.4	7.9	6.7

M_A	Mid-Ebb			Mid-Flood			Depth-averaged
	Surface	Middle	Bottom	Surface	Middle	Bottom	SS (mg/L)
29/05/2006	4.0	5.0	5.0	2.0	5.0	7.0	4.7
02/06/2006	14.0	4.0	3.0	16.0	3.0	4.0	7.3
08/06/2006	2.0	2.0	2.0	2.0	3.0	2.0	2.2
09/06/2006	2.0	4.0	3.0	24.0	2.0	2.0	6.2
13/06/2006	2.0	2.0	3.0	2.0	2.0	2.0	2.2
16/06/2006	4.0	6.0	3.0	4.0	4.0	3.0	4.0
21/06/2006	5.0	2.0	9.0	2.0	2.0	9.0	4.8





M_Marsh		Surface							
tide condition	Date	time	Water depth (m)	Sampling depth (m)	Temp (°C)	Salinity (ppt)	DO (mg/L)	pH	Turbidity (NTU)
Mid-Ebb	29/05/2006	14:32	8.5	1.0	26.0	30.0	6.8	8.1	1.9
Mid-Ebb	02/06/2006	14:07	8.6	1.0	24.0	19.6	6.7	8.1	173.0
Mid-Ebb	08/06/2006	09:17	8.5	1.0	27.0	25.3	6.5	8.1	1.0
Mid-Ebb	09/06/2006	10:22	8.0	1.0	26.6	25.4	6.2	8.2	2.5
Mid-Ebb	13/06/2006	13:47	7.6	1.0	26.3	26.1	6.8	8.0	1.1
	16/06/2006	14:17	8.3	1.0	28.0	25.8	8.5	8.2	1.0
	21/06/2006	09:17	7.6	1.0	28.9	25.1	7.9	8.3	1.0

M_Marsh		Surface							
tide condition	Date	time	Water depth (m)	Sampling depth (m)	Temp (°C)	Salinity (ppt)	DO (mg/L)	pH	Turbidity (NTU)
Mid-Flood	29/05/2006	09:47	8.8	1.0	25.7	30.7	6.9	8.2	2.1
Mid-Flood	02/06/2006	12:17	8.4	1.0	23.8	20.1	6.5	8.1	351.0
Mid-Flood	08/06/2006	14:02	7.8	1.0	26.3	25.6	6.7	8.2	1.3
Mid-Flood	09/06/2006	14:47	7.7	1.0	25.7	14.0	5.7	8.1	317.0
Mid-Flood	13/06/2006	09:17	7.7	1.0	25.6	27.0	6.7	8.1	1.6
	16/06/2006	09:17	8.2	1.0	27.3	26.0	8.1	8.3	1.0
	21/06/2006	13:47	7.5	1.0	29.2	23.7	7.6	8.4	1.0

Remarks:

Action level	<i>Bold & Italic</i>
Limit level	Bold
< detection limit	Grey

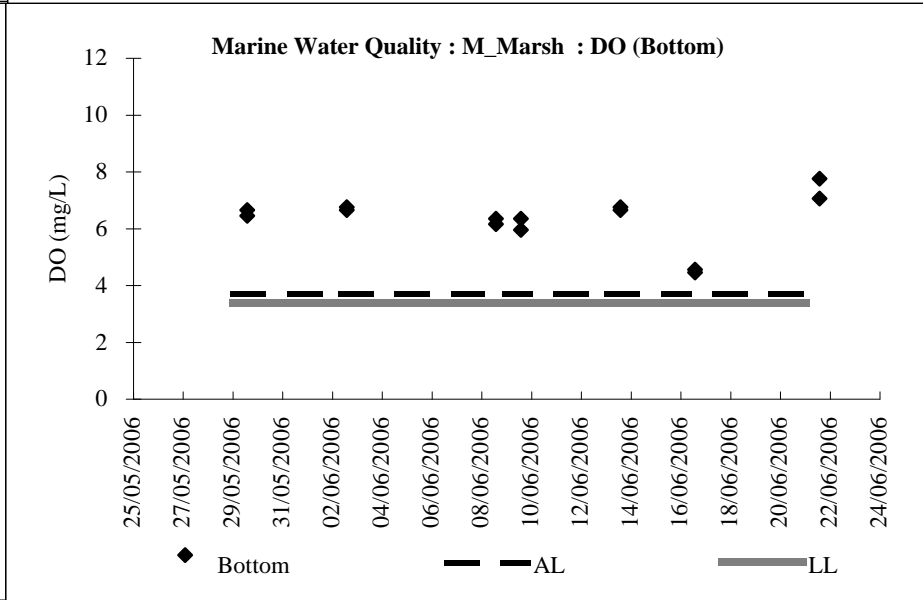
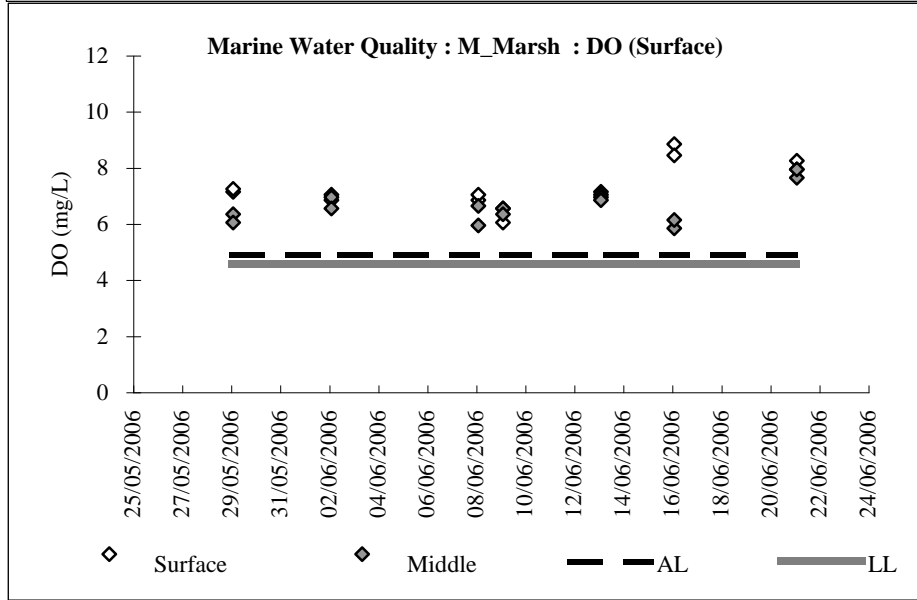
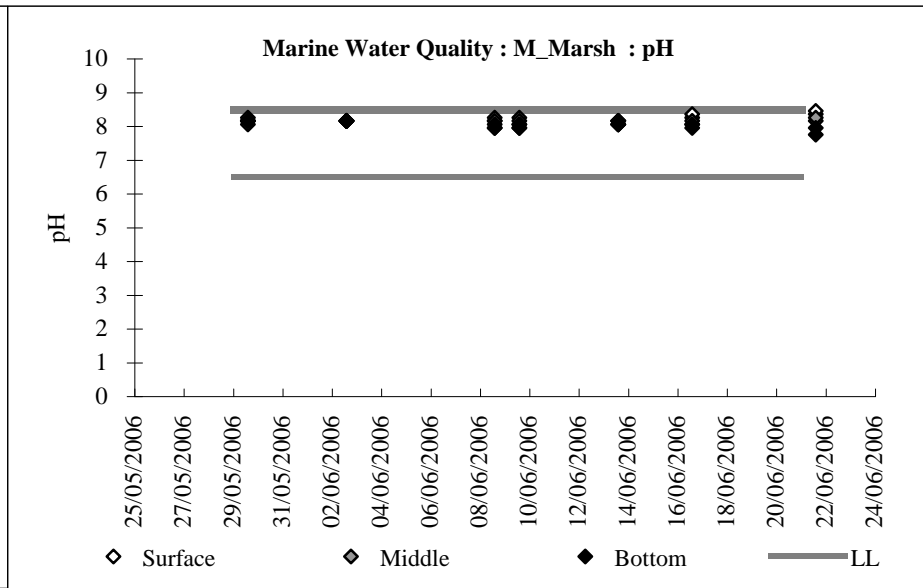
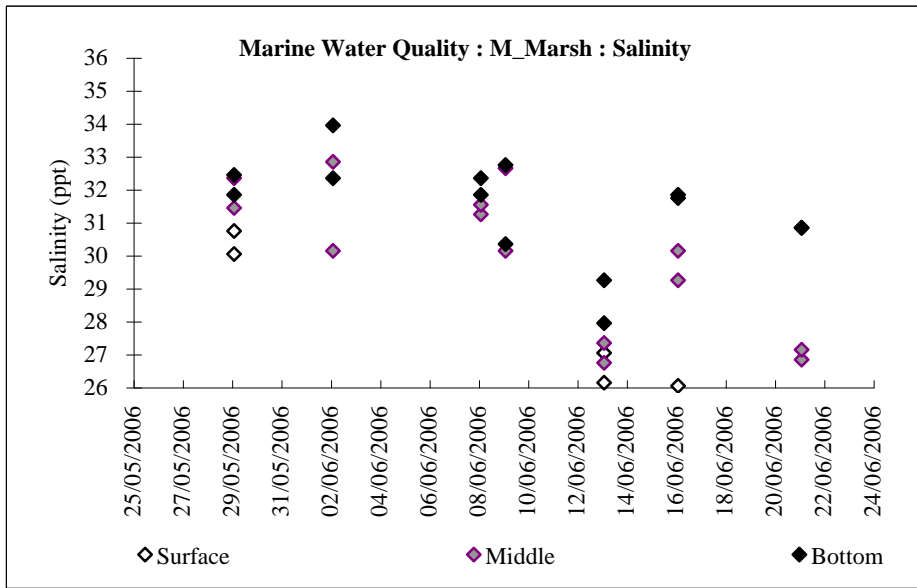
M_Marsh	Middle								
tide condition	Date	time	Water depth (m)	Sampling depth (m)	Temp (°C)	Salinity (ppt)	DO (mg/L)	pH	Turbidity (NTU)
Mid-Ebb	29/05/2006	14:31	8.5	4.3	25.5	31.4	6.0	8.0	6.0
Mid-Ebb	02/06/2006	14:06	8.6	4.3	24.6	30.1	6.6	8.1	56.7
Mid-Ebb	08/06/2006	09:16	8.5	4.3	25.6	31.2	5.6	7.9	1.2
Mid-Ebb	09/06/2006	10:21	8.0	4.0	24.9	32.6	6.2	7.9	4.1
Mid-Ebb	13/06/2006	13:46	7.6	3.8	26.1	26.7	6.6	8.0	1.9
	16/06/2006	14:16	8.3	4.2	26.7	30.1	5.5	8.0	1.3
	21/06/2006	09:16	7.6	3.8	28.7	26.8	7.3	8.1	1.9

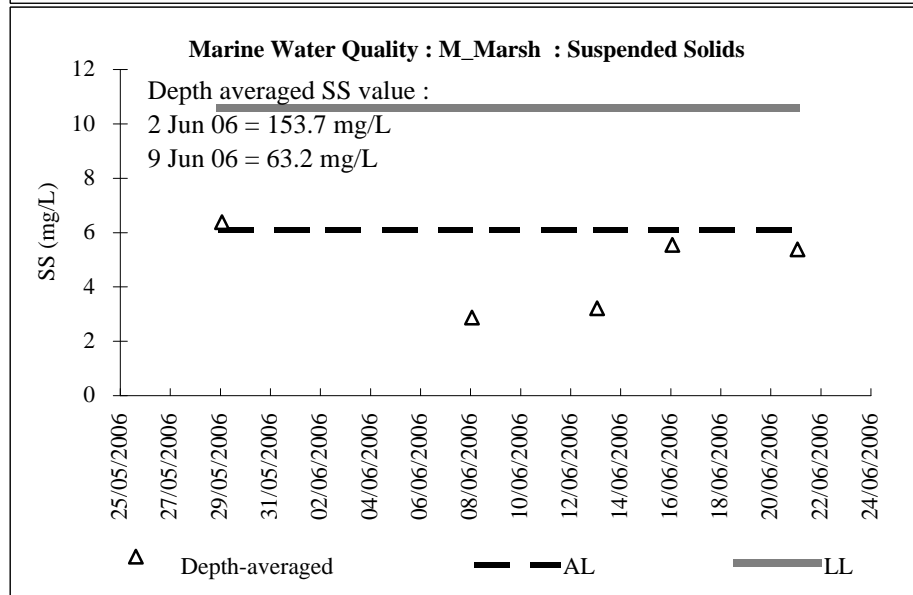
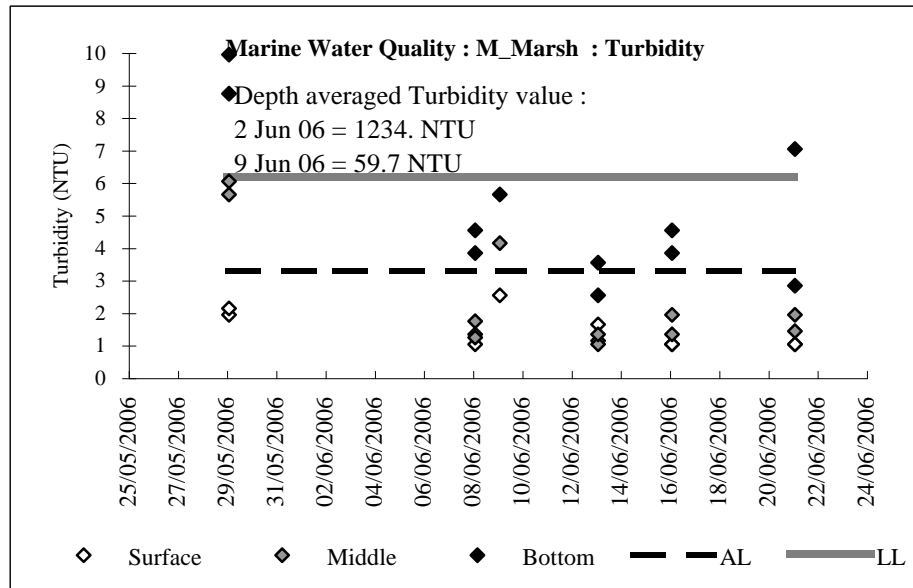
M_Marsh	Middle								
tide condition	Date	time	Water depth (m)	Sampling depth (m)	Temp (°C)	Salinity (ppt)	DO (mg/L)	pH	Turbidity (NTU)
Mid-Flood	29/05/2006	09:46	8.8	4.4	25.0	32.3	5.7	8.1	5.6
Mid-Flood	02/06/2006	12:16	8.4	4.2	24.8	32.8	6.2	8.1	62.4
Mid-Flood	08/06/2006	14:01	7.8	3.9	25.0	31.5	6.3	8.1	1.7
Mid-Flood	09/06/2006	14:46	7.7	3.9	25.0	30.1	6.0	8.0	14.6
Mid-Flood	13/06/2006	09:16	7.7	3.9	25.8	27.3	6.5	8.1	1.3
	16/06/2006	09:16	8.2	4.1	26.3	29.2	5.8	8.1	1.9
	21/06/2006	13:46	7.5	3.8	29.1	27.1	7.6	8.2	1.4

M_Marsh		Bottom							
tide condition	Date	time	Water depth (m)	Sampling depth (m)	Temp (°C)	Salinity (ppt)	DO (mg/L)	pH	Turbidity (NTU)
Mid-Ebb	29/05/2006	14:30	8.5	7.5	25.2	31.8	6.3	8.1	8.7
Mid-Ebb	02/06/2006	14:05	8.6	7.6	25.0	32.3	6.4	8.1	41.4
Mid-Ebb	08/06/2006	9:15	8.5	7.5	24.9	31.8	5.8	7.9	4.5
Mid-Ebb	09/06/2006	10:20	8.0	7.0	24.9	32.7	5.6	7.9	5.6
Mid-Ebb	13/06/2006	13:45	7.6	6.6	25.9	27.9	6.4	8.0	2.5
	16/06/2006	14:15	8.3	7.3	25.9	31.7	4.2	8.0	3.8
	21/06/2006	9:15	7.6	6.6	26.5	30.8	6.7	7.7	2.8

M_Marsh		Bottom							
tide condition	Date	time	Water depth (m)	Sampling depth (m)	Temp (°C)	Salinity (ppt)	DO (mg/L)	pH	Turbidity (NTU)
Mid-Flood	29/05/2006	9:45	8.8	7.8	24.9	32.4	6.1	8.1	9.9
Mid-Flood	02/06/2006	12:15	8.4	7.4	24.9	33.9	6.3	8.1	55.8
Mid-Flood	08/06/2006	14:00	7.8	6.8	25.1	32.3	6.0	8.0	3.8
Mid-Flood	09/06/2006	14:45	7.7	6.7	25.2	30.3	6.0	8.0	14.3
Mid-Flood	13/06/2006	9:15	7.7	6.7	25.9	29.2	6.3	8.1	3.5
	16/06/2006	9:15	8.2	7.2	25.5	31.8	4.1	7.9	4.5
	21/06/2006	13:45	7.5	6.5	27.5	30.8	7.4	7.9	7.0

M_Marsh	Mid-Ebb			Mid-Flood			Depth-averaged
	Surface	Middle	Bottom	Surface	Middle	Bottom	SS (mg/L)
29/05/2006	2.0	5.0	11.0	2.0	5.0	11.0	6.0
02/06/2006	186.0	110.0	82.0	362.0	100.0	82.0	153.7
08/06/2006	2.0	4.0	3.0	2.0	2.0	2.0	2.5
09/06/2006	2.0	5.0	10.0	329.0	16.0	17.0	63.2
13/06/2006	3.0	2.0	3.0	3.0	3.0	3.0	2.8
16/06/2006	6.0	4.0	6.0	5.0	5.0	5.0	5.2
21/06/2006	2.0	3.0	5.0	2.0	3.0	15.0	5.0





TTC		Surface							
tide condition	Date	time	Water depth (m)	Sampling depth (m)	Temp (°C)	Salinity (ppt)	DO (mg/L)	pH	Turbidity (NTU)
Mid-Ebb	29/05/2006	14:42	10.0	1.0	26.2	31.0	7.1	8.1	1.7
Mid-Ebb	02/06/2006	14:17	10.2	1.0	24.9	24.1	6.7	8.2	28.7
Mid-Ebb	08/06/2006	09:37	10.1	1.0	26.8	27.5	6.5	8.1	1.0
Mid-Ebb	09/06/2006	10:42	9.6	1.0	26.3	28.7	6.2	8.2	2.4
Mid-Ebb	13/06/2006	14:07	9.5	1.0	26.5	23.2	6.9	8.0	1.0
	16/06/2006	14:27	10.3	1.0	27.8	26.3	8.4	8.2	1.0
	21/06/2006	09:37	9.5	1.0	29.0	24.6	7.7	8.4	1.0

TTC		Surface							
tide condition	Date	time	Water depth (m)	Sampling depth (m)	Temp (°C)	Salinity (ppt)	DO (mg/L)	pH	Turbidity (NTU)
Mid-Flood	29/05/2006	10:07	10.1	1.0	25.9	31.5	7.3	8.3	1.3
Mid-Flood	02/06/2006	12:27	10.0	1.0	25.1	25.1	6.8	8.2	117.0
Mid-Flood	08/06/2006	14:12	9.8	1.0	25.9	29.3	6.4	8.2	1.1
Mid-Flood	09/06/2006	15:07	9.5	1.0	25.8	25.1	6.1	8.2	26.7
Mid-Flood	13/06/2006	09:27	9.7	1.0	25.7	25.6	6.5	8.1	1.0
	16/06/2006	09:37	10.0	1.0	27.3	27.0	8.2	8.3	1.0
	21/06/2006	13:57	9.7	1.0	29.2	23.0	7.5	8.4	1.0

Remarks:

Action level	<i>Bold & Italic</i>
Limit level	Bold
< detection limit	Grey

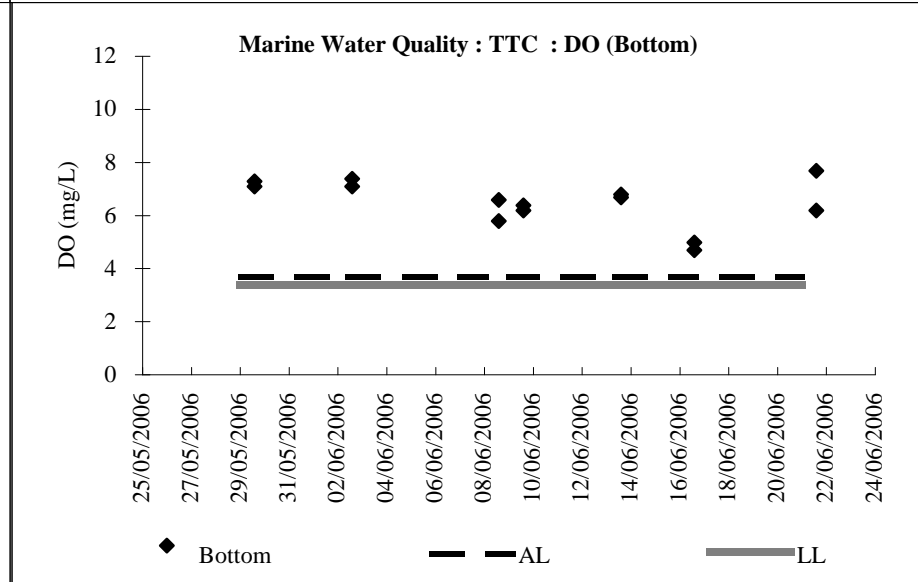
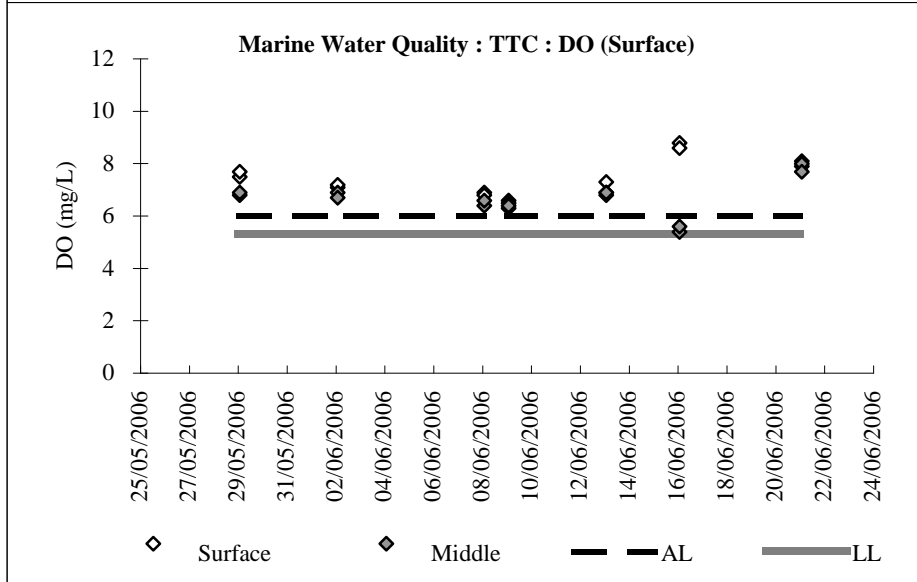
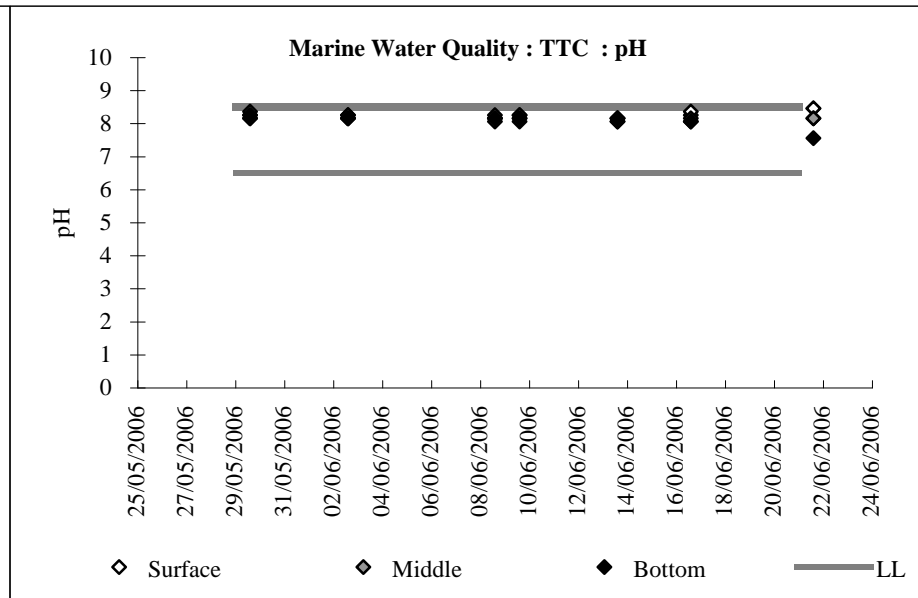
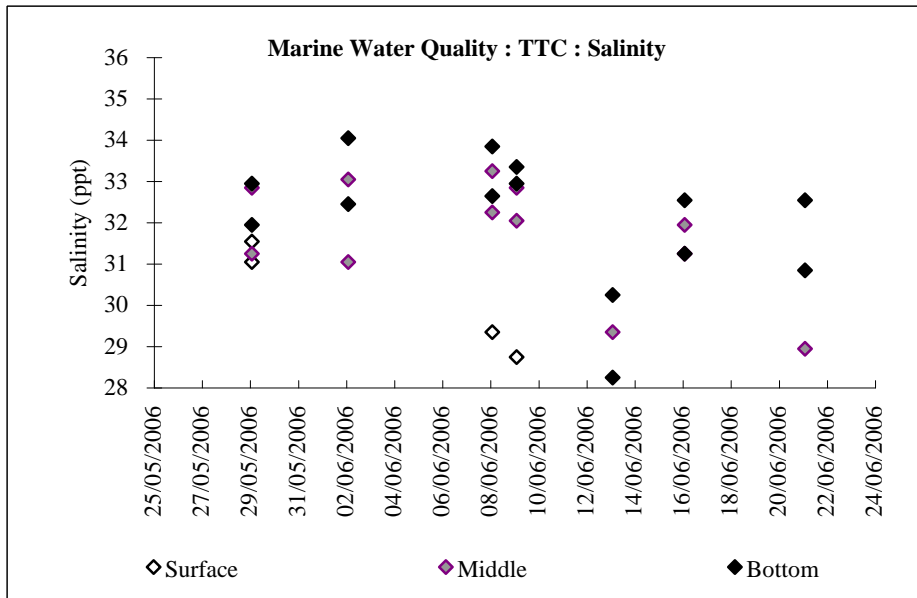
TTC		Middle							
tide condition	Date	time	Water depth (m)	Sampling depth (m)	Temp (°C)	Salinity (ppt)	DO (mg/L)	pH	Turbidity (NTU)
Mid-Ebb	29/05/2006	14:41	10.0	5.0	25.3	31.2	6.4	8.1	2.8
Mid-Ebb	02/06/2006	14:16	10.2	5.1	25.3	31.0	6.5	8.1	4.2
Mid-Ebb	08/06/2006	09:36	10.1	5.1	25.4	32.2	6.0	8.0	1.0
Mid-Ebb	09/06/2006	10:41	9.6	4.8	25.0	32.8	5.9	8.0	2.1
Mid-Ebb	13/06/2006	14:06	9.5	4.8	25.9	27.4	6.4	8.0	1.0
	16/06/2006	14:26	10.3	5.2	26.0	31.2	5.0	8.0	1.0
	21/06/2006	09:36	9.5	4.8	28.4	28.9	7.6	8.1	1.0

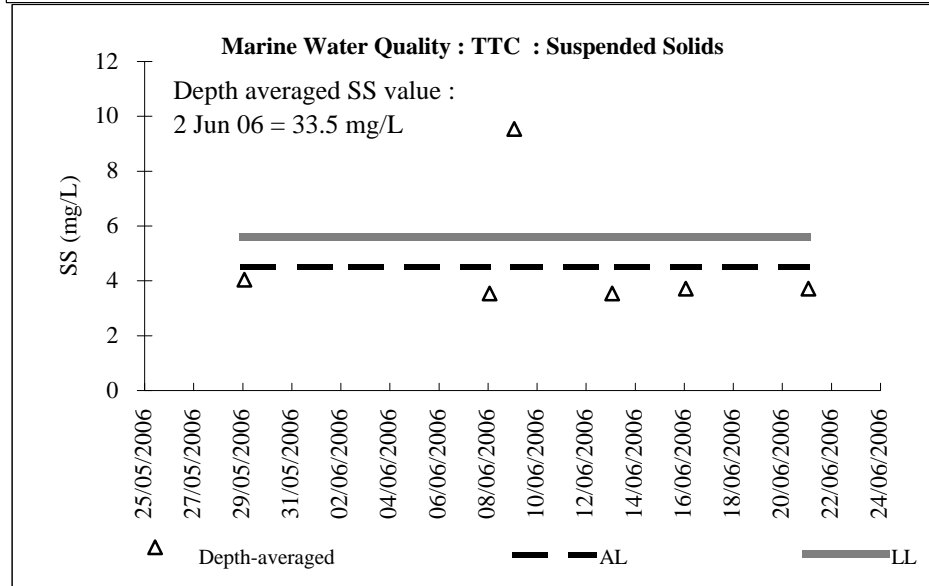
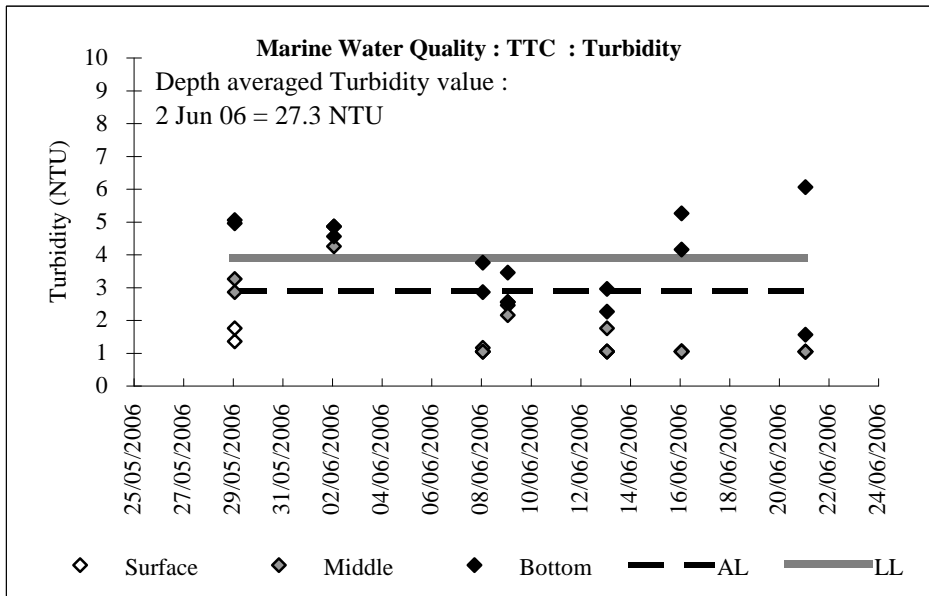
TTC		Middle							
tide condition	Date	time	Water depth (m)	Sampling depth (m)	Temp (°C)	Salinity (ppt)	DO (mg/L)	pH	Turbidity (NTU)
Mid-Flood	29/05/2006	10:06	10.1	5.1	24.9	32.8	6.5	8.2	3.2
Mid-Flood	02/06/2006	12:26	10.0	5.0	25.3	33.0	6.3	8.1	4.8
Mid-Flood	08/06/2006	14:11	9.8	4.9	25.0	33.2	6.2	8.1	1.0
Mid-Flood	09/06/2006	15:06	9.5	4.8	25.0	32.0	6.0	8.1	2.5
Mid-Flood	13/06/2006	09:26	9.7	4.9	25.2	29.3	6.5	8.1	1.7
	16/06/2006	09:36	10.0	5.0	25.8	31.9	5.2	8.1	1.0
	21/06/2006	13:56	9.7	4.9	28.8	27.4	7.3	8.1	1.0

TTC		Bottom							
tide condition	Date	time	Water depth (m)	Sampling depth (m)	Temp (°C)	Salinity (ppt)	DO (mg/L)	pH	Turbidity (NTU)
Mid-Ebb	29/05/2006	14:40	10.0	9.0	25.1	31.9	6.9	8.1	5.0
Mid-Ebb	02/06/2006	14:15	10.2	9.2	25.4	32.4	7.0	8.1	4.8
Mid-Ebb	08/06/2006	9:35	10.1	9.1	24.9	32.6	5.4	7.9	3.7
Mid-Ebb	09/06/2006	10:40	9.6	8.6	25.0	32.9	5.8	8.0	3.4
Mid-Ebb	13/06/2006	14:05	9.5	8.5	25.8	28.2	6.3	7.9	2.2
	16/06/2006	14:25	10.3	9.3	25.8	31.2	4.3	8.0	4.1
	21/06/2006	9:35	9.5	8.5	26.9	30.8	7.3	7.8	1.5

TTC		Bottom							
tide condition	Date	time	Water depth (m)	Sampling depth (m)	Temp (°C)	Salinity (ppt)	DO (mg/L)	pH	Turbidity (NTU)
Mid-Flood	29/05/2006	10:05	10.1	9.1	24.7	32.9	6.7	8.2	4.9
Mid-Flood	02/06/2006	12:25	10.0	9.0	25.3	34.0	6.7	8.1	4.5
Mid-Flood	08/06/2006	14:10	9.8	8.8	24.7	33.8	6.2	8.1	2.8
Mid-Flood	09/06/2006	15:05	9.5	8.5	24.8	33.3	6.0	8.1	2.5
Mid-Flood	13/06/2006	9:25	9.7	8.7	25.6	30.2	6.4	8.1	2.9
	16/06/2006	9:35	10.0	9.0	25.4	32.5	4.6	8.0	5.2
	21/06/2006	13:55	9.7	8.7	25.8	32.5	5.8	7.5	6.0

TTC	Mid-Ebb			Mid-Flood			Depth-averaged
	Surface	Middle	Bottom	Surface	Middle	Bottom	SS (mg/L)
29/05/2006	2.0	4.0	6.0	2.0	3.0	5.0	3.7
02/06/2006	43.0	13.0	9.0	116.0	12.0	8.0	33.5
08/06/2006	3.0	2.0	3.0	2.0	2.0	7.0	3.2
09/06/2006	4.0	2.0	5.0	38.0	3.0	3.0	9.2
13/06/2006	2.0	3.0	2.0	7.0	3.0	2.0	3.2
16/06/2006	5.0	2.0	3.0	5.0	2.0	3.0	3.3
21/06/2006	2.0	3.0	3.0	2.0	2.0	8.0	3.3





M_BP		Surface							
tide condition	Date	time	Water depth (m)	Sampling depth (m)	Temp (°C)	Salinity (ppt)	DO (mg/L)	pH	Turbidity (NTU)
Mid-Ebb	29/05/2006	14:52	10.7	1.0	26.3	30.8	7.3	8.2	1.7
Mid-Ebb	02/06/2006	14:27	10.3	1.0	24.6	21.7	6.6	8.1	35.2
Mid-Ebb	08/06/2006	09:47	9.9	1.0	26.8	28.8	6.7	8.2	1.0
Mid-Ebb	09/06/2006	10:52	9.8	1.0	26.7	25.5	6.3	8.1	2.8
Mid-Ebb	13/06/2006	14:17	9.5	1.0	26.3	26.5	6.7	8.0	1.0
	16/06/2006	14:37	10.2	1.0	27.7	26.8	8.4	8.1	1.0
	21/06/2006	09:47	9.5	1.0	28.8	24.5	7.7	8.4	1.0

M_BP		Surface							
tide condition	Date	time	Water depth (m)	Sampling depth (m)	Temp (°C)	Salinity (ppt)	DO (mg/L)	pH	Turbidity (NTU)
Mid-Flood	29/05/2006	10:17	10.8	1.0	25.8	31.9	7.5	8.3	2.1
Mid-Flood	02/06/2006	12:37	10.5	1.0	24.8	22.0	6.3	8.2	148.0
Mid-Flood	08/06/2006	14:22	9.7	1.0	25.9	30.1	6.5	8.2	1.3
Mid-Flood	09/06/2006	15:17	9.5	1.0	25.7	22.4	6.4	8.1	25.7
Mid-Flood	13/06/2006	09:37	9.6	1.0	25.7	27.2	6.5	8.0	1.0
	16/06/2006	09:47	10.1	1.0	27.1	27.3	8.2	8.3	1.8
	21/06/2006	14:07	9.6	1.0	29.2	23.4	7.5	8.4	1.0

Remarks:

Action level	<i>Bold & Italic</i>
Limit level	Bold
< detection limit	Grey

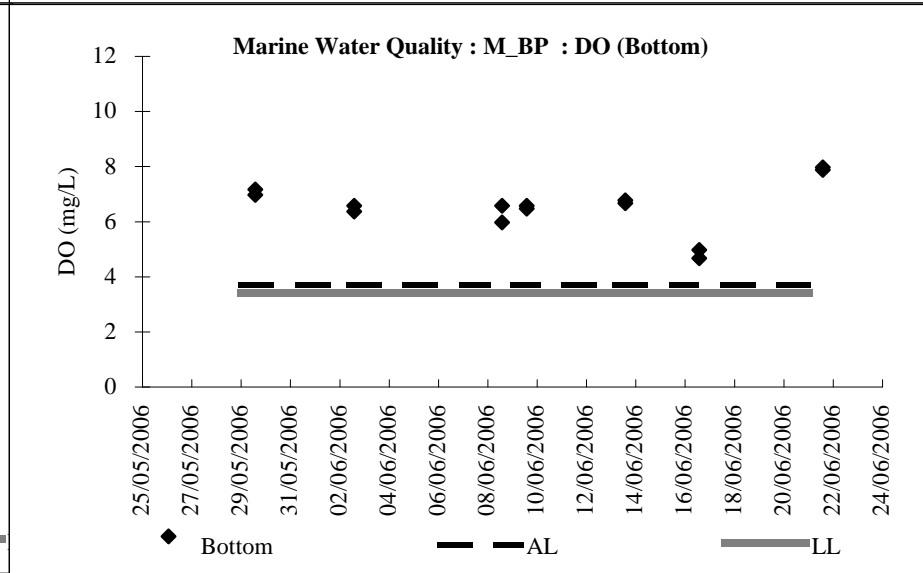
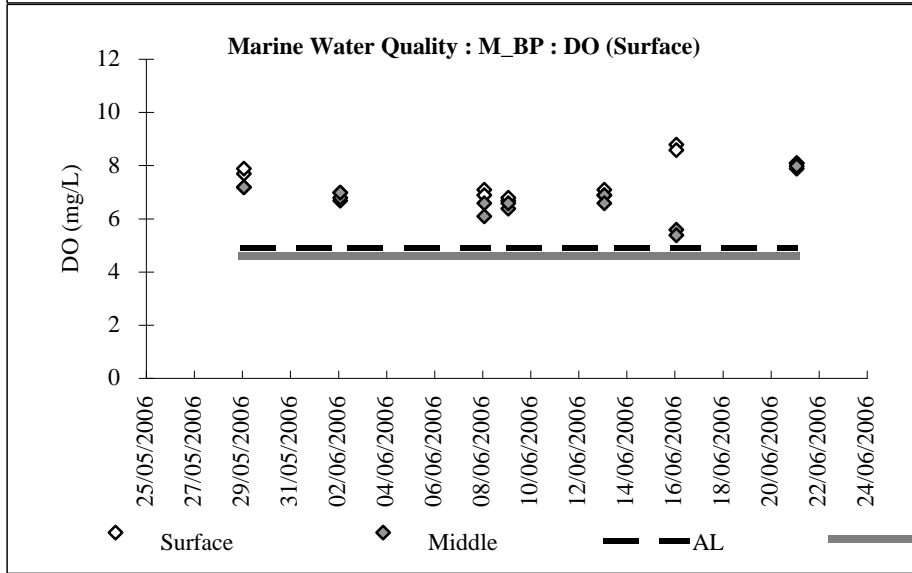
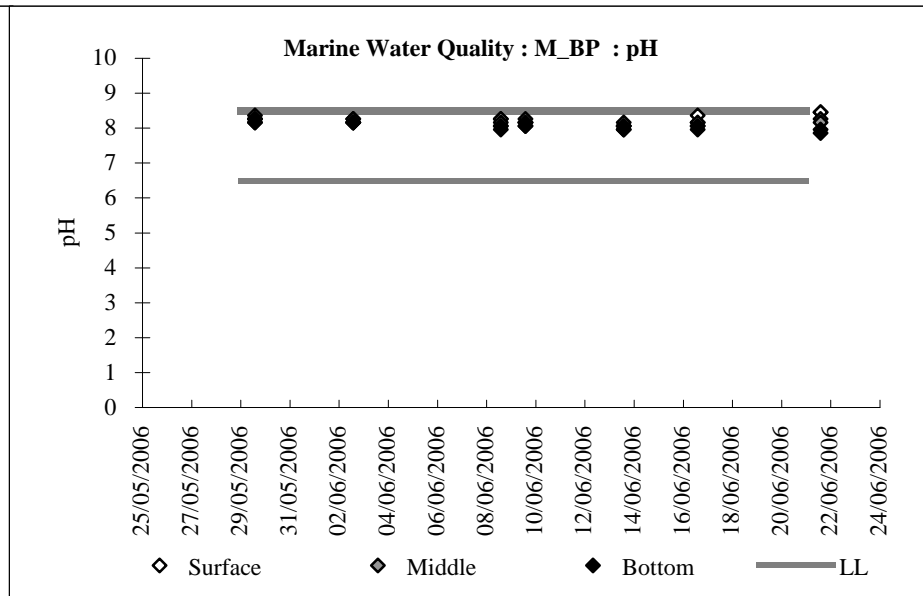
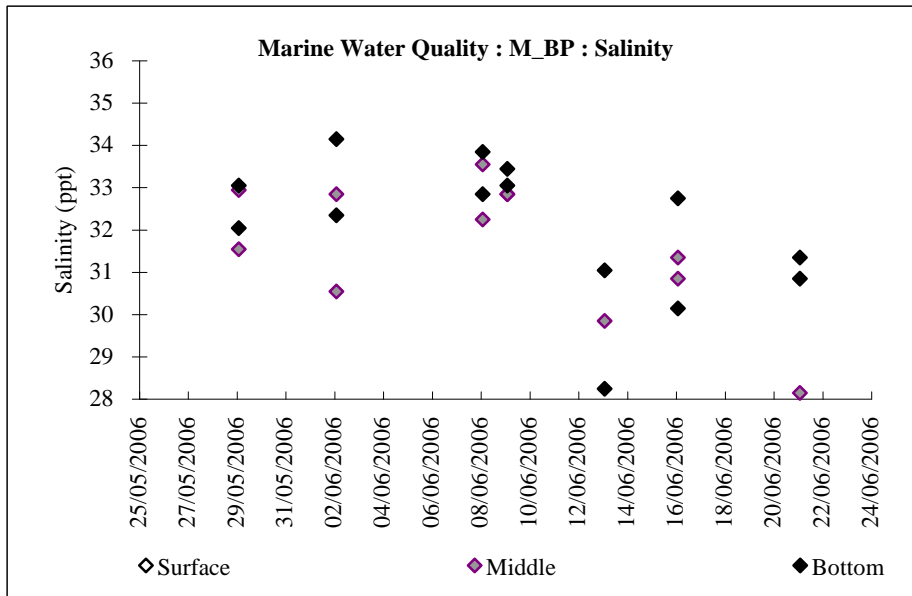
M_BP		Middle							
tide condition	Date	time	Water depth (m)	Sampling depth (m)	Temp (°C)	Salinity (ppt)	DO (mg/L)	pH	Turbidity (NTU)
Mid-Ebb	29/05/2006	14:51	10.7	5.4	25.3	31.5	6.8	8.1	3.0
Mid-Ebb	02/06/2006	14:26	10.3	5.2	25.2	30.5	6.4	8.2	4.7
Mid-Ebb	08/06/2006	09:46	9.9	5.0	25.5	32.2	5.7	8.0	1.0
Mid-Ebb	09/06/2006	10:51	9.8	4.9	24.9	32.8	6.0	8.0	2.6
Mid-Ebb	13/06/2006	14:16	9.5	4.8	25.9	27.7	6.5	7.9	1.0
	16/06/2006	14:36	10.2	5.1	26.2	30.8	5.2	8.0	1.0
	21/06/2006	09:46	9.5	4.8	28.7	27.7	7.7	8.2	1.0

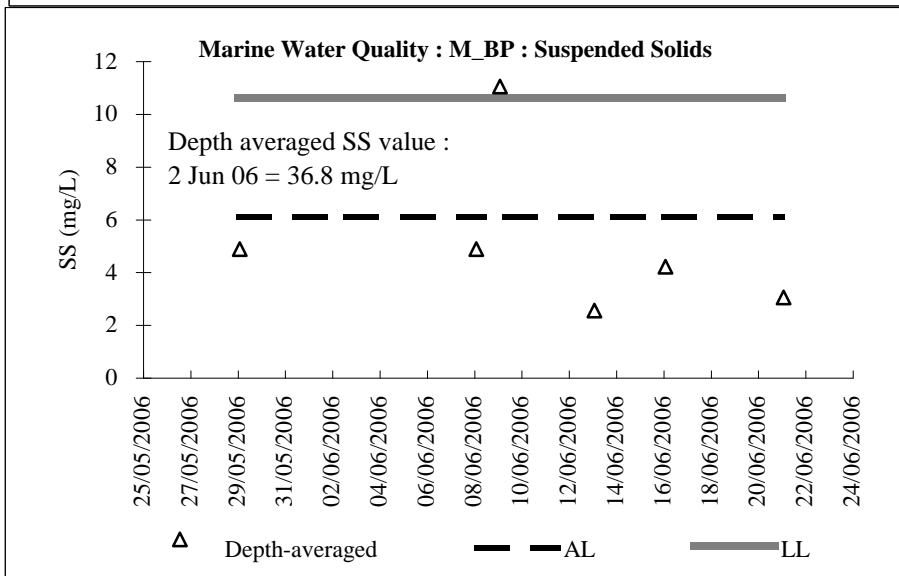
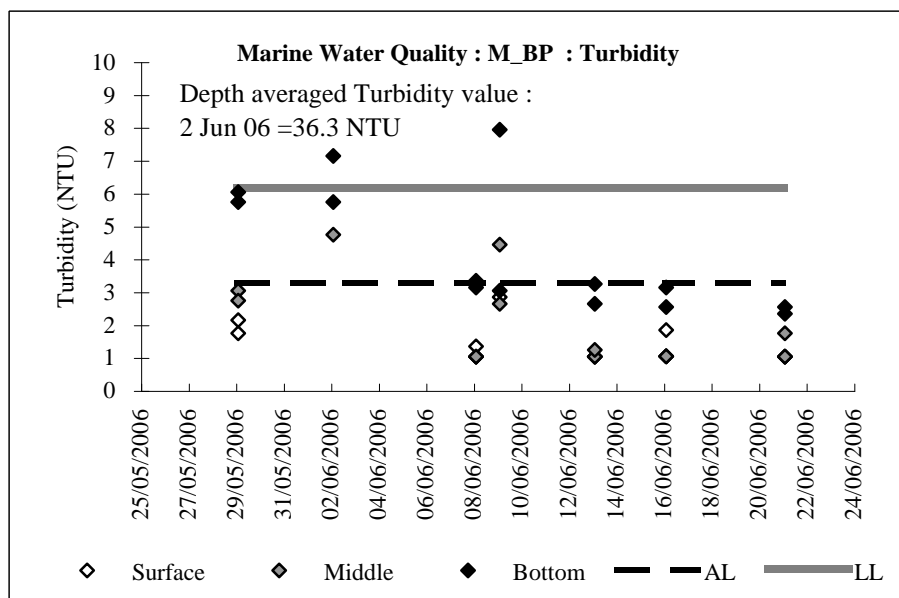
M_BP		Middle							
tide condition	Date	time	Water depth (m)	Sampling depth (m)	Temp (°C)	Salinity (ppt)	DO (mg/L)	pH	Turbidity (NTU)
Mid-Flood	29/05/2006	10:16	10.8	5.4	24.9	32.9	6.8	8.2	2.7
Mid-Flood	02/06/2006	12:36	10.5	5.3	25.3	32.8	6.6	8.1	16.9
Mid-Flood	08/06/2006	14:21	9.7	4.9	26.0	33.5	6.2	8.1	1.0
Mid-Flood	09/06/2006	15:16	9.5	4.8	25.1	32.8	6.2	8.2	4.4
Mid-Flood	13/06/2006	09:36	9.6	4.8	25.7	29.8	6.2	8.1	1.2
	16/06/2006	09:46	10.1	5.1	25.8	31.3	5.0	8.1	1.0
	21/06/2006	14:06	9.6	4.8	28.8	28.1	7.6	8.1	1.7

M_BP		Bottom							
tide condition	Date	time	Water depth (m)	Sampling depth (m)	Temp (°C)	Salinity (ppt)	DO (mg/L)	pH	Turbidity (NTU)
Mid-Ebb	29/05/2006	14:50	10.7	9.7	25.1	32.0	6.6	8.1	6.0
Mid-Ebb	02/06/2006	14:25	10.3	9.3	25.2	32.3	6.2	8.1	5.7
Mid-Ebb	08/06/2006	9:45	9.9	8.9	24.9	32.8	5.6	7.9	3.1
Mid-Ebb	09/06/2006	10:50	9.8	8.8	25.0	33.0	6.1	8.0	7.9
Mid-Ebb	13/06/2006	14:15	9.5	8.5	25.8	28.2	6.4	7.9	2.6
	16/06/2006	14:35	10.2	9.2	25.7	30.1	4.3	7.9	2.5
	21/06/2006	9:45	9.5	8.5	27.2	30.8	7.6	7.9	2.5

M_BP		Bottom							
tide condition	Date	time	Water depth (m)	Sampling depth (m)	Temp (°C)	Salinity (ppt)	DO (mg/L)	pH	Turbidity (NTU)
Mid-Flood	29/05/2006	10:15	10.8	9.8	24.7	33.0	6.8	8.2	5.7
Mid-Flood	02/06/2006	12:35	10.5	9.5	25.3	34.1	6.0	8.1	7.1
Mid-Flood	08/06/2006	14:20	9.7	8.7	25.2	33.8	6.2	8.0	3.3
Mid-Flood	09/06/2006	15:15	9.5	8.5	25.1	33.4	6.2	8.1	3.0
Mid-Flood	13/06/2006	9:35	9.6	8.6	25.7	31.0	6.3	8.0	3.2
	16/06/2006	9:45	10.1	9.1	25.4	32.7	4.6	8.0	3.1
	21/06/2006	14:05	9.6	8.6	27.1	31.3	7.5	7.8	2.3

M_BP	Mid-Ebb			Mid-Flood			Depth-averaged
	Surface	Middle	Bottom	Surface	Middle	Bottom	SS (mg/L)
29/05/2006	2.0	4.0	7.0	2.0	3.0	9.0	4.5
02/06/2006	41.0	10.0	8.0	136.0	20.0	6.0	36.8
08/06/2006	2.0	2.0	5.0	2.0	6.0	10.0	4.5
09/06/2006	4.0	5.0	10.0	37.0	4.0	4.0	10.7
13/06/2006	2.0	2.0	3.0	2.0	2.0	2.0	2.2
16/06/2006	7.0	3.0	3.0	3.0	4.0	3.0	3.8
21/06/2006	2.0	2.0	3.0	2.0	3.0	4.0	2.7





M_Coral		Surface							
tide condition	Date	time	Water depth (m)	Sampling depth (m)	Temp (°C)	Salinity (ppt)	DO (mg/L)	pH	Turbidity (NTU)
Mid-Ebb	29/05/2006	15:02	11.9	1.0	26.3	31.3	7.2	8.1	1.0
Mid-Ebb	02/06/2006	14:37	12.3	1.0	24.8	23.2	6.7	8.2	9.5
Mid-Ebb	08/06/2006	10:57	11.5	1.0	26.5	30.7	6.8	8.1	1.0
Mid-Ebb	09/06/2006	11:02	10.0	1.0	26.6	25.6	6.8	8.2	3.2
Mid-Ebb	13/06/2006	15:27	10.3	1.0	26.4	27.1	7.0	8.1	1.0
	16/06/2006	14:47	11.5	1.0	27.6	28.2	7.9	8.2	1.0
	21/06/2006	10:57	10.5	1.0	29.0	24.2	7.8	8.4	1.0

M_Coral		Surface							
tide condition	Date	time	Water depth (m)	Sampling depth (m)	Temp (°C)	Salinity (ppt)	DO (mg/L)	pH	Turbidity (NTU)
Mid-Flood	29/05/2006	11:47	12.5	1.0	25.6	31.8	7.3	8.2	1.0
Mid-Flood	02/06/2006	12:47	11.9	1.0	25.0	25.1	6.5	8.1	8.7
Mid-Flood	08/06/2006	14:32	10.9	1.0	25.3	31.2	6.5	8.1	1.0
Mid-Flood	09/06/2006	15:27	9.7	1.0	25.5	20.7	6.3	8.1	12.9
Mid-Flood	13/06/2006	09:47	10.9	1.0	25.9	29.3	7.2	8.1	1.0
	16/06/2006	11:17	11.3	1.0	27.2	29.1	7.5	8.3	1.0
	21/06/2006	14:17	10.3	1.0	29.5	22.6	8.0	8.4	1.0

Remarks:

Action level	<i>Bold & Italic</i>
Limit level	Bold
< detection limit	Grey

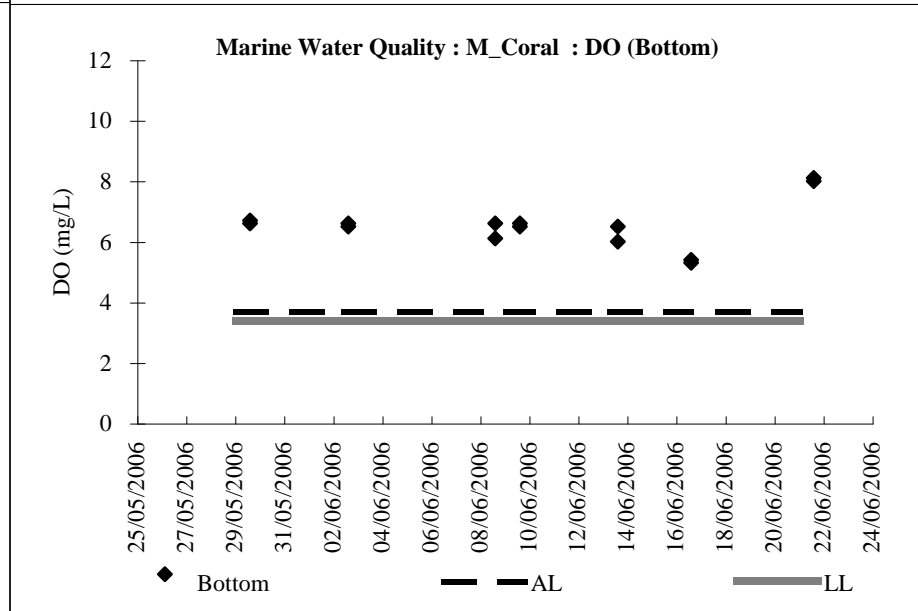
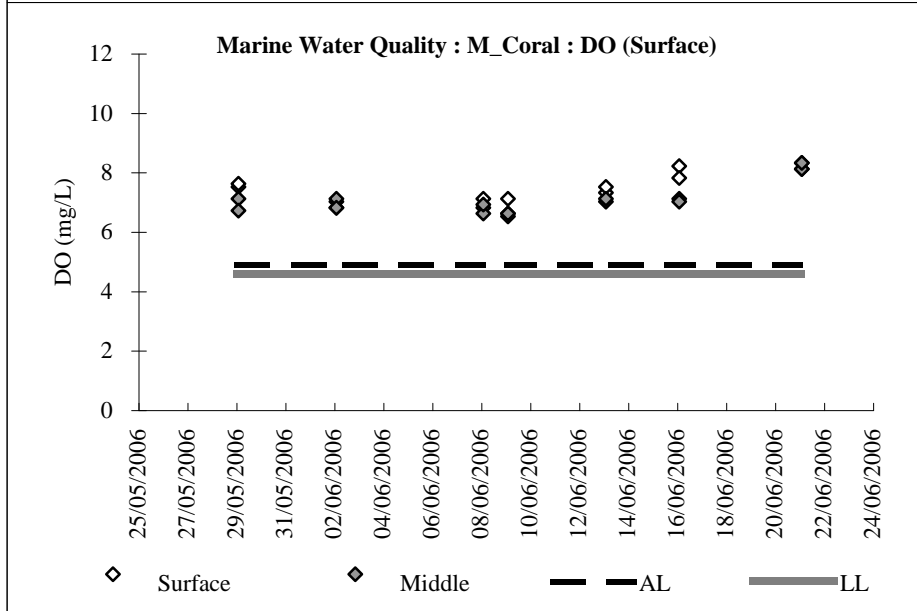
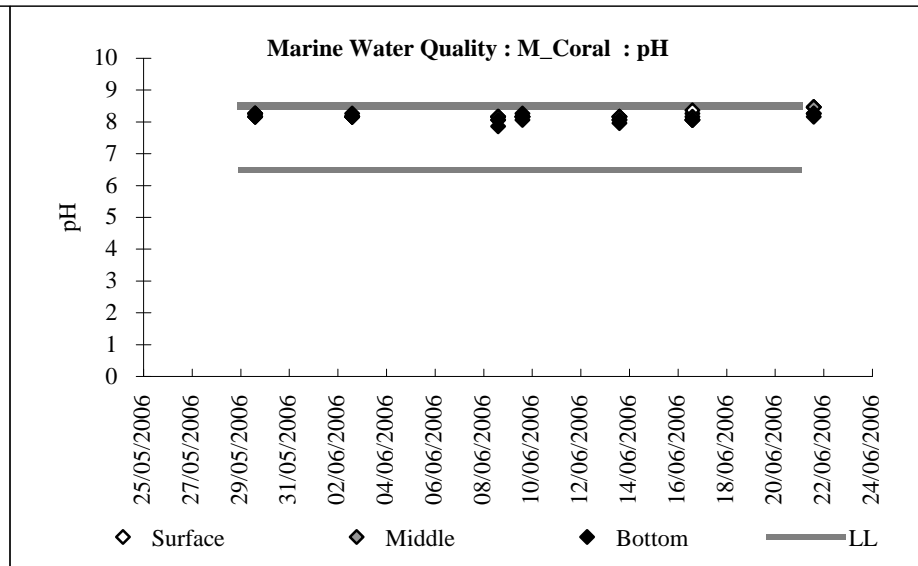
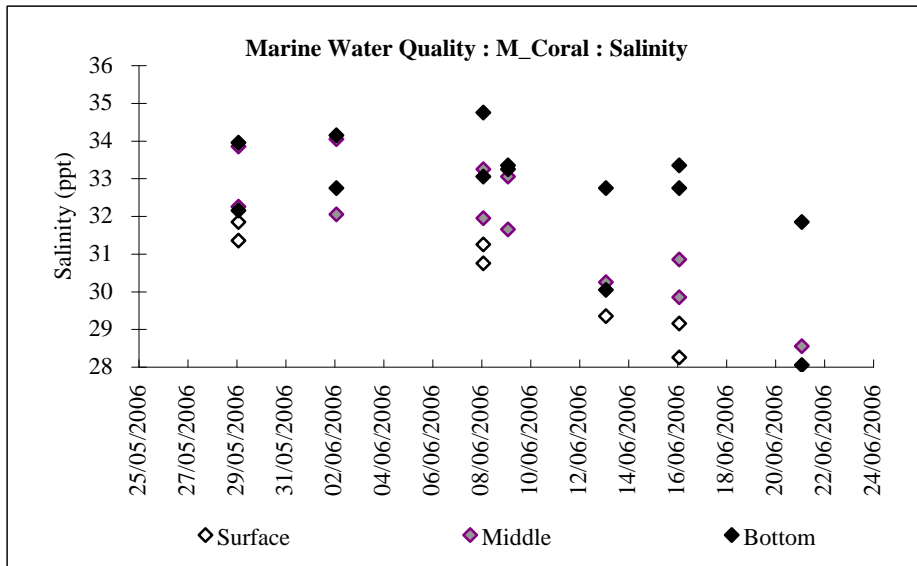
M_Coral	Middle								
tide condition	Date	time	Water depth (m)	Sampling depth (m)	Temp (°C)	Salinity (ppt)	DO (mg/L)	pH	Turbidity (NTU)
Mid-Ebb	29/05/2006	15:01	11.9	6.0	25.3	32.2	6.8	8.1	2.8
Mid-Ebb	02/06/2006	14:36	12.3	6.2	25.3	32.0	6.8	8.1	3.3
Mid-Ebb	08/06/2006	10:56	11.5	5.8	26.0	31.9	6.3	8.0	1.0
Mid-Ebb	09/06/2006	11:01	10.0	5.0	25.0	33.0	6.2	8.1	2.2
Mid-Ebb	13/06/2006	15:26	10.3	5.2	25.9	26.6	6.7	8.0	1.0
	16/06/2006	14:46	11.5	5.8	26.8	29.8	6.8	8.0	1.0
	21/06/2006	10:56	10.5	5.3	28.8	28.5	7.8	8.4	1.0

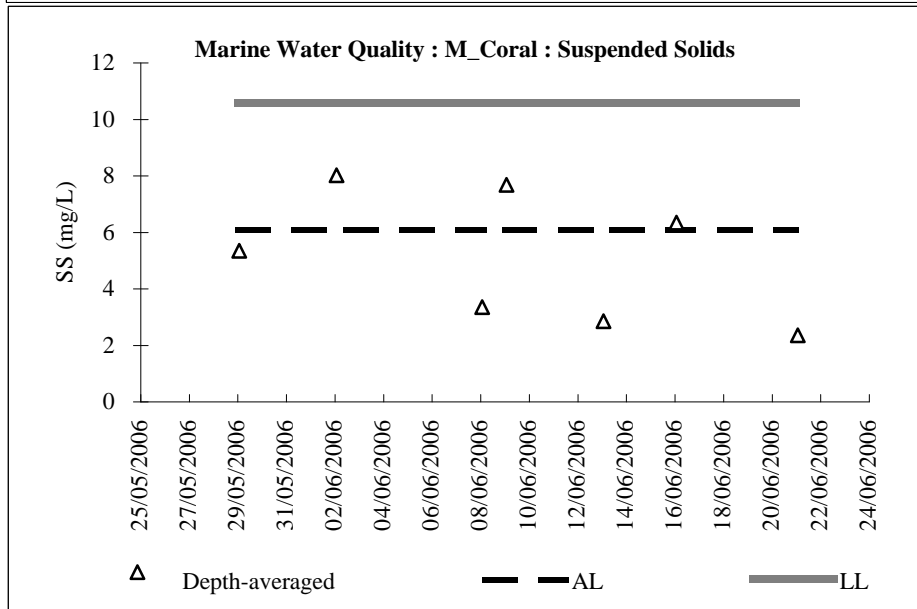
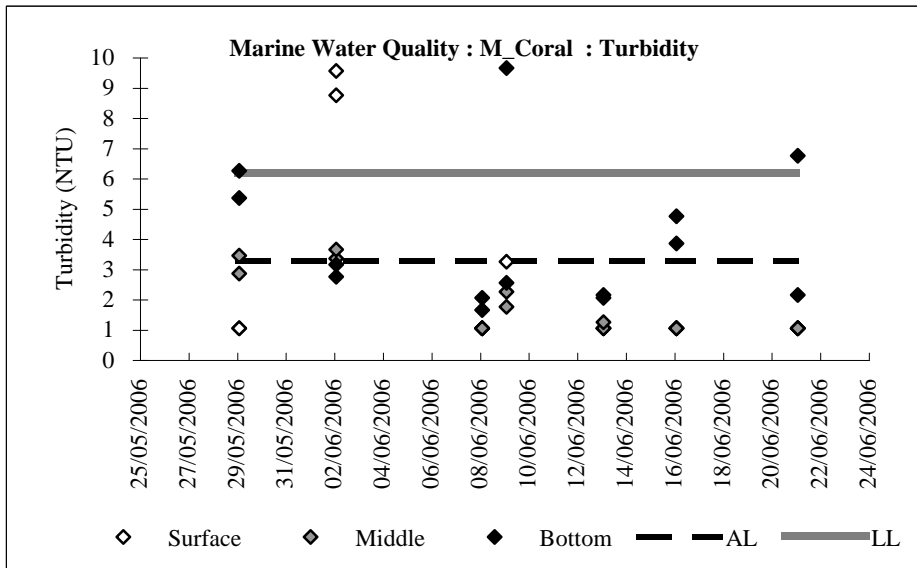
M_Coral	Middle								
tide condition	Date	time	Water depth (m)	Sampling depth (m)	Temp (°C)	Salinity (ppt)	DO (mg/L)	pH	Turbidity (NTU)
Mid-Flood	29/05/2006	11:46	12.5	6.3	24.8	33.8	6.4	8.2	3.4
Mid-Flood	02/06/2006	12:46	11.9	6.0	25.0	34.0	6.5	8.1	3.6
Mid-Flood	08/06/2006	14:31	10.9	5.5	25.8	33.2	6.6	8.1	1.0
Mid-Flood	09/06/2006	15:26	9.7	4.9	25.2	31.6	6.3	8.1	1.7
Mid-Flood	13/06/2006	09:46	10.9	5.5	25.8	30.2	6.8	8.1	1.2
	16/06/2006	11:16	11.3	5.7	26.5	30.8	6.7	8.1	1.0
	21/06/2006	14:16	10.3	5.2	29.0	27.4	8.0	8.2	1.0

M_Coral	Bottom								
tide condition	Date	time	Water depth (m)	Sampling depth (m)	Temp (°C)	Salinity (ppt)	DO (mg/L)	pH	Turbidity (NTU)
Mid-Ebb	29/05/2006	15:00	11.9	10.9	25.1	32.1	6.3	8.1	5.3
Mid-Ebb	02/06/2006	14:35	12.3	11.3	25.3	32.7	6.3	8.1	3.1
Mid-Ebb	08/06/2006	10:55	11.5	10.5	25.4	33.0	5.8	7.8	1.6
Mid-Ebb	09/06/2006	11:00	10.0	9.0	25.1	33.2	6.3	8.0	9.6
Mid-Ebb	13/06/2006	15:25	10.3	9.3	25.8	30.0	5.7	7.9	2.1
	16/06/2006	14:45	11.5	10.5	26.0	32.7	5.0	8.0	3.8
	21/06/2006	10:55	10.5	9.5	27.0	31.8	7.7	8.1	6.7

M_Coral	Bottom								
tide condition	Date	time	Water depth (m)	Sampling depth (m)	Temp (°C)	Salinity (ppt)	DO (mg/L)	pH	Turbidity (NTU)
Mid-Flood	29/05/2006	11:45	12.5	11.5	24.6	33.9	6.4	8.2	6.2
Mid-Flood	02/06/2006	12:45	11.9	10.9	25.2	34.1	6.2	8.1	2.7
Mid-Flood	08/06/2006	14:30	10.9	9.9	25.2	34.7	6.3	8.0	2.0
Mid-Flood	09/06/2006	15:25	9.7	8.7	25.2	33.3	6.2	8.1	2.5
Mid-Flood	13/06/2006	9:45	10.9	9.9	25.8	32.7	6.2	8.0	2.0
	16/06/2006	11:15	11.3	10.3	25.8	33.3	5.1	8.0	4.7
	21/06/2006	14:15	10.3	9.3	28.9	28.0	7.8	8.2	2.1

M_Coral	Mid-Ebb			Mid-Flood			Depth-averaged
	Surface	Middle	Bottom	Surface	Middle	Bottom	SS (mg/L)
29/05/2006	4.0	6.0	7.0	2.0	5.0	6.0	5.0
02/06/2006	11.0	9.0	7.0	8.0	6.0	5.0	7.7
08/06/2006	3.0	5.0	4.0	2.0	2.0	2.0	3.0
09/06/2006	3.0	6.0	15.0	15.0	2.0	3.0	7.3
13/06/2006	2.0	2.0	3.0	2.0	2.0	4.0	2.5
16/06/2006	8.0	6.0	6.0	6.0	4.0	6.0	6.0
21/06/2006	2.0	2.0	2.0	2.0	2.0	2.0	2.0





M_B		Surface							
tide condition	Date	time	Water depth (m)	Sampling depth (m)	Temp (°C)	Salinity (ppt)	DO (mg/L)	pH	Turbidity (NTU)
Mid-Ebb	29/05/2006	15:12	17.0	1.0	26.1	31.3	7.4	8.2	1.0
Mid-Ebb	02/06/2006	15:22	17.3	1.0	24.9	30.9	7.2	8.2	1.9
Mid-Ebb	08/06/2006	11:42	16.9	1.0	26.3	32.2	6.8	8.1	1.0
Mid-Ebb	09/06/2006	11:17	16.5	1.0	26.5	26.6	6.7	8.1	3.2
Mid-Ebb	13/06/2006	16:12	16.5	1.0	26.3	27.3	7.0	8.1	2.0
	16/06/2006	14:57	17.4	1.0	27.3	28.9	8.4	8.2	1.0
	21/06/2006	11:42	16.7	1.0	29.2	28.7	7.9	8.5	1.0

M_B		Surface							
tide condition	Date	time	Water depth (m)	Sampling depth (m)	Temp (°C)	Salinity (ppt)	DO (mg/L)	pH	Turbidity (NTU)
Mid-Flood	29/05/2006	12:32	17.6	1.0	25.7	32.5	7.3	8.3	1.0
Mid-Flood	02/06/2006	12:57	17.1	1.0	25.0	32.3	7.1	8.1	1.5
Mid-Flood	08/06/2006	14:42	16.5	1.0	25.9	33.3	6.4	8.2	1.0
Mid-Flood	09/06/2006	16:47	16.3	1.0	25.8	27.5	6.4	8.1	1.7
Mid-Flood	13/06/2006	09:57	16.6	1.0	25.9	29.2	7.2	8.1	1.7
	16/06/2006	12:17	17.2	1.0	26.9	29.6	8.2	8.4	1.0
	21/06/2006	14:27	16.5	1.0	29.5	27.8	8.0	8.3	1.0

Remarks:

Action level	<i>Bold & Italic</i>
Limit level	Bold
< detection limit	Grey

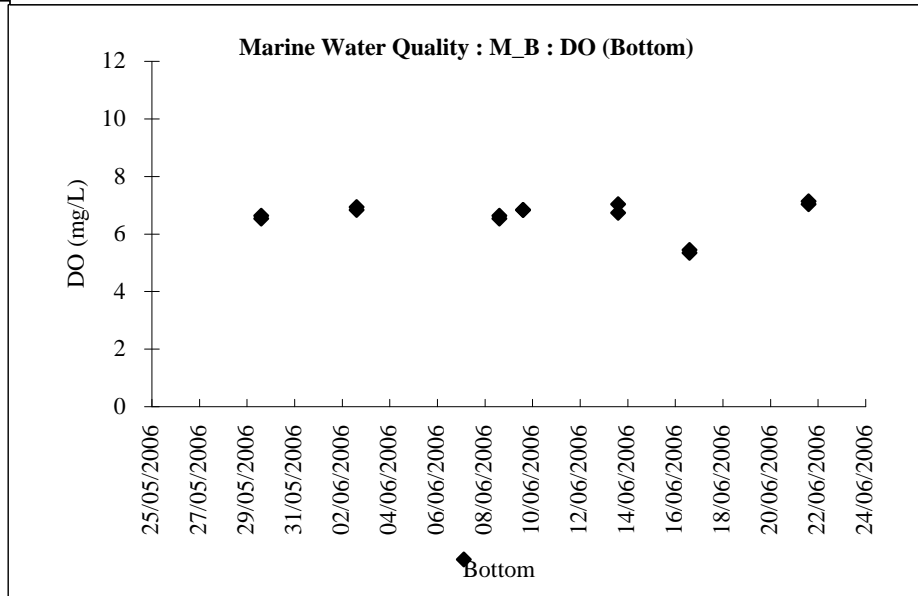
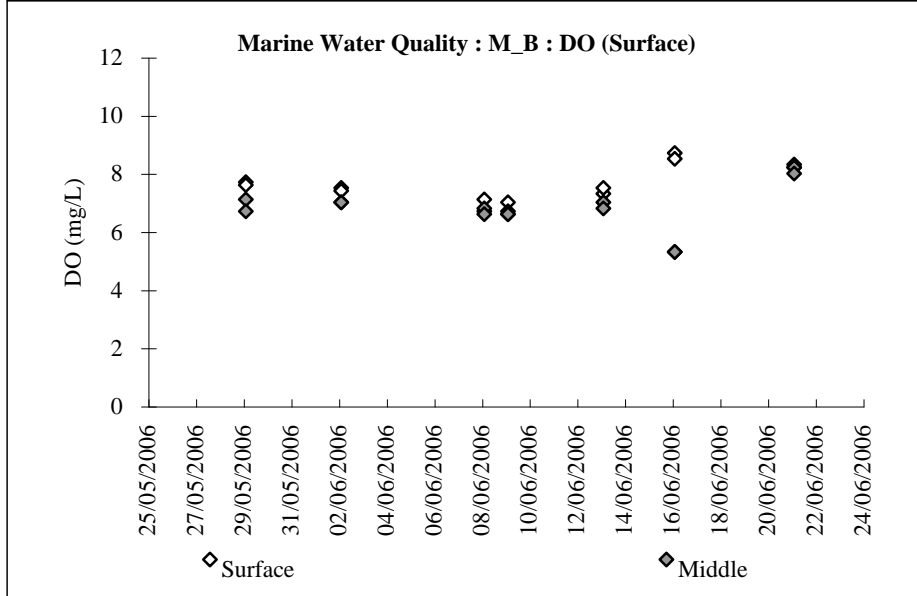
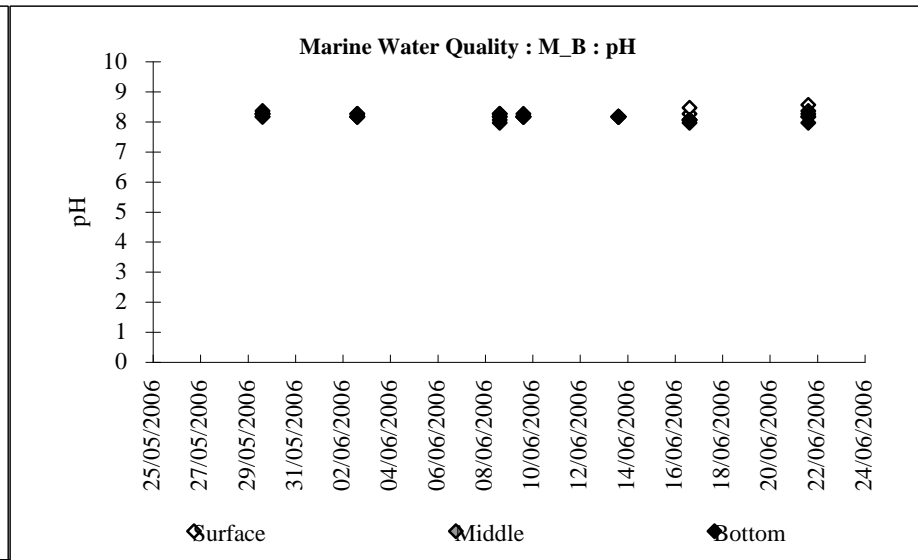
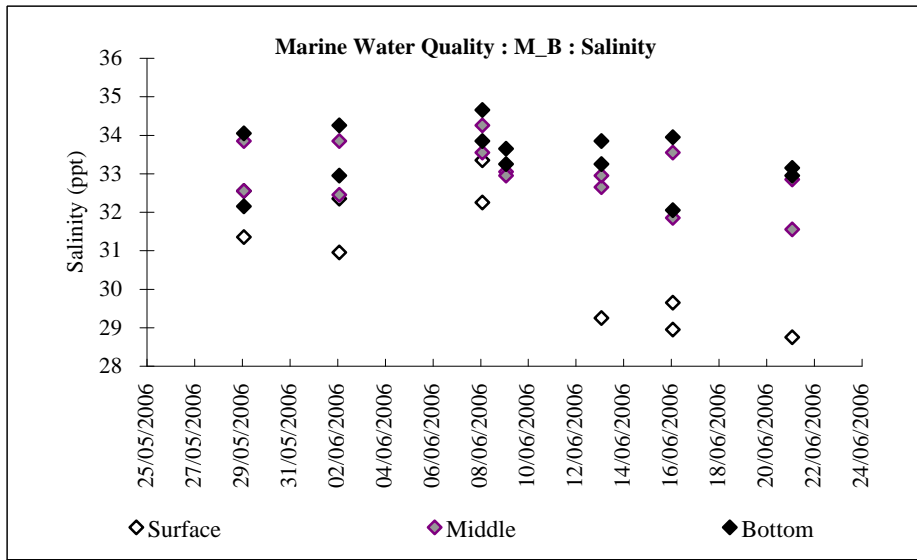
M_B		Middle							
tide condition	Date	time	Water depth (m)	Sampling depth (m)	Temp (°C)	Salinity (ppt)	DO (mg/L)	pH	Turbidity (NTU)
Mid-Ebb	29/05/2006	15:11	17.0	8.5	25.3	32.5	6.8	8.1	1.7
Mid-Ebb	02/06/2006	15:21	17.3	8.7	25.3	32.4	6.7	8.1	2.3
Mid-Ebb	08/06/2006	11:41	16.9	8.5	25.2	33.5	6.5	8.0	±0
Mid-Ebb	09/06/2006	11:16	16.5	8.3	25.3	33.0	6.3	8.1	1.2
Mid-Ebb	13/06/2006	16:11	16.5	8.3	25.2	32.6	6.7	8.1	1.3
	16/06/2006	14:56	17.4	8.7	25.6	31.8	5.0	7.9	±0
	21/06/2006	11:41	16.7	8.4	27.3	31.5	7.9	8.2	±0

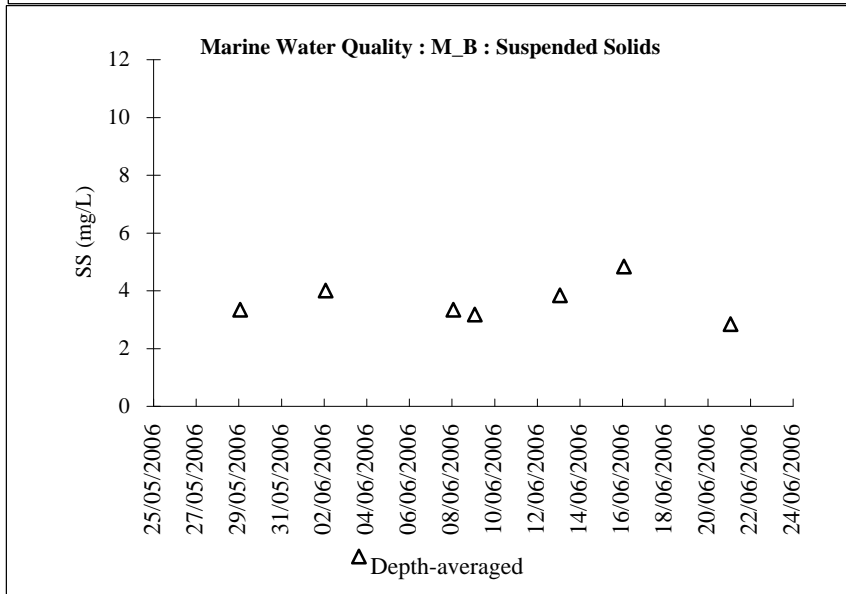
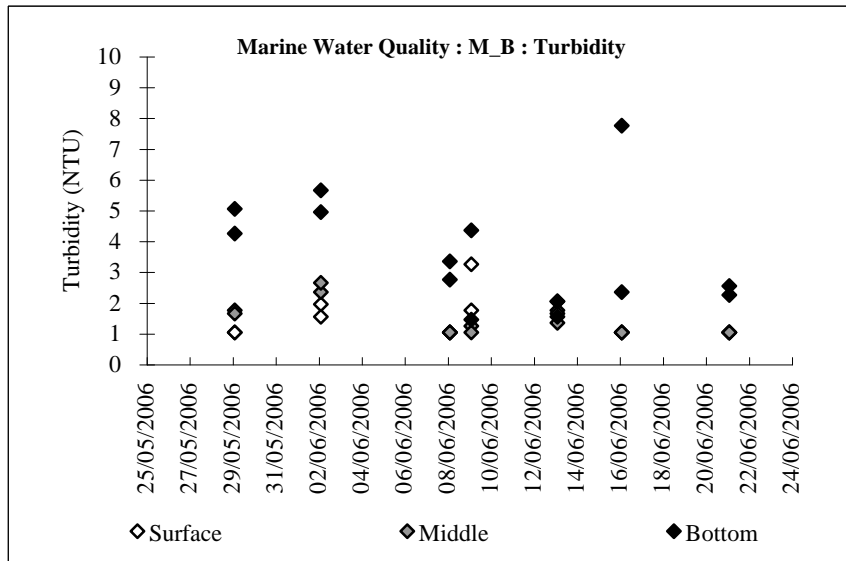
M_B		Middle							
tide condition	Date	time	Water depth (m)	Sampling depth (m)	Temp (°C)	Salinity (ppt)	DO (mg/L)	pH	Turbidity (NTU)
Mid-Flood	29/05/2006	12:31	17.6	8.8	24.8	33.8	6.4	8.2	1.6
Mid-Flood	02/06/2006	12:56	17.1	8.6	25.2	33.8	6.7	8.2	2.6
Mid-Flood	08/06/2006	14:41	16.5	8.3	25.3	34.2	6.3	8.2	±0
Mid-Flood	09/06/2006	16:46	16.3	8.2	25.2	32.9	6.3	8.1	±0
Mid-Flood	13/06/2006	09:56	16.6	8.3	25.2	32.9	6.5	8.1	1.6
	16/06/2006	12:16	17.2	8.6	25.4	33.5	5.0	8.0	±0
	21/06/2006	14:26	16.5	8.3	27.5	32.8	7.7	8.1	±0

M_B		Bottom							
tide condition	Date	time	Water depth (m)	Sampling depth (m)	Temp (°C)	Salinity (ppt)	DO (mg/L)	pH	Turbidity (NTU)
Mid-Ebb	29/05/2006	15:10	17.0	16.0	25.0	32.1	6.3	8.1	4.2
Mid-Ebb	02/06/2006	15:20	17.3	16.3	25.3	32.9	6.5	8.1	5.6
Mid-Ebb	08/06/2006	11:40	16.9	15.9	25.0	33.8	6.2	7.9	3.3
Mid-Ebb	09/06/2006	11:15	16.5	15.5	24.8	33.2	6.5	8.1	1.4
Mid-Ebb	13/06/2006	16:10	16.5	15.5	25.1	33.2	6.4	8.1	1.5
	16/06/2006	14:55	17.4	16.4	24.7	32.0	5.0	8.0	2.3
	21/06/2006	11:40	16.7	15.7	25.7	32.9	6.7	7.9	2.5

M_B		Bottom							
tide condition	Date	time	Water depth (m)	Sampling depth (m)	Temp (°C)	Salinity (ppt)	DO (mg/L)	pH	Turbidity (NTU)
Mid-Flood	29/05/2006	12:30	17.6	16.6	24.7	34.0	6.2	8.2	5.0
Mid-Flood	02/06/2006	12:55	17.1	16.1	25.3	34.2	6.6	8.1	4.9
Mid-Flood	08/06/2006	14:40	16.5	15.5	25.2	34.6	6.3	8.1	2.7
Mid-Flood	09/06/2006	16:45	16.3	15.3	24.9	33.6	6.5	8.2	4.3
Mid-Flood	13/06/2006	9:55	16.6	15.6	25.0	33.8	6.7	8.1	2.0
	16/06/2006	12:15	17.2	16.2	24.6	33.9	5.1	8.0	7.7
	21/06/2006	14:25	16.5	15.5	25.9	33.1	6.8	8.1	2.2

M_B	Mid-Ebb			Mid-Flood			Depth-averaged
	Surface	Middle	Bottom	Surface	Middle	Bottom	SS (mg/L)
29/05/2006	2.0	2.0	5.0	2.0	2.0	5.0	3.0
02/06/2006	3.0	2.0	6.0	2.0	3.0	6.0	3.7
08/06/2006	2.0	6.0	4.0	2.0	2.0	2.0	3.0
09/06/2006	4.0	2.0	2.0	2.0	2.0	5.0	2.8
13/06/2006	3.0	2.0	3.0	2.0	2.0	9.0	3.5
16/06/2006	4.0	2.0	9.0	2.0	2.0	8.0	4.5
21/06/2006	2.0	2.0	3.0	2.0	2.0	4.0	2.5





KS		Surface							
tide condition	Date	time	Water depth (m)	Sampling depth (m)	Temp (°C)	Salinity (ppt)	DO (mg/L)	pH	Turbidity (NTU)
Mid-Ebb	29/05/2006	15:42	13.0	1.0	25.8	31.6	7.2	8.2	1.0
Mid-Ebb	02/06/2006	17:02	12.8	1.0	25.1	28.3	7.0	8.2	1.5
Mid-Ebb	08/06/2006	12:12	13.7	1.0	26.8	30.3	6.7	8.2	1.0
Mid-Ebb	09/06/2006	11:47	12.7	1.0	26.4	28.1	7.0	8.1	2.2
Mid-Ebb	13/06/2006	16:42	12.7	1.0	26.4	27.0	7.5	8.2	2.1
	16/06/2006	15:27	14.0	1.0	27.9	26.8	8.3	8.2	1.0
	21/06/2006	12:12	12.8	1.0	29.3	25.6	7.7	8.4	1.0

KS		Surface							
tide condition	Date	time	Water depth (m)	Sampling depth (m)	Temp (°C)	Salinity (ppt)	DO (mg/L)	pH	Turbidity (NTU)
Mid-Flood	29/05/2006	13:02	14.2	1.0	25.3	32.4	7.0	8.3	1.0
Mid-Flood	02/06/2006	13:27	13.0	1.0	25.3	29.2	6.8	8.1	1.3
Mid-Flood	08/06/2006	15:12	12.8	1.0	26.3	32.0	6.8	8.2	1.0
Mid-Flood	09/06/2006	17:17	12.4	1.0	25.7	32.7	6.8	8.1	1.1
Mid-Flood	13/06/2006	10:27	12.5	1.0	26.0	29.3	7.7	8.1	2.0
	16/06/2006	12:47	13.8	1.0	27.4	28.0	8.2	8.5	1.0
	21/06/2006	14:57	13.5	1.0	29.4	25.1	7.9	8.3	1.0

Remarks:

Action level	<i>Bold & Italic</i>
Limit level	Bold
< detection limit	Grey

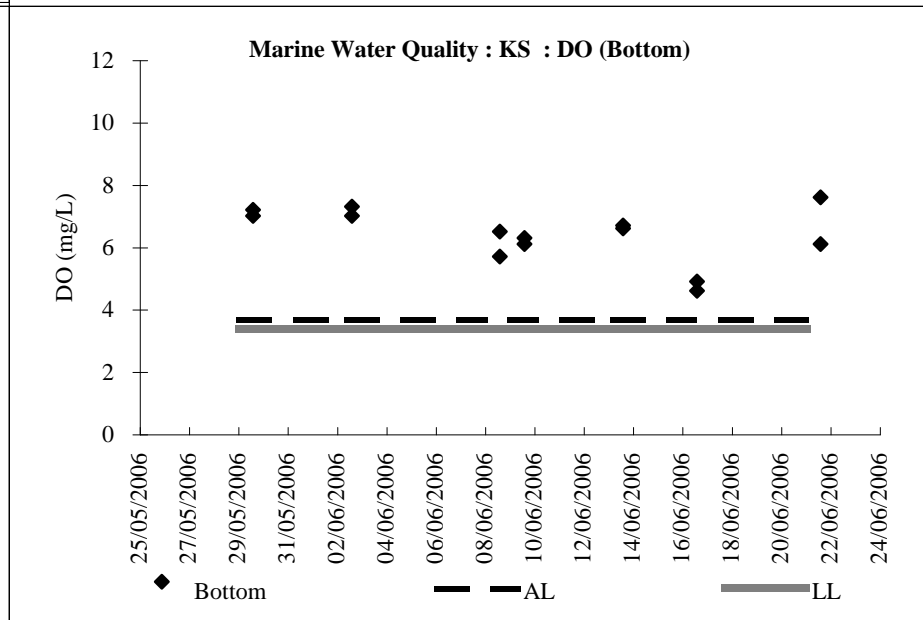
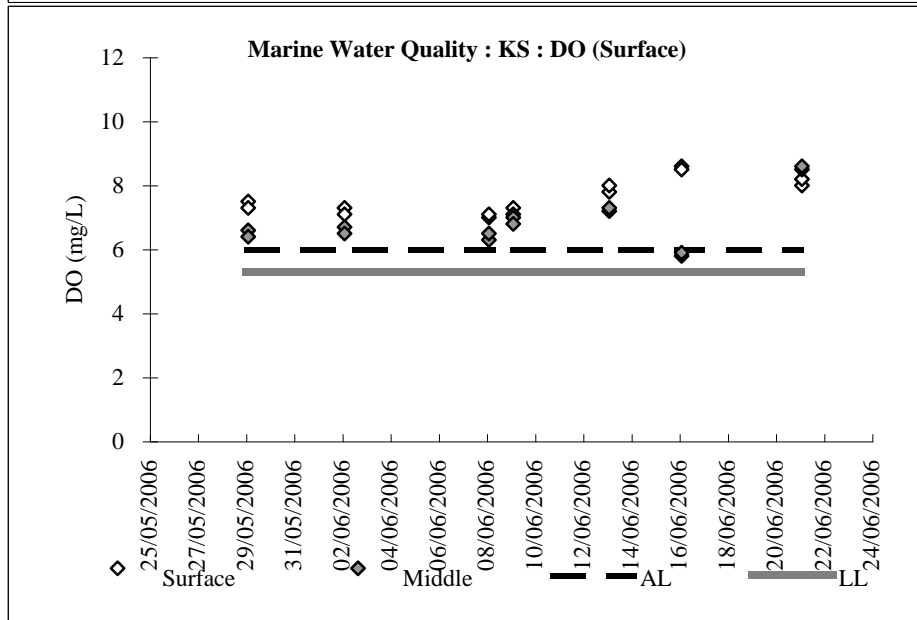
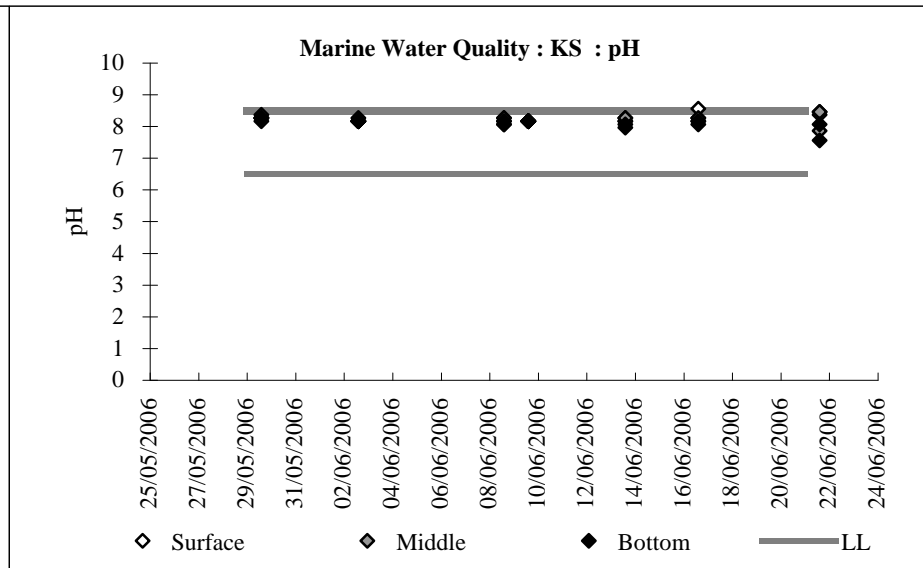
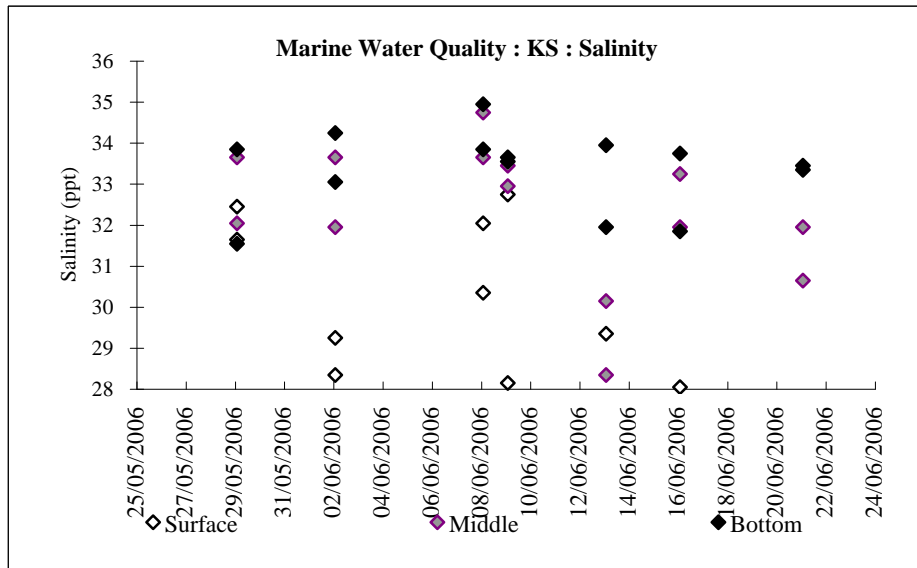
KS		Middle							
tide condition	Date	time	Water depth (m)	Sampling depth (m)	Temp (°C)	Salinity (ppt)	DO (mg/L)	pH	Turbidity (NTU)
Mid-Ebb	29/05/2006	15:41	13.0	6.5	25.3	32.0	6.3	8.1	1.0
Mid-Ebb	02/06/2006	17:01	12.8	6.4	25.3	31.9	6.4	8.1	1.8
Mid-Ebb	08/06/2006	12:11	13.7	6.9	25.0	33.6	6.0	8.0	1.0
Mid-Ebb	09/06/2006	11:46	12.7	6.4	25.2	33.4	6.7	8.1	2.0
Mid-Ebb	13/06/2006	16:41	12.7	6.4	25.9	28.3	6.9	8.1	1.0
	16/06/2006	15:26	14.0	7.0	25.9	31.9	5.5	8.1	1.0
	21/06/2006	12:11	12.8	6.4	27.9	30.6	8.2	8.4	1.0

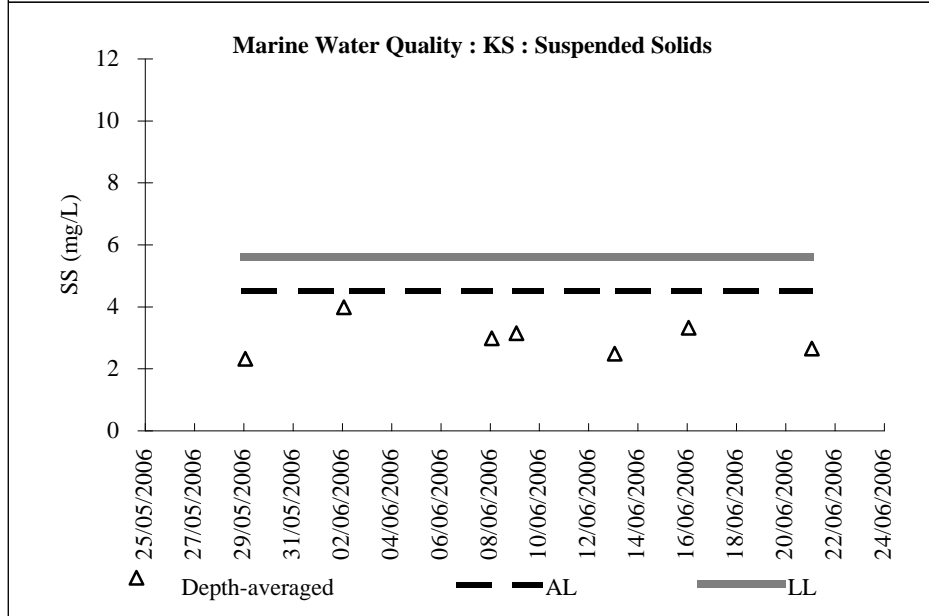
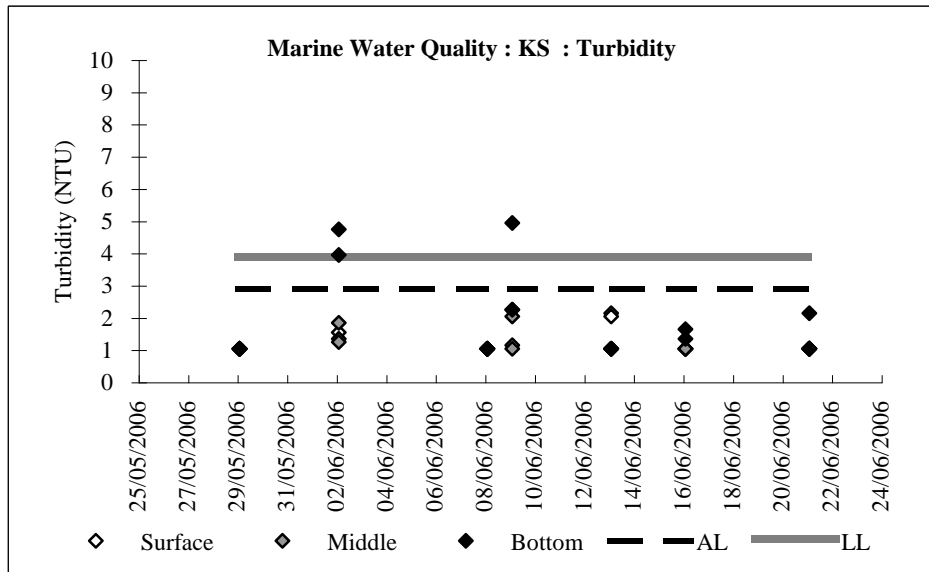
KS		Middle							
tide condition	Date	time	Water depth (m)	Sampling depth (m)	Temp (°C)	Salinity (ppt)	DO (mg/L)	pH	Turbidity (NTU)
Mid-Flood	29/05/2006	13:01	14.2	7.1	24.9	33.6	6.1	8.2	1.0
Mid-Flood	02/06/2006	13:26	13.0	6.5	25.2	33.6	6.2	8.1	1.2
Mid-Flood	08/06/2006	15:11	12.8	6.4	25.2	34.7	6.2	8.1	1.0
Mid-Flood	09/06/2006	17:16	12.4	6.2	25.4	32.9	6.5	8.1	1.0
Mid-Flood	13/06/2006	10:26	12.5	6.3	25.8	30.1	7.0	8.2	1.0
	16/06/2006	12:46	13.8	6.9	25.7	33.2	5.6	8.2	1.0
	21/06/2006	14:56	13.5	6.8	27.0	31.9	8.3	7.8	1.0

KS		Bottom							
tide condition	Date	time	Water depth (m)	Sampling depth (m)	Temp (°C)	Salinity (ppt)	DO (mg/L)	pH	Turbidity (NTU)
Mid-Ebb	29/05/2006	15:40	13.0	12.0	25.0	31.5	6.3	8.2	1.0
Mid-Ebb	02/06/2006	17:00	12.8	11.8	25.4	33.0	6.2	8.1	4.7
Mid-Ebb	08/06/2006	12:10	13.7	12.7	25.1	33.8	6.0	8.0	1.0
Mid-Ebb	09/06/2006	11:45	12.7	11.7	25.3	33.5	6.5	8.1	2.2
Mid-Ebb	13/06/2006	16:40	12.7	11.7	25.5	31.9	5.5	7.9	1.0
	16/06/2006	15:25	14.0	13.0	25.3	31.8	5.0	8.0	1.3
	21/06/2006	12:10	12.8	11.8	25.4	33.4	6.7	8.0	1.0

KS		Bottom							
tide condition	Date	time	Water depth (m)	Sampling depth (m)	Temp (°C)	Salinity (ppt)	DO (mg/L)	pH	Turbidity (NTU)
Mid-Flood	29/05/2006	13:00	14.2	13.2	24.8	33.8	6.0	8.2	1.0
Mid-Flood	02/06/2006	13:25	13.0	12.0	25.2	34.2	6.2	8.1	3.9
Mid-Flood	08/06/2006	15:10	12.8	11.8	25.0	34.9	6.1	8.1	1.0
Mid-Flood	09/06/2006	17:15	12.4	11.4	25.2	33.6	6.5	8.1	4.9
Mid-Flood	13/06/2006	10:25	12.5	11.5	25.3	33.9	6.0	8.0	1.0
	16/06/2006	12:45	13.8	12.8	25.2	33.7	4.9	8.1	1.6
	21/06/2006	14:55	13.5	12.5	25.4	33.3	7.0	7.5	2.1

KS	Mid-Ebb			Mid-Flood			Depth-averaged
	Surface	Middle	Bottom	Surface	Middle	Bottom	SS (mg/L)
29/05/2006	2.0	2.0	2.0	2.0	2.0	2.0	2.0
02/06/2006	2.0	2.0	6.0	2.0	3.0	7.0	3.7
08/06/2006	3.0	2.0	2.0	2.0	3.0	4.0	2.7
09/06/2006	3.0	2.0	2.0	3.0	2.0	5.0	2.8
13/06/2006	3.0	2.0	2.0	2.0	2.0	2.0	2.2
16/06/2006	4.0	2.0	2.0	6.0	2.0	2.0	3.0
21/06/2006	2.0	2.0	2.0	2.0	2.0	4.0	2.3



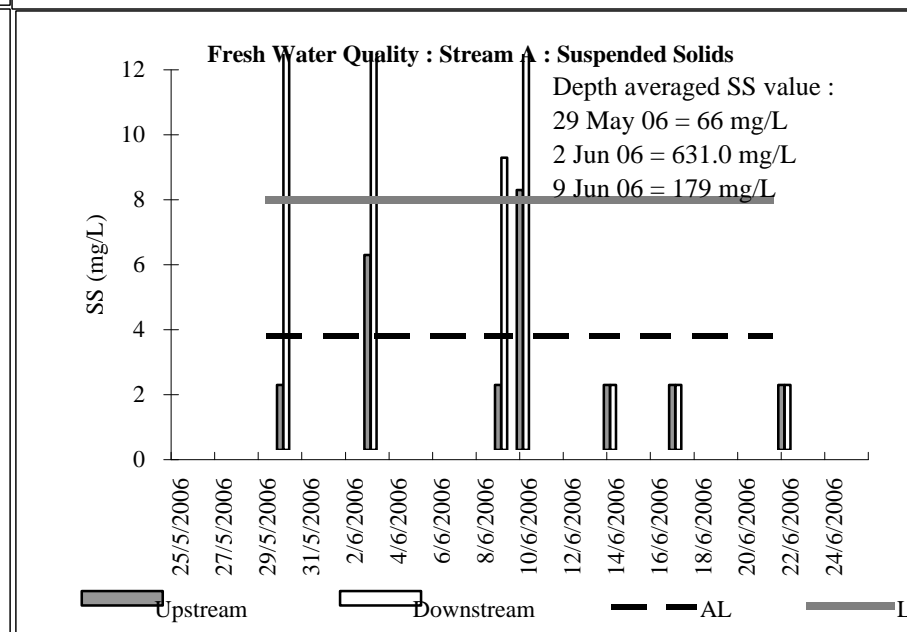
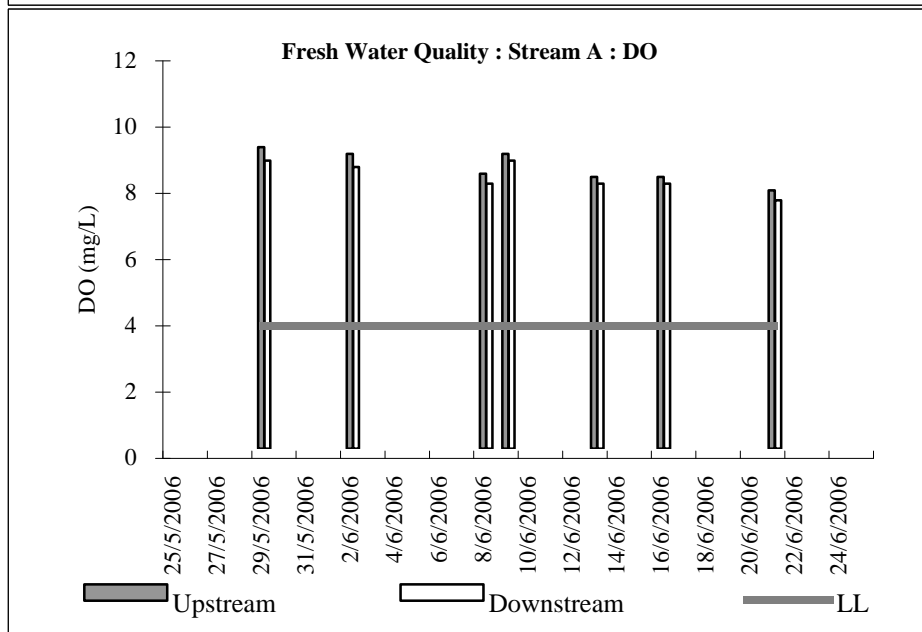
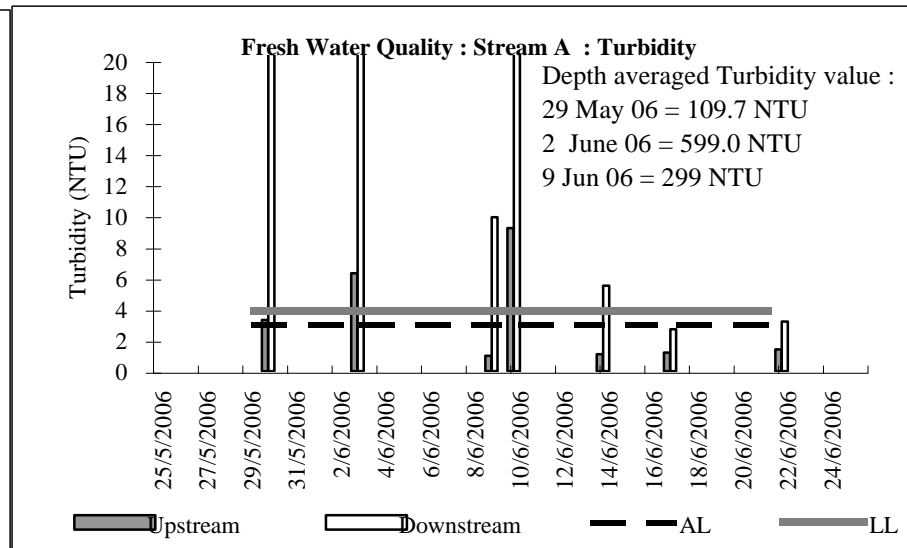
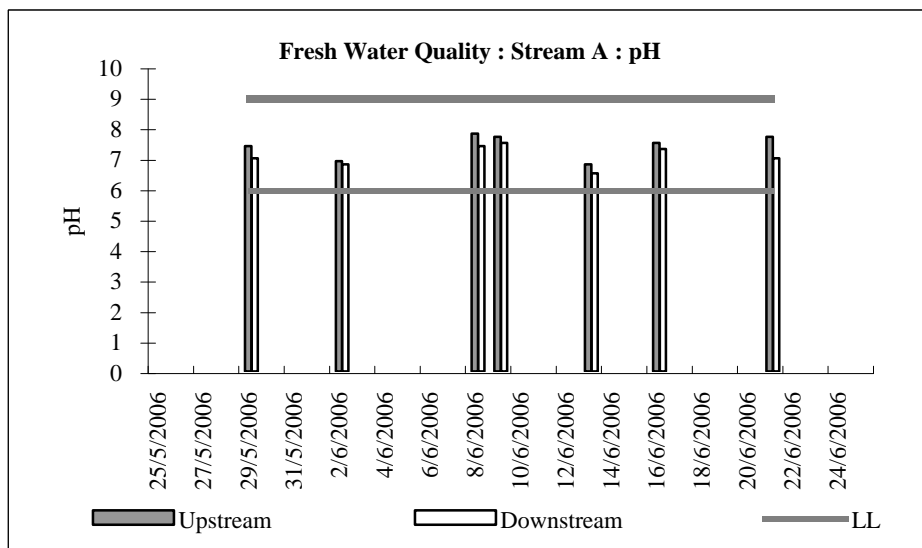


F_UA	Mid depth						
Date	time	Temp (°C)	Salinity (ppt)	DO (mg/L)	pH	Turbidity (NTU)	SS (mg/L)
29/05/2006	11:10	23.1	<0.1	9.1	7.4	3.3	2.0
02/06/2006	15:55	23.0	<0.1	8.9	6.9	6.3	6.0
08/06/2006	10:35	25.8	<0.1	8.3	7.8	1.0	2.0
09/06/2006	14:40	23.6	<0.1	8.9	7.7	9.2	8.0
13/06/2006	15:05	25.6	<0.1	8.2	6.8	1.1	2.0
16/06/2006	10:35	26.6	<0.1	8.2	7.5	1.2	2.0
21/06/2006	10:35	27.5	<0.1	7.8	7.7	1.4	2.0

F_DA	Mid depth						
Date	time	Temp (°C)	Salinity (ppt)	DO (mg/L)	pH	Turbidity (NTU)	SS (mg/L)
29/05/2006	11:15	23.0	<0.1	8.7	7.0	109.7	66.0
02/06/2006	16:00	22.9	<0.1	8.5	6.8	599.0	631.0
08/06/2006	10:40	25.7	<0.1	8.0	7.4	9.9	9.0
09/06/2006	14:45	24.0	<0.1	8.7	7.5	299.0	179.0
13/06/2006	15:10	25.6	<0.1	8.0	6.5	5.5	2.0
16/06/2006	10:40	26.3	<0.1	8.0	7.3	2.7	2.0
21/06/2006	10:40	27.5	<0.1	7.5	7.0	3.2	2.0

Remarks:

Action level	<i>Bold & Italic</i>
Limit level	Bold
< detection limit	Grey

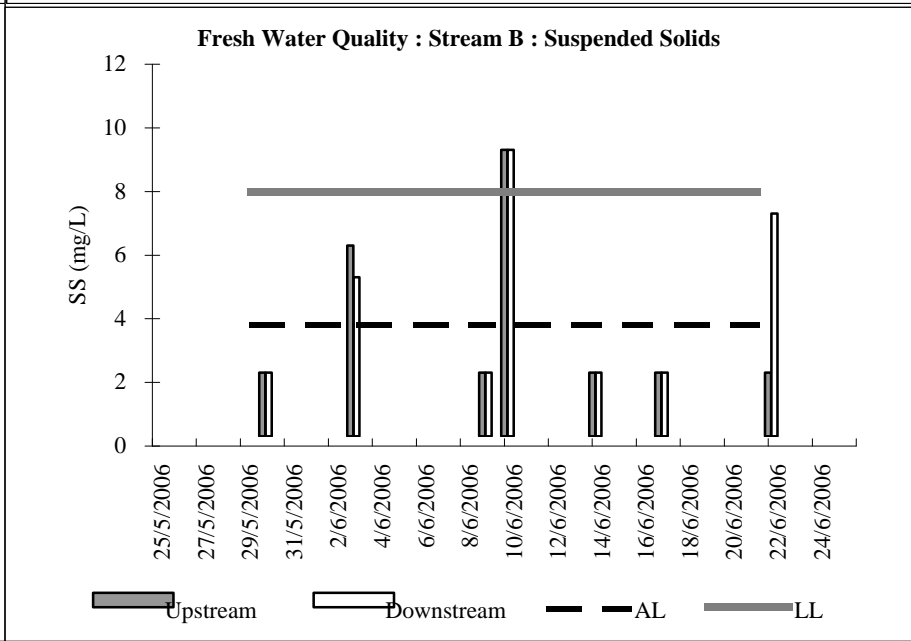
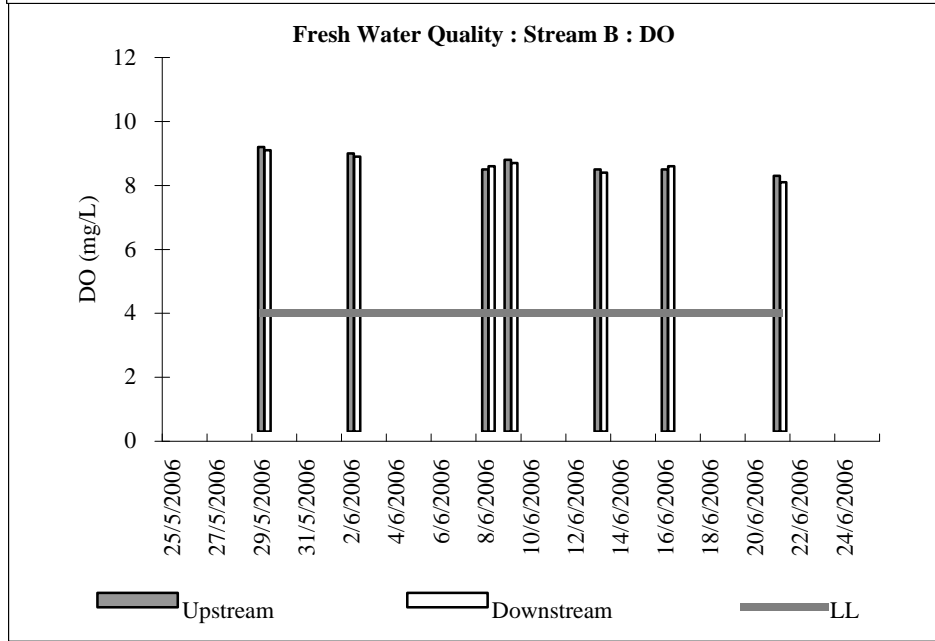
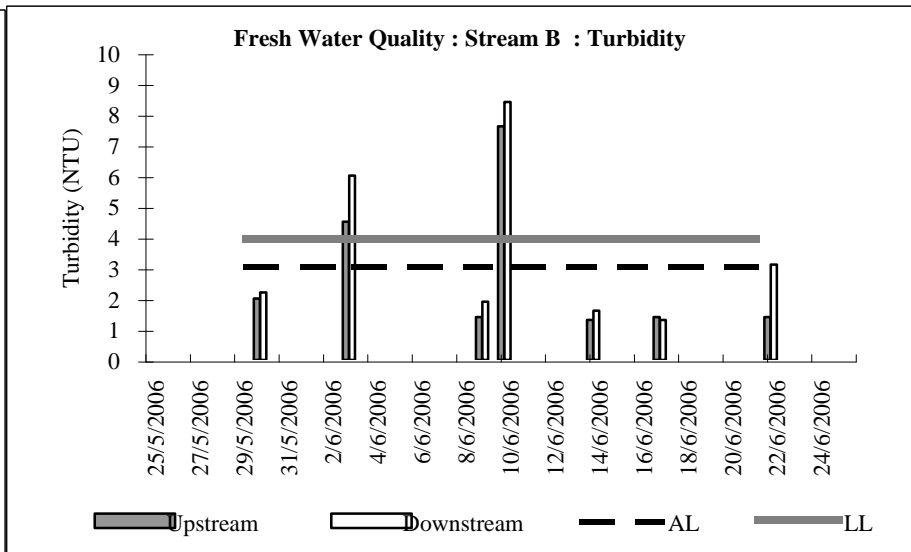
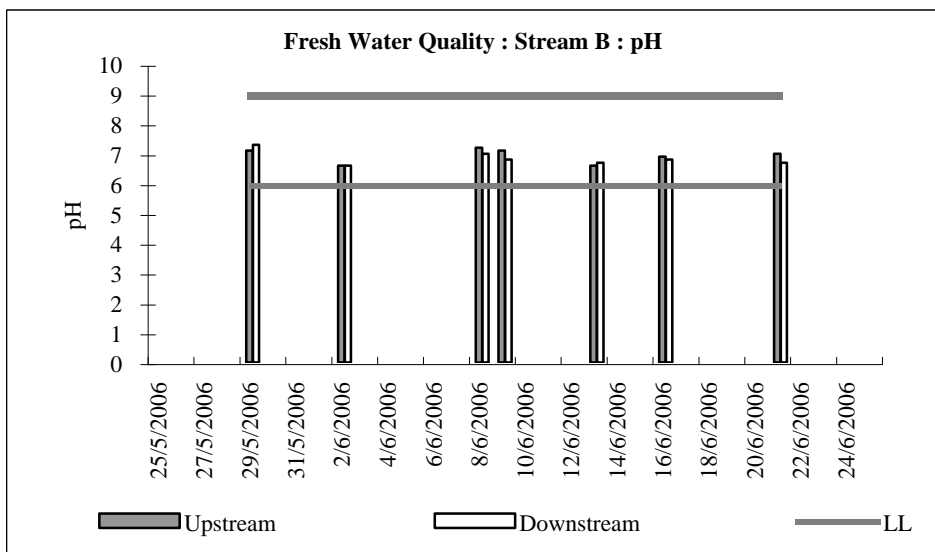


F_UB	Mid depth						
Date	time	Temp (°C)	Salinity (ppt)	DO (mg/L)	pH	Turbidity (NTU)	SS (mg/L)
29/05/2006	10:45	23.2	<0.1	8.9	7.1	2.0	2.0
02/06/2006	15:30	23.0	<0.1	8.7	6.6	4.5	6.0
08/06/2006	10:10	25.4	<0.1	8.2	7.2	1.4	2.0
09/06/2006	14:15	23.9	<0.1	8.5	7.1	7.6	9.0
13/06/2006	14:40	25.3	<0.1	8.2	6.6	1.3	2.0
16/06/2006	10:10	26.0	<0.1	8.2	6.9	1.4	2.0
21/06/2006	10:10	27.0	<0.1	8.0	7.0	1.4	2.0

F_DB	Mid depth						
Date	time	Temp (°C)	Salinity (ppt)	DO (mg/L)	pH	Turbidity (NTU)	SS (mg/L)
29/05/2006	10:55	23.1	<0.1	8.8	7.3	2.2	2.0
02/06/2006	15:40	23.3	<0.1	8.6	6.6	6.0	5.0
08/06/2006	10:20	25.2	<0.1	8.3	7.0	1.9	2.0
09/06/2006	14:25	23.7	<0.1	8.4	6.8	8.4	9.0
13/06/2006	14:50	25.5	<0.1	8.1	6.7	1.6	2.0
16/06/2006	10:20	25.8	<0.1	8.3	6.8	1.3	2.0
21/06/2006	10:20	27.2	<0.1	7.8	6.7	3.1	7.0

Remarks:

Action level	<i>Bold & Italic</i>
Limit level	Bold
< detection limit	Grey

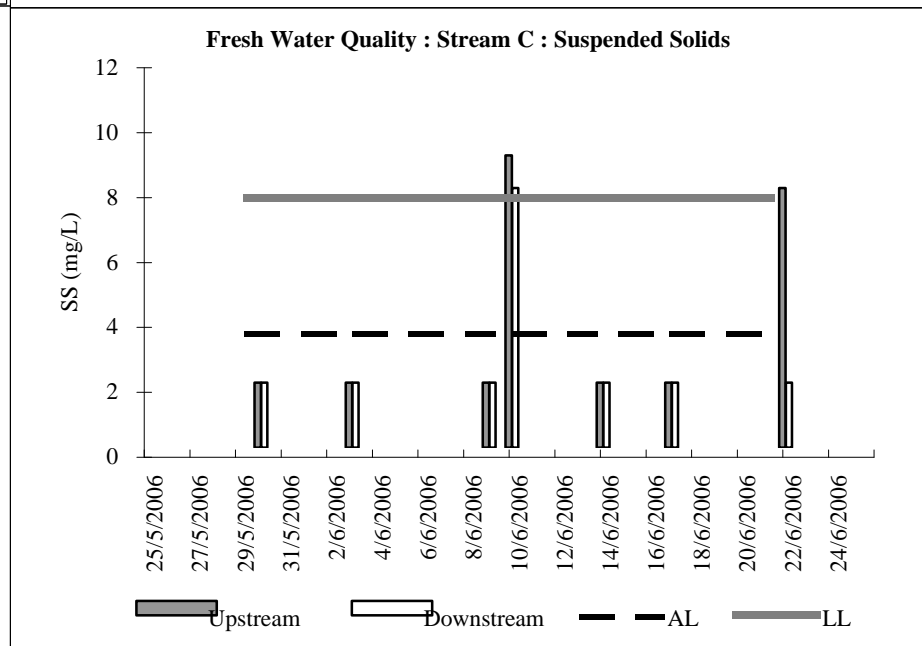
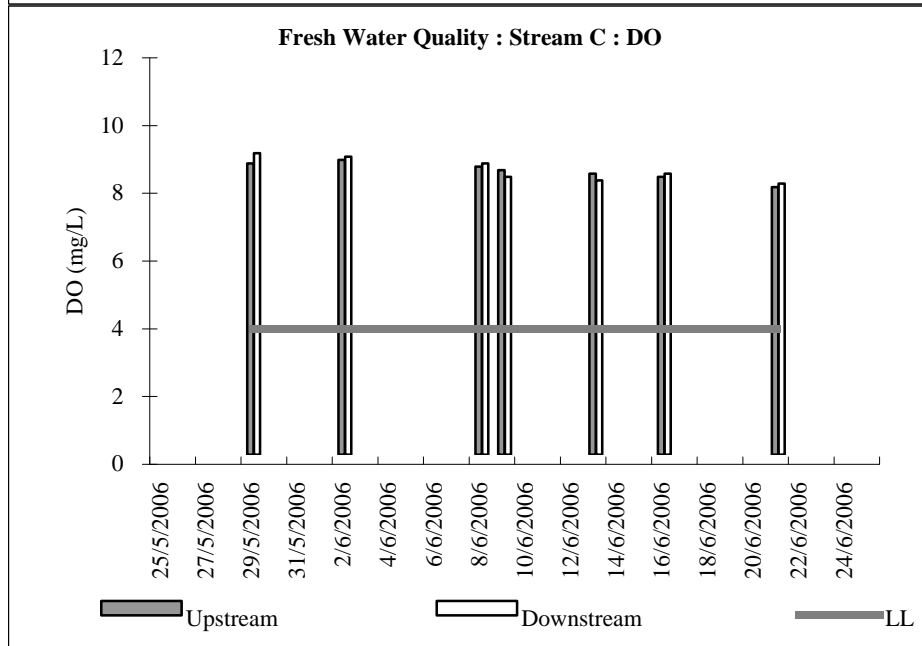
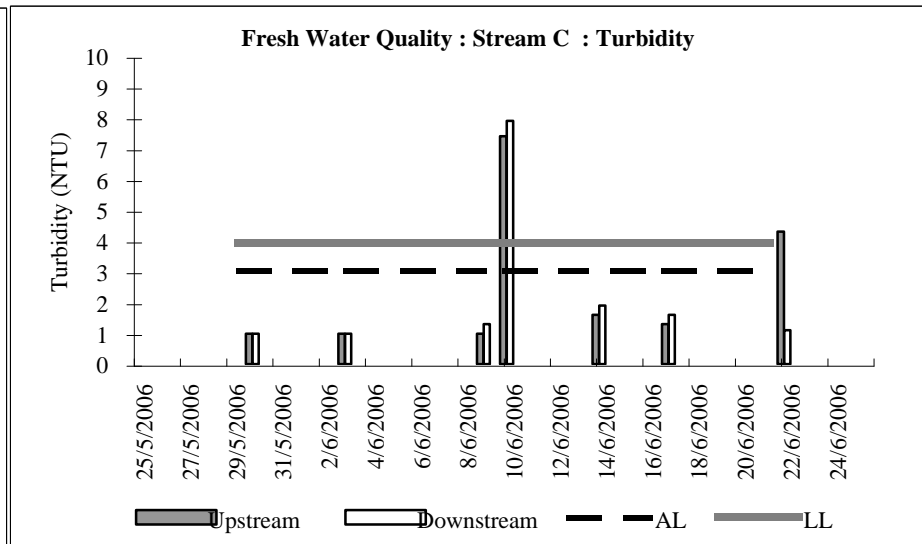
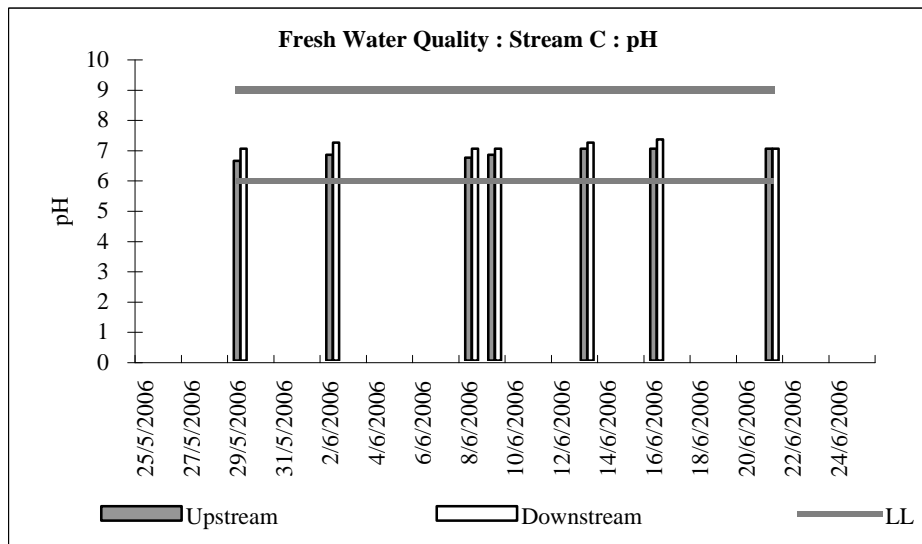


F_UC	Mid depth						
Date	time	Temp (°C)	Salinity (ppt)	DO (mg/L)	pH	Turbidity (NTU)	SS (mg/L)
29/05/2006	12:05	23.2	<0.1	8.6	6.6	±0	2.0
02/06/2006	14:55	22.8	<0.1	8.7	6.8	±0	2.0
08/06/2006	11:15	24.2	<0.1	8.5	6.7	±0	2.0
09/06/2006	16:15	24.0	<0.1	8.4	6.8	7.4	9.0
13/06/2006	15:45	24.7	<0.1	8.3	7.0	1.6	2.0
16/06/2006	11:40	25.2	<0.1	8.2	7.0	1.3	2.0
21/06/2006	11:15	27.1	<0.1	7.9	7.0	4.3	8.0

F_DC	Mid depth						
Date	time	Temp (°C)	Salinity (ppt)	DO (mg/L)	pH	Turbidity (NTU)	SS (mg/L)
29/05/2006	12:15	23.0	<0.1	8.9	7.0	±0	2.0
02/06/2006	15:05	23.0	<0.1	8.8	7.2	±0	2.0
08/06/2006	11:25	23.8	<0.1	8.6	7.0	1.3	2.0
09/06/2006	16:25	23.6	<0.1	8.2	7.0	7.9	8.0
13/06/2006	15:55	25.0	<0.1	8.1	7.2	1.9	2.0
16/06/2006	11:50	25.3	<0.1	8.3	7.3	1.6	2.0
21/06/2006	11:25	27.1	<0.1	8.0	7.0	1.1	2.0

Remarks:

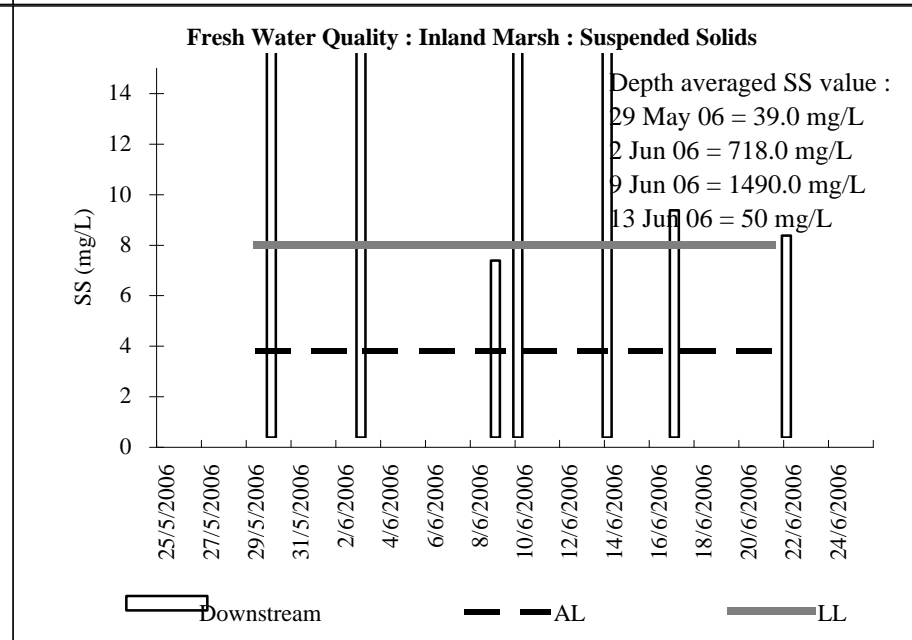
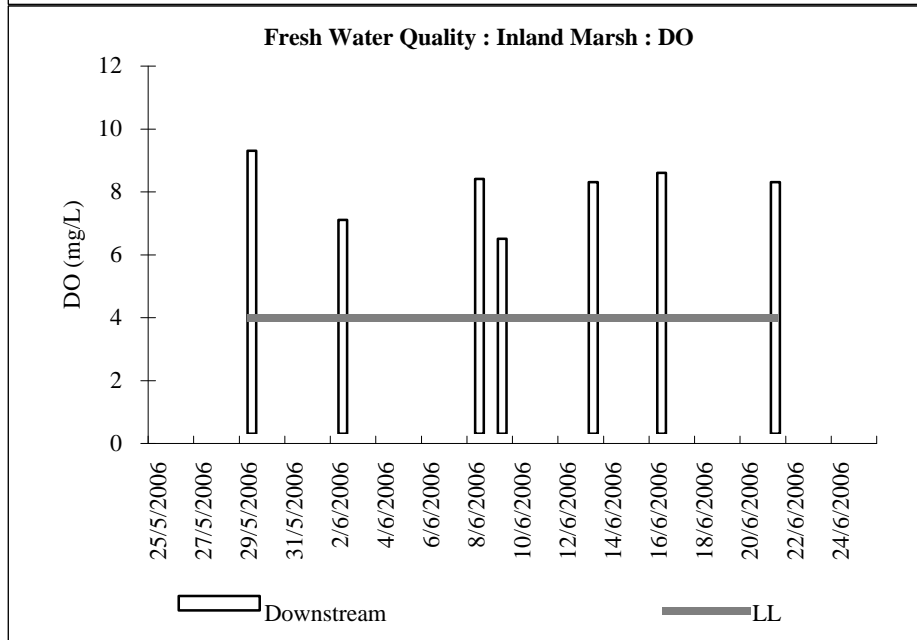
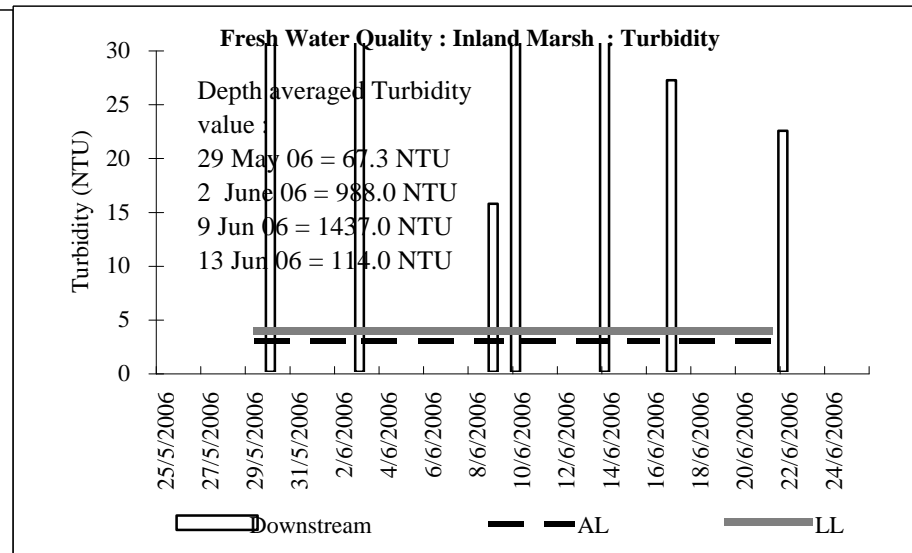
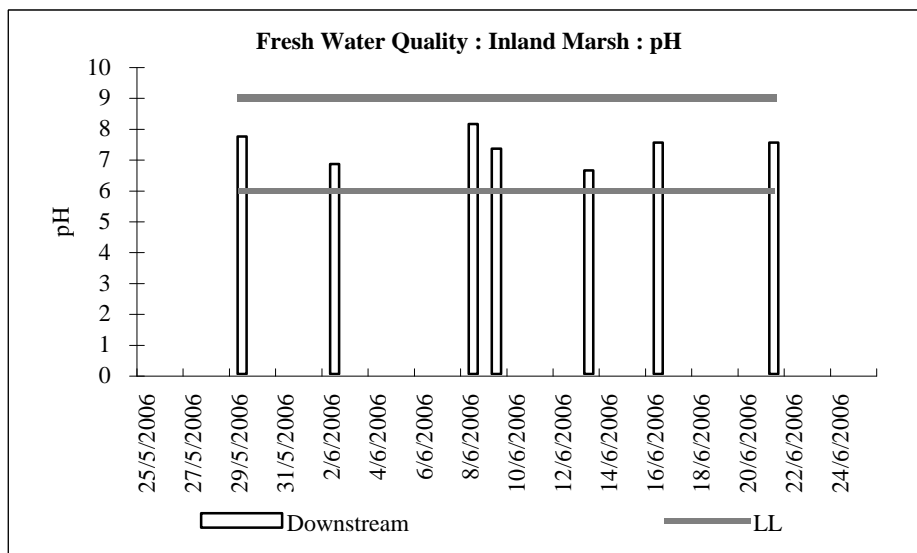
Action level	<i>Bold & Italic</i>
Limit level	Bold
< detection limit	Grey



F_Inland M	Mid depth						
Date	time	Temp (°C)	Salinity (ppt)	DO (mg/L)	pH	Turbidity (NTU)	SS (mg/L)
29/05/2006	09:55	23.2	<0.1	9.0	7.7	67.3	39.0
02/06/2006	15:00	23.3	<0.1	6.8	6.8	988.0	718.0
08/06/2006	09:25	25.8	0.1	8.1	8.1	15.6	7.0
09/06/2006	14:55	24.3	<0.1	6.2	7.3	1437.0	1490.0
13/06/2006	13:55	26.7	<0.1	8.0	6.6	114.0	50.0
16/06/2006	09:25	26.3	<0.1	8.3	7.5	27.1	9.0
21/06/2006	09:25	26.7	<0.1	8.0	7.5	22.4	8.0

Remarks:

Action level	<i>Bold & Italic</i>
Limit level	Bold
< detection limit	Grey



Ecology

Plate 5.3-1 Photos of Stream Habitat



Stream A



Stream A close-up



Stream B



Stream B close-up



Stream C



Stream C close-up



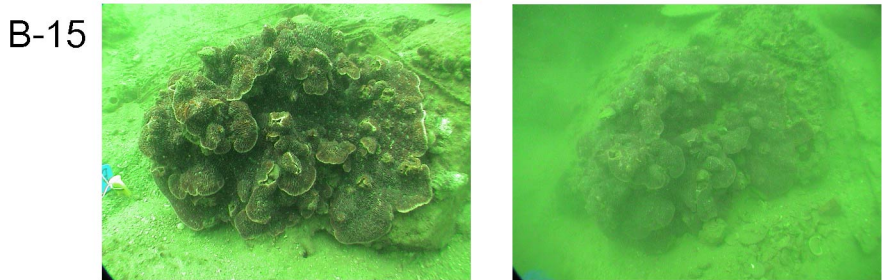
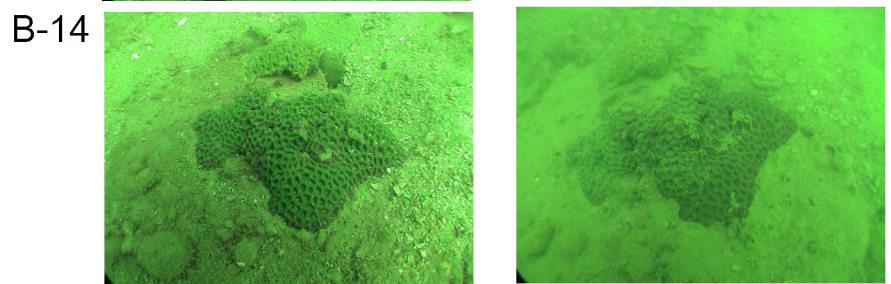
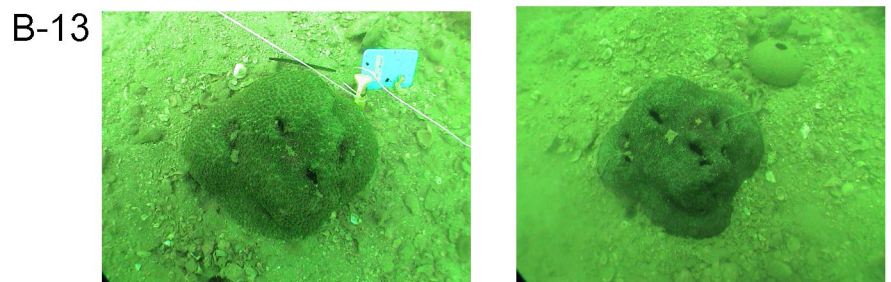
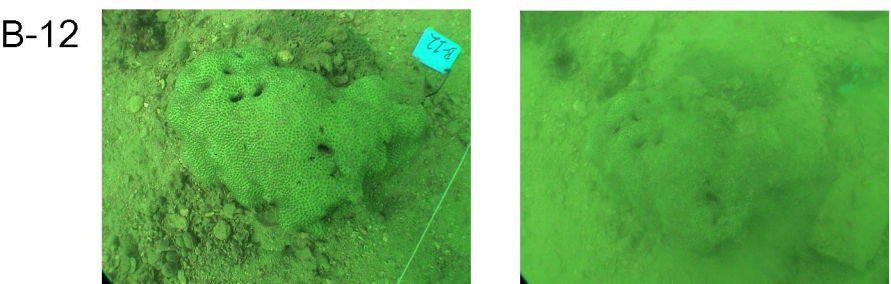
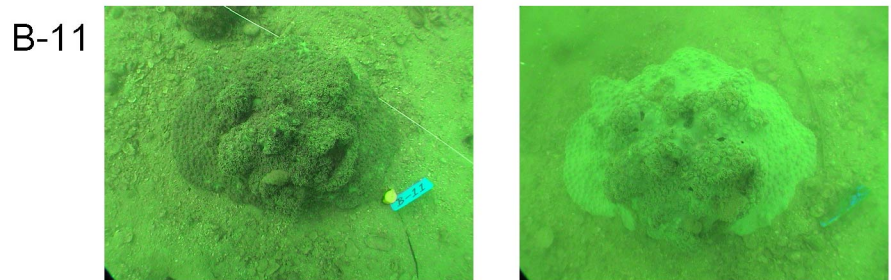
Stream D



Stream D close-up

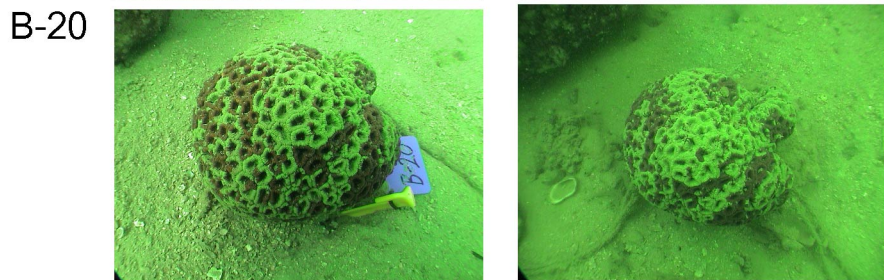
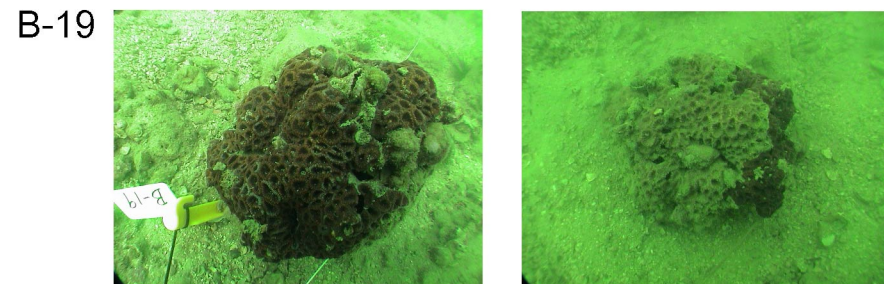
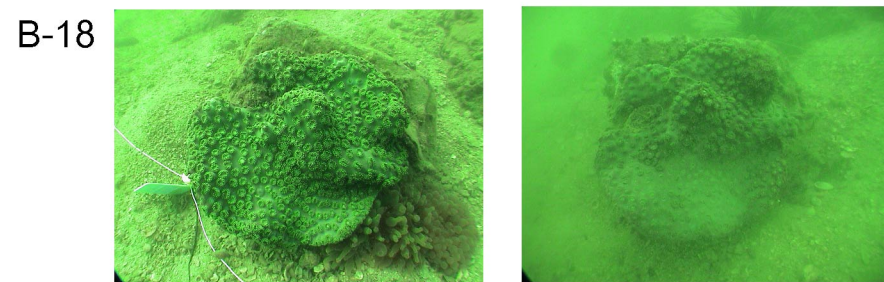
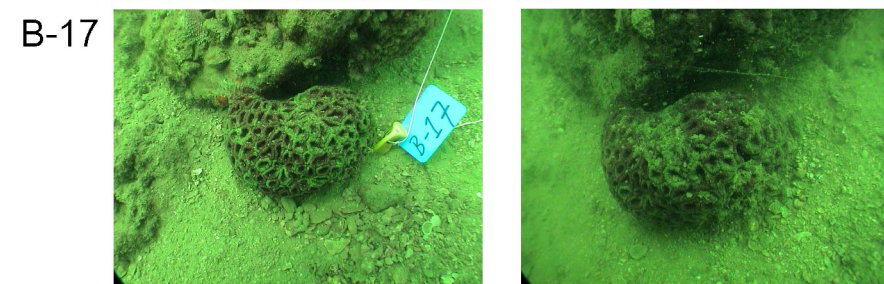
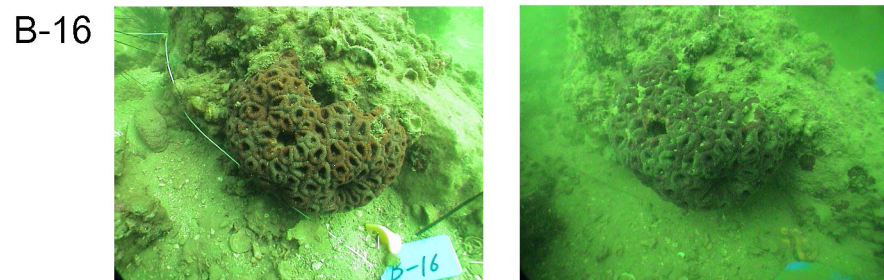
Baseline in Dec 05

Month Six (June 06)



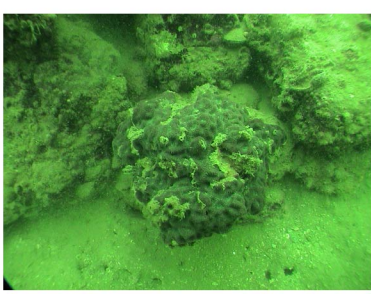
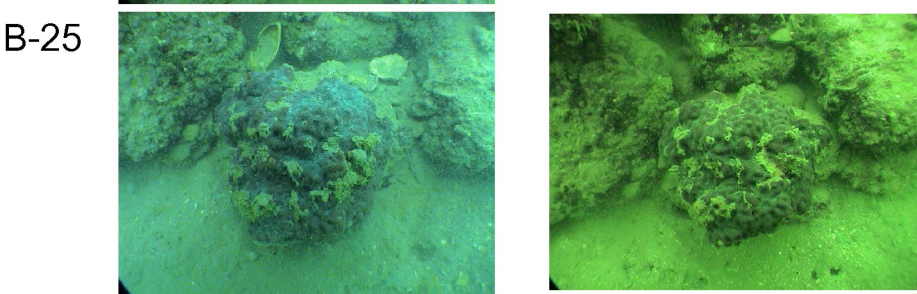
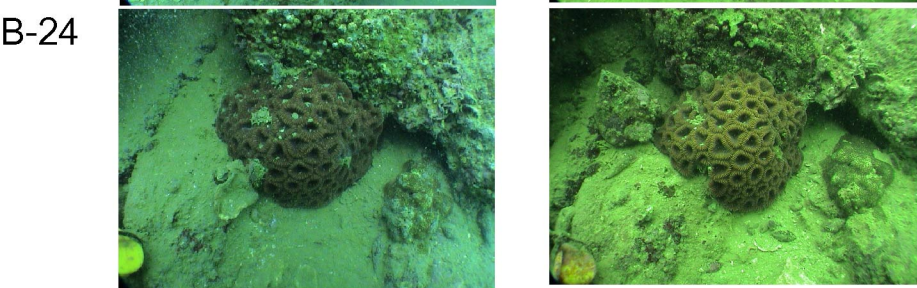
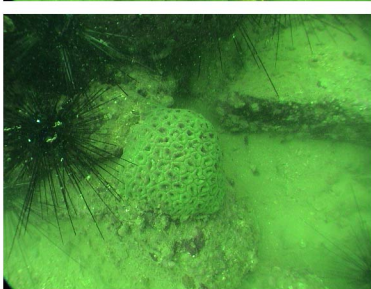
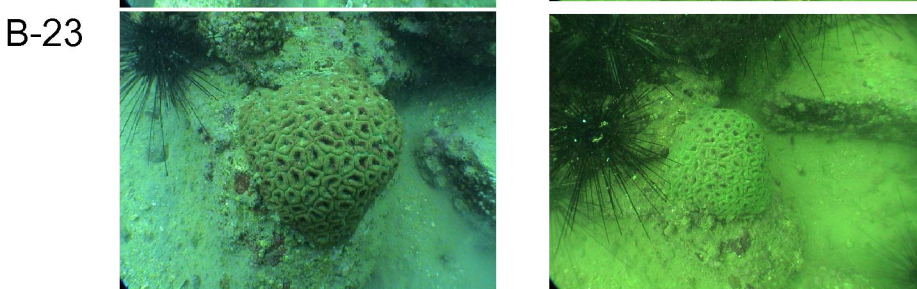
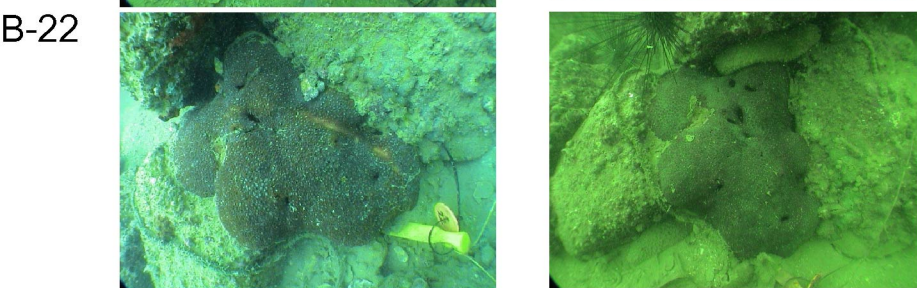
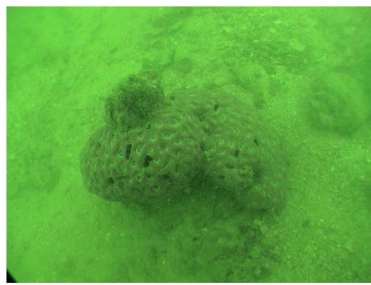
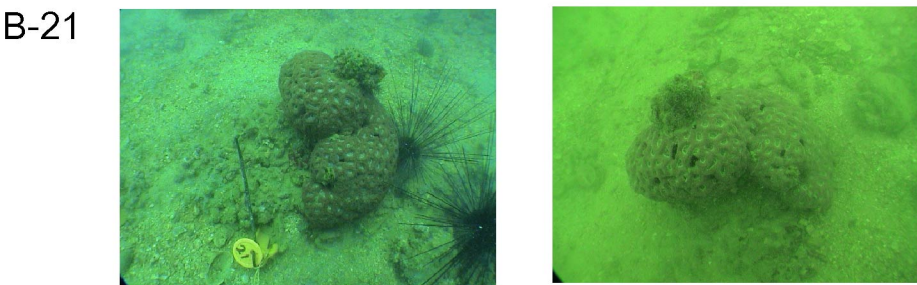
Baseline in Dec 05

Month Six (June 06)



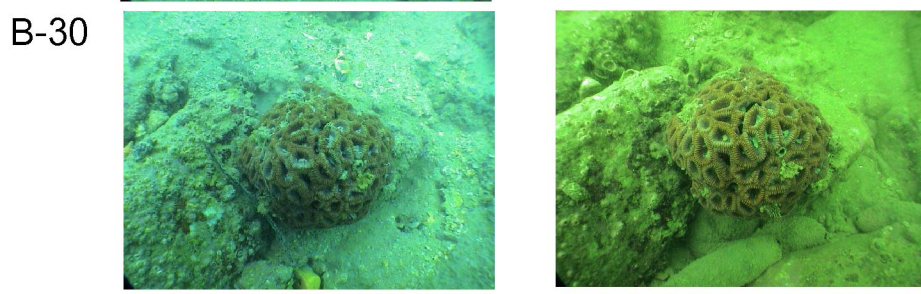
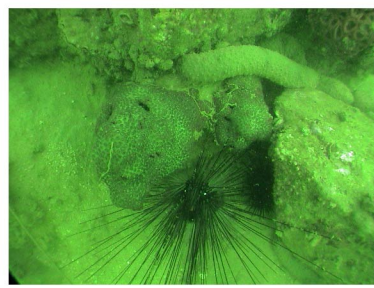
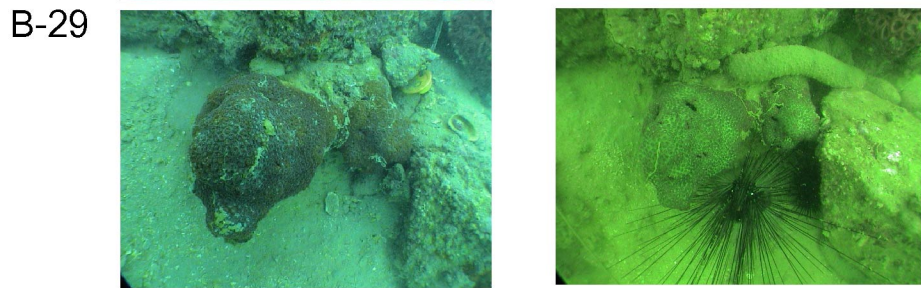
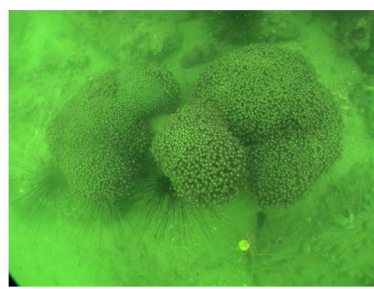
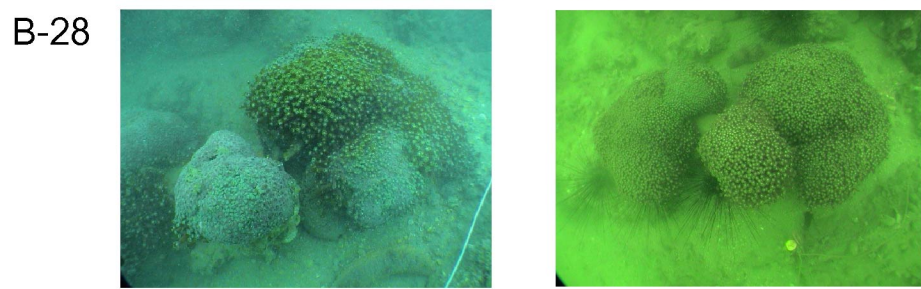
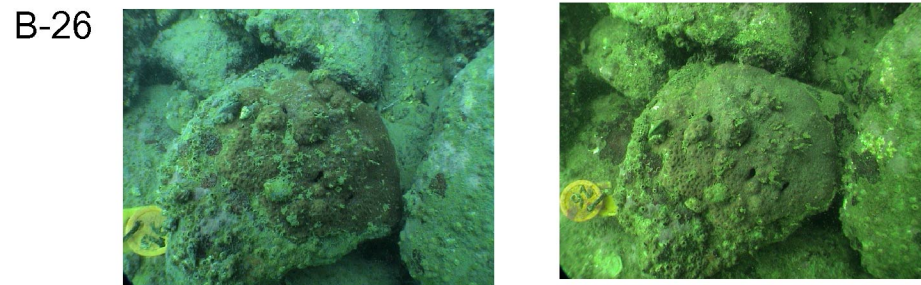
Baseline in April 06

Month Six(June 06)



Baseline in April 06

Month Six (June 06)



Baseline in April 06

Month Six (June 06)

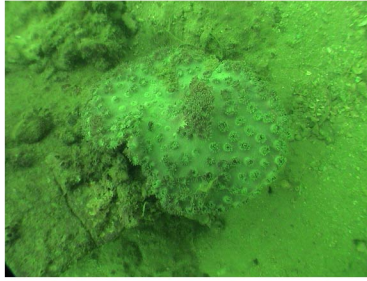
B-31



B-32



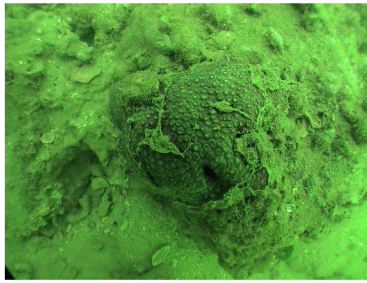
B-33



B-34



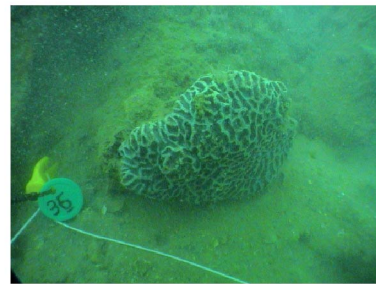
B-35



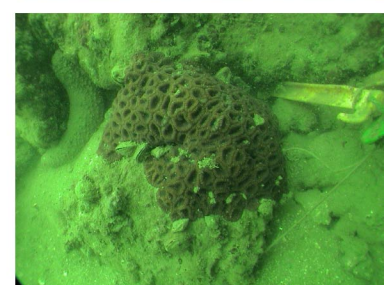
Baseline in April 06

Month Six (June 06)

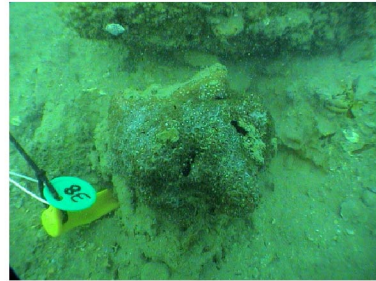
B-36



B-37



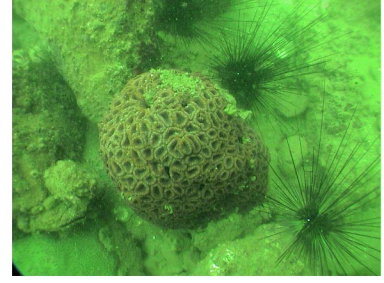
B-38



B-39



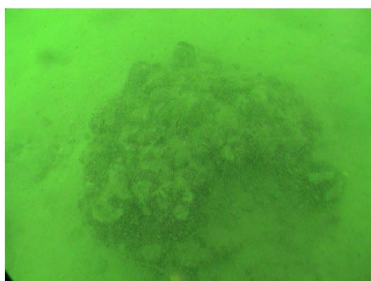
B-40



Baseline in April 06

Month Six (June 06)

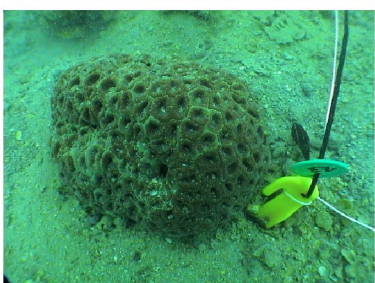
B-41



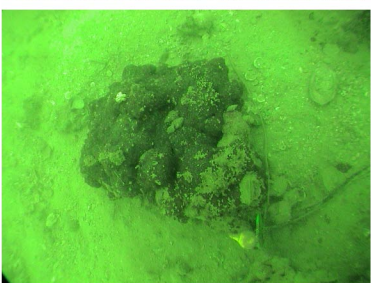
B-42



B-43



B-44



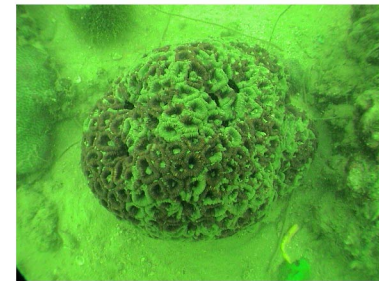
B-45



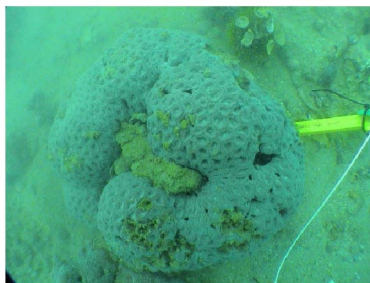
Baseline in April 06

Month Six (June 06)

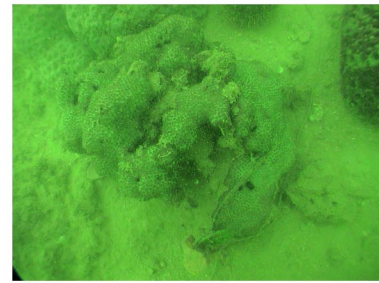
B-46



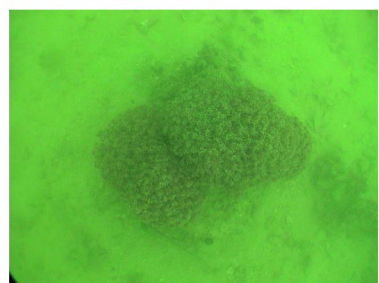
B-47



B-48



B-49



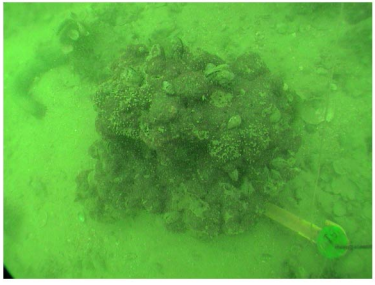
B-50



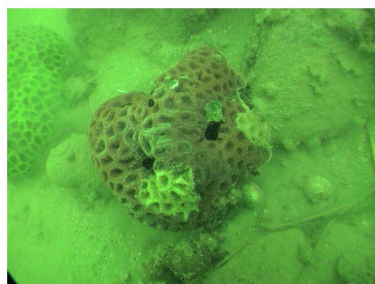
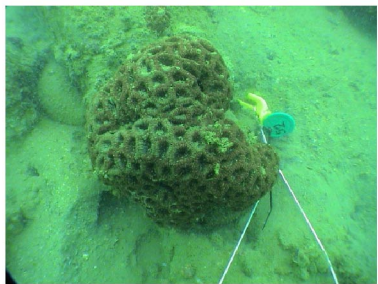
Baseline in April 06

Month Six (June 06)

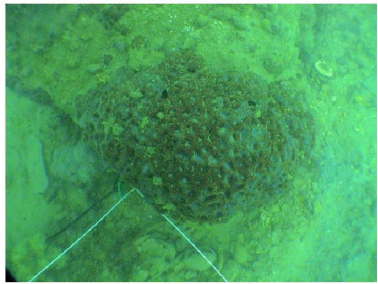
B-51



B-52



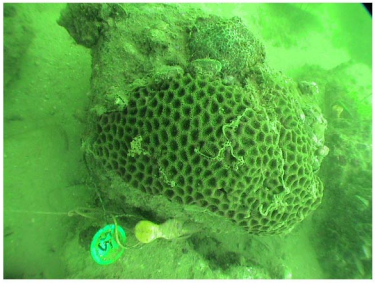
B-53



B-54



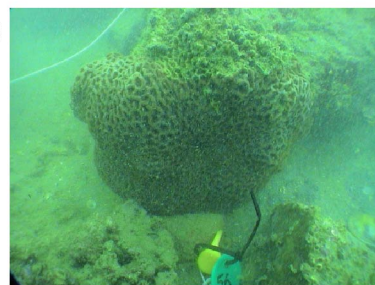
B-55



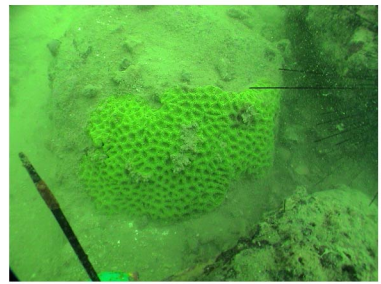
Baseline in April 06

Month Six (June 06)

B-56



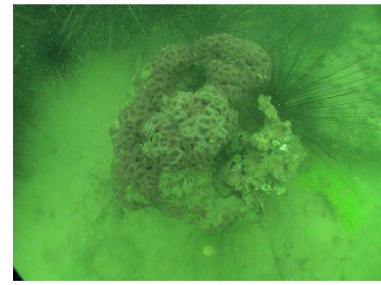
B-57



B-58



B-59



B-60



Baseline in Dec 05

Month Six (June 06)

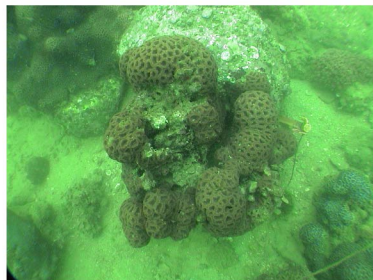
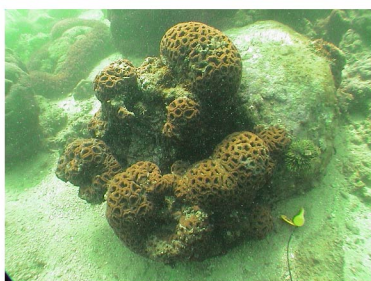
C-01



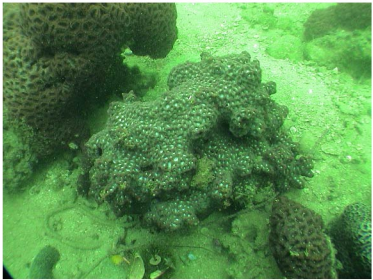
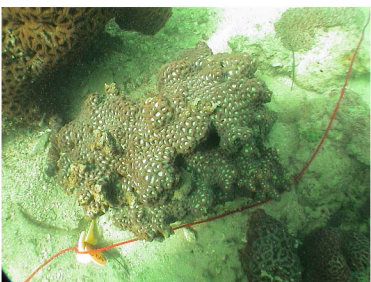
C-02



C-03



C-04



C-05



Baseline in Dec 05

Month Six (June 06)

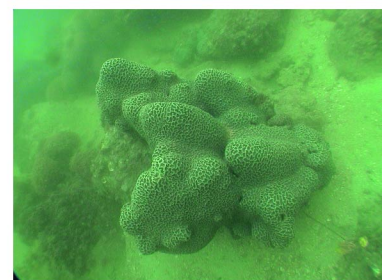
C-06



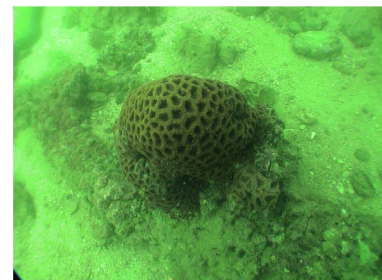
C-07



C-08



C-09



C-10



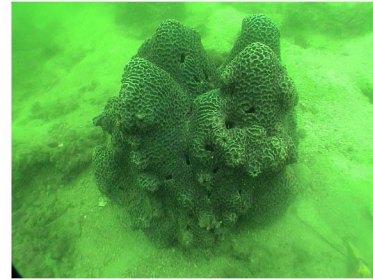
Baseline in Dec 05

Month Six (June 06)

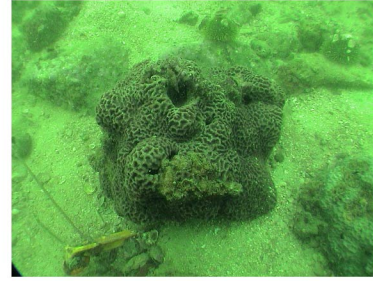
C-11



C-12



C-13



C-14



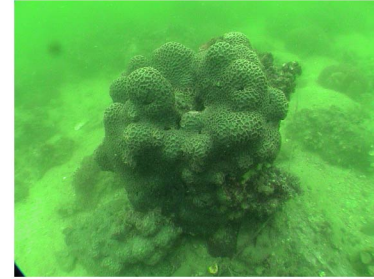
C-15



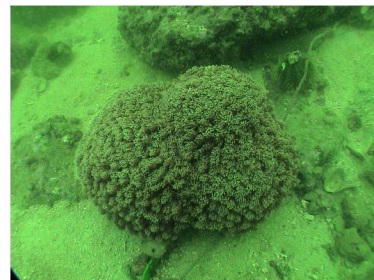
Baseline in Dec 05

Month Six (June 06)

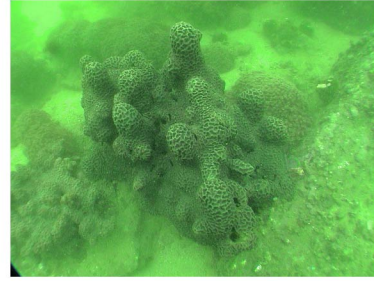
C-16



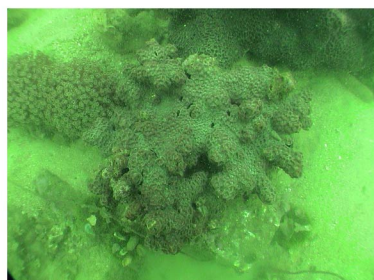
C-17



C-18



C-19



C-20



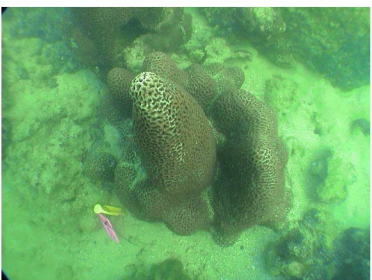
Baseline in Dec 05

Month Six (June 2006)

X-01



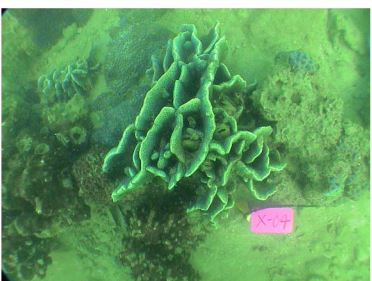
X-02



X-03



X-04



X-05



Lost

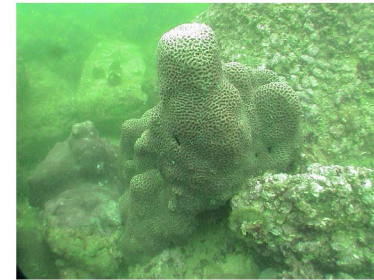
Baseline in Dec 05

Month Six (June 2006)

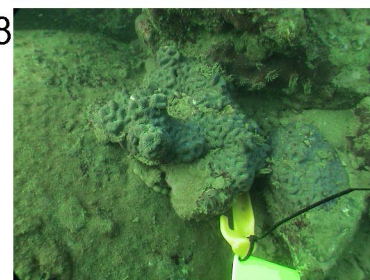
X-06



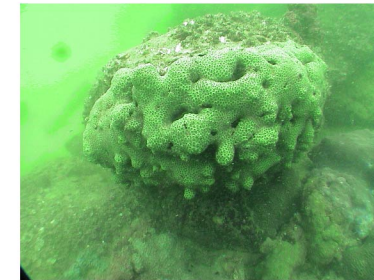
X-07



X-08



X-09



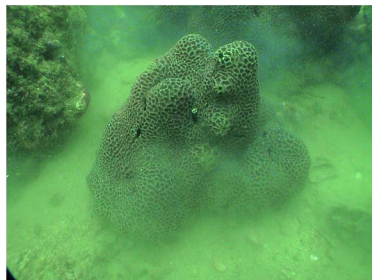
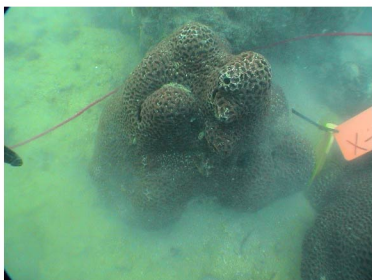
X-10



Baseline in Dec 05

Month Six (June 06)

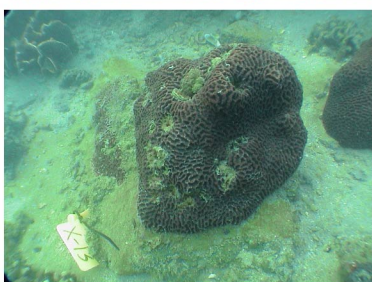
X-11



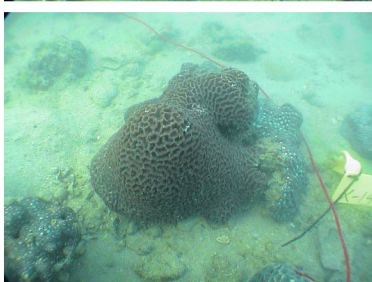
X-12



X-13



X-14



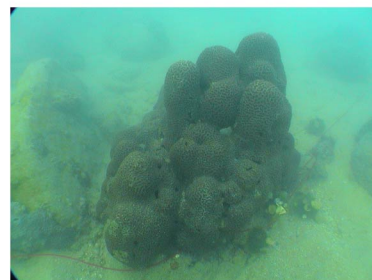
X-15



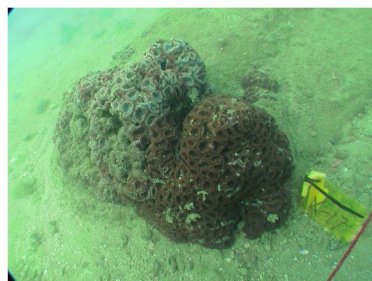
Baseline in Dec 05

Month Six (June 06)

X-16



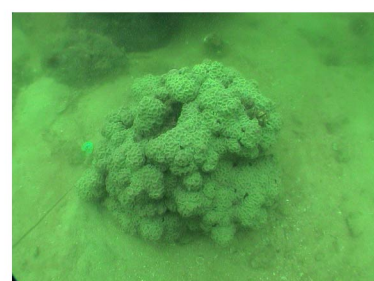
X-17



X-18



X-19



X-20



Annex F

Calibration Certificates

Maunsell Environmental Management Consultants Ltd.
TSP High Volume Sampler
Field Calibration Report

Station: KSC Public Golf Course Bungalow A (GCA B1) Operator: Porky Chu
 Cal. Date: 11-May-06 Next Due Date: 11-Jul-06
 Equipment No.: A-001-47T Serial No.: B/M200HX

Ambient Condition			
Temperature, Ta (K)	301	Pressure, Pa (mmHg)	762.2

Orifice Transfer Standard Information					
Serial No:	988	Slope, mc	2.00878	Intercept, bc	0.00015
Last Calibration Date:	15-Nov-05	$mc \times Qstd + bc = [DH \times (Pa/760) \times (298/Ta)]^{1/2}$			
Next Calibration Date:	15-Nov-06	$Qstd = \{[DH \times (Pa/760) \times (298/Ta)]^{1/2} - bc\} / mc$			

Calibration of TSP Sampler					
Resistance Plate No.	Orifice			HVS Flow Recorder	
	DH (orifice), in. of water	$[DH \times (Pa/760) \times (298/Ta)]^{1/2}$	Qstd (m ³ /min) X-axis	Flow Recorder Reading (CFM)	Continuous Flow Recorder Reading IC (CFM) Y-axis
18	14.0	3.73	1.86	54.0	53.81
13	10.6	3.24	1.61	46.0	45.84
10	7.4	2.71	1.35	40.0	39.86
7	5.8	2.40	1.19	34.0	33.88
5	3.5	1.86	0.93	26.0	25.91

By Linear Regression of Y on X
 Slope, mw = 29.6695 Intercept, bw = -1.3395
 Correlation Coefficient* = 0.9956
 *If Correlation Coefficient < 0.990, check and recalibrate.

Set Point Calculation

From the TSP Field Calibration Curve, take Qstd = 1.30m³/min
 From the Regression Equation, the "Y" value according to

$$mw \times Qstd + bw = IC \times [(Pa/760) \times (298/Ta)]^{1/2}$$

Therefore, Set Point; IC = $(mw \times Qstd + bw) \times \{ (760 / Pa) \times (Ta / 298) \}^{1/2} =$ 37.36

Remarks: _____

QC Reviewer: Eddie Yang Signature: [Signature] Date: 15.5.2006



ALS Environmental

CERTIFICATE OF ANALYSIS

CONTACT: MR WONG SIU HO
CLIENT: ENOVATIVE ENV TECHNOLOGY CO
ADDRESS: RM 3704 SIK MAN HOUSE
HOMANTIN ESTATE
KOWLOON

Batch: HK51901
Sub Batch: 0
LABORATORY: HONG KONG
DATE RECEIVED: 25/04/2006
DATE OF ISSUE: 25/05/2006
SAMPLE TYPE: EQUIPMENT
No. of SAMPLES: 1

ORDER No.:
PROJECT:

COMMENTS

The calibration procedure used for the analysis has been applied for the calibration of the above instrument.

NOTES

This is the Final Report and supersedes any preliminary report with this batch number.
Results apply to sample(s) as submitted. All pages of this report have been checked and approved for release.


ISSUING LABORATORY: HONG KONG

Address

ALS Technichem (HK) Pty Ltd
11/F
Chung Shun Knitting Centre
1-3 Wing Yip Street
Kwai Chung
HONG KONG

Phone: 852-2610 1044
Fax: 852-2610 2021
Email: hongkong@alsenviro.com

FINAL
25 MAY 2006


Ms Wong Wai Man, Alice
Laboratory Manager - Hong Kong

Other ALS Environmental Laboratories

AUSTRALIA	AMERICAS		
Brisbane	Vancouver		
Hong Kong	Santiago		
Melbourne	Singapore	Kuala Lumpur	Amtofagasta
Sydney	Bogor	Lima	
Newcastle			

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Abbreviations: % SPK REC denotes percentage spike recovery
CHK denotes duplicate check sample
LOR denotes limit of reporting
LCS % REC denotes Laboratory Control Sample percentage recovery



CERTIFICATE OF ANALYSIS

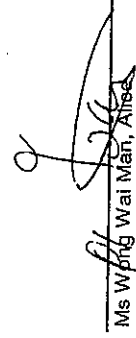
Batch: HK51901
 Sub Batch : 0
 Date of Issue: 25/05/2006
 Client: ENOVATIVE ENV TECHNOLOGY CO
 Client Reference:

Calibration of Turbidimeter

Item : YSI SONDE Environmental Monitoring System
 Model No. : 6920
 Serial No. : 000109DF
 Calibration Method : This meter was calibrated in accordance with standard method APHA (19th Ed.) 2130B
 Date of Calibration : 25 April, 2006

Testing Results :

Expected Reading	Recording Reading
0.00 NTU	0.10 NTU
4.00 NTU	3.90 NTU
16.0 NTU	16.0 NTU
80.0 NTU	81.1 NTU
160 NTU	162 NTU
Allowing Deviation	±10%


 Ms Wai Man, Alice
 Laboratory Manager - Hong Kong



CERTIFICATE OF ANALYSIS


Batch: HK51901
 Sub Batch : 0
 Date of Issue: 25/05/2006
 Client: ENOVATIVE ENV TECHNOLOGY CO
 Client Reference:

Calibration of Conductivity System

Item : YSI SONDE Environmental Monitoring System
 Model No. : 6920
 Serial No. : 000109DF
 Calibration Method : This meter was calibrated in accordance with standard method APHA (19th Ed.) 2510B
 Date of Calibration : 25 April, 2006

Testing Results :

Expected Reading	Recording Reading
1412 uS/cm	1431 uS/cm
6667 uS/cm	6673 uS/cm
58670 uS/cm	57680 uS/cm
Allowing Deviation	±10%


 Ms Wong Wai Man, Alice
 Laboratory Manager - Hong Kong



CERTIFICATE OF ANALYSIS

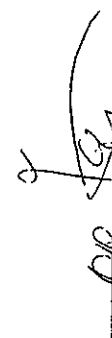
Batch: HK51901
 Sub Batch: 0
 Date of Issue: 25/05/2006
 Client: ENOVATIVE ENV TECHNOLOGY CO
 Client Reference:

Calibration of Salinity System

Item: YSI SONDE Environmental Monitoring System
 Model No.: 6920
 Serial No.: 000109DF
 Calibration Method: This meter was calibrated in accordance with standard method APHA (19th Ed.) 2520 A and B
 Date of Calibration: 25 April, 2006

Testing Results:

Expected Reading	Recording Reading
10.0 g/L	10.0 g/L
20.0 g/L	19.7 g/L
30.0 g/L	30.4 g/L
Allowing Deviation	±10%


 Ms Wai Man, Alice
 Laboratory Manager - Hong Kong



CERTIFICATE OF ANALYSIS

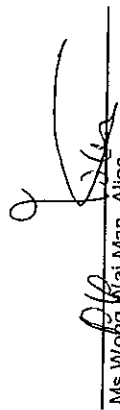
Batch: HK51901
 Sub Batch : 0
 Date of Issue: 25/05/2006
 Client: ENOVATIVE ENV TECHNOLOGY CO
 Client Reference:

Calibration of Thermometer

Item : YSI SONDE Environmental Monitoring System
 Model No. : 6920
 Serial No. : 000109DF
 Calibration Method : In-house Method
 Date of Calibration : 25 April, 2006

Testing Results :

Reference Temperature (°C)	Recorded Temperature (°C)
12.0 °C	12.0 °C
25.1 °C	25.1 °C
Allowing Deviation	±2.0°C


 Ms Wong Wai Man, Alice
 Laboratory Manager - Hong Kong



CERTIFICATE OF ANALYSIS

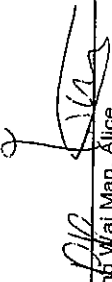
Batch: HK51901
 Sub Batch: 0
 Date of Issue: 25/05/2006
 Client: ENOVATIVE ENV TECHNOLOGY CO
 Client Reference:

Calibration of DO System

Item: YSI SONDE Environmental Monitoring System
 Model No.: 6920
 Serial No.: 000109DF
 Calibration Method: This meter was calibrated in accordance with standard method APHA (18th Ed.) 4500-OC & G
 Date of Calibration: 25 April, 2006

Testing Results:

Expected Reading	Recording Reading
0.00 mg/L	0.00 mg/L
3.00 mg/L	2.90 mg/L
5.30 mg/L	5.20 mg/L
8.10 mg/L	8.10 mg/L
Allowing Deviation	±0.2 mg/L


 Ms Wong Yai Man, Alice
 Laboratory Manager - Hong Kong

CERTIFICATE OF ANALYSIS




Batch: HK51901
Sub Batch : 0
Date of Issue: 25/05/2006
Client: ENOVATIVE ENV TECHNOLOGY CO
Client Reference:

Calibration of pH System

Item : YSI SONDE Environmental Monitoring System
Model No. : 6920
Serial No. : 000109DF
Calibration Method : This meter was calibrated in accordance with standard method APHA (19th Ed.) 4500 H:B
Date of Calibration : 25 April, 2006

Testing Results :

Expected Reading	Recording Reading
4.00	4.10
7.00	7.00
10.0	10.1
Allowing Deviation	±0.2 unit


Ms Wong Wai Man, Alice
Laboratory Manager - Hong Kong

Annex G
Monitoring Programme
for the next three months

Proposed Extension of Public Golf Course at Kau Sai Chau Island, Sai Kung
 Monthly EM&A Report

Jun 2006						
Sun	Mon	Tue	Wed	Thu	Fri	Sat
25	26	27	28	29	30	

Jul 2006						
Sun	Mon	Tue	Wed	Thu	Fri	Sat
						1
2	3	4	5 LV WQ	6	7 AQ	8
9	10	11	12 WQ	13 AQ	14	15
16	17 WQ	18	19 LV AQ	20	21 TE	22
23	24 WQ	25 AQ	26	27	28	29
30	31 AQ					

Aug 2006						
Sun	Mon	Tue	Wed	Thu	Fri	Sat
		1	2 WQ	3	4	5 AQ
6	7	8 LV	9 WQ	10	11 AQ	12
13	14 WQ	15	16	17 AQ	18 TE	19
20	21 WQ	22 LV	23 AQ	24	25	26

Proposed Extension of Public Golf Course at Kau Sai Chau Island, Sai Kung
 Monthly EM&A Report

Aug 2006						
Sun	Mon	Tue	Wed	Thu	Fri	Sat
27	28 WQ	29 AQ	30	31		

Sept 2006						
Sun	Mon	Tue	Wed	Thu	Fri	Sat
					1	2
3	4 AQ	5 LV	6 WQ	7	8	9 AQ
10	11	12	13 WQ	14 ME	15 AQ ME	16
17	18 WQ	19 LV	20	21 AQ	22 TE	23
24	25 WQ	26	27 AQ	28	29	30

Remarks: AQ = TSP, WQ = Freshwater and Marine water quality, TE = Terrestrial Ecology, ME = Marine Ecology, LV = Landscape & Visual.

No exceedance was found during the three months of coral monitoring (Apr – Jun 2006) at the temporary barging point after the coral incident (23rd Mar 2006), the monitoring frequency will be changed on quarterly basis (start from Sept 2006) till the end of the construction phase.

No dredging was carried out for the desalination plant pipeline construction. No coral monitoring was required. The dredging period was only allowed within Jan to Apr according to the EP.

Annex H

Construction Programme for the next three months

Activity ID	Activity Description	Orig Dur	Rem Dur	% Comp	Early Start	Early Finish	Total Float	2006													
								MAY			JUN			JUL			AUG			SEP	
								22	29	5	12	19	26	3	10	17	24	31	7	14	21
General & Preliminaries																					
Project Key Dates																					
Possession of Site																					
KSC00090	Letter of Acceptance	0	0	100	28/12/05A																
KSC00095	Project Commencement	0	0	100	03/01/06A																
KSC00100	Possession of Portion 1	0	0	100	03/01/06A																
KSC00110	Possession of Portion 2	0	0	100	03/01/06A																
KSC00120	Possession of Portion 3	0	0	100	03/01/06A																
KSC00130	Possession of Portion 4	0	0	100	03/01/06A																
KSC00140	Possession of Portion 5	0	0	100	03/01/06A																
Completion of Works																					
KSC00145	Completion of Section 1	0	0	0		03/10/06*	0														
KSC00150	Completion of Section 1 (Forecast)	0	0	0		21/12/06	-79														
KSC00155	Completion of Section 2	0	0	0		03/10/06*	0														
KSC00160	Completion of Section 2 (Forecast)	0	0	0		26/06/07	-266														
KSC00165	Completion of Section 3	0	0	0		05/12/06*	0														
KSC00170	Completion of Section 3 (Forecast)	0	0	0		11/01/07	-37														
KSC00175	Completion of Section 4	0	0	0		06/03/07*	0														
KSC00180	Completion of Section 4 (Forecast)	0	0	0		12/04/07	-37														
KSC00185	Completion of Section 9	0	0	0		01/08/07*	0														
KSC00190	Completion of Section 9 (Forecast)	0	0	0		27/10/07	-87														
Design and Submission																					
Submission: General																					
KSC00230	ISO 9001:2000 certification audit	0	0	0		20/06/06*	-85	◆ ISO 9001:2000 certification audit													
KSC00250	Finalize waste management plan	0	0	0		20/06/06*	-130	◆ Finalize waste management plan													
KSC00370	Contingency plan to deal with flooding	0	0	0		20/06/06*	-138	◆ Contingency plan to deal with flooding													
Submission: Contractor Design																					
KSC00430	(RO) desalination plant Submit and approval	24	10	60	27/01/06A	30/06/06	-89	■ (RO) desalination plant Submit and approval													
KSC00435	(RO) desalination plant delivery	60	60	0	01/07/06	29/08/06	-89	■ (RO) desalination plant delivery													
Submission: Temporary Works																					
KSC00557	Design reinforcing element for reinf. fill slope	14	14	0	21/06/06*	04/07/06	120	■ Design reinforcing element for reinf. fill slope													
KSC00558	Design rein. fill slope review by ICE	14	14	0	05/07/06	18/07/06	120	■ Design rein. fill slope review by ICE													
KSC00559	Design rein. fill slope submit & approval	21	21	0	19/07/06	08/08/06	120	■ Design rein. fill slope submit & approval													

22	29	5	12	19	26	3	10	17	24	31	7	14	21	28	4	11	18
MAY			JUN			JUL			AUG			SEP					
2006																	

Start Date	28/12/05	Summary Bar
Finish Date	27/10/07	Progress Bar
Data Date	21/06/06	
Run Date	03/07/06 15:52	

KS06
 Sheet 1 of 7
China Harbour Engineering Co.
Third Golf Course at Kau Sai Chau
3 Months Rolling

Date	Revision	Checked	Approved
28/12/05	4th Final for Submission	Tim	
01/03/06	Ver 5th (KST5)	Tim	

Activity ID	Activity Description	Orig Dur	Rem Dur	% Comp	Early Start	Early Finish	Total Float	2006											
								MAY 22	MAY 29	MAY 5	JUN 12	JUN 19	JUN 26	JUN 3	JUL 10	JUL 17	JUL 24	JUL 31	AUG 7
Material Submission and Procurement																			
Material: Procurement of Order & Delivery																			
KSC00710	Water Cooled Chillers & Cooling Towers	0	0	0	30/06/06		-38	◆ Water Cooled Chillers & Cooling Towers											
KSC00720	Ventilation Fans	0	0	0	05/07/06		-36	◆ Ventilation Fans											
KSC00730	Motor Controlled Panels	0	0	0	05/07/06		-36	◆ Motor Controlled Panels											
KSC00740	Water Pumps	0	0	0	05/07/06		-36	◆ Water Pumps											
KSC00750	FM 200 Equipment	0	0	0	05/07/06		-36	◆ FM 200 Equipment											
KSC00760	AFA Panels	0	0	0	05/07/06		-36	◆ AFA Panels											
KSC00770	Instantaneous Heater	0	0	0	05/07/06		-36	◆ Instantaneous Heater											
KSC00780	Sanitary Fittings	0	0	0	05/07/06		-36	◆ Sanitary Fittings											
KSC00790	LV Switchboard	0	0	0	05/07/06		-36	◆ LV Switchboard											
KSC00800	Generators	0	0	0	05/07/06		-36	◆ Generators											
KSC00810	Armoured Cables	0	0	0	05/07/06		-36	◆ Armoured Cables											
KSC00820	Public Address Equipment	0	0	0	05/07/06		-36	◆ Public Address Equipment											
KSC00830	Telephone Equipment	0	0	0	05/07/06		-36	◆ Telephone Equipment											
KSC00840	Lift	0	0	0	15/07/06		-38	◆ Lift											
KSC00850	Lighting Fittings	0	0	0	05/07/06		-36	◆ Lighting Fittings											
General Works																			
Survey and Site Clearance																			
KSC00570	Condition survey	180	85	30	10/01/06A	28/09/06	2	[Bar]											
KSC00590	Tree survey	90	32	95	28/12/05A	28/07/06	37	[Bar] Tree survey											
Site Office, Barging Point and Site Haul Road																			
KSC00644	Construction temporary bridge No. 10a&b	12	12	0	21/06/06	05/07/06	-73	[Bar] Construction temporary bridge No. 10a&b											
Section 1 of the Works																			
Construction of Low Level Intake Pumping Station																			
Pumping Station: Civil Works																			
S100120	Excav. & support	24	24	0	10/07/06	05/08/06	-66	[Bar] Excav. & support											
Construction of Gravity Drain & Rising Main																			
Gravity Drain : Stage 1																			
S1A0010	Fencing & Haul Road in Stage 1	6	0	100	29/05/06A	12/06/06A		[Bar] Fencing & Haul Road in Stage 1											
S1A0300	Drainage MHA3 - MHA2 42.3m	30	30	0	19/06/06A	26/07/06	-65	[Bar] Drainage MHA3 - MHA2 42.3m											
Gravity Drain : Stage 2																			
S1A0020	Fencing & Haul Road in Stage 2	6	9	0	19/06/06A	30/06/06	-66	[Bar] Fencing & Haul Road in Stage 2											
S1A0900	Drainage MHA9 - MHA8 47.3m	24	24	0	03/07/06	29/07/06	-46	[Bar] Drainage MHA9 - MHA8 47.3m											

MAY 22	MAY 29	MAY 5	JUN 12	JUN 19	JUN 26	JUN 3	JUL 10	JUL 17	JUL 24	JUL 31	AUG 7	AUG 14	AUG 21	AUG 28	SEP 4	SEP 11	SEP 18
--------	--------	-------	--------	--------	--------	-------	--------	--------	--------	--------	-------	--------	--------	--------	-------	--------	--------

Start Date 28/12/05
 Finish Date 27/10/07
 Data Date 21/06/06
 Run Date 03/07/06 15:52

Summary Bar
 Progress Bar

KS06
 Sheet 2 of 7
China Harbour Engineering Co.
Third Golf Course at Kau Sai Chau
3 Months Rolling

Date	Revision	Checked	Approved
28/12/05	4th Final for Submission	Tim	
01/03/06	Ver 5th (KST5)	Tim	

Activity ID	Activity Description	Orig Dur	Rem Dur	% Comp	Early Start	Early Finish	Total Float	2006																	
								MAY			JUN			JUL			AUG			SEP					
								22	29	5	12	19	26	3	10	17	24	31	7	14	21	28	4	11	18
Gravity Drain : Stage 3																									
S1A0030	Fencing & Haul Road in Stage 3	6	6	0	03/07/06	08/07/06	-66																		
S1A1400	Drainage MHA14 - MHA13 70.8m	36	36	0	10/07/06	19/08/06	-40																		
S1A1500	Drainage MHA15 - MHA14 66.6m	34	34	0	10/07/06	17/08/06	-4																		
Trench Excavation (Provisional)																									
Trench Excavation (Provisional)																									
S100635	Forming cofferdam	35	35	0	10/07/06	18/08/06	3																		
Section 2 of the Works																									
Construction of Desalination Plant																									
Desalination Plant: Civil Works																									
S200110	Construction of base slab for desalination plant	21	21	0	03/07/06	26/07/06	-46																		
Construction of Transformer/Switch Room																									
Transformer/Switch Room: Civil Works																									
S200165	Excavation for transformer room	12	0	100	22/05/06A	03/06/06A																			
S200170	Construct base slab of transform/switch room	20	7	90	05/06/06A	28/06/06	-24																		
S200180	Construct wall of transformer/switch room	15	15	0	29/06/06	17/07/06	-24																		
S200190	Construct roof slab of transformer/switch room	12	12	0	18/07/06	31/07/06	-24																		
Construction of Seawater Pumping Station																									
Sewer Pumping Station: Civil Works																									
S200290	Excavation of SWP Station	21	21	0	03/07/06	26/07/06	-45																		
Seawater Intake & Discharge Pipe																									
Seawater Intake Pipe																									
S200342	Gazette for Dredging	60	10	90	24/02/06A	30/06/06	-179																		
S200345	Design for Coral Transportation	12	12	0	04/07/06*	17/07/06	-141																		
S200346	Submission & Approval for Coral Transplantation	24	24	0	18/07/06	14/08/06	-141																		
Construction Retaining Wall No.1																									
Construction Retaining Wall No.1																									
S200550	Excavation of formation of retaining wall RW1	21	5	50	27/05/06A	08/07/06	-34																		
S200560	Construct footing for retaining wall RW1	12	12	0	10/07/06	22/07/06	-34																		
S200950	Diversion of Existing MCB	12	9	0	12/06/06A	30/06/06	-34																		
Lake No.1 and Pump House No.1																									
Access Cart Track & New Tees for Hole S7																									
S200672	Construction of New Cart Track & Temp Tee S7	40	0	100	15/03/06A	08/06/06A																			
S201740	Construction of Reinforced Fill S7 T1	12	12	0	14/07/06	27/07/06	0																		

Start Date 28/12/05
 Finish Date 27/10/07
 Data Date 21/06/06
 Run Date 03/07/06 15:52

Summary Bar
 Progress Bar

KS06
 Sheet 3 of 7
China Harbour Engineering Co.
Third Golf Course at Kau Sai Chau
3 Months Rolling

Date	Revision	Checked	Approved
28/12/05	4th Final for Submission	Tim	
01/03/06	Ver 5th (KST5)	Tim	

Activity ID	Activity Description	Orig Dur	Rem Dur	% Comp	Early Start	Early Finish	Total Float	2006															
								MAY			JUN			JUL			AUG			SEP			
								22	29	5	12	19	26	3	10	17	24	31	7	14	21	28	4
Diversion of Drainage																							
S200607	Clarify detail of diversion of irrigation system	0	0	100	30/05/06A																		
S200608	Trial Hole for the location of connection point	6	6	0	01/06/06A	27/06/06	-63																
S200609	Diversion of Existing Irrigation system	24	24	0	06/07/06	02/08/06	-69																
S200682	Drainage MH1E.7-1E.9 & MH33B.1-33B.2	28	5	60	28/03/06A	26/06/06	-58																
S200772	Order & Delivery of Bollard	21	6	50	06/06/06A	26/06/06	-89																
S200782	Drainage MH33B-33B.1 & 33B.2-33B.3	14	14	0	27/06/06	13/07/06	-58																
S200872	Installation of Bollard	6	6	0	27/06/06	04/07/06	-69																
S200882	Drainage CB7E.3 to MH33B.3	14	14	0	21/06/06	07/07/06	-53																
S200884	Diversion of Drainage Pipe for Lake 1	7	7	0	14/07/06	21/07/06	-58																
S200900	Construction of Temp Cart Path at S6	15	0	100	15/05/06A	08/06/06A																	
S201000	Diversion of cart path stage 1	1	0	100	09/06/06A	09/06/06A																	
S201100	Drainage under the existing cart path stage 1	12	10	5	12/06/06A	03/07/06	-68																
S201200	Diversion of cart path stage 2	1	1	0	05/07/06	05/07/06	-69																
S201870	Drainage under the existing cart path stage 2	24	24	0	14/07/06	10/08/06	-16																
Rising Main No.1: Lay Pipe																							
S200750	Excav. and support for Rising Main No.1 laying	40	30	30	19/04/06A	26/07/06	15																
S200760	Installation of Rising Main No.1 150mm DI pipe	40	40	30	20/05/06A	07/08/06	12																
Section 3 of the Works																							
Existing Maintenance Building																							
Maintenance Building: Structure Works																							
S3012100	Structure S1	50	15	40	18/05/06A	08/07/06	-11																
S3012302	Structure S3 - Footing & Base slab	48	16	20	15/05/06A	10/07/06	-19																
S3012304	Structure S3 - Structure Works	48	47	1	09/06/06A	15/08/06	-29																
S3012306	Structure S3 - Roofing	48	48	0	15/07/06	08/09/06	-29																
S3012400	Structure S4	58	30	10	19/04/06A	26/07/06	-21																
Maintenance Building: Fitting Out Works																							
S3013000	U/G Drainage Works	56	14	10	03/04/06A	07/07/06	-5																
S3018000	Gasoline & Diesel Oil Tank	40	40	0	11/07/06	25/08/06	9																
Construction Retaining Wall No.2																							
S3030009	Diversion of existing irrigation system	6	0	100	19/05/06A	03/06/06A																	
S3030010	Excavation RW2	10	4	50	15/06/06A	24/06/06	10																
S3030020	Retaining Walls RW2	24	24	0	26/06/06	24/07/06	10																

22	29	5	12	19	26	3	10	17	24	31	7	14	21	28	4	11	18
MAY			JUN			JUL			AUG			SEP					
2006																	

Start Date	28/12/05	Summary Bar Progress Bar	KS06
Finish Date	27/10/07		
Data Date	21/06/06		
Run Date	03/07/06 15:52		

China Harbour Engineering Co.
Third Golf Course at Kau Sai Chau
3 Months Rolling

Date		Revision		Checked	Approved
28/12/05	4th Final for Submission			Tim	
01/03/06	Ver 5th (KST5)			Tim	

Activity ID	Activity Description	Orig Dur	Rem Dur	% Comp	Early Start	Early Finish	Total Float	2006													
								MAY			JUN			JUL			AUG			SEP	
								22	29	5	12	19	26	3	10	17	24	31	7	14	21
Section 4 of the Works																					
Area 5																					
Existing Admin. Building																					
Admin. Building: Structure Works																					
S4050300	Area 5 - Foundation to G/F Slab	24	0	100	08/05/06A	23/05/06A		Area 5 - Foundation to G/F Slab													
S4050400	Area 5 - G/F to 1/F Slab	30	7	80	24/05/06A	28/06/06	-28	Area 5 - G/F to 1/F Slab													
S4050500	Area 5 - 1/F Slab to Roof	30	30	0	29/06/06	03/08/06	-28	Area 5 - 1/F Slab to Roof													
Area 4																					
Existing Admin. Building																					
Admin. Building: Structure Works																					
S4040200	Area 4 - Site Formation & U/G Drainage Works	12	8	30	10/04/06A	29/06/06	-31	Area 4 - Site Formation & U/G Drainage Works													
S4040400	Area 4 - Foundation to LG/F Slab	24	24	0	30/06/06	28/07/06	-31	Area 4 - Foundation to LG/F Slab													
Area 3																					
Existing Admin. Building																					
Admin. Building: Structure Works																					
S4030200	Site Formation Works	30	14	0	02/06/06A	07/07/06	13	Site Formation Works													
Area 1																					
Existing Admin. Building																					
Admin. Building: Structure Works																					
S4010800	1/F Slab to Roof (Phase 1)	60	38	10	22/05/06A	04/08/06	-31	1/F Slab to Roof (Phase 1)													
Section 9 of the Works																					
Phase 1a																					
Construction of Golf Course Hole No.4																					
Survey and Site Clearance																					
S501545	Site Clearance & UXO at GH4	12	0	100	20/05/06A	27/05/06A		Site Clearance & UXO at GH4													
GH 04: Cut & Fill Works																					
S501450	Earth/slope works (cut) at GH04	90	31	60	27/05/06A	27/07/06	38	Earth/slope works (cut) at GH04													
Lake No.4 and Pump House No.4																					
Lake No.4: Civil Works																					
S501580	Cut & fill to lake no. 4	24	31	5	12/06/06A	27/07/06	76	Cut & fill to lake no. 4													
Construction of Golf Course Hole No.5																					
GH 05: Cut & Fill Works																					
S501727	Awaiting termination of existing tee & irrigation	14	0	100	04/05/06A	25/05/06A		Awaiting termination of existing tee & irrigation													
S501730	Earth/slope works (cut) at GH05	35	30	6	19/06/06A	26/07/06	26	Earth/slope works (cut) at GH05													

22	29	5	12	19	26	3	10	17	24	31	7	14	21	28	4	11	18
MAY			JUN			JUL			AUG			SEP					
2006																	

Start Date	28/12/05		Summary Bar
Finish Date	27/10/07		Progress Bar
Data Date	21/06/06		
Run Date	03/07/06 15:52		

KS06
 Sheet 5 of 7
China Harbour Engineering Co.
Third Golf Course at Kau Sai Chau
3 Months Rolling

Date	Revision	Checked	Approved
28/12/05	4th Final for Submission	Tim	
01/03/06	Ver 5th (KST5)	Tim	

Activity ID	Activity Description	Orig Dur	Rem Dur	% Comp	Early Start	Early Finish	Total Float	2006													
								MAY			JUN			JUL			AUG			SEP	
								22	29	5	12	19	26	3	10	17	24	31	7	14	21
Construction of Golf Course Hole No.3																					
GH 03: Cut & Fill Works																					
S501320	Earth/slope works (cut) at GH03	24	0	100	12/04/06A	05/06/06A		Earth/slope works (cut) at GH03													
GH 03: Drainage & Duct																					
S501330	Installation of Drainage system at Hole 3	30	30	0	11/07/06	14/08/06	110	Installation of Drainage system													
S501340	Installation of cable duct/pit	30	30	0	11/07/06	14/08/06	110	Installation of cable duct/pit													
GH 03: Construction of Golf Course																					
S501355	Rough shaping to Hole no. 3	7	7	0	03/07/06*	10/07/06	44	Rough shaping to Hole no. 3													
S501360	Feature construction to Hole no. 3	10	10	0	11/07/06	21/07/06	74	Feature construction to Hole no. 3													
S501408	Cart path & Irrigation pipe between Hole 2 & 3	15	15	0	03/07/06	19/07/06	108	Cart path & Irrigation pipe between Hole 2 & 3													
Phase 1b																					
Construction of Golf Course Hole No.6																					
Survey and Site Clearance																					
S502055	Site Clearance & UXO at GH6	12	12	0	12/07/06	25/07/06	-5	Site Clearance & UXO at GH6													
Construction of Golf Course Hole No.7																					
Survey and Site Clearance																					
S502185	Site Clearance & UXO at GH7	12	0	100	08/06/06A	19/06/06A		Site Clearance & UXO at GH7													
GH 07: Cut & Fill Works																					
S502090	Earth/slope works (cut) at GH07	30	29	1	19/06/06A	25/07/06	-5	Earth/slope works (cut) at GH07													
Construction of Golf Course Hole No.8																					
GH 08: Cut & Fill Works																					
S502220	Earth/slope works (cut) at GH08	60	0	100	19/04/06A	07/06/06A		Earth/slope works (cut) at GH08													
GH 08: Drainage & Duct																					
S502230	Installation of Drainage system at Hole 8	30	30	0	19/07/06	22/08/06	111	Installation of Drainage system at Hole 8													
S502240	Installation of cable duct/pit	30	30	0	19/07/06	22/08/06	111	Installation of cable duct/pit													
GH 08: Construction of Golf Course																					
S502255	Rough shaping to Hole no. 8	7	7	0	11/07/06*	18/07/06	44	Rough shaping to Hole no. 8													
S502260	Feature construction to Hole no. 8	10	10	0	19/07/06	29/07/06	44	Feature construction to Hole no. 8													
Phase 2a																					
Construction of Golf Course Hole No.1																					
GH 01: Cut & Fill Works																					
S502580	Earth/slope works (cut) at GH01	240	150	40	27/02/06A	16/12/06	6	Earth/slope works (cut) at GH01													
Tank No.2 and Pump House No.2																					
T & PH 2: Structure Works																					
S502840	Excavate to lowflow PH 2 & Tank 2	60	4	90	06/04/06A	24/06/06	209	Excavate to lowflow PH 2 & Tank 2													

22	29	5	12	19	26	3	10	17	24	31	7	14	21	28	4	11	18
MAY			JUN			JUL			AUG			SEP					

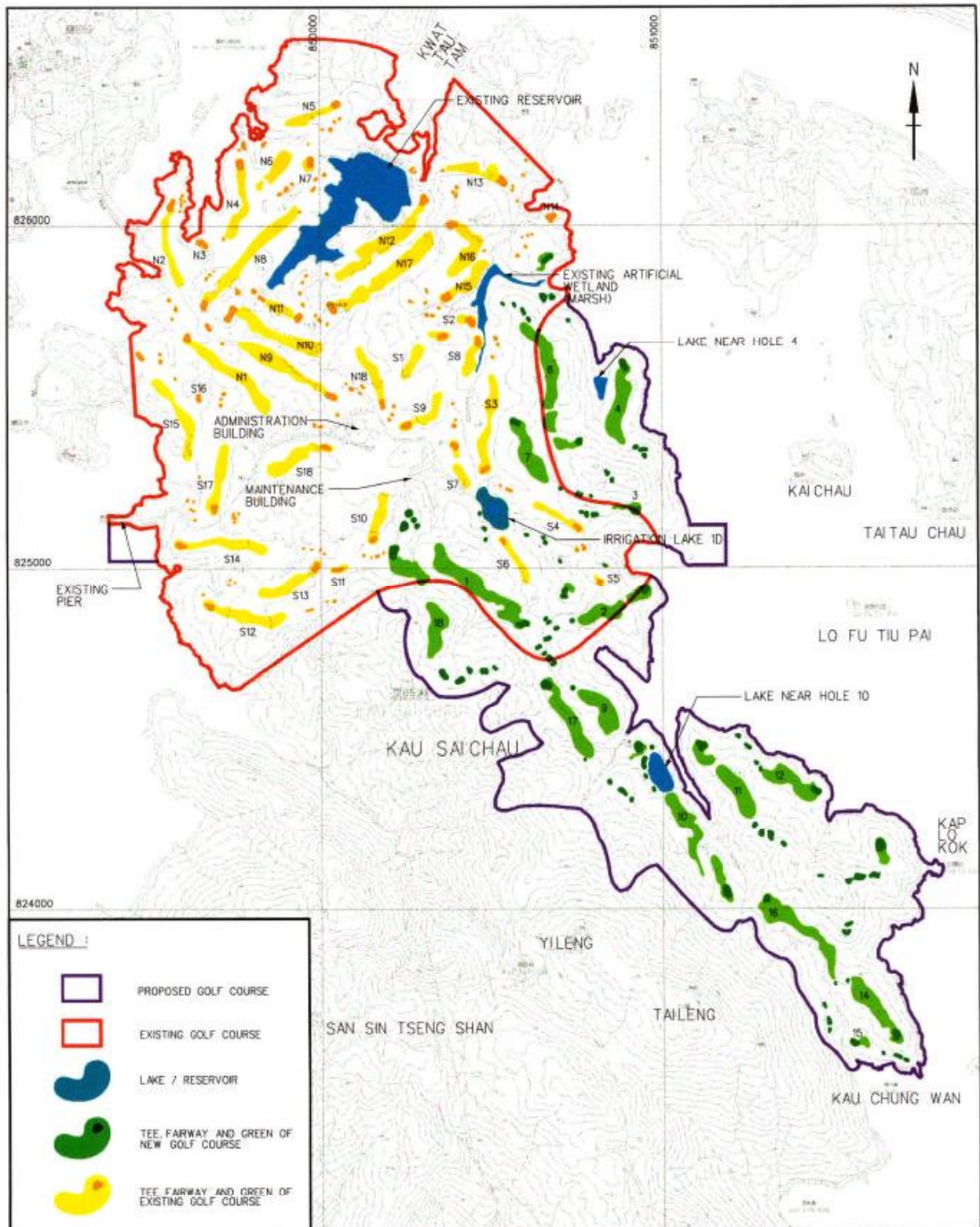
Start Date 28/12/05
 Finish Date 27/10/07
 Data Date 21/06/06
 Run Date 03/07/06 15:52

Summary Bar
 Progress Bar

KS06
 Sheet 6 of 7
China Harbour Engineering Co.
Third Golf Course at Kau Sai Chau
3 Months Rolling

Date	Revision	Checked	Approved
28/12/05	4th Final for Submission	Tim	
01/03/06	Ver 5th (KST5)	Tim	

FIGURES



LEGEND :

-  PROPOSED GOLF COURSE
-  EXISTING GOLF COURSE
-  LAKE / RESERVOIR
-  TEE, FAIRWAY AND GREEN OF NEW GOLF COURSE
-  TEE, FAIRWAY AND GREEN OF EXISTING GOLF COURSE



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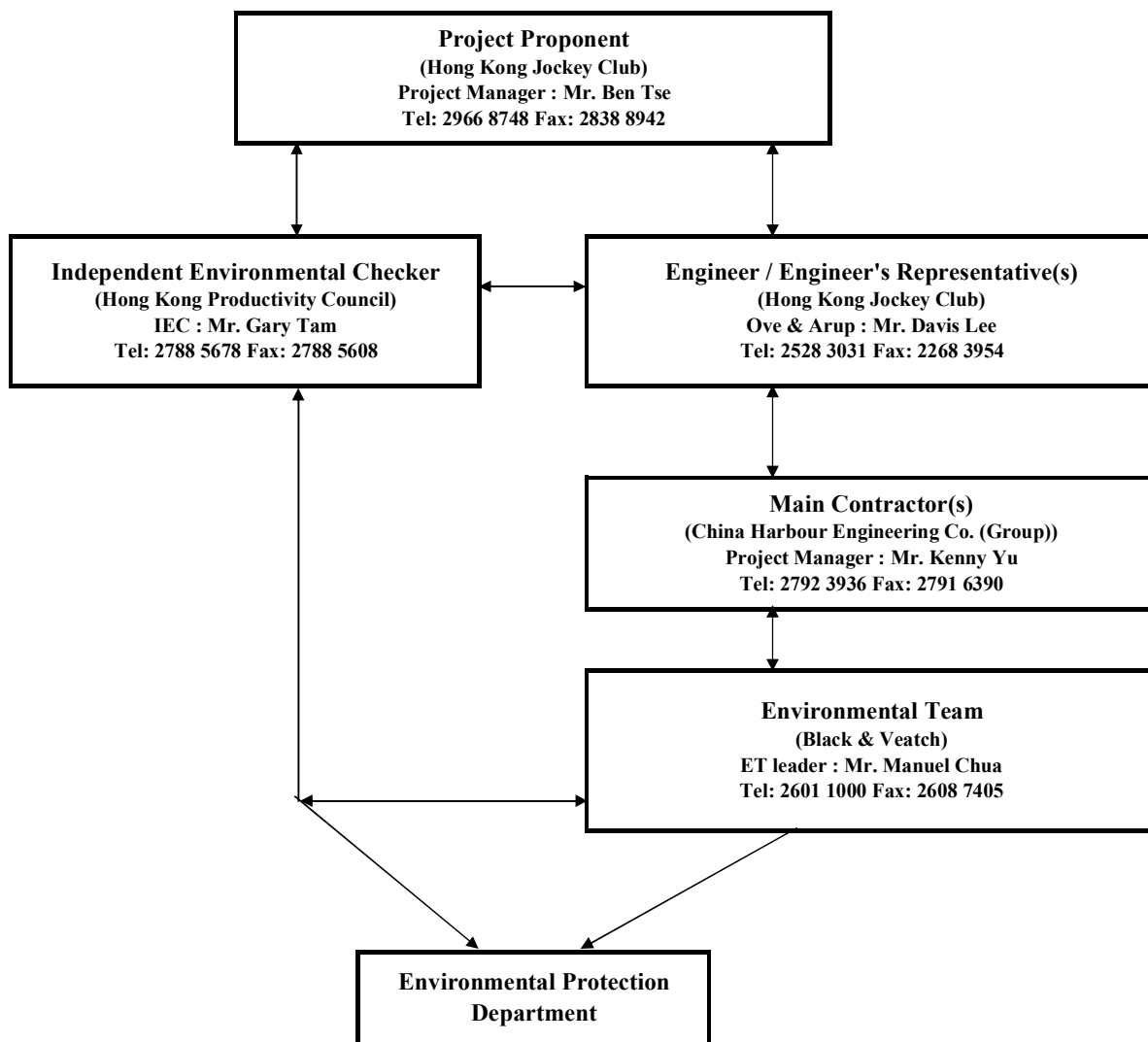
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 博威工程顧問有限公司

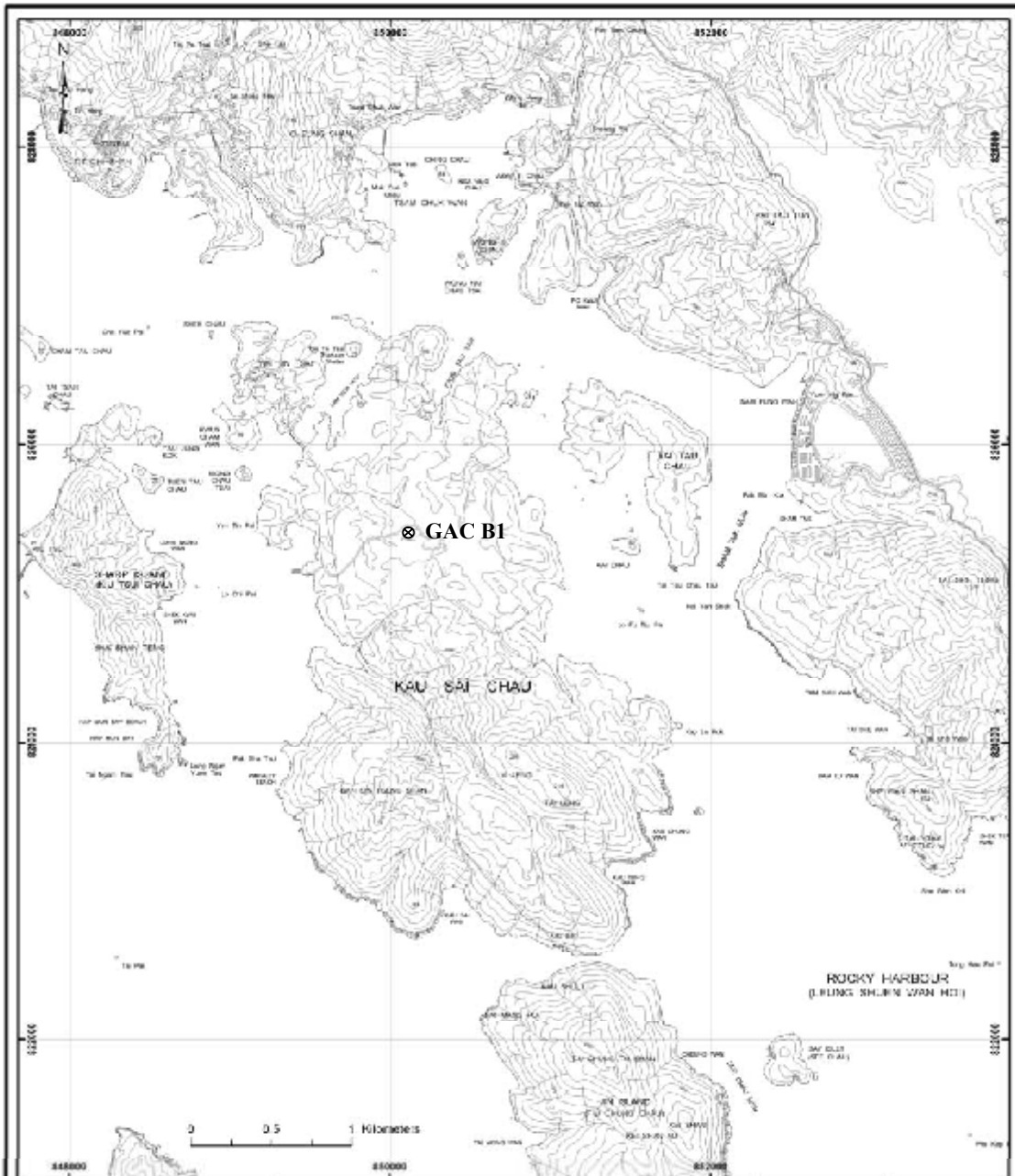
PROPOSED EXTENSION OF PUBLIC GOLF COURSE AT KAU SAI CHAU, SAI KUNG

PROPOSED 18-HOLE THIRD GOLF COURSE (MASTER LAYOUT PLAN)

Figure No.	Revision
2.1	-
Reference	File Name
-	3822100201-2.1.DGN
Prepared	Checked
ET	JW
Date	Scale
MAY 2005	1:15000 (A4)

Figure 1.2
Project Organisation and Lines of Communication





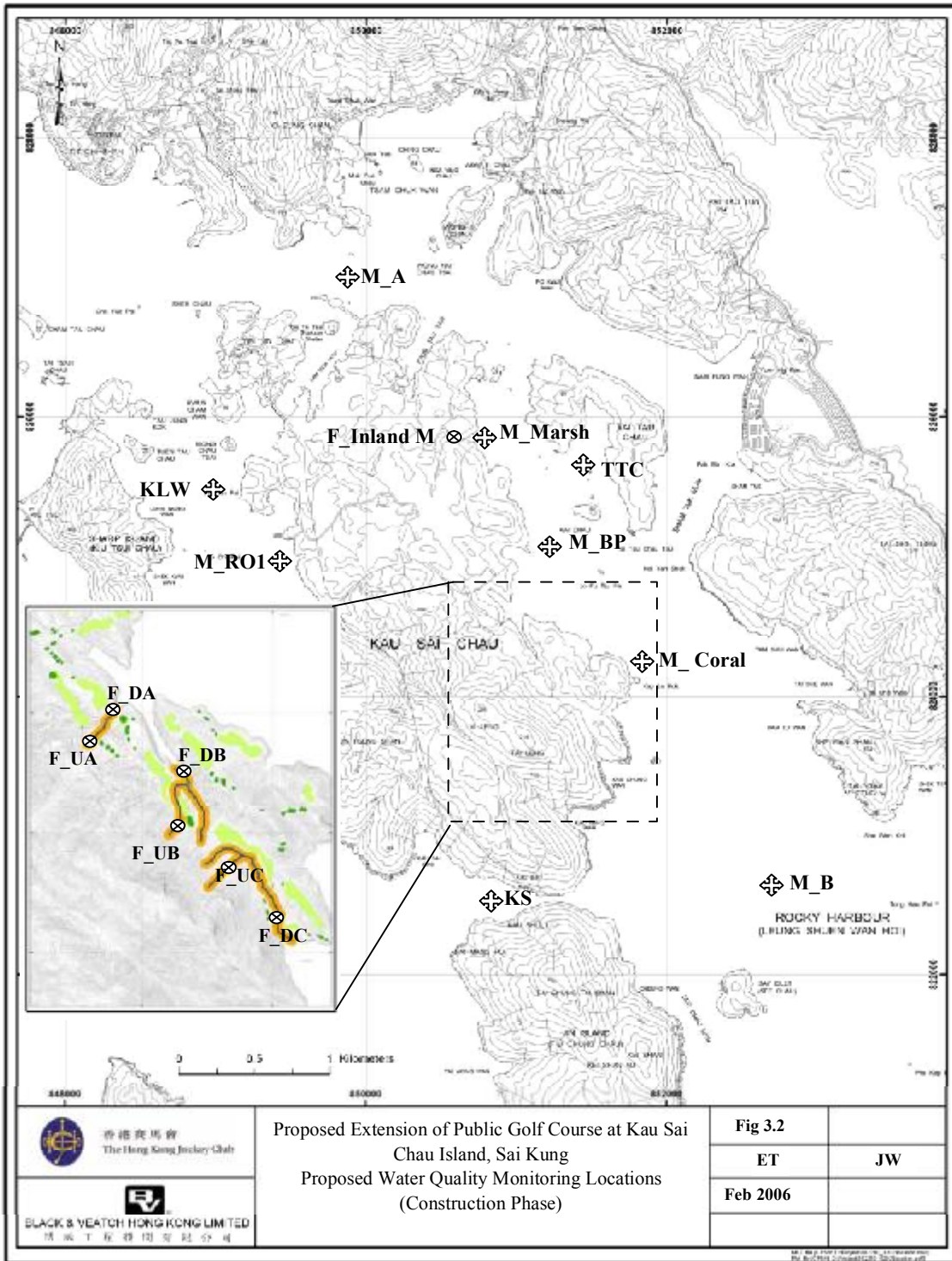

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Proposed Extension of Public Golf Course at Kau Sai
 Chau Island, Sai Kung
 Proposed Air Quality Monitoring Location

Fig 3.1	
ET	JW
Feb 2006	

此圖乃根據香港地政總署提供的地形圖編製而成。
 The map is compiled from the topographic map provided by the Government of the Hong Kong.

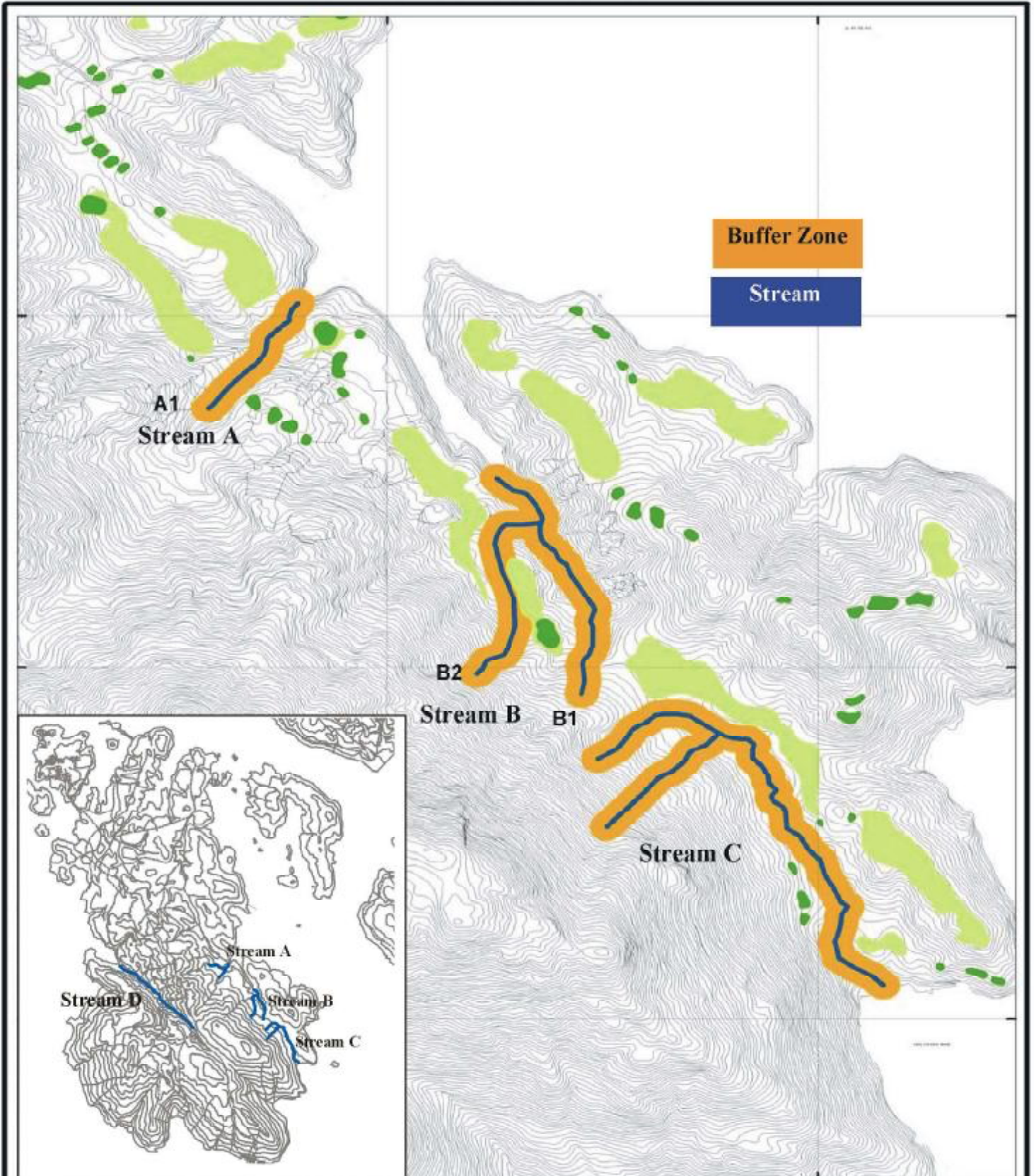



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Proposed Extension of Public Golf Course at Kau Sai
 Chau Island, Sai Kung
 Proposed Water Quality Monitoring Locations
 (Construction Phase)

Fig 3.2	
ET	JW
Feb 2006	



Buffer Zone

Stream

A1
Stream A

B2
Stream B **B1**

Stream C

Stream A

Stream B

Stream C

Stream D


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Proposed Extension of Public Golf Course at Kau Sai
 Chau Island, Sai Kung
 Proposed Ecological Monitoring Location
 (Streams Buffer Zone)

Fig 3.3	
ET	JW
July 2005	

Map No. J/27/05 (2) (Proposed) 2005 (Location only)
 Plan No. J/27/05 (2) (Proposed) 2005 (Location only)

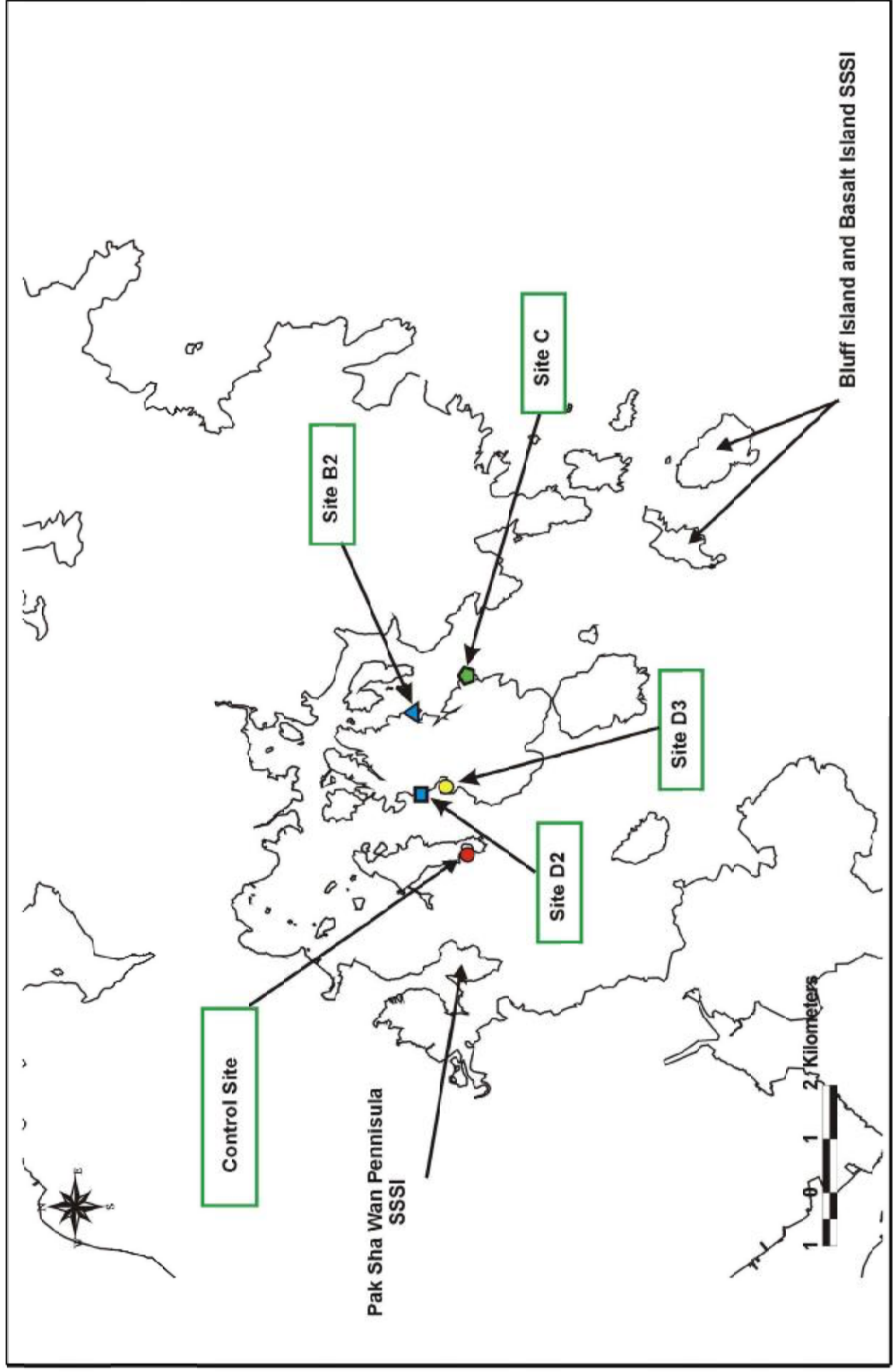


Figure 3.4 Site C, Site B2, Site D2 and a Control Site near the AFCD's Coral Buoy at Sharp Island

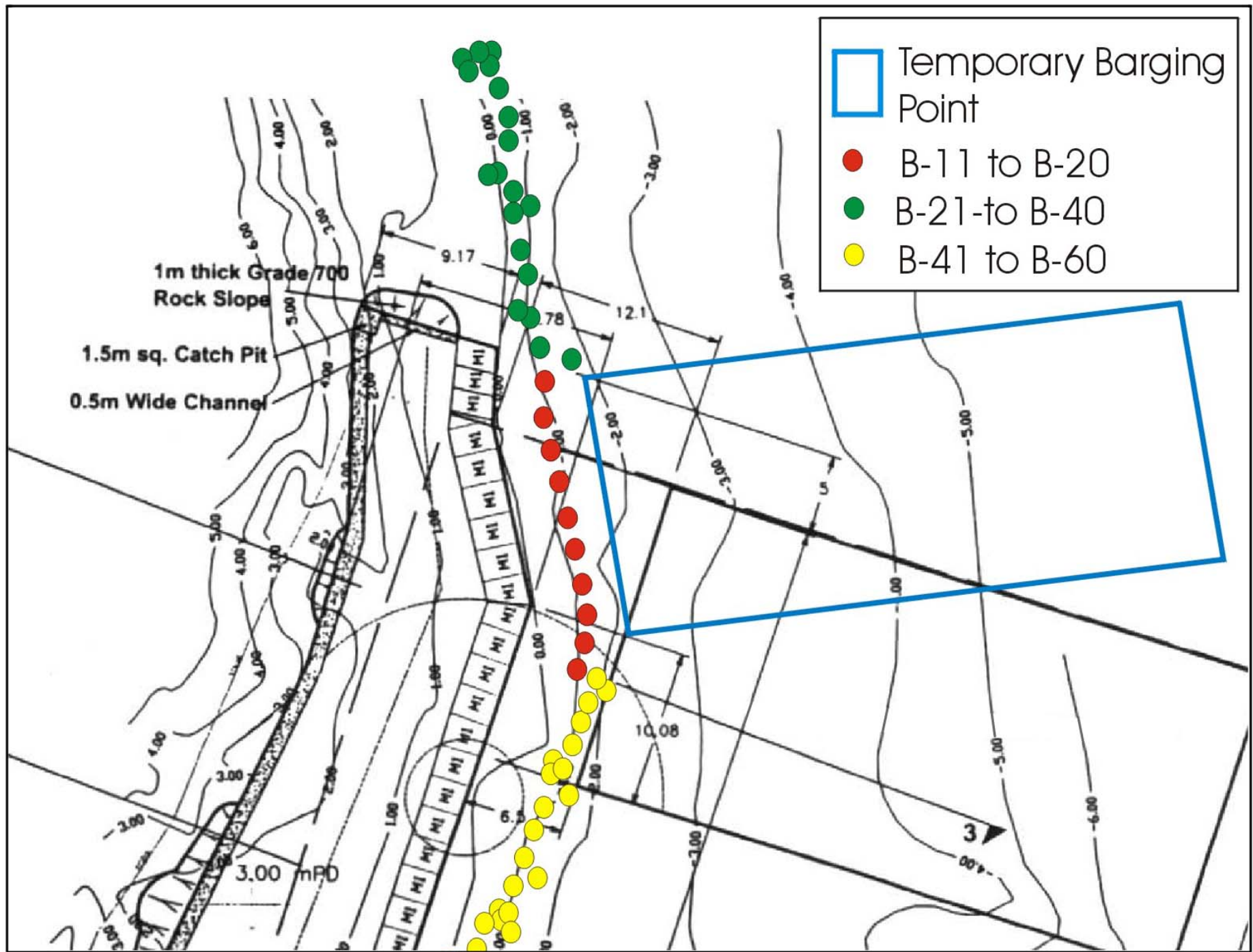


Figure 3.4b
Indicative map of additional tagged corals at Site B2

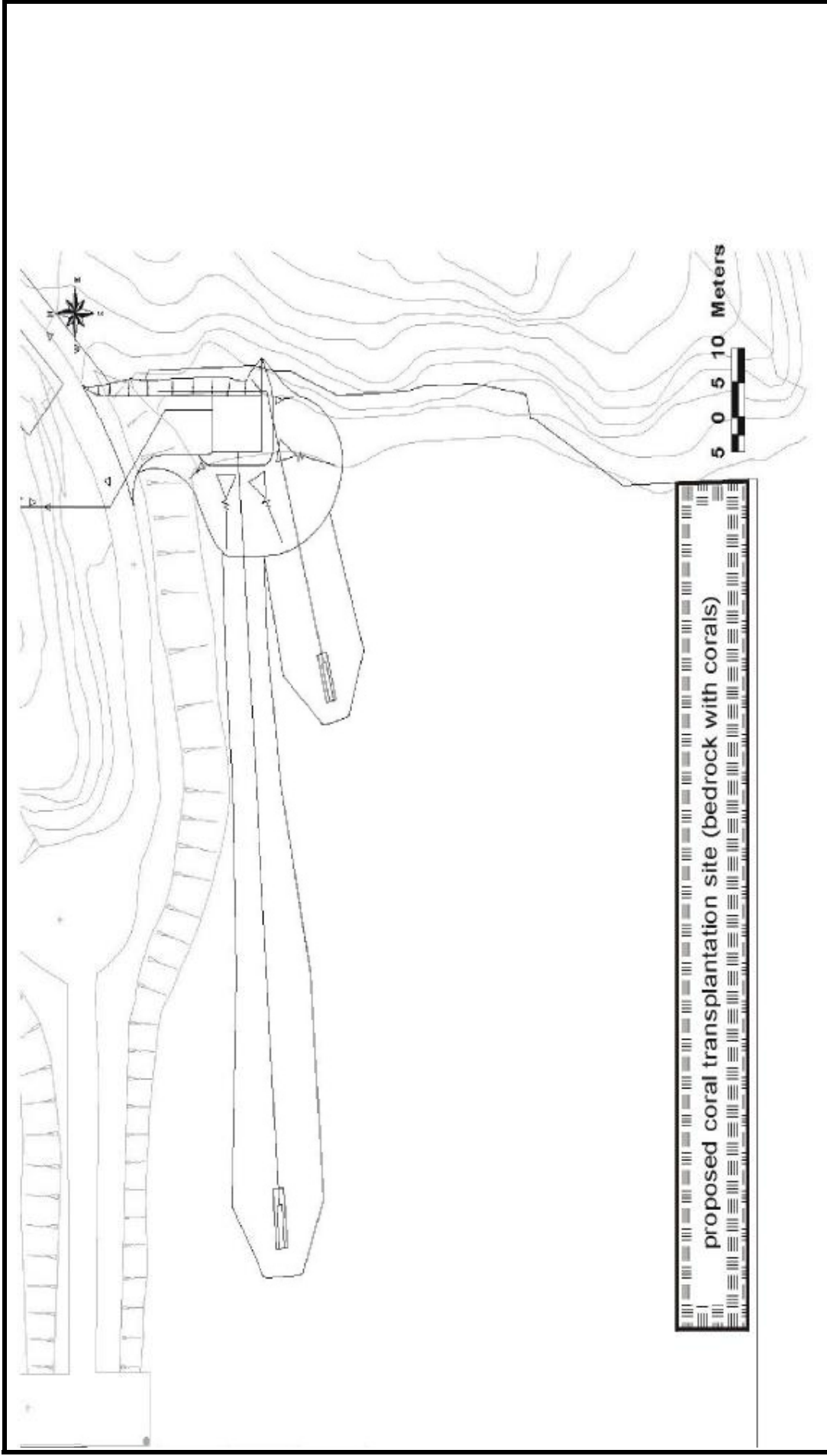


Fig 3.5

Prepared	Checked
FT	JW
Date	
	Jun-05

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

Location of proposed coral transplantation site (bedrock with corals)

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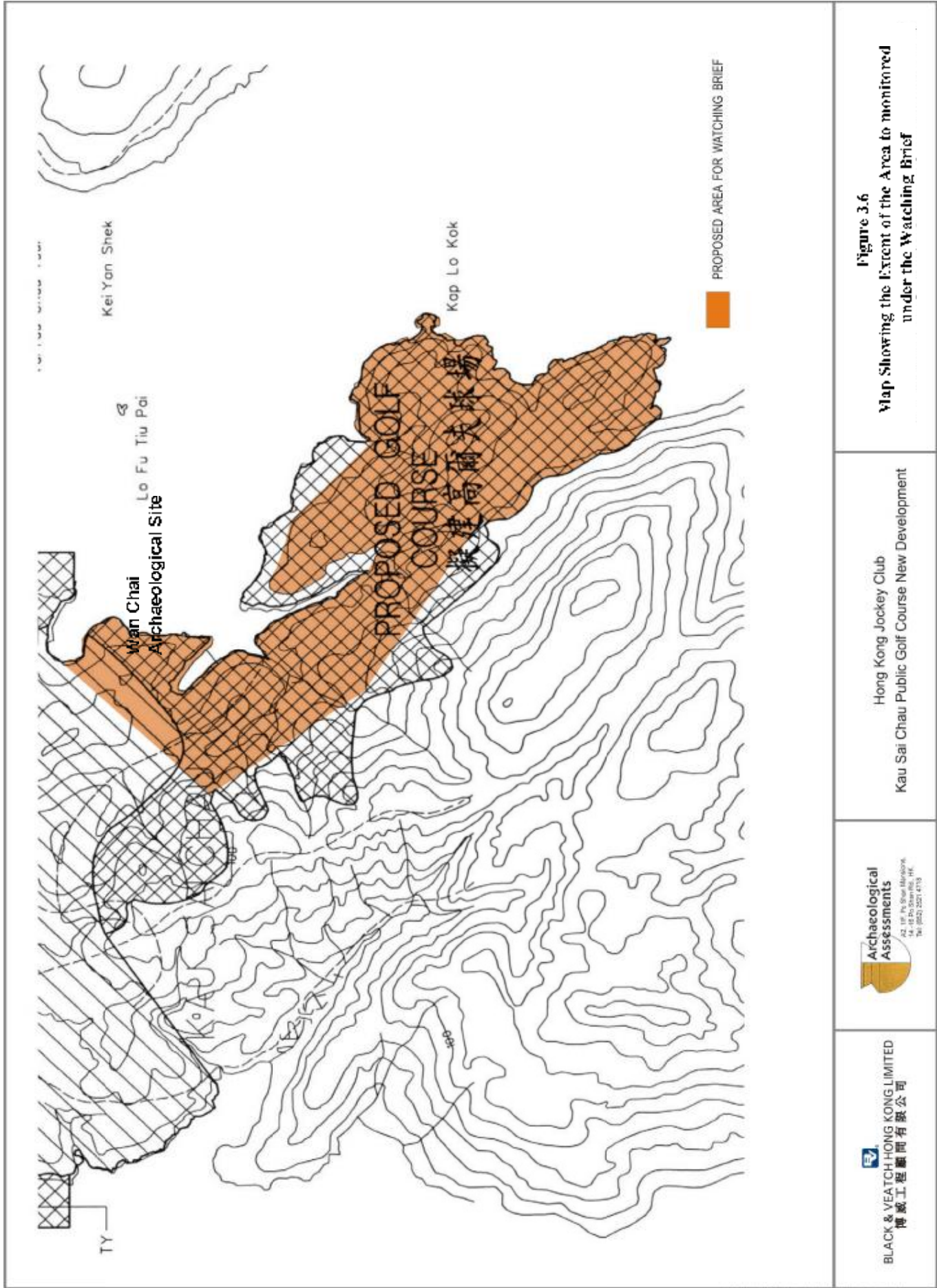
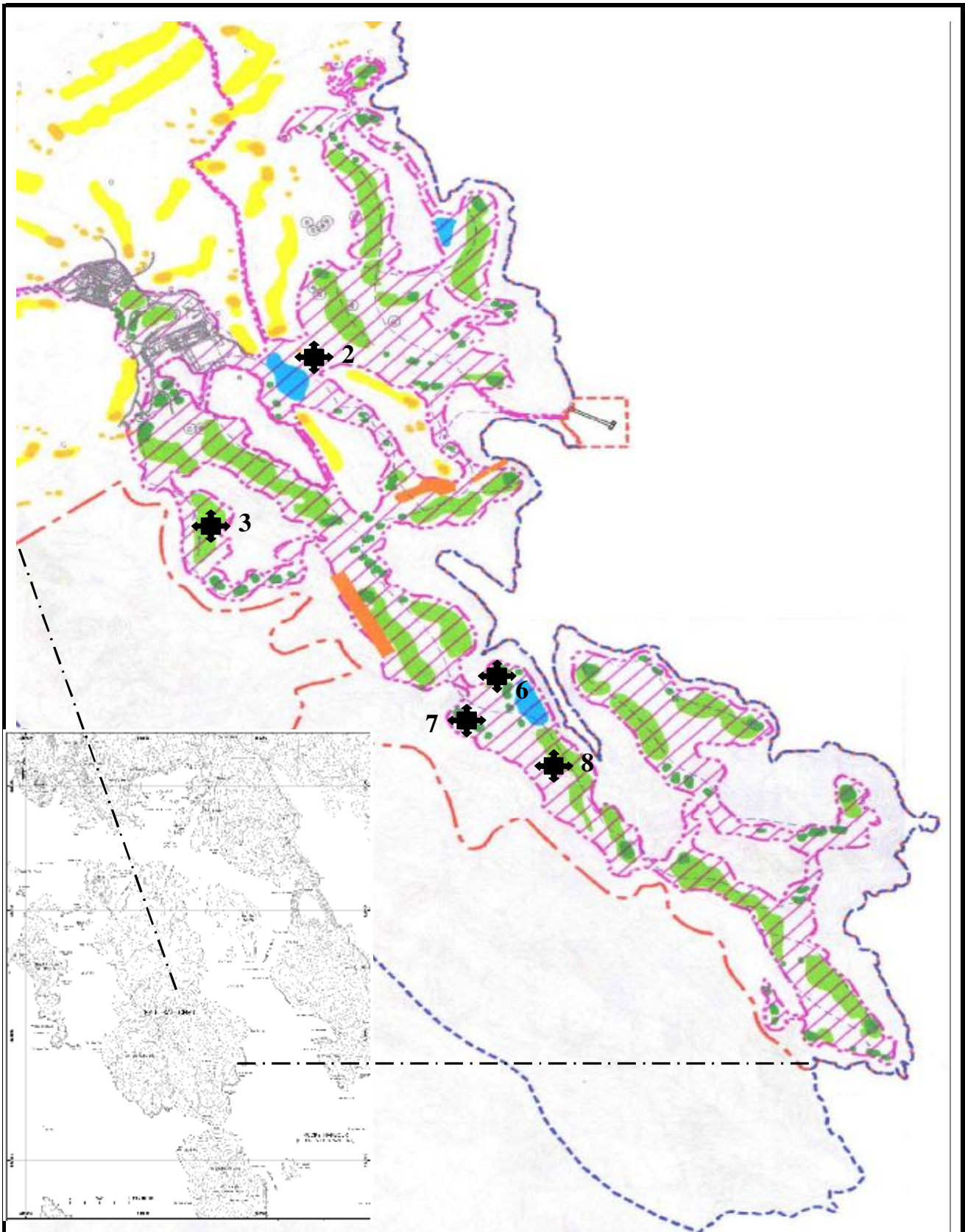


Figure 3.6
Map Showing the Extent of the Area to be monitored
under the Watching Brief

Hong Kong Jockey Club
 Kau Sai Chau Public Golf Course New Development



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

Sampling location for land contamination

Fig 3.7	
Prepared ET	Checked JW
Date Jun-05	