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

Monthly Environmental Monitoring & Audit (EM&A) Report for March 2007

(Report No. 382210/015)

Report Authorized For
Issue By:

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

CHECK CERTIFICATE

- 1. We certify that professional skill and care have been used in the checking of the Environmental Team's (ET) No.15 Monthly EM&A Report for March 2007 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.15 Monthly EM&A report for March 2007 has been verified.
- 3. We would comment that our evaluation of the ET's EM&A is based on a random audit process which cannot be guaranteed to have all non-conformities identified.

Signed

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Date 4th April 2007

Executive Summary

This is the fifteen Monthly Environmental Monitoring and Audit (EM&A) Report prepared by Black & Veatch, the designated Environmental Team (ET), for the Project "Proposed Extension of Public Golf Course at Kau Sai Chau Island, Sai Kung". The construction works of golf course was commenced on 16th January 2006. This report presents the results of the EM&A works conducted in the month of March 2007 (25th February to 24th March 2007).

Summary of construction works undertaken during this report period

No dredging of the permanent intake and outfall pipelines for the desalination plant has been carried out. Hong Kong Jockey Club (HKJC) is still gathering supplementary information to EPD. Construction work of Irrigation Lake 1D and associated pipelines for the desalination plant were still in progress (storage of the product water from the desalination plant for East Course irrigation in future) and expected to complete in mid-April 2007. As there is no discharge licence for the desalination plant, the plant will not be operated until successful application from EPD.

Site formation work at the scaring areas within the East Course boundary was carried out during the reporting month and completed in end-March 2007. However, some hydroseeding areas were not fully covered with hydroseed and re-hydroseeding was required. According to the latest construction programme prepared by the Contractor, most of the northern portion of East Course will be planted with turf in the dry season of 2007 (February to March). For southern portion of the East Course, major construction works were site formation and construction of permanent drainage system. Construction of permanent bridges will be completed before end March 2007 (nos. 10 at Stream B1 and 15 at Stream C) during the reporting month. Central portion will be the last portion to be planted with turf and mainly in wet season of 2007.

Turfing was commenced at Hole 8 on 12 February 2007 and completed (except green area) during the reporting month. For Hole 5, turfing was commenced on 6 March 2007 and was still in progress during the reporting month. Two applications of fertilizers were recorded at Hole 8 only. No chemical/pesticide was applied to the Holes 5 and 8. The current construction status indicated turfing delay at northern portion of East Course. In addition, no new turf or sand supply to the construction site was observed during the report month. The construction site was mainly hydroseeded at permanent slope/work areas.

Closed low flow drainage system includes lake formation, gravity drains, rising main, underground water tanks and pumping stations. The construction of gravity drains from Lake 1D to existing reservoir was mostly completed and reinstatement work was in progress during the reporting month. The construction of the closed low flow drainage for the East Course is in progress. The expected completion date for all lakes was in mid-April 2007. All underground tanks and related pumping stations were completed.

Regarding the vegetation clearance of Stream B2 buffer zone on 17 November 2006, the buffer zone at Stream B2 was reinstated by planting native shrub mix (*Gordonia axillaries*, *Melastoma candidum*, *Melastoma sanguineum*, *Rhaphiolepis indica*, *Rhodomyrtus tomentosa*) with approximate 400mm height at four plots per metre square density in late March 2007.

All permanent bridges were constructed and all temporary bridges were dismantled at Streams A, B, C and fresh water inland marsh. The floating pontoon was located and operated at the designated location according to Environmental Permit (EP). Concrete batching plant has been in operation.

The Contractor submitted the Temporary Drainage Management Plan (TDMP) to the Engineer for approval. ET and the Engineer reviewed the TDMP and provided comments. ET and the Engineer reminded the Contractor to prevent silty/nutrient/pesticides runoff to the streams and marine water. The Contractor will submit the revised TDMP early April 2007. The Engineer reminded that the Contractor

had to properly install and provide sufficient temporary drainage system on site before and during the coming wet season.

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	6 times
Water quality monitoring (marine + freshwater)	12 times
Terrestrial Ecology	1 time
Marine Ecology	1 time*
Landscaping & Visual	2 times

^{*} For marine ecology, it will be carried out on quarterly basis and the next coral monitoring will be in June 2007.

Air Quality

6 sets of 24-hour TSP monitoring were carried out on 26th February, 2nd, 3rd, 9th, 15th and 21st March 2007 at Bungalow A (GCA B1) at Kau Sai Chau during this reporting month. 24-hour TSP record on 2nd March 2007 was an additional sample due to the exceedance occurred on 14 February 2007.

Water Quality

12 sets of water quality monitoring were carried out on 26th and 28th February, 2nd, 5th, 7th, 9th, 12th, 14th, 16th, 19th, 21st and 23rd March 2007 at 9 marine and 7 freshwater monitoring locations. No rainstorm signal was hoisted during the reporting month.

Terrestrial Ecology

Terrestrial ecology was conducted on 16th and 19th March 2007. The demarcation of the stream buffer zone had been established for Streams A, B and C. The permanent access bridge for Stream C had been constructed except decking within Stream C buffer zone demarcation. The downstream section of Stream A channel was accidentally filled up by boulders before and remedial work will be implemented by the Contractor to clear the rubbles manually and restore the downstream. The condition of the Stream B2 buffer zone (partially cleared) remained the same as the previous reporting month. In general, Streams B, C and D and the riparian vegetation were in natural conditions similar to the condition during the Baseline Survey.

Marine Ecology

Marine ecology was conducted on 16th, 17th, 28th and 29th March 2007 at Site B2, Site C, Control Site and the transplanted coral site. A seawall had constructed at Site B2 as the landing point of the temporary barging point. The number of tagged corals at Site B2 was increased from 20 to 50 in April 2006, which included the original B11 to B-20 and newly established B-21 to B-60. The distribution of these tagged corals was 20 to the north of the barge, 20 to the south of the barge, and 10 within the area of the barge.

In the present survey, most of these tagged corals at Site B2 were in similar conditions as in the last monitoring (December 2006), but one colony which had previously been found toppled were missing in the present survey. Mortality on B-13 and damages (mortality and anchor damages) on other tagged corals (such as C-04 and C-10) recorded in previous monitoring were found similar in the present survey. The Control Site still remained similar conditions as during the Baseline Survey (no mortality, sedimentation or bleaching was found), except the missing of X-05 colony. All 89 transplanted corals were recovered and their conditions were similar to the baseline conditions (during the transplantation

process).

Landscaping & Visual

Landscape and visual monitoring and site audits were carried out on 7th and 21st March 2007. During the site audit, site formation, shaping, planting and building construction were carried out.

Shrub seedlings were planted on slopes of Holes 5 and 8. The newly planted shrubs are in fair health. Health condition of hydroseeded grass has declined due to the dry climate. The Contractor shall irrigate all the plants more frequently. The base of Hole 8 Green was shaped and base materials were ready. Sod is expected to be laid in April 2007 and the visual impact to the golfer will be greatly reduced afterward.

The Contractor shall take measures to improve the condition of damaged trees. Damaged trees next to administration building were still unprotected after being damaged by the adjacent construction activities.

The following works have been outstanding since July 2006: (i) no rectification work has been carried out for all mal-pruning transplanted trees, (ii) no provision of any tree protection zones for all retain trees near administration building - construction materials were stockpiled and surrounded at the tree base area, (iii) the cause of the tree death T925 was outstanding, (iv) transplanted tree T848 was in poor condition, and (v) soil around the transplanted trees was dry and more frequent watering (recommended dosage is 20L/day) is required in particular in dry season.

Environmental Site Auditing

Four weekly joint environmental site audits were carried out on 27th February, 6th, 13th and 20th March 2007, with the Engineer and Contractor's representatives. A monthly joint environmental site audit was carried out on 20th March 2007 by the Contractor's Representative, ET's representative and Independent Environmental Checker (IEC).

Environmental Non-conformance

Air Quality

No exceedance of 24-hour TSP was recorded at GCA B1 during the reporting month. Additional sample were taken on 2nd March 2007 due to the exceedance occurred in the previous monitoring month on 14th February 2006.

Marine Water Quality

Eleven exceedances of ammonia nitrogen and chlorophyll were recorded at Tai Tau Chau and M_Marsh. All exceedances were considered not project-related.

Freshwater Quality

Seven exceedances of turbidity and seven exceedances of suspended solids were recorded at Streams A, B, C and fresh water inland marsh. All exceedances were considered not project-related.

Eleven exceedances of ammonia nitrogen, eleven exceedances of nitrate nitrogen, one exceedance of nitrite nitrogen, twelve exceedances of total inorganic nitrogen and seven exceedances of chlorophyll a were recorded at downstream of fresh water inland marsh. Possible reasons could be due to (i) continuous wastewater discharge from temporary sewage treatment plant at the contractor's site office, (ii) the change of physical condition of fresh water inland marsh which may decrease the secondary treatment removal capacity and (iii) reinstatement work at upstream desilting at the upstream of fresh water inland marsh which was accumulated due to the rainstorms occurred in wet season 2006. Further review of action and

limit levels of ammonia nitrogen, nitrate nitrogen, nitrite nitrogen, total inorganic nitrogen and chlorophyll is recommended.

As the upstream monitoring locations at Streams B & C (F_UB and F_UC) are located within the construction work area since September 2006, they represent and become impact monitoring stations instead of control stations.

All notifications of exceedances and the subsequent exceedance incident reports have been forwarded to the relevant parties.

For those considered project-related exceedances at all streams and freshwater and marine water, 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 water 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.

No environmental complaint was received in this reporting month.

Implementation Status of Environmental Mitigation Measures

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

Air Quality

- Increase frequency of watering at main haul roads and rock breaking areas;
- Pave major haul roads with gravels/concrete to minimize the dust emission due to the heavy traffic;
- Cover all soil/sand/aggregates stockpiles with tarpaulin or other measures to reduce the dust emission;
- Install hoarding at the main exit/entrance of the construction site;

Waste Management

- Properly dispose of the vegetation stockpiles, general refuse and construction waste off-site;
- · Provide construction waste sorting area; and
- Provide sufficient mobile toilets at remote site areas;

Ecology

- Remove remaining rubbles at downstream of Stream A after temporary bridge dismantling;
- Maintain the reinstated (planting shrub) at Stream B2 buffer zone since March 2007; and
- Rectify and remediate the silt deposit at Stream C after the rainstorm occurred in November 2006.

Water Quality

- Submit the revised and implement temporary drains according to Temporary Drainage Management Plan (TDMP) to ER for approval for the coming wet season in 2007 to avoid silty/nutrient/pesticide runoff;
- Provide sufficient mitigation measure for the permanent bridges to avoid silty runoff;
- Minimize the water quality impact when undertaking cut-and-fill works and turfing. It is important to
 provide sufficient temporary drainage at critical areas to confine, collect and provide proper treatment
 before discharging to marine water and stream courses to ensure that the water quality is complied with
 WPCO requirements;
- Provide sufficient treatment facilities especially at water sensitive areas before water discharges from

construction site;

- Maintain the integrity of silt curtains and remove settled silt within the silt curtain which have been installed outside the fresh water inland marsh, near Hole 2, near Hole 4, inactive culture zone and Stream A;
- Strengthen the preventive/interim measures for avoiding silty runoff from the exposed areas to the low lying areas. More frequent maintenance of the silt fence is necessary; and
- Provide sufficient temporary drainage system at all temporary bridges.

Landscape & Visual

- Protect the retain trees with sufficient watering mainly located at the administration building;
- Provide sufficient water to the retain trees, transplanted trees, hydroseeding areas;
- Provide tree protection zone for all retain tree at the administration building; and
- Provide incident report for the death of the trees.

Future Key Issues

General issues to be considered in the coming month include:

- Potential dust generation from activities on-site: permanent drainage/irrigation system construction, concrete batching plant operation and soil/sand/aggregates stockpiles;
- Provide sufficient temporary drainage system and mitigation measures for construction temporary/permanent crossings at Streams A, B1, B2 and C;
- Turf establishment at northern East Course (Holes 4, 5, 6 & 8);
- Implement sufficient and improve the temporary drainage system (and make use of the permanent drainage system) on site to prevent silty/nutrients/pesticides runoff discharging to marine and stream courses before the coming wet season 2007;
- Apply the discharge licence for the desalination plant near to the existing KSC pier before operation;
- Dispose of construction wastes, vegetation and general refuse off-site; and
- Hydroseed the bare ground/temporary/permanent slopes according to the golf course design.

Key issues at particular areas:

- Submit the revised Temporary Drainage Master Plan (TDMP) for the silty runoff and turf establishment period prepared by the Contractor for Engineer and Jockey Club's approval;
- Carry out water quality monitoring for nutrients/pesticides due to turf establishment;
- Carry out coral monitoring for the transplanted corals on quarterly basis;
- Carry out coral monitoring when desalination plant operates in dry season and
- ADS filter system (nutrients and pesticides removal) at Hole 5 has already implemented on 12 February 2006 (3 units). There were 3 out of 5 units of ADS filter systems had been implemented at Hole 6. The remaining 2 units will be installed during the next reporting month.

1. Introduction

1.1 Background of the Project

- 1.1.1 Black & Veatch (hereinafter called the "ET") was appointed by Hong Kong Jockey Club (hereinafter called the "Project Proponent") to undertake Environmental Monitoring and Audit (EM&A) for "Proposed Extension of Public Golf Course at Kau Sai Chau Island, Sai Kung" (hereinafter called the "Project"). Under the requirements of Section 4 of Environmental Permit EP-224/2005, EM&A programme as set out in the EM&A Manual is required to be implemented. In accordance with the EM&A Manual, environmental monitoring of air quality, water quality, terrestrial and marine ecology, landscape and visual, archaeology (watching brief) and land contamination are required for the Project.
- 1.1.2 This report summarises the environmental monitoring and audit works for the Project in March 2007 (from 25th February to 24th March 2007).

1.2 Purpose of the Report

1.2.1 This is the fifteen EM&A report which summarizes the impact monitoring results and audit findings for the EM&A programme during the reporting period from 25th February to 24th March 2007.

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 Apr 2007 – 24 Jun 2007).
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 the 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 the new 18-hole golf course. Water stored at the new irrigation lake can also be diverted to existing reservoir for tertiary treatment and recycling;
 - A new desalination plant adjacent to the existing pier to serve as an additional irrigation water supply for the new golf course during dry season; and
 - Expansion of existing administration and maintenance buildings.
- 2.1.2 The potential environmental impacts of the Project have been studied in the Environmental Impact Assessment (EIA) report (EIAO Register No. AEIAR- 091/2005). The EIA was approved on 14 November 2005 under the EIAO. An Environmental Permit (EP-224/2005) was granted on 28 November 2005.

2.2 Site Description

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

2.3 Project Organization

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

2.4 Construction Programme

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

2.5 Status of Environmental Submission

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

Table 2.1 Summary of Compliance with EP Conditions

EP-224/2005	Environmental Permit Submission	Status	Remarks
2.3	Management organization of the main construction companies and/or any form of joint ventures associated with the construction of the Project.	Submitted	At least one week before the commencement of construction of the Project.
2.4	Contamination Assessment Plan (CAP) submission. If land contamination is confirmed by the site investigation, submission of a Remediation Assessment	Submitted	The Final Site Remediation Report (FSRR) was approved by EPD in this reporting month.

EP-224/2005	Environmental Permit Submission	Status	Remarks
	Plan (RAP) including a Contamination Assessment Report (CAR) is required.		
3.6	Detailed methodology for Coral Transplantation submission to the Director for approval.	Approved	Approved on 16 th November 2006. Coral transplantation at Site D2 was completed in early December 2006. No dredging work for the desalination plant's intake and outfall pipelines was carried out. AFCD has no comment for the coral donor site survey, coral mapping survey and coral transplantation reports.
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)
3.4	Variation of Environmental Permit for the construction of the temporary crossings at Stream B during wet season.	Completed	Variation of Environmental Permit was approved on 18 th August 2006. The revised registered EP was EP-224/2005/A.

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
	24-Hour TSP	1 Location	Once every 6 days	During Construction
Air Quality	1-Hour TSP	1 Location	Three times in every 6 days	During Construction (As required when complaint received)
	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)
Water Quality Te pF No	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
	Monitoring aquatic fauna	Streams B, C & D	Once a month	During Construction
Terrestrial Ecology	Environmental Site Inspection mainly on intact of buffer zones	Streams A, B and C	Once a week	During Construction

Impacts	Parameters/descriptions	Locations	Frequencies	Duration
	Transplanted corals	Site D2	Quarterly for one year after transplantation	During construction
	Site C, Site B2, Site D2, and the Control Site. Natural corals		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
Marine Ecology		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
		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
	Seagrass bed	Site D3, and at Site D2 if seagrasses were found during the baseline monitoring.	During the first two years of the operation phase. The monitoring schedule during the first three months would be monthly. After that, the monitoring schedule would be changed to semi-annually, i.e. once in dry season and once in wet season.	During Operation
Landscape and Visual	Audits to ensure effective implementation of mitigation measures	Project area and at visual sensitive receivers	Auditing inspections and reporting shall be undertaken once every two weeks of the construction phase and once every two months of the operation phase.	During Construction and Operation
Archaeology (Watching Brief)	Monitor archaeological potential sites at major cut areas	Hole 2, Hole 11, Hole 12, Hole 14, Hole 15 and Hole 16.	The archaeologist should keep the AMO informed of the progress of watching brief. The archaeologist should submit progress reports every 3 months during the programme of the watching brief.	During Construction
Land Contamination	Total Sulphur and Total Lead	Locations 2, 3, 6, 7 & 8	One month before commencement of work at the identified 5 hotspots	During Construction
General Site Conditions	Environmental Site Inspection	Works areas and areas affected by works	Periodically (weekly basis)	During Construction

3. Environmental Monitoring Requirements

3.1 Air Quality

Monitoring Requirement

- 3.1.1 24-hour TSP monitoring was carried out at GCA B1 to monitor the construction dust impact level in this reporting period.
- 3.1.2 The established Action/Limit Levels (AL levels) for the 1-hour and 24-hour TSP monitoring works are summarized in Table 3.1 and Table 3.2.

Table 3.1 Action and Limit Levels for 1-hour TSP

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

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

Table 3.2 Action and Limit Levels for 24-hour TSP

Location		Action Level	Limit Level
GCA B1	Bungalow A adjacent to Kau Sai Chau Public Golf Course Administration Building	187.4 μg m ⁻³	260 μg m ⁻³

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

Monitoring Parameters, Frequency and Programme

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

Table 3.3 TSP Monitoring Parameter and Frequency

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

Monitoring Locations

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

Monitoring Equipment

3.1.5 24-hour and 1-hour TSP (in case of complaints received) were performed using High Volume Samplers (HVS) and measured in-situ respectively. 24-hour TSP level of samples were collected using filters and High Volume Sampler and the collected samples were 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 were placed less than 2 metres apart;
 - the distance between the sampler and an obstacle, such as buildings, were at least twice the height that the obstacle protrudes above the sampler;
 - a minimum of 2 metres separation from walls, parapets and penthouses were required for the rooftop samplers;
 - a minimum of 2 metres separation from any supporting structure, measured horizontally was provided;
 - airflow around the sampler was unrestricted;
 - no furnaces or incineration flues were operating near the sampler;
 - the sampler was more than 20 metres from the dripline; and
 - any wire fence and gate to protect the sampler, did 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	FCZ	6.0 mg/L	FCZ	5.3 mg/L
(Surface & Middle)	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	FCZ	4.5 mg/L	FCZ	5.6 mg/L
(Depth-averaged)☆	All except FCZ	6.1 mg/L	All except FCZ	10.6 mg/L
SS (Depth-averaged) Dredging for submarine pipelines⊕	M_RO1	6.1 mg/L	M_RO1	10.6 mg/L
Turbidity (Tby) (depth-averaged) ☆	FCZ	2.9 NTU☆	FCZ	3.9 NTU☆
	All except FCZ	3.3 NTU☆	All except FCZ	6.2 NTU☆
Ammonia Nitrogen (depth-averaged)	FCZ	0.02 mg/L	FCZ	0.03 mg/L
	All except FCZ	$0.05~\text{mg/L}~\Delta$	All except FCZ	$0.05~\text{mg/L}~\Delta$
Nitrate Nitrogen (depth-averaged)	FCZ	0.08 mg/L	FCZ	0.09 mg/L
	All except FCZ	0.09 mg/L Δ	All except FCZ	$0.09~\text{mg/L}~\Delta$
Nitrite Nitrogen (depth-averaged)	FCZ	$0.02 \text{ mg/L } \theta$	FCZ	$0.02~\text{mg/L}~\theta$
(depth-averaged)	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
(mor my or mgom)	All except FCZ	0.16 mg/L	All except FCZ	0.18 mg/L
Total Phosphorus (depth-averaged)	All	$0.09~{ m mg/L}~\Delta$	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.

① : 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.

 $[\]Delta$: 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 \leq 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:

 $\stackrel{\wedge}{\bowtie}$: 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)		Marine Water Fish culture zone stations: TTC, KLW, KS
Temperature (°C)	3 days per week	Control stations: M_A, M_B
Turbidity (NTU)	Marine water: 2 times per day – 1 for mid-flood	Impact stations: M_BP, M_RO1, M_Marsh,
pН	and 1 for mid-ebb Freshwater:	M_Coral
Salinity (ppt)	once per day	Stream A (F_UA, F_DA)
Suspended Solids (mg/L)		Stream B (F_UB, F_DB) Stream C (F_UC, F_DC) Inland Marsh (F_Inland_M)

Monitoring Locations

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

Table 3.8 Water Quality Monitoring Locations during Construction Phase

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

рΗ

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 have 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. No exceedance was recorded during these three months, the monitoring schedule were 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. Although the dredging works for the desalination plant have yet to conduct, 89 natural corals near the plant were transplanted in November 2006. The transplanted corals would be monitored quarterly for a year and the first and second monitoring were conducted in December 2006 and March 2007 (this reporting month). The next reporting month will be in June 2007.

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

- 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 decussata, 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 The reporting month (March 2007) was the Month fifteen of the construction programme. As the dredging works for the desalination plant had not been commenced, the impact sites to be monitored in this monitoring survey were Site B2 and Site C (impact sites on the eastern Kau Sai Chau Island for the new golf course) only, while Site D2 and Site D3 (impact sites on the western Kau Sai Chau Island for desalination plant) were not required in this survey. The coral transplantation, which should be conducted prior to the commencement of dredging works according to the EM&A manual, were conducted in November 2006 due to the possible commissioning of the desalination plant in the coming dry season 2007 to supply water for turf establishment for the third golf course. The first quarterly monitoring on transplanted corals on the bedrock at Site D2 (see **Figure 3.5**) was performed in December 2006. 89 natural corals were transplanted and each was assigned with a number. These corals would be monitored quarterly for a year after transplantation.
- 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). No exceedence was recorded during the extended three-month period and the schedule was changed to quarterly. The present survey was the eighth monitoring survey (the second quarterly survey on the eastern Kau Sai Chau Island). The survival and health conditions of the coral colonies were recorded.
- 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 Major construction work of the third golf course were (i) site formation at south holes and Hole 17, (ii) permanent closed low flow drainage system installation including lake/pumping station construction and gravity drain from Lake 1D to existing reservoir, (iii) irrigation system installation, (iv) sub-soil drains installation and (v) hydroseeding at the permanent slope/bare grounds, (vi) partial turfing at Hole 5.
- 4.1.2 The huge soil stockpiles located at Holes 1 and 16 were planted with hydroseed to reduce the dust generation. No dust suppression mitigation measure was provided for all rock breaking areas. Dust suppression measures for loading/unloading activities, rough shaping and haul road (truck traffic) were insufficient.
- 4.1.3 The water source for dust suppression was mainly pumped from the downstream of the fresh water inland marsh and underground water generated near Lake 1D. Downstream of Streams A & C were relatively dry during the dry season, only small quantity was extracted from Stream A.
- 4.1.4 Temporary Drainage Management Plan (TDMP) was submitted by the Contractor for ER's approval in mid-March 2007. ET and the Engineer were provided the comments to the Contractor. The Contractor had to revise the TDMP and implement on site before the wet season.
- 4.1.5 Silt fence was implemented along the site boundary (major component of the temporary drainage system) for most of the exposed areas. According to the site observation, most of the temporary drains (silt fence) were removed along the site boundary of the golf hole and considered unsatisfactory (in particular at Northern and centre section of East Course). In addition, layers of silt fence were installed by surrounding the catch basins to prevent the silty runoff directly into the permanent drains. The Contractor was reminded to maintain the silt fence more frequently to prevent silty runoff to the water sensitive areas and critically review the temporary drainage provided on site. Silty runoff was recorded at all streams and freshwater inland marsh on 12 March 2006 after scattered showers. Potential heavy rain(s) could still occur during the dry season.
- 4.1.6 Hydroseeding at scar areas within the East Course was completed before March 2007. However, some areas were required re-hydroseeding. Vegetation stockpiles, general refuse and construction waste stockpiles were temporary stored at Hole 2 and disposed off-site after accumulation for four weeks during this reporting month. The Contractor was reminded to dispose all other remaining construction wastes gradually off-site and submitted the trip tickets record for our reference.
- 4.1.7 Reinstatement work at Stream B2 buffer zone was carried out during the reporting month by planting native shrub (including *Gordonia axillaries*, *Melastoma candidum*, *Melastoma sanguineum*, *Rhaphiolepis indica*, *Rhodomyrtus tomentosa*) with approximate 400mm height at four plots per metre square density.
- 4.1.8 Chemical waste storage area was available starting from this reporting month and located at the concrete batching plant. Insufficient mobile toilets were available on site at remote areas, only few units were located at the southern portion of construction site.
- 4.1.9 No dredging work has been carried out near to the existing pier for the desalination plant pipelines. 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 6 occasions in February to March 2007. All monitoring data are provided in **Annex E**. Monitoring of 24-hour TSP was conducted at GCA B1 on 26th February, 2nd, 3rd, 9th, 15th and 21st March 2007. 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-hour TSP was recorded at GCA B1 during the reporting month. Additional TSP sample was taken on 2nd March 2007 due to the exceedance occurred in 14th February 2007.

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**.
- Monitoring of marine and freshwater locations was conducted on 12 occasions in February to March 2007 (26th and 28th February, 2nd, 5th, 7th, 9th, 12th, 14th, 16th, 19th, 21st and 23rd March 2007). The QA/QC results for laboratory testing in the reporting month were acceptable. The QA/QC results are summarised in **Annex F**. No rainstorm signal was hoisted during the reporting month.
- 5.2.3 Turf was established at Hole 5 on 6 March 2007 and still in progress during the reporting month. Additional water quality parameters include NH₃-N, NO₃-N, NO₂-N, TIN, TP and Chlorophyll a. Monitoring locations for the additional parameters include F_Inland M, M_Marsh, M_BP, TTC and M_A.

Marine water

- M Marsh: One limit level exceedance of ammonia nitrogen
- TTC: Six action level and one limit level exceedances of ammonia nitrogen; one action level and two limit level exceedances of chlorophyll.
- 5.2.4 The marine water exceedances were summarised in **Table 5.2-1.**

Table 5.2-1 Marine water Exceedance Summary February to March 2007

Monitoring Station	Exceedance Level	Date	Parameters	Project-
				related
M_Marsh	Limit Level	28 th Feb 07	NH ₃ -N	No
TTC	Action Level	26 th Feb 07	NH ₃ -N	No
	Limit Level	26 th Feb 07	Chl a	No
	Limit Level	28 th Feb 07	NH ₃ -N	No
	Limit Level	5 th Mar 07	Chl a	No
	Action Level	7 th Mar 07	NH ₃ -N	No
	Action Level	12 th Mar 07	NH ₃ -N	No
	Action Level	14 th Mar 07	NH ₃ -N	No
	Action Level	19 th Mar 07	Chl a	No
	Action Level	21 st Mar 07	NH ₃ -N	No
	Action Level	23 rd Mar 07	NH ₃ -N	No

Remarks: All exceedances were mainly due to natural variation of the marine water.

- 5.2.5 The range of the chlorophyll a measured at the Control Station (M_A) was between 0.5 μ g/m³ and 3.3 μ g/m³. The range of chlorophyll a measured at TTC was between 0.5 μ g/m³ and 1.8 μ g/m³. There is no significant difference of the measured concentrations between control station and impact stations.
- 5.2.6 The range of the ammonia nitrogen measured at the Control Station (M_A) and TTC the same (range between 0.01 mg/L and 0.04 mg/L). There is no significant difference of the measured concentrations between control station and impact stations.
- 5.2.7 Therefore, the all exceedances were considered not project-related. Further review of the action and limit levels of chlorophyll and ammonia nitrogen is recommended.

Freshwater

- Stream A: One limit level exceedance of turbidity and one limit level exceedance of suspended solids.
- Stream B: One action and one limit level exceedances of turbidity; One action and one limit level exceedances of suspended solids.
- Stream C: Two limit level exceedances of turbidity; Two limit level exceedances of suspended solid.
- F_Inland Marsh: Two limit level of turbidity, two limit level of suspended solids, eleven limit level exceedances of ammonia nitrogen, twelve limit level exceedances of nitrate nitrogen, one limit level of nitrite nitrogen, twelve exceedances of total inorganic nitrogen and seven limit level exceedances of chlorophyll a.
- 5.2.8 The freshwater water exceedances were summarised in **Table 5.2-2.**

Table 5.2-2 Freshwater Exceedance Summary February to March 2007

Monitoring	Exceedance	Date	Parameters	Project-
Station	Level			related
F_DA	Limit Level	12 th Mar 07	SS, turbidity	Yes
F_UB	Action Level	12 th Mar 07	SS, turbidity	Yes
F_DB	Limit Level	12 th Mar 07	SS, turbidity	Yes
F_UC	Limit Level	12 th Mar 07	SS, turbidity	Yes
F_DC	Limit Level	12 th Mar 07	SS, turbidity	Yes
F_Inland M	Limit Level	26 th Feb 07	NH ₃ -N, NO ₃ -N, TIN, Chl a	Yes
	Limit Level	28 th Feb 07	NH ₃ -N, NO ₃ -N, TIN	Yes
	Limit Level	2 nd Mar 07	NH ₃ -N, NO ₃ -N, TIN	Yes
	Limit Level	5 th Mar 07	NH ₃ -N, NO ₃ -N, TIN, Chl a, SS, turbidity	Yes
	Limit Level	7 th Mar 07	NH ₃ -N, NO ₃ -N, TIN, Chl a	Yes
	Limit Level	9 th Mar 07	NH ₃ -N, NO ₃ -N, TIN	Yes
	Limit Level	12 th Mar 07	NH ₃ -N, NO ₃ -N, TIN, Chl a	Yes
	Limit Level	14 th Mar 07	NH ₃ -N, NO ₃ -N, TIN	Yes
	Limit Level	16 th Mar 07	NO ₃ -N, TIN	Yes
	Limit Level	19 th Mar 07	NH ₃ -N, NO ₃ -N, TIN, Chl a, SS, turbidity	Yes
	Limit Level	21 st Mar 07	NH ₃ -N, NO ₃ -N, TIN, Chl a	Yes
	Limit Level	23 rd Mar 07	NH ₃ -N, NO ₃ -N, NO ₂ -N, TIN, Chl a	Yes

Remarks: Exceedances recorded at Streams A, B & C were mainly due to insufficient temporary drainage provided on site. Exceedances recorded at F_Inland Marsh could be due to discharge from temporary sewage treatment plant and decrease of removal effectiveness within fresh water inland marsh and insufficient temporary drainage provided on site.

- 5.2.9 Exceedances of ammonia nitrogen, nitrate nitrogen, nitrite nitrogen, total inorganic nitrogen and chlorophyll a were recorded at downstream of fresh water inland marsh. Possible reasons could be due to (i) continuous wastewater discharge from temporary sewage treatment plant at the contractor's site office, (ii) the change of physical condition of fresh water inland marsh which may decrease the secondary treatment removal capacity (heavily silt after rainstorms occurred in wet season 2006) and (iii) reinstatement work at upstream of fresh water inland marsh (desilting). Further review of action and limit levels of ammonia nitrogen, nitrate nitrogen, nitrite nitrogen, total inorganic nitrogen and chlorophyll is recommended. All exceedances were considered project-related but not due to the turf establishment (only two applications of nutrients was recorded in February and March 2007 at Hole 8).
- 5.2.10 For the upstream monitoring location (F_UB), it is located downstream to the construction area near Hole 10 and the monitoring location cannot be relocated further upstream (temporary bridges located at Streams B1 and B2) as no water was observed and available for sampling. For Stream C, exceedances were recorded at both upstream and downstream monitoring locations. For the upstream monitoring location (F_UC), it is located downstream to the construction area near Hole 16 and the monitoring location cannot be relocated further upstream as no water was observed and available for sampling. Therefore, the F_UC is considered the most upstream location of Stream C. Same as Stream B, it is considered that F_UC is also the impact monitoring location and F_UA was used as the representative control monitoring station.

5.3 Ecology

- 5.3.1 Terrestrial and marine ecology monitoring photos are provided in **Annex E**.
- 5.3.2 The Monitoring Survey for the reporting month was conducted on 16th and 19th March 2007. The project site has been fully cleared and under construction works.
- 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 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 still to be filled up by rubbles which was first report in June 2006 (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. Tributary A2 had been converted to underground pipeline as proposed in the EIA report. It was found in the present survey that the flow in the main stream course of Stream A was very turbid. It might be attributed to the earthworks on the stream banks of Tributary A1 (just upstream to the main stream). 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, and improve the water quality, 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).

- 5.3.6 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.
- 5.3.7 In the present survey, it was found that the flow in Stream B has restored from the minor turbidity reported in November 2006. The stream bed and banks had no sign of severe sedimentation, probably due to the protection of the vegetation inside the buffer zone. Aquatic fauna including *Caridina trifasciata* were still sighted in the stream. An area of the buffer zone of Tributary B2 was however accidentally cleared (see **Figure 5.3.1**). This might affect the function of the buffer zone for the stream protection, and remedial plan such as replanting should be implemented.
- 5.3.8 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) were protected by buffer zone (**Figure 3.3**). The temporary access bridge across Stream C had been in place, and the piers for the permanent bridge were constructed outside the buffer zone demarcation.
- 5.3.9 Sedimentation in Stream C was reported previously in November 2006 because silt fences were found collapsed after the heavy rainfalls. In the present survey, it was found that the majority of the main stream course of Stream C was still covered by a thin layer of find sediment as found in November monitoring. The flow was clear during the survey, and aquatic fauna including *Caridina trifasciata* were found hiding among the aquatic plants, the sediments covered the bottoms of rock pools and reduced the habitat sizes available for the aquatic fauna. This might limit the aquatic communities in Stream C. Measures should be taken to prevent any further sedimentation incident in the future.
- 5.3.10 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. In the present survey, the flow was found clear in Stream D, and Atyid shrimp *Caridina trifasciata* was still recorded.
- 5.3.11 Photos of Streams A to C were shown in **Photo Plate 5.3-1 (Annex E)**. The habitats and vegetation generally remained intact within a large potion of the project site (beyond the works fronts), within the stream buffer zone (except an area for Tributary B2) 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.

Marine Ecology

5.3.12 The present Marine Ecological Monitoring Survey was conducted on 16th, 17th, 28th and 29th March 2007. The weather conditions were fair on those date, the underwater visibility was good (approximately 4m). 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 checked. But one of the 20 tagged colonies at Control Site (X-05) and one of the 50 tagged corals at Site B2 (B-60) were found lost in the previous monitoring surveys, probably due to the strong wave actions during typhoon weather. The 89 transplanted corals were monitored for the first time after transplantation in this month.

- Site B2 was the location for the temporary barging point. Some rectangular concrete blocks 5.3.13 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. 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). Two tagged corals at this site (i.e.B-59 and B-60) were missing in previous monitoring, and were considered removed by the wave actions during the adverse weather conditions such as typhoons. The skeleton of B-59, however, was recovered in the last survey in December 2006. This colony might previously be covered by sediment or be toppled due to wave action, but was exposed again by wave action. This colony was still of 100% mortality in the present survey. B-19 was found toppled in previous monitoring survey (May 2006) and was then restored to the original posture. In the following monitoring surveys (September and December 2006), the mortality of this colonies was found at about 70%. This partial mortality of this colony should not be considered as a consequence of the operation of the temporary barging point. This colony however was found missing in the present survey. B-58 had also been found a 60% mortality during June monitoring survey and its conditions remained similar in the present survey. B-42 which was found toppled with a 90% mortality in the December 2006 survey. It had been restored to its original posture and was of similar conditions in the present survey. B-13 was also found partially buried by sediment with a 30% mortality, and the sediment was removed. There were some minor (<10%) mortality on tagged corals (see Table 5.3-1). Besides the above damages recorded in previous monitoring, new damages on tagged corals include B-16 and B-18. B-16 showed a 50% mortality while B-18 was covered by sediment on 15% of surface. As there was no other corals showing significant mortality, it was unlikely that the mortality of B-16 and B-18 was caused by the barging point operation or the construction of the golf course. The partial mortality of these colonies should also not be considered as a consequence of the operation of the temporary barging point. Other corals remained similar conditions with their baseline conditions during the Baseline Survey in December 2005 or in April 2006. No difference were 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.
- 5.3.14 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. C-04 was found upside down on the seabed previously, while C-10 had sign of anchor damage. No other mortality, sedimentation or bleaching was found on other tagged corals (see **Table 5.3-2** and **Annex E Photo Plates 5.3-7 to 5.3-8**).
- 5.3.15 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 was lost in previous monitoring in June 2006. 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**).
- 5.3.16 The 89 transplanted corals were checked for the first time after the transplantation survey. The site was the bedrock near Site D2, to the south of the existing ferry pier. This site is less exposed than other sites such as Site C as it is facing Sharp Island and the Sai Kung direction. All 89 transplanted corals were recovered and no mortality, sedimentation or bleaching was

found on any of the transplanted corals (see **Table 5.3-4**). The corals remained similar with the baseline conditions during the transplantation survey (**Annex E - Photo Plates 5.3-11 to 5.3-16**).

5.3.17 **Photo Plates 5.3-2** to **5.3-16** showed the photos of each tagged corals and transplanted corals. The assigned numbers, species, mortality percentage, sedimentation coverage percentage and bleaching percentage of the baseline conditions of tagged corals and transplanted corals and their present conditions were presented in **Tables 5.3-1** to **5.3-4** below.

Table 5.3-1 Conditions of tagged corals at Site B2

			Baseline Survey (December 2005 or April 2006)			Month Fifteen (Mar 2007)		
Code of tagged corals	Species*	Mortality (%)	Sedimentation (%)	Bleaching (%)	Mortality (%)	Sedimentation (%)	Bleaching (%)	
	Within th	e Tempor	ary Bargin	g Point Ar	·ea			
B-11	Turbinaria peltata	0	0	0	0	0	0	
B-12	Plesiastrea versipora	0	0	0	0	0	0	
B-13	Plesiastrea versipora	0	0	0	30	0	0	
B-14	Goniastrea aspera	0	0	0	0	3	0	
B-15	Lithophyllon undulatum	0	0	0	0	10	0	
B-16	Favia speciosa	0	0	0	50	0	0	
B-17	Favia speciosa	0	0	0	0	0	0	
B-18	Turbinaria peltata	0	0	0	0	15	0	
B-19	Favia speciosa	0	0	0	Missing	Missing	Missing	
B-20	Favia speciosa	0	0	0	0	0	0	
	To the North	of the Tem	porary Ba	rging Poir	t Area	T	T	
B-21	Favia speciosa	0	0	0	0	0	0	
B-22	Cyphastrea serailia	0	0	0	0	0	0	
B-23	Favia speciosa	0	0	0	0	0	0	
B-24	Favia speciosa	0	0	0	0	0	0	
B-25	Favites abdita	0	0	0	0	0	0	
B-26	Cyphastrea serailia	0	0	0	0	0	0	
B-27	Favia speciosa	0	0	0	0	0	0	
B-28	Goniopora columna	0	0	0	0	0	0	
B-29	Cyphastrea serailia	0	0	0	0	0	0	
B-30	Favia speciosa	0	0	0	0	0	0	
B-31	Platygyra acuta	5	0	0	0	0	0	
B-32	Favia speciosa	3	0	0	0	0	0	
B-33	Turbinaria peltata	0	0	0	0	0	0	
B-34	Cyphastrea serailia	0	0	0	0	5	0	
B-35	Cyphastrea serailia	0	0	0	0	0	0	
B-36	Platygyra acuta	0	0	0	0	0	0	
B-37	Favia speciosa	0	0	0	0	0	0	
B-38	Cyphastrea serailia	0	0	0	0	0	0	
B-39	Cyphastrea serailia	0	0	0	0	0	0	
B-40	Favia speciosa	0	0	0	0	0	0	
	To the south of	_	• •	rging Poin				
B-41	Leptastrea pruinosa	0	0	0	0	0	0	
B-42	Goniastrea aspera	0	0	0	90	0	0	
B-43	Favia speciosa	0	0	0	0	0	0	

			Survey (D or April 2		Month Fifteen (Mar 2007)		
Code of tagged corals	Species*	Mortality (%)	Sedimentation (%)	Bleaching (%)	Mortality (%)	Sedimentation (%)	Bleaching (%)
B-44	Cyphastrea serailia	0	0	0	0	10	0
B-45	Platygyra acuta	0	0	0	0	0	0
B-46	Favia speciosa	0	0	0	0	0	0
B-47	Favites abdita	0	0	0	5	0	0
B-48	Cyphastrea serailia	0	0	0	0	0	0
B-49	Goniopora columna	0	0	0	0	0	0
B-50	Favia speciosa	0	0	0	0	0	0
B-51	Psammocora superficialis	0	0	0	0	3	0
B-52	Favia speciosa	0	0	0	10	0	0
B-53	Favia speciosa	0	0	0	10	0	0
B-54	Favia speciosa	0	0	0	0	0	0
B-55	Goniastrea aspera	0	0	0	0	0	0
B-56	Platygyra carnosus	0	0	0	0	0	0
B-57	Goniastrea aspera	0	0	0	0	0	0
B-58	Favia speciosa	5	0	0	60	0	0
B-59	Favia speciosa	0	0	0	100	\	\
B-60	Favia speciosa	5	0	0	Missing	Missing	Missing

^{*} Damaged corals were bold.

Table 5.3-2 Conditions of tagged corals at Site C

		Baseline Survey (December 2005)			Month Fifteen (March 2007)		
Code of tagged corals	Species	Mortality (%)	Sedimentation (%)	Bleaching (%)	Mortality (%)	Sedimentation (%)	Bleaching (%)
C-01	Platygyra carnosus	0	0	0	0	0	0
C-02	Platygyra carnosus	0	0	0	0	0	0
C-03	Favia speciosa	0	0	0	0	0	0
C-04	Favites abdita	0	0	0	100	0	0
C-05	Turbinaria peltata	0	0	0	0	0	0
C-06	Favia speciosa	0	0	0	0	0	0
C-07	Platygyra acuta	0	0	0	0	0	0
C-08	Platygyra acuta	0	0	0	0	0	0
C-09	Favia speciosa	0	0	0	0	0	0
C-10*	Platygyra acuta	0	0	0	0	0	0
C-11	Favia speciosa	0	0	0	0	0	0
C-12	Platygyra acuta	0	0	0	0	0	0
C-13	Platygyra carnosus	0	0	0	0	0	0
C-14	Favia speciosa	0	0	0	0	0	0
C-15	Goniopora columna	0	0	0	0	0	0

			seline Surv cember 20			onth Fifte March 200	
Code of tagged corals	Species	Mortality (%)	Sedimentation (%)	Bleaching (%)	Mortality (%)	Sedimentation (%)	Bleaching (%)
C-16	Platygyra carnosus	0	0	0	0	0	0
C-17	Goniopora columna	0	0	0	0	0	0
C-18	Platygyra carnosus	0	0	0	0	0	0
C-19	Favites pentagona	0	0	0	0	0	0
C-20	Favia speciosa	0	0	0	0	0	0

^{*}C-10 had sign of anchor damages.

 Table 5.3-3
 Conditions of tagged corals at Control Site

			seline Surv cember 20			onth Fifte March 200	
Code of tagged corals	Species	Mortality (%)	Sedimentation (%)	Bleaching (%)	Mortality (%)	Sedimentation (%)	Bleaching (%)
X-01	Platygyra carnosus	0	0	0	0	0	0
X-02	Platygyra carnosus	0	0	0	0	0	0
X-03	Platygyra carnosus	0	0	0	0	0	0
X-04	Pavona decussata	0	0	0	0	0	0
X-05	Hydnophora exesa	0	0	0	Missing	Missing	Missing
X-06	Platygyra carnosus	0	0	0	0	0	0
X-07	Platygyra carnosus	0	0	0	0	0	0
X-08	Favites abdita	0	0	0	0	0	0
X-09	Cyphastrea serailia	0	0	0	0	0	0
X-10	Cyphastrea serailia	0	0	0	0	0	0
X-11	Platygyra carnosus	0	0	0	0	0	0
X-12	Platygyra acuta	0	0	0	0	0	0
X-13	Platygyra acuta	0	0	0	0	0	0
X-14	Platygyra acuta	0	0	0	0	0	0
X-15	Platygyra acuta	0	0	0	0	0	0
X-16	Platygyra acuta	0	0	0	0	0	0
X-17	Favia speciosa	0	0	0	0	0	0
X-18	Platygyra acuta	0	0	0	0	0	0
X-19	Goniastrea aspera	0	0	0	0	0	0
X-20	Cyphastrea serailia	0	0	0	0	0	0

 Table 5.3-4
 Conditions of transplanted corals

				Baseline	<u> </u>	2 nd	monitor	ing
Coral #	Species	Baseline Condition	Mortality (%)	Sediment (%)	Bleaching (%)	Mortality (%)	Sediment (%)	Bleaching (%)
1	Montipora peltiformis	Good	0	0	0	0	0	0
2	Porites lobata	Good	0	0	0	0	0	0
3	Favites abdita	Good	0	0	0	0	0	0
4	Cyphastrea serialia	Good	0	0	0	0	0	0
5	Porites lobata	Good	0	0	0	0	0	0
6	Porites lobata	Good	0	0	0	0	0	0
7	Porites lobata	Good	0	0	0	0	0	0
8	Porites lobata	Fairly Good	0	0	0	0	0	0
9	Favites abdita	Good	0	0	0	0	0	0
10	Cyphastrea serialia	Good	0	0	0	0	0	0
	Favites pentagona	Good	0	0	0	0	0	0
12	Cyphastrea serialia	Good	0	0	0	0	0	0
13	Cyphastrea serialia	Good	0	0	0	0	0	0
14	Favites abdita	Good	0	0	0	0	0	0
15	Cyphastrea serialia	Good	0	0	0	0	0	0
16	Goniastrea aspera	Good	0	0	0	0	0	0
17	Favites abdita	Fairly Good	0	0	0	0	0	0
18	Cyphastrea serialia	Good	0	0	0	0	0	0
19	Cyphastrea serialia	Good	0	0	0	0	0	0
20	Cyphastrea serialia	Good	0	0	0	0	0	0
21	Cyphastrea serialia	Good	0	0	0	0	0	0
22	Cyphastrea serialia	Good	0	0	0	0	0	0
23	Montipora peltiformis	Fairly Good	0	0	0	0	0	0
24	Psammocora superficialis	Good	0	0	0	0	0	0
25	Psammocora superficialis	Good	0	0	0	0	0	0
26	Porites lobata	Fairly Good	0	0	0	0	0	0
27	Favia speciosa	Good	0	0	0	0	0	0
28	Porites lobata	Good	0	0	0	0	0	0
29	Psammocora superficialis	Fairly Good	0	0	0	0	0	0
30	Favites abdita	Good	0	0	0	0	0	0
31	Favites pentagona	Good	0	0	0	0	0	0
32	Favites pentagona	Good	0	0	0	0	0	0
33	Montipora peltiformis	Fairly Good	0	0	0	0	0	0
34	Goniopora stutchburyi	Fairly Good	0	0	0	0	0	0
35	Porites lobata	Good	0	0	0	0	0	0
	Porites lobata	Good	0	0	0	0	0	0
37	Cyphastrea serialia	Good	0	0	0	0	0	0
	Favites abdita	Good	0	0	0	0	0	0
39	Psammocora superficialis	Good	0	0	0	0	0	0
	Psammocora superficialis	Fairly Good	0	0	0	0	0	0
	Favites pentagona	Good	0	0	0	0	0	0
42	Favia speciosa	Good	0	0	0	0	0	0
43	Cyphastrea serialia	Fairly Good	0	0	0	0	0	0
44	Porites lobata	Fairly Good	0	0	0	0	0	0
45	Porites lobata	Good	0	0	0	0	0	0
46	Cyphastrea serialia	Good	0	0	0	0	0	0

				Baseline		2 nd	monitor	ing
Coral #	Species	Baseline Condition	Mortality (%)	Sediment (%)	Bleaching (%)	Mortality (%)	Sediment (%)	Bleaching (%)
47	Goniastrea aspera	Good	0	0	0	0	0	0
48	Porites lobata	Good	0	0	0	0	0	0
49	Porites lobata	Fairly Good	0	0	0	0	0	0
50	Cyphastrea serialia	Good	0	0	0	0	0	0
51	Favia speciosa	Good	0	0	0	0	0	0
52	Cyphastrea serialia	Good	0	0	0	0	0	0
53	Porites lobata	Good	0	0	0	0	0	0
54	Porites lobata	Good	0	0	0	0	0	0
55	Porites lobata	Good	0	0	0	0	0	0
	Favia speciosa	Fairly Good	0	0	0	0	0	0
	Goniastrea aspera	Good	0	0	0	0	0	0
58	Cyphastrea serialia	Good	0	0	0	0	0	0
59	Pavona descussata	Good	0	0	0	0	0	0
60	Cyphastrea serialia	Good	0	0	0	0	0	0
61	Favites abdita	Good	0	0	0	0	0	0
62	Pavona descussata	Good	0	0	0	0	0	0
63	Lithophyllon undulatum	Good	0	0	0	0	0	0
64	Porites lobata	Good	0	0	0	0	0	0
65	Psammocora superficialis	Good	0	0	0	0	0	0
66	Porites lobata	Good	0	0	0	0	0	0
67	Lithophyllon undulatum	Good	0	0	0	0	0	0
68	Porites lobata	Fairly Good	0	0	0	0	0	0
69	Favia speciosa	Good	0	0	0	0	0	0
70	Goniastrea aspera	Good	0	0	0	0	0	0
71	Porites lobata	Good	0	0	0	0	0	0
72	Porites lobata	Fairly Good	0	0	0	0	0	0
73	Cyphastrea serialia	Fairly Good	0	0	0	0	0	0
74	Cyphastrea serialia	Good	0	0	0	0	0	0
75	Porites lobata	Good	0	0	0	0	0	0
76	Goniastrea aspera	Good	0	0	0	0	0	0
77	Favites abdita	Good	0	0	0	0	0	0
78	Favites abdita	Good	0	0	0	0	0	0
79	Cyphastrea serialia	Good	0	0	0	0	0	0
80	Cyphastrea serialia	Good	0	0	0	0	0	0
81	Porites lobata	Good	0	0	0	0	0	0
82	Goniastrea aspera	Good	0	0	0	0	0	0
83	Favia speciosa	Good	0	0	0	0	0	0
84	Favites pentagona	Good	0	0	0	0	0	0
85	Goniopora stutchburyi	Good	0	0	0	0	0	0
86	Favites abdita	Good	0	0	0	0	0	0
87	Cyphastrea serialia	Good	0	0	0	0	0	0
88	Cyphastrea serialia	Good	0	0	0	0	0	0
89	Favia speciosa	Good	0	0	0	0	0	0

5.4 Archaeology (Watching Brief)

- 5.4.1 Excavation was carried out at Holes 11, 12, 14 & 16 during this monitoring month and watching brief monitoring was resumed since September 2006. According to the latest construction programme, part of the Hole 2 will be completed in February 2007. Approximate 40% of the Hole 2 area was being excavated and the watching brief at Hole 2 will have to further extend. The first (January to March 2006) and second (April to September 2006) quarterly progress reports had been sent to AMO for comments on 31st March 2006 and 15th October 2006 respectively. The third (October to December 2006) and fourth (January to March 2007) quarterly progress report had also been submitted to AMO in January and March 2007 respectively.
- 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. The site visit at Holes 11, 12, 14, 15 & 16 were started from September 2006 once vegetation clearance commence and in progress.
- 5.4.3 Monitoring results were shown as follows:

Hole 2

- 5.4.4 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 investigated after vegetation clearance and no archaeological material was identified in the first quarterly report. 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).
- 5.4.5 Excavation at Hole 2 was completed during this reporting month. The fourth quarterly report is under preparation. No archaeological material was identified. The archaeological watching brief at Hole 2 was completed in February 2007.

Holes 11, 12, 14, 15 & 16

5.4.6 For the excavation at watching brief concern areas (Holes 11, 12, 14, 15 & 16), the excavation programme was commended in early September 2006 after the completion of temporary bridges construction at Streams B1 and B2. Vegetation clearance was started in early September 2006 and completed in the reporting month at Holes 11, 12, 14, 15 & 16. Bulk earthwork at concerned watching brief area was concentrated Holes 11, 12, 14 and 16. No archaeological material was identified in the second quarterly report (April to September 2006) and third quarterly report (October to December 2006). The archaeological watching brief at Holes 11, 12, 14, 15 and 16 was completed in January 2007.

Final Archaeology Watching Brief Report

5.4.7 A final report is under preparation and will be submitted to AMO in next 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. The Contamination Assessment Report (CAR) and Remediation Action Plan (RAP) were approved on 18th August 2006.
- 5.5.2 Remedial work for the contaminated soil located at the Hotspot L3 (Hole 18) is required to be implemented properly according to the RAP. A confirmation pilot trial on the ratio of cement and contaminated soil was carried out during the reporting month. According to the Contractor's submitted methodology, the contaminated soil will be transferred from Hole 18 to Hole 17 for remediation. It is because that Hole 17 is the major fill area and the remediation soil to cement mixture can be used as general fill material. The full scale remediation work was carried in the reporting month on 4th October 2006. A Final Site Remediation Report (FSRR) was submitted to EPD on December 2006 and approved by EPD on January 2007. No further remediation work is required.

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 27th February, 6th, 13th and 20th March 2007, and the monthly joined site inspection with IEC and the Contractor's representative undertaken on 20th February 2007. The following observations and recommendations were made.

Dust Mitigation Measures

- 6.1.2 Major site formation was carried at southern part of East Course during the reporting month. No dust suppression measure was provided during rock breaking activities. Dust generation from the haul road, during earth moving operation and excavation were observed at sunny and windy weather, insufficient dust mitigation measures was provided on site.
- 6.1.3 Huge temporary soil stockpiles were mainly located at Holes 1 and 16. There were many sand/aggregates located at Holes 1 and 9, these stockpiles are more vulnerable to silty runoff and dust generation due to their particular size are more fine in nature and not suitable for compaction and watering. Soil stockpiles were planted with hydroseed to reduce the dust nuisance to the environment under the APCO requirement.
- 6.1.4 The Contractor was reminded to minimize the dust generated by the site vehicles moving along the haul road by paving the heavy traffic haul road and haul road near to the existing golf course. The Contractor was repeatedly reminded to provide sufficient dust suppression measure at all other excavation / earth moving areas.
- 6.1.5 As permanent cart path, turfing and hydroseeding areas (permanent areas and eroded slope) will gradually completed, therefore, dust generation will gradually decrease from the construction site is expected.
- 6.1.6 Concrete batching plant was operating during this reporting month. The concrete produced was mainly for the extension of administration and maintenance buildings, underground water tanks, pumping stations and cart paths. No major dust generation was observed from the concrete batching plant during operation.
- 6.1.7 The Contractor claimed the water source for dust suppression was insufficient from the construction site. They had successfully applied the water supply from WSD to the construction site. The Contractor agreed to fill up the Hole 2 underground water tank at nighttime to reduce the queue up time at the fresh water inland marsh. However, no further action was observed at the construction site.
- 6.1.8 The Contractor was reminded to install the hoarding near to the main exit/entrance near S7 according to the Air Pollution Control Ordinance and its subsidiary regulations. It was outstanding for at least few months.

Water Quality

Temporary Drainage Master Plan

6.1.9 The Contractor submitted the TDMP for the coming wet season 2007 to the Engineer for approval in this reporting month. However, no TDMP for turf grass establishment period. The pesticide is a prohibited substance which is not allowed to be discharged to any water bodies under the WPCO. The Contractor was repeatedly reminded to confine, collect and reuse runoff generated from the irrigation area properly.

- 6.1.10 The silt fence installed on site was not observed and not well-maintenance in particular in northern portion of third golf course. The Contractor was repeatedly reminded to improve the effectiveness of the mitigation measures and provide sufficient temporary drainage system on site.
- 6.1.11 Permanent drainage system should be installed properly before turfing at each of the golf hole. As the installation of the closed low flow drainage system is in progress (runoff cannot pumping back to the existing reservoir directly), runoff could be concentrated and directly discharge through underground water tanks and/or lakes overflow or catch basins to the sea / streams.
- 6.1.12 No dredging work for the permanent intake and outfall pipelines was carried out during the reporting month.
- 6.1.13 All temporary bridges will dismantle before wet season (end of March). Construction of permanent bridges will be completed before the wet season. According to the EP, the construction of the permanent bridges should be completed within dry season (March 2007). All permanent bridge construction method was complied with the EP condition. Construction of a pipe culvert bridge at Stream B2 was completed. Construction of drainage system across Stream B2 buffer zone (near to the pipe culvert bridge) was commenced in later January 2007 and completed during the reporting month.
- 6.1.14 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.
- 6.1.15 Turf has been established at Holes 5 and 8. The Contractor was reminded to provide temporary drainage system to collect and divert the runoff to the existing reservoir when the permanent closed low flow drainage system is not completed yet.
- 6.1.16 As permanent cart path, turfing and hydroseeding areas (permanent areas and eroded slope) will gradually completed, therefore, runoff from the construction site will decrease is expected.
- 6.1.17 ADS filter system had been installed at Hole 5 during the previous reporting month. Three out of five ADS filter system has been installed at Hole 6 during the reporting month. The remaining two units will be installed during the next reporting month.

Ecology

- 6.1.18 Buffer zone at Streams A, B1, B2 and C had been established. The whole buffer zone aims to protect the streams and avoid any works/equipment intrusion into the buffer zone.
- 6.1.19 The main stream course of Stream A was found to be filled up by rubbles to the level of the weir at its downstream end since mid-June 2006. Remedial works were implemented to clear the rubbles and restore the channel manually in early November 2006. However, the rocks were filled up the downstream A again after the rainstorm on 21st November 2006. Most of the rubbles from Hole 17 covering the downstream of Stream A were removed in the December 2006. The temporary bridge at Stream A had been dismantled during the reporting month. There were still some remaining rocks sitting on the stream bed of the downstream of Stream A.
- 6.1.20 Floating pontoon was berthed at EP location at the temporary barging point. No illegal berthing was observed during the site audit. Increase of loading of the sand/aggregates/drainage pipes/irrigation pipes delivery was observed during the reporting month.

Stream B2 Buffer Zone

6.1.21 For the Stream B2 buffer zone incident (vegetation clearance at part of the buffer zone area), the Contractor was proposed remedial and mitigation measures for EPD's comment. A letter was issued to Jockey Club from EPD on 12 Dec 2006 and reminded the Project Proponent should pay particular attention to the EP condition due to this incident. The Contractor submitted the detailed remediation work programme to Jockey Club, the Engineer, ET and IEC for review and agreed before carrying out any work within the buffer zone during the reporting month. Reinstatement work at Stream B2 buffer zone was carried out during the reporting month by planting native shrub (including *Gordonia axillaries*, *Melastoma candidum*, *Melastoma sanguineum*, *Rhaphiolepis indica*, *Rhodomyrtus tomentosa*) with approximate 400mm height at the four plots per metre square density.

Silt Deposit at Stream C

6.1.22 Significant silty runoff and silt were deposited at the stream bed of Stream C were recorded after the rainstorm on 22nd November 2006. Construction of permanent drainage system including cut-off drain at Holes 14 and 16 was in progress. The Contractor was reminded to enhance the temporary drainage system to prevent the same incident happened in future again.

Waste / Chemical Management

- 6.1.23 According to the site observation, vegetation stockpiles, construction wastes stockpiles and general refuse were accumulated for approximate four weeks and disposed off-site during the reporting.
- 6.1.24 A chemical waste storage area was available on site since this reporting month. The Contractor confirmed that the chemical waste generated would be disposed by their sub-contractor or store on site. The Contractor was reminded to provide trip-ticket records and disposal records for our reference.
- 6.1.25 Insufficient mobile/chemical toilets were provided at the construction site. The Contractor was repeatedly reminded to provide sufficient in particular distant from the Contractor's office.

Landscape and Visual

- 6.1.26 The eroded slopes at the southern side of stream A next to Hole 10 and at the northern side of stream A above Hole 17 were hydroseeded in mid-March 2007. Since the area of the slope is large, vegetation protection for the slope surface is essential to minimize soil erosion. The Contractor shall provide adequate water to the hydroseeded grass to ensure germination and quick coverage. The visual impact from the eroded slope is expected to be greatly mitigated after the hydroseeded grass germinated.
- 6.1.27 The base of Hole 8 Green was shaped and base materials were ready. Sod is expected to be laid in April and the visual impact to the golfer will be greatly reduced afterward. The newly planted shrubs were in fair health. Health condition of hydroseeded grass had declined due to the dry climate and insufficient watering.
- 6.1.28 Retained trees, such as but not limited to T957 and T956, next to administration building were severely damaged by construction. The Contractor was reminded to prevent further damage to those trees and carry out tree surgery works immediately.

- 6.1.29 Mal-pruning of transplanted trees had not been rectified since July 2006. Construction material was still stockpiled within tree protection zones of the retained trees located at Administration building since July 2006.
- 6.1.30 A statement on the cause of death of tree T925 recorded was still outstanding. Transplanted tree T848 was death, it was found that the tree was planted too deep and the root flare was covered by soil. The Contractor was reminded to retain the tree and submit a proposal for replacement for ER's approval before tree removal. The report is still outstanding since February 2007.

Status of Environmental Licensing and Permitting

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

Table 6.1 Summary of Environmental Licensing and Permit Status

Permit/licence/notification form title	Submission date	Status	Registration No./ Remarks
Application for a construction noise permit for the use of powered mechanical equipment for the purpose of carrying out construction work other than percussive pilling and/or the carrying out of prescribed construction work.	21 st Jan 2006	Approved on 16 th February 2006	GW-RE0012-06 (valid until 3 rd July 2006)
Application for a construction noise permit for the use of powered mechanical equipment for the purpose of carrying out construction work other than percussive pilling and/or the carrying out of prescribed construction work.	6 th Apr 2006	Approved on 9 th Jun 06 (supersede the GW- RE0012-06)	GW-RE0157-06 (valid until 28 th Nov 2006)
Application for a construction noise permit for the use of powered mechanical equipment for the purpose of carrying out construction work other than percussive pilling and/or the carrying out of prescribed construction work.	Nov 2006	Approved on 22 nd Nov 06 (supersede the GW-RE0157-06)	GW-RE0384-06 (valid until 26 May 2007)
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 – Construction Site	18 th Mar 2006	Approved on 12 th Sept 2006 (CHEC/KSC3/9.1/0414)	EPD letter refer. No: EP640/W4/J1003

7. Environmental Non-Conformance

7.1 Summary of Environmental Non-Compliance

Air Quality

7.1.1 No exceedance of 24-hour TSP was recorded at GCA B1 during the reporting month. Additional sample were taken on 2nd March 2007 due to the exceedance occurred in the previous monitoring month on 14th February 2006.

Marine Water Quality

7.1.2 Eleven exceedances of ammonia nitrogen and chlorophyll were recorded at Tai Tau Chau and M Marsh. All exceedances were considered not project-related.

Freshwater Quality

- 7.1.3 Seven exceedances of turbidity and seven exceedances of suspended solids were recorded at Streams A, B, C and fresh water inland marsh. All exceedances were considered not project-related.
- 7.1.4 Eleven exceedances of ammonia nitrogen, eleven exceedances of nitrate nitrogen, one exceedance of nitrite nitrogen, twelve exceedances of total inorganic nitrogen and seven exceedances of chlorophyll a were recorded at downstream of fresh water inland marsh.

Terrestrial Ecology

7.1.5 No non-compliance was recorded during the monthly site audit.

Marine Ecology

7.1.6 Quarterly coral monitoring survey at Site B2, Site C and Control site was required in this reporting month. Coral transplantation was carried out in the December 2006 at Site D2, quarterly monitoring was required in this reporting month. No non-compliance was recorded during the reporting month. No dredging work was carried out at Site D2 for the desalination plant's intake and outfall construction.

7.2 Summary of Environmental Complaint

7.2.1 No environmental complaint was received in this reporting month.

7.3 Summary of Environmental Summons

7.3.1 No summon was received in this reporting month.

8. Future Key Issues

8.1 Key Issues for coming month

- 8.1.1 Major 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
 - Drainage and irrigation systems installation at Golf Holes
 - Sand capping and turf establishment at Golf Holes
 - Gravity drain construction from Lake 1D to existing reservoir
 - Implementation of temporary drainage master plan
 - Operation of desalination plant if required

8.2 Monitoring Schedule for the coming month

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

8.3 Construction programme for the next three month

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

9. Recommendations and Conclusions

- 9.1.1 The Environmental Monitoring and Audit (EM&A) Report presents the EM&A works undertaken during the period from 25th February to 24th March 2007 in accordance with EM&A Manual and the requirement under EP-224-2005/A.
- 9.1.2 The Contractor was repeatedly reminded to improve and provide sufficient temporary drainage system on site to prevent silty runoff to marine and stream courses. The Contractor was reminded to provide sufficient dust suppression mitigation measures especially during rock breaking activity, earth movement (loading and unloading), at haul road (vehicle movement) and large soils stockpiles. In addition, the Contractor was reminded to provide sufficient temporary drainage at the turfing areas.
- 9.1.3 Same as the last reporting month, no rectification work was done by the Contractor. Regarding the retained trees, the Contractor shall take the following measures:
 - Carry out surgery to damaged trees;
 - Report the cause of death of tree T925;
 - Maintain the tree protection zone required and remove all construction material / debris from the tree protection zone; and
 - Rectify the mal-pruning practice of the transplanted trees.
- 9.1.4 No environmental complaint / summon was received during the reporting month.
- 9.1.5 The ET will keep track of the EM&A programme with respect to compliance of environmental requirements and the proper implementation of all necessary mitigation measures.

Annex A Tentative Construction Programme

Activity	Activity	Orig	Early	Early		2005 2006 2007
ID	Description	Dur	Start	Finish	Float	3 D J F M A M J J A S O N D J F M A M J J A S O
UMMA	RY PROGRAMME		· · · · · ·	·		
U00120	Completion of Section 2	0		17/09/07	105	Completion of Section 2
U00140	Completion of Section 4	0		21/05/07	-76	○Completion of Section
SU00150	Completion of Section 9	0		01/12/07	-122	Completion of Section 2015
U00100	Possession of Site	0	03/01/06A		1	♦ Possession of Site
U00170	S1: Gravity drain & rising main	238*	10/06/06A	30/03/07	-141	S1: Gravity drain & rising main
SU00160	S1: Low level intake pumping station	124*	25/10/06A	30/03/07	-141	S1: Low level intake pumping s
SU00190	S2: Desalination plant	278*	18/02/06A	24/01/07A		S2: Desalination plant
SU00240	S2: Lake No.1 and pump house No.1	164*	16/10/06A	14/05/07	-173	S2: Lake No.1 and pump house No.1
SU00230	S2: Retaining wall No.1	117*	27/05/06A	14/10/06A		S2: Retaining wall lo.1
SU00250	S2: Roundabout and access road	- 28*	08/09/06A	12/10/06A	<u> </u>	S2: Roundabout and access road
SU00220	S2: Temp Seawater intake & dischange pipe	26*	31/10/06A	29/11/06A		S2: Temp Seawater intake & dischange pipe
U00210	S2: Temp Seawater pumping station	85*	31/10/06A	09/02/07A		S2: Temp Seawater pumping station
U00200	S2: Transformer/switch room	153*	05/06/06A	04/12/06A		S2: Transformer/switch room
SU00260	S3: Existing maintenace building	300*	07/03/06A	15/03/07	-75	S3: Existing maintenace building
U00270	S4: Existing admin. building area 1	339*	21/03/06A	21/05/07	-59	S4: Existing admin. but
U00280	S4: Existing admin. building area 2	· 169*	08/10/06A	12/05/07	-58	S4: Existing admin. building area 2
U00290	S4: Existing admin. building area 3	300*	21/03/06A	29/03/07	-26	S4: Existing admin. building ar
U00300	S4: Existing admin. building area 4	314*	21/03/06A	19/04/07	-34	S4: Existing admin. building
U00310	S4: Existing admin. building area 5	219*	07/03/06A	29/11/06A		S4: Existing admin. building area 5
U00350	S9: Drainage & Irrigation	288*	16/08/06A	10/08/07	-80	S9: Drainage & Irrigation
U00330	S9: Earth/slope construction works	372*	10/03/06A	19/06/07	-81	S9: Earth/slope co
U00410	S9: Grassing (GH1, 2 & 9-17)	131*	28/06/07	01/12/07	₅ 102	S9: Grassing (GH1, 2 & 9-17)
U00390	S9: Grassing (GH3, 5, 8, 18)	96*	12/02/07A	19/06/07	-82	S9: Grassing (GH3, 5, 8, 18)
U00400	S9: Grassing (GH4, 6, 7)	47*	23/03/07	23/05/07	-82	S9: Grassing (GH4, 6, 7
U00380	S9: Sand Capping (GH1, 2 & 9-17)	117*	02/06/07	19/10/07	-102	S9: Sand Capping (GH1, 2 & 9-17)
U00360	59: Sand Capping (GH3, 5, 8, 18)	205*	05/01/07A	18/09/07	-102	S9: Sand Capping (GH3, 5, 8, 18)
U00370	S9: Sand Capping (GH4, 6, 7)	63*	22/01/07A	13/04/07	-78	S9: Sand Capping (GH4, 6, 7)
·			1		,	

			Q D J F M A 2005	M J J 2006	A S O N D J F M /	M J J A S	ONE
Start Date 28/12/05 Finish Date 23/02/08	Summary Bar	KS14	Sheet 1 of	1			
Finish Date 23/02/08 Data Date 21/02/07	Progress Bar			Date 28/12/05	Revision 4th Final for Submission		Approved
Run Date 07/03/07 14:08			China Harbour Engineering Co.	01/03/06	Ver 5th (KST5)	Tim Tim	
		-	Updated programme from KS13				
			Summary of Programme	·			•
?Primavera Systems, Inc.	- <u> </u>						

Annex B Monitoring Programme for the reporting month

Feb 2007	Feb 2007								
Sun	Mon	Tue	Wed	Thu	Fri	Sat			
25	26	27	28						
	WQ		WQ						
	AQ								

Mar 2007					Mar 2007							
Sun	Mon	Tue	Wed	Thu	Fri	Sat						
				1	2	3						
					WQ	AQ						
					AQ							
4	5	6	7	8	9	10						
	WO		WO		WO							
	WQ		WQ		WQ							
					AQ							
11	12	13	14	15	16	17						
					ME							
	WQ		WQ	AQ	WQ	ME						
					TE							
18	19	20	21	22	23	24						
	WQ		WQ		WQ							
	TE		AQ									
25	26	27	28	29	30	31						
			ME	ME								

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						
EVENI	ET	IC(E)	Engineer	CONTRACTOR			
ACTION LEVEL							
Exceedance for one sample	Identify source, investigate the causes of complaint and propose remedial measures; Inform IC(E) and Engineer; Repeat measurement to confirm finding; Increase to daily monitoring.	Check monitoring data submitted by ET; Check Contractor's working method.	Notify Contractor.	Rectify any unacceptable practice; 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.	Confirm in writing receipt of notification of exceedance; Notify Contractor; Supervise proper implementation of remedial measures.	Submit proposals for remedial measures to Engineer within three working days of notification; Implement agreed proposals; Amend proposal if appropriate.			
LIMIT LEVEL							
1. Exceedance for one sample	Identify source, investigate causes of exceedance and propose remedial measures; Inform IC(E), Engineer, Contractor and EPD; Repeat measurement to confirm finding; Increase to daily monitoring; Assess effectiveness of Contractor's remedial actions	Check monitoring data submitted by ET; Check Contractor's working method; Discuss with ET and Contractor possible remedial measures; Advise Engineer on effectiveness of proposed remedial measures; Supervise implementation of remedial measures.	Confirm in writing receipt of notification of exceedance; Notify Contractor; Supervise proper implementation of remedial measures.	Take immediate action to avoid further exceedance; Submit proposals for remedial actions to IC(E) within three working days of notification; Implement the agreed proposals; Amend proposals if appropriate.			

EXENT		ACT	TION	
EVENI	ET	IC(E)	Engineer	CONTRACTOR
2 Exceedance for two or more consecutive samples	and keep IC(E), EPD and Engineer informed of results. 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	Discuss amongst Engineer, ET, and Contractor the potential remedial actions; Review Contractor's remedial actions whenever necessary to assure their effectiveness, and advise Engineer accordingly; Supervise implementation of	Confirm receipt of notification of exceedance in writing; Notify Contractor; In consultation with the IC(E), agree with the Contractor the remedial measures to be implemented; Supervise proper implementation of remedial	Take immediate action to avoid further exceedance; Submit proposals for remedial actions to IC(E) within three working days of notification; Implement the agreed proposals; Resubmit proposals if problem still not under control; Stop the relevant portion of works as
	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.	remedial measures.	measures; 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.	instructed by Engineer until the exceedance is abated.

Event and Action Plan for Water Quality

Event	ET Leader	IC(E)	Engineer	Contractor
ACTION LEV	VEL			
Action level being exceeded by one sampling day	Repeat in situ 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 noncompliance; 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 in situ 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 LEVE	L			
Limit level being exceeded by one sampling day	Repeat in situ 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	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 noncompliance; 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 in situ 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	If the Action Level is exceeded the ET Leader	If the Limit Level is exceeded the ET Leader
phase	should inform all parties (Contractor, Project	should inform all parties (Contractor, Project
	Proponent, EPD, AFCD and IEC). The data from	Proponent, EPD, AFCD and IEC) immediately.
	the water quality monitoring should also be	Should the Limit Level be exceeded, the
	reviewed. If the water quality monitoring shows	contractor should stop dredging and/or earth
	no attributable effects of the installation works,	works immediately and work out the solution
	then the Action Level is not triggered. If the water	according to the requirements of EPD and AFCD.
	quality data indicate exceedances (for SS and/or	The ET Leader should inform the Contractor to
	turbidity) the ET Leader should discuss with the	suspend dredging and/or earth works until an
	Contractor the most appropriate method of	effective solution is identified. Once the solution
	reducing suspended solids during dredging (e.g.	has been identified and agreed with all parties
	reduce the rate of dredging), and/or control	dredging and/or earth works may commence
	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.	
Operation	If the Action Level is exceeded the ET Leader	If the Limit Level is exceeded the ET Leader
phase	should inform Golf Course Operator, EPD, and	should inform all parties Golf Course Operator,
Prince	AFCD. The data from the water quality	EPD, and AFCD immediately. Should the Limit
	monitoring should also be reviewed. If the water	Level be exceeded, the Golf Course Operator
	quality monitoring shows no attributable effects of	should stop the operation of the desalination plant
	the installation works, then the Action Level is not	and/or the application of chemicals immediately
	triggered. If the water quality data indicate	and work out the solution according to the
	exceedances (salinity and/or pesticides) the ET	requirements of EPD and AFCD. The operation
	Leader should discuss with the Golf Course	of the desalination plant and/or the application of
	Operator the most appropriate method of reducing	chemicals would be suspended until an effective
	salinity (e.g. reduce the daily operation time of the	solution is identified.
	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.	

Categories of Archaeological Finds and Recommended Action

Categories of Archaeological Material	Retrieval Procedure
Human burial Skeleton remains Items associated with human burial, i.e. grave goods	Full recording and recovering of human remains and associated features • Complete recoding 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
Structural/architectural remains Undisturbed context, such as hearth, midden, habitation area, assemblages of artefacts and/or environmental material Intact artefacts 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.	 Limited recording and recovery of archaeological features Recording and measurement of salient features by photography, drawing and written description Retrieval of all archaeological material Retrieval of samples from the surrounding matrix Recovery of artefacts Recovery of objects Sampling of the surrounding matrix Proper treatment with cleaning, marking and packing under international acceptable standards
Isolated material • 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 • Recovery of material, such as artefact fragments, environmental material and sampling of surrounding matrix
Deposits with archaeological potential • Soil deposits which exhibit characteristics associated with archaeological remains in Hong Kong	Sampling of the deposit • Collection of soil samples from deposits displaying archaeological potential

Annex D Implementation status on Environmental Protection Requirements

IMPLEMENTATION SCHEDULE OF THE PROPOSED MITIGATION MEASURES

Implementation Schedule of Air Quality Measures

EIA Ref	EM&A Ref	Environmental Protection Measures*	Location /	Implementation		lementat Stages**	ion	Relevant Legislation and	Implementation Status
			Timing	Agent	D	C	О	Guidelines	-
Air Qua	ality - Const	struction Phase							
4.7.1		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. 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: • Adoption of good site practices; • Avoid practices likely to raise dust level;	Work site / during construction	All contractors		V		I	Insufficient Insufficient
4.7.2		 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 Providing watering four times a day for dust suppression. 							Insufficient V V V V V V V As confirmed by Contractor, the concrete batching plant is not a specific process. Insufficient (one water truck watering main haul road during the site audit)

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

Black & Veatch **March 2007** 1

Table 2 Implementation Schedule of Water Quality Control Measures

EIA Ref	EM&A Ref	Environmental Protection Measures*	Location	Implementation Agent		lemer Stage		Relevant Legislation and	Implementation
	Kei			Agent	D	C	O	Guidelines	Status
Water Qu	ıality – Con	struction phase	Work site / During the	T				T	
6.11.4				All contractors		V		ProPECC PN 1/94; WPCO; TM- Effluent Standards for Effluents Discharged into Drainage and	Streams A, B1, B2 and C buffer zones fencing were provided. Permanent drainage located at upstream of Stream B1 (within the buffer zone) was completed in March 2007. Permanent bridges construction within buffer zone was completed in March 2007. All temporary bridges were dismantled
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:						Sewerage Systems, Inland and Coastal Water	
		 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; 						Water	Temporary bridges at nos. 9, 10 and 15 were dismantled at Streams A, B1, B2 and C within the buffer zone areas. Permanent bridges construction within buffer zone was completed in March 2007. All temporary bridges were dismantled
		 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 forecasted. 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. 							
		Runoff and Drainage Management	Work site / During the	All contractors		V		ProPECC PN 1/94;	The Contractor submitted the TDMP to RE for approval during
6.11.13		 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 to 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 downstream ends of the systems to remove suspended solids prior to discharge. The discharge water quality shall be compliant with the TM on Standards for Effluents Discharged into Drainage and Sewerage Systems, Inland and Coastal Waters 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. 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 d	construction period					WPCO; TM- Effluent Standards for Effluents Discharged into Drainage and Sewerage Systems, Inland and Coastal Water	this reporting month. The latest submitted drainage plan is the mitigation measures for the silty runoff which has not included the recycling the runoff during the turf establishment. No water treatment facilities were provides at those major discharge points (de-silting) before discharging to marine water. More hydroseeding at permanent slope/work and eroded slope areas were observed. Turf was established at Hole 8 on 12 February 2007 (in progress except green) and Hole 5 on 6 March 2007 (in progress). Four ADS filter systems were installed at Hole 5 and inspected by EPD on 12 February 2007. Three out of five ADS filter systems at Hole 6 had been installed during the reporting month.
		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							

EIA Ref	EM&A	Environmental Protection Measures*	Location	Implementation		pleme Stage		Relevant Legislation and	Implementation
	Ref	Environmental Protection Measures	Location	Agent	D	C	О	Guidelines	Status
		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. 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 duration of use for the temporary drainage system in any given area will be one-year. 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. 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							
6.11.14		throughout the construction period, such as petrol interceptors. 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 <i>ProPECC PN1/94</i> on construction site drainage through the construction period. These practices include: • 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-poi	Work site / During the construction period	All Contractor		√		ProPECC PN 1/94; WPCO; TM- Effluent Standards for Effluents Discharged into Drainage and Sewerage Systems, Inland and Coastal Water	Same as above

EIA Ref	EM&A	Environmental Protection Measures*	Location	Implementation	Imple n St	menta		Implementation
	Ref			All contractors	D	C	O Guidelines	Status
6.11.15		Concrete bridge construction 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. The Contractor shall good site follow practices, including, but no limited to::	Work site / During the construction period	All contractors		V	ProPECC PN 1/94; WPCO; TM- Effluent Standards for Effluents Discharged into Drainage and Sewerage Systems, Inland and Coastal	Construction of bridge culvert at Hole 10 (Stream B2) was completed. Permanent precast bridge no. 5 at the freshwater inland marsh, permanent in-situ bridge at Stream B1, precast bridge no. 15 at Stream C and precast bridge at Stream A were completed (except remaining furnishing work) during the reporting month.
6.11.16							Water	
0.11.10		 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 undertaken at a minimum of 30 meters from the stream; 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		Dredging during Construction of Desalination Plant's intake and outfall 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		√ 	WPCO; TM- Effluent Standards for Effluents Discharged into Drainage and Sewerage Systems,	No dredging work for the desalination plant pipelines was carried out. All desalination plant land formation work and temporary pipelines were completed and installed at the existing KSC pier during the reporting month. Application of the discharge licence of the desalination plant was on-going.
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.					Inland and Coastal Water	
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.						
6.11.22		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:						
		 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; 						

EIA Ref	EM&A	Environmental Protection Measures*	Location	Implementation		lemer Stage	ntatio s**	Relevant Legislation and	Implementation
	Ref	Environmental Fraction Measures	Location	Agent	D	С	O	Guidelines	Status
		 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 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; 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 							
6.11.23		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.							
6.11.24		Silt Curtain 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.							
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.							

EIA Ref	EM&A Ref	Environmental Protection Measures*	Location	Implementation Agent	Implemen n Stages		Relevant Legislation and Guidelines	Implementation Status
		General Construction Activities			БС	U	Guidennes	
6.11.29		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	No disposal records for the general refuse and construction waste was submitted by the Contractor for this reporting month. Disposal was observed near the end of this reporting
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.					for Effluents Discharged into Drainage and	month. The major disposal waste were vegetation and construction waste.
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.						Not observed Not observed
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.	Work site / During the construction period	All contractors	٧		ProPECC PN 1/94; WPCO; TM- Effluent Standards for Effluents Discharged into Drainage and	
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.					Sewerage Systems, Inland and Coastal Water	No chemical waste disposal recorded was submitted by the Contractor. The chemical waste storage area was located at Hole 2 (concrete batching plant). The chemical storage area was located at Hole 18.
		On-Site Sewage Effluents						
6.11.35		In order to prevent sewage effluents affecting water courses, the following mitigation measures should be provided by the Contractor:-						. A sewage treatment plant was provided at the site office.
		 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 						Two to three mobile toilets were available on site at southern portion of the construction site. No canteen was available.
		 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. 						No observed
		Concrete batching plant	Work site / During the construction period	All contractors	√			The concrete batching plant is operating during the reporting month. Temporary drains to cut-off the water from haul road
6.11.36		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 generation of contaminated site runoff from concrete production area, the concrete batching plant should be sheltered.	construction period				Effluent Standards for Effluents Discharged into Drainage and Sewerage Systems,	was not observed. Concrete bund was provided at the downstream periphery end of the site to confine the wastewater. There was a sedimentation pit within the concrete batching plant area to collect the wastewater and used as a wheel waste facilities. The collected water will pump to sedimentation columns for recycle use. No discharge was expected from the plant. The site condition of the concrete batching plant was satisfactory.
6.11.37		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 regents, 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						

EIA Ref	EM&A Ref	Environmental Protection Measures*	Location	Implementation Agent	Implem n Stag D C	Relevant Legislation and Guidelines	Implementation Status
		possible.					
6.11.38		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.					
6.11.39		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.					
6.11.40		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.					
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.					
		dations and requirements resulted during the course of EIA/EA Process, including ACE and/or accepted public comment to the course of EIA/EA Process, including ACE and/or accepted public comment to the course of EIA/EA Process, including ACE and/or accepted public comment to the course of EIA/EA Process, including ACE and/or accepted public comment to the course of EIA/EA Process, including ACE and/or accepted public comment to the course of EIA/EA Process, including ACE and/or accepted public comment to the course of EIA/EA Process.	the proposed project.				
	Des - Design, Not applicable	C = Construction, O = Operation					

March 2007 Black & Veatch 7

N/A

Table 3 Implementation Schedule of Waste Management Measures

EIA	EM&	Environmental Protection Measures*	Location /		Implementa		Relevant Legislatio	
Ref	A Ref	Environmental Protection Measures	Timing	Implementation Agent	D			Implementation Status
Waste M	l anagemen	nt - Construction Phase						
7.7.2		 Good site practice to minimize solid waste generation, including: 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 Municipal Services Ordinance; The Land (Miscellaneous Provisions) Ordinand ETWB TCW NO. 15/2003.	e;
7.7.4		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: • 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; • 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.	Work site / During the construction period	All Contractors			WDO; Public Health Municipal Services Ordinance; The Land (Miscellaneous Provisions) Ordinand ETWB TCW NO. 15/2003.	
7.7.6 7.7.7		down the material into a medium that can be used as mulch / compost and provide a seed-bank for natural hydroseeding of exposed areas. Non-inert materials should be kept separate and reused on-site as fill in	Work site / During the construction period	All Contractors		V	WDO; Public Health Municipal Services Ordinance; The Lan (Miscellaneous Provisions) Ordinance ETWB TCW NO. 15/2003.	d
7.7.8		preference to disposal at public filling areas which are operated by CEDD or disposal at landfill. Excavated Materials 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-	Work site / During the construction period	All Contractors		√	WDO; Public Health Municipal Services Ordinance; The Land (Miscellaneous Provisions) Ordinand	

EIA	EM&	Environmental Protection Measures*	Location / Timing	Implementation Agent	Implementation Stages **			Relevant Legislation & Guidelines	Implementation Status
Ref	A Ref				D	C	О		implementation status
		site in public filling areas.						ETWB TCW NO.	
7.7.9		Construction and Demolition (C&D) Material 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. 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.	Work site / During the construction period	All Contractors		V		15/2003. WDO; Public Health and Municipal Services Ordinance; The Land (Miscellaneous Provisions) Ordinance; ETWB TCW NO. 15/2003.	Two large soil stockpiles were located at the upstream of Stream C.
7.7.10		Site fencing Some site fencing may be required. Attention should be paid to WBTC No. 19/2001 which introduce 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		V		WBTC No. 19/2001	√ Plastic fencing / metallic hoarding was used on site.
7.7.12		Chemical Waste 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 Waste Disposal (Chemical Waste) (General) Regulation. 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		V		Waste Disposal (Chemical Waste) (General) Regulation	Chemical storage area was not large enough to hold all of the chemicals on site. No chemical waste storage area was found. The only one wastewater treatment plant at Hole 10 was removed and relocated at temporary storage area at Hole 18.
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 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> .							
7.7.16		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.							
7.7.17		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.							
7.7.18		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</i> (Chemical Waste) (General) Regulation. Empty paint cans should be							

EIA Ref	EM& A Ref	Environmental Protection Measures*	Location / Timing	Implementation Agent	Impler	nentation S **	tages	Relevant Legislation & Guidelines	Implementation Status
					D	C	0		
7.7.19		recycled or collected as waste. Any dry paint waste should be swept up and collected in containers for disposal. No lubricants, oils, solvents or paint products should be allowed to discharge into water courses, either by direct discharge, or as contaminants carried in surface water runoff from the construction site.							
7.7.20		Sewage 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		V		WDO; Public Health and Municipal Services Ordinance; The Land (Miscellaneous Provisions) Ordinance; ETWB TCW NO. 15/2003.	Few portable toilets were not available at remote area to the site office. Site office with provision of flushing toilets for workers and staffs.
7.7.21		General Refuse 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		V		WDO; Public Health and Municipal Services Ordinance; The Land (Miscellaneous Provisions) Ordinance; ETWB TCW NO. 15/2003.	Disposed off-site during the reporting month. No record was submitted by the Contractor.
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.						16,2000.	
7.7.23		Marine Sediments 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		V			No dredging works was carried out during the reporting month. No dumping licence was applied by the Contractor.
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: 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

Implementation Schedule of Ecological Impact Measures Table 4

					Implemer	tation S	tages		
EIA Ref	EM&A Ref	Environmental Protection Measures*	Location / Timing	Implementation Agent	D	С	О	Relevant Legislation & Guidelines	Implementation Status
Constru	ction Phase								
8.7.1			Work site / During the construction period	All Contractor		$\sqrt{}$		-	\checkmark
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		V		-	Remediation work had been carried out at Stream B2 buffer zone during the reporting month.
8.7.4		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 onstruction period	All Contractor		V		-	Stream C condition (silt deposit at the stream bed) was remained the same as last month. Temporary drains (permanent cut off drains) were implemented at Hole 16 to reduce the clean catchment water mixing with construction site. Silt fence installation for the buffer zone at Stream C remained the same. Hydroseeding was planted at adjacent permanent slope.
8.9	Table 4.1	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		V			Monitoring has been carried out during this reporting month. There were small amount of artificial rocks filling sitting on the stream bed of downstream A during this reporting month. Silt was well-settled at Stream C after the heavy rainstorm occurred in mid-Nov 2006.
9.7.22			Work site / During the construction period	All Contractor		$\sqrt{}$			On-going
9.8.5			Oredging area/ during Iredging period	All Contractor		V			N/A
9.8.2	4.2.12	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.	Oredging area/Prior to Iredging	All Contractor		$\sqrt{}$			No transplanted coral transplantation at Site D2 was carried out the reporting month.
9.8.5		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.	Oredging area/Prior to Iredging	All Contractor		V			N/A
		shore and/or at least 40m seaward to avoid the coral colonies at Site B2 d	Cemporary barging point/ luring construction of the parging point	All Contractor		$\sqrt{}$			Floating pontoon was located at designated location according to EP during the reporting month.
		location for barging point at Zone 2 and Zone 3 of the mapping area in Site d	Cemporary barging point/ luring the entire construction phase	All Contractor		V			$\sqrt{}$

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
Not applicable

N/A

Implementation Schedule of Fisheries Impact Measures Table 5

EIA	EM&A Ref	Environmental Protection Measures*	Location / Timing	Implementation Agent	Implementation Stages**			Relevant Legislation &	Implementation Status
Ref					D	C	О	Guidelines	F
10.8.2		Construction phase 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.	_	All Contractor		V		N/A	Not observed
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		V		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		V		N/A	Master Programme indicated that excavation will carried out throughout the year 2006 to mid 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
Not applicable

N/A

Table 6 Implementation Schedule of Landscape and Visual Impact Measures

EIA Ref	EM&A Ref	Environmental Protection Measures*	Location / Timing Implementation Agent	Impleme	entation **	Stages	Legislation &	Implementation Status
				D	С	О	Guidelines	
		- Construction Phase	True and True		1 1	T	I	
Table 12.13	MC1	Site offices and construction yards: 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		V		EIAO Guidance Note No. 8/2002	To commence
Table 12.13	MC2	Height of site offices: • 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	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 All contractors construction yard areas.		V		EIAO Guidance Note No. 8/2002	Complied. Green hoarding erected.
Table 12.13	MC4	 Construction plant and building material: 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 All contractors yards.		V		EIAO Guidance Note No. 8/2002	Complied.
Table 12.13	MC5	Construction light: 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		V		EIAO Guidance Note No. 8/2002	No construction lights at present.
Table 12.13		 Vegetation: 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. 			√		EIAO Guidance Note No. 8/2002	Complied. Hydroseeding has been carried out for erosion control. NOT complied. Building material has been stored under dripline of trees.
Table 12.13	MT1	Compensation for losses:	As shown on All contractors mitigation measures plans.	V	V		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	V	√		EIAO Guidance Note No. 8/2002	Design Stage: Complied Construction Stage: To commence.
Table 12.13	MT3	Where practical, trees that require removal shall be transplanted on Site;	General. All contractors	$\sqrt{}$	√		EIAO Guidance Note No. 8/2002	Design Stage: Complied Construction Stage: Partial completed of transplantation works on site.
Table 12.13		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 All contractors mitigation measure plans.	$\sqrt{}$	√		EIAO Guidance Note No. 8/2002	Design Stage: Complied Construction Stage: To commence.

EIA Ref	EM&A Ref	f Environmental Protection Measures*	Location / Timing	Implementation Agent	Impleme	entation **	Stages	Legislation &	Implementation Status
				Agent	D	С	0	Guidelines	Status
Table 12.13		Tree Planting on Slopes: 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	V √	1	U	EIAO Guidance Note No. 8/2002	Design Stage: Complied Construction Stage: Shrubs planting are being carried out on slopes.
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	V	V		EIAO Guidance Note No. 8/2002	Design Stage: complied Construction Stage: Commence
Table 12.13		Tree Preservation: 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	gAll contractors	٧	V		WBTC 24/94, WBTC 14/2002, ETWB 2/2004	Design Stage: Tree felling approved. Construction Stage: Some trees were found damaged or dead. Tree transplantation commenced.
Table 12.13		Buffer Areas • 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	V	√		EIAO Guidance Note No. 8/2002	Design Stage: complied Construction Stage: Commenced. Permanent bridges constructed within the buffer zone areas of Streams A, B & C was completed.
Table 12.13	MS1	Bulk hydroseeding: Bulk site formation works shall be followed with bulk hydroseeding as soon as practical.	General.	All contractors		V		EIAO Guidance Note No. 8/2002	Design Stage: Complied Construction Stage: Permanent slope hydroseeding commenced.
Table 12.13	MS2	Grassing: 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.	gAll contractors		V		EIAO Guidance Note No. 8/2002	Design Stage: Complied Construction Stage: In progress.
	MS3	Restoration: 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: Erograstic curvula Lolium Perenne Neyraudia reynaudiana Pennisetum purpureum; and the following shrub / small tree species: Gordonia axillaries, Rhaphiolepis indica and Rhodomyrtus tomentosa.	At all residual areas.	All contractors		√		EIAO Guidance Note No. 8/2002	To commence.
Table 12.13	ME1	Screening: 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.	d All contractors	√ 	V		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	V	V		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	Implem	nentation **	Stage	Legislation &	Implementation Status
				1-5	D	С	O	Guidelines	
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	V	√		EIAO Guidance Note No. 8/2002	Design Stage: Complied Construction Stage: To commence.
Table 12.13	ME4	coating.	All pumping stations.	All contractors	V	√		EIAO Guidance Note No. 8/2002	Design Stage: Complied Construction Stage: To commence.
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.		All contractors	\checkmark	~		EIAO Guidance Note No. 8/2002	Design Stage: Complied Construction Stage: Desalination plant construction completed.
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	\checkmark	\ \		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.	fAll contractors	V	1		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 car parking area.	tAll contractors	V	√		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	V	√		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		1		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
Not applicable

Implementation Schedule of Cultural Heritage Mitigation Measures Table 7

EIA Ref	EM&A Ref	Environmental Protection Measures*	Location / Timing	Implementation Agent Implementation Stages ** D C O		Relevant Legislation &	Implementation Status		
Constru	ction Phase				D	C	_ 0	Guidelines	
Table 13.4		Wan Chai Archaeological Site - Archaeological Watching Brief	Site formation and construction works	All Contractors		V		EIAO	√ Watching brief at Hole 2 was completed in February 2007. Whole watching brief programme was completed at Holes 2, 11, 12, 14, 15 & 16 and no archaeological finding was recorded in February 2007.
Table 13.4		Grave #1 – Preservation in-situ - Fenced off three metre buffer zone around the grave	Site formation and construction works	All Contractors		V		EIAO	Buffer zone fencing was provided around at Grave 1.
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		1		EIAO	The revised golf course design will not disturb the Grave 5 and will keep in-situ. No preservation record for this grave is required.
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		1		EIAO	The preservation by record was completed in 23 rd October 2006 and submitted to AMO for record.
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		V		EIAO	V

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
Not applicable

N/A

 Table 8
 Implementation Schedule of Land Contamination Mitigation Measures

	M& Environmental Protection Measures*	Location / Timing	Implementation	Impleme Stage		Relevant Legislation &	Implementation status
AI	Ref		Agent		C 0	Guidelines	implementation status
Land Contamin	ination - Construction Phase	•	1	•			
EIA Rei A I	Ref Environmental Protection Measures*	the construction period the construction peri	All Contractors	Stage		Waste Disposal Ordinance (Cap 354), Waste Disposal (Chemical Waste) (General)	
11.11.1	Ordinance (Cap 358). Based on preliminary site investigation, the site is considered as a potentially lan contaminated site as hotspots of contamination of lead and sulphur were identified. Further investigation for land contamination at this site is therefore required and idetailed 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 Pla (RAP) should also be prepared and submitted together with the CAR to EPD for	the construction period	All Contractors		V	Waste Disposal Ordinance (Cap 354), Waste Disposal (Chemical Waste) (General) Regulation (Cap 35); Water Pollution Control Ordinance (Cap 358).	

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 24-hour TSP Monitoring Results at Station GCA B1

Date	Filter W	eight (g)	Flow Rate	e (m³/min.)	Elapse	e Time	Sampling	Conc.	Weather	Particulate	Av. flow	Total vol.	
	Initial	Final	Initial	Final	Initial	Final	Time(hrs.)	(µg/m³)	Condition	weight(g)	(m³/min)	(m ³)	
26-Feb-07	3.4948	3.7752	1.27	1.27	11182.4	11206.4	24.0	153.6	Sunny	0.28	1.27	1825.9	
02-Mar-07	3.6319	3.8944	1.41	1.41	11206.4	11230.4	24.0	129.0	Sunny	0.26	1.41	2034.7	Ad ho
03-Mar-07	3.6965	3.9511	1.43	1.43	11230.4	11254.4	24.0	123.6	Sunny	0.25	1.43	2060.6	
09-Mar-07	3.5770	3.8596	1.31	1.31	11254.4	11278.4	24.0	150.4	Sunny	0.28	1.31	1879.2	
15-Mar-07	3.5026	3.6067	1.23	1.23	11278.4	11302.4	24.0	58.9	Sunny	0.10	1.23	1768.3	
21-Mar-07	3.6954	3.8839	1.27	1.27	11302.4	11326.4	24.0	103.2	Sunny	0.19	1.27	1825.9	
						-	N.4:	50.0	11				-

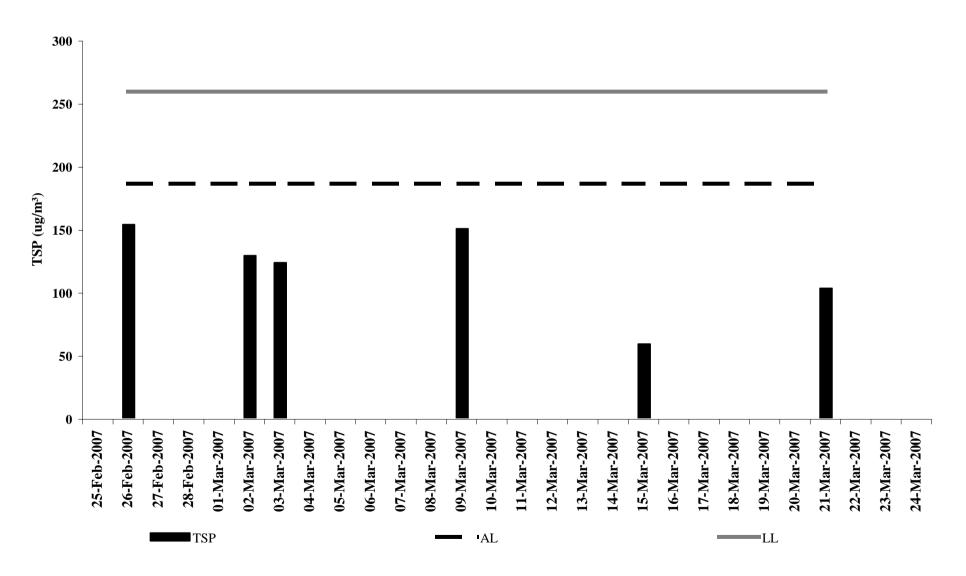
 Min
 58.9

 Max
 153.6

 Average
 119.8

Remark: Bold value indicated an Action level exceedance

Bold & Italic value indicated an Limit level exceedance



Date		Weather description	Temp (°C)	Relative Humidity (%)	Mean amount of cloud (%)	Total Rainfall (mm)	Wind direction
25-Feb-07	Sun	Cloudy with a few rain patches.	20.4	80	78	1	E to NE
26-Feb-07	Mon	Sunny intervals.	19	78	88	Trace	Е
27-Feb-07	Tue	Sunny intervals.	18.8	76	66	Trace	Е
28-Feb-07	Wed	Cloudy with one or two light rain patches.	19.4	81	87	Trace	Е
1-Mar-07	Thu	Cloudy with a few rain patches and mist.	19.3	83	82	Trace	Е
2-Mar-07	Fri	Sunny intervals and foggy.	21.2	81	71	-	E to SE
3-Mar-07	Sat	Sunny periods.	22.1	83	51	-	S to SE
4-Mar-07	Sun	Sunny periods.	22.3	87	83	0.1	S
5-Mar-07	Mon	Cloudy with a few rain patches, misty at first.	21.4	80	64	3.4	N
6-Mar-07	Tue	Cloudy with one or two rain patches.	15	82	89	8.1	NE
7-Mar-07	Wed	Cloudy with one or two rain patches.	12.8	83	94	1	E to NE
8-Mar-07	Thu	Cloudy with one or two rain patches.	14.6	88	89	0.1	E to NE
9-Mar-07	Fri	Cloudy with one or two rain patches.	16.1	90	100	Trace	E to NE
10-Mar-07	Sat	Sunny intervals.	18.9	91	94	Trace	Е
11-Mar-07	Sun	Mainly cloudy.	18.1	91	99	0.1	Е
12-Mar-07	Mon	Rain showers and mainly cloudy.	17.3	88	95	Trace	Е
13-Mar-07	Tue	Misty. Light rain patches at first.	19.4	89	89	Trace	E to SE
14-Mar-07	Wed	Sunny periods with mist.	20.6	92	89	Trace	SE
15-Mar-07	Thu	Sunny periods.	22.5	89	84	-	S to SE
16-Mar-07	Fri	Sunny intervals and visibility relatively low.	23.9	87	83	0.2	Е
17-Mar-07	Sat	Mainly cloudy with one or two rain patches.	19.1	90	91	0.6	E to NE
18-Mar-07	Sun	Cloudy with a few rain patches.	18.4	81	88	Trace	E to NE
19-Mar-07	Mon	Cloudy with scattered showers.	18	82	72	7.1	E to NE

Date		Weather description	Temp (°C)	Relative Humidity (%)	Mean amount of cloud (%)	Total Rainfall (mm)	Wind direction
20-Mar-07	Tue	Cloudy with scattered showers.	16.9	67	79	-	N
21-Mar-07	Wed	Sunny periods.	18.5	75	85	-	N
22-Mar-07	Thu	Mainly cloudy with a few light rain patches.	19.7	80	83	Trace	Е
23-Mar-07	Fri	Misty with a few rain patches.	20.6	83	88	Trace	Е
24-Mar-07	Sat	Misty with occasional rain.	22.1	89	88	1	S to SE

Water Quality

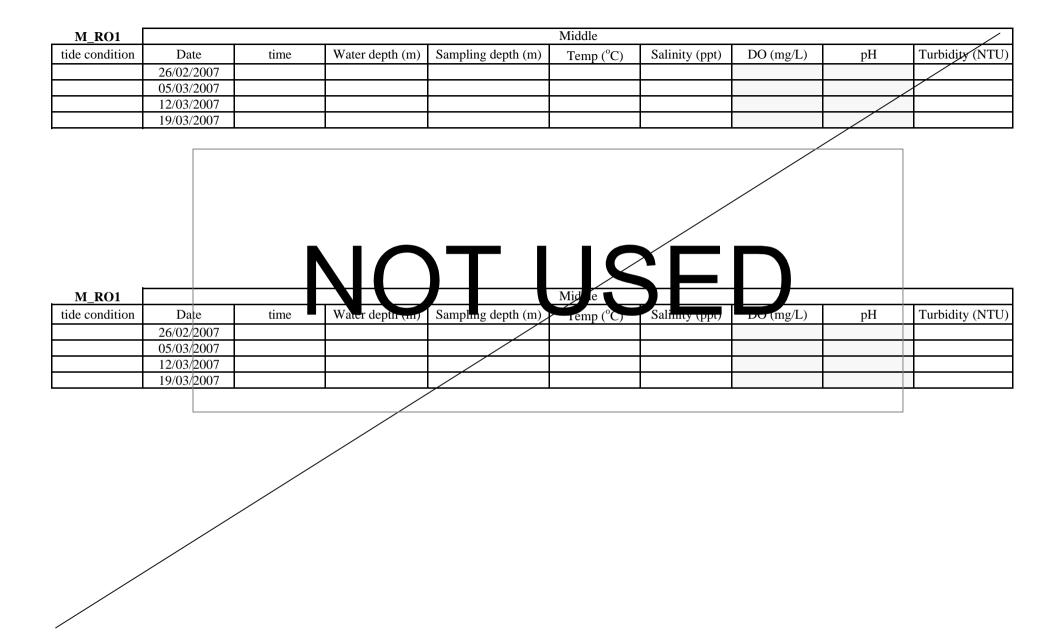
M_RO1		Surface										
tide condition	Date	time	Water depth (m)	Sampling depth (m)	Temp (°C)	Salinity (ppt)	DO (mg/L)	pН	Turbidity (NTU)			
Mid-Ebb	26/02/2007	09:01	5.3	1.0	18.5	29.6	8.0	8.1	1.4			
Mid-Ebb	05/03/2007	09:01	5.6	1.0	18.3	29.4	7.6	8.2	2.0			
Mid-Ebb	12/03/2007	08:31	5.4	1.0	17.9	29.3	7.7	8.2	1.9			
Mid-Ebb	19/03/2007	10:01	5.3	1.0	17.5	29.1	7.9	8.1	1.0			

M_RO1		Surface										
tide condition	Date	time	Water depth (m)	Sampling depth (m)	Temp (°C)	Salinity (ppt)	DO (mg/L)	pН	Turbidity (NTU)			
Mid-Flood	26/02/2007	12:01	5.5	1.0	20.1	31.2	7.6	8.3	1.6			
Mid-Flood	05/03/2007	13:31	5.7	1.0	19.1	31.1	7.7	8.3	2.2			
Mid-Flood	12/03/2007	13:01	5.8	1.0	18.1	31.5	7.5	8.4	2.0			
Mid-Flood	19/03/2007	14:01	5.5	1.0	17.1	30.8	8.0	8.3	1.1			

Remarks:

Action level	Bold & Italic
Limit level	Bold
< detection limit	Grey

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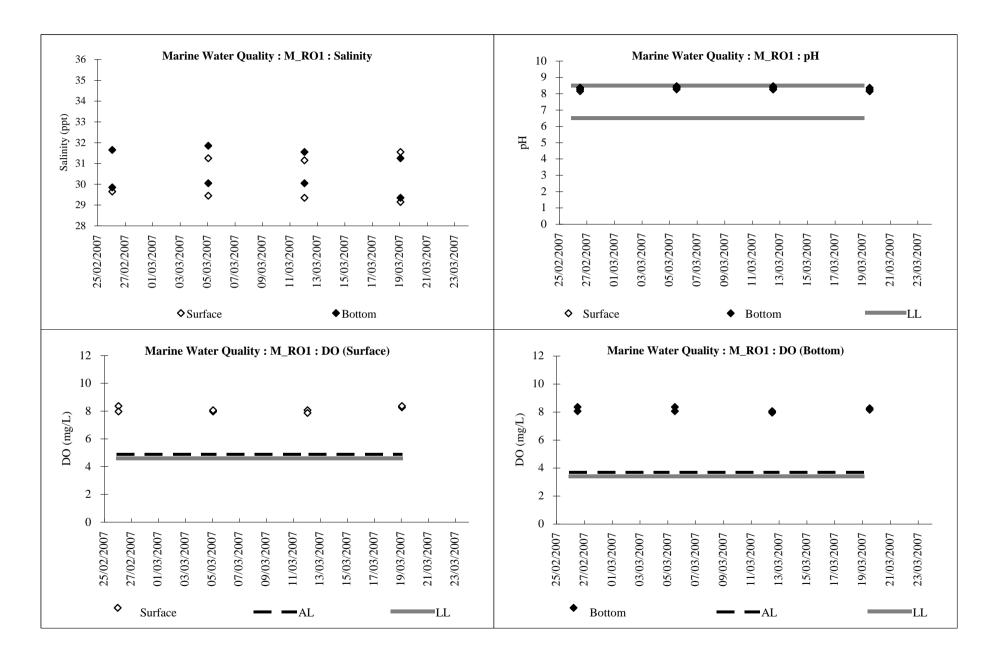
M_RO1		Bottom										
tide condition	Date	time	Water depth (m)	Sampling depth (m)	Temp (°C)	Salinity (ppt)	DO (mg/L)	pН	Turbidity (NTU)			
Mid-Ebb	26/02/2007	9:00	5.3	4.3	18.6	29.8	8.0	8.2	2.1			
Mid-Ebb	05/03/2007	9:00	5.6	4.6	18.4	30.0	8.0	8.3	1.3			
Mid-Ebb	12/03/2007	8:30	5.4	4.4	18.1	30.0	7.7	8.2	1.6			
Mid-Ebb	19/03/2007	10:00	5.3	4.3	17.5	29.3	7.8	8.1	1.3			

M_RO1		Bottom										
tide condition	Date	time	Water depth (m)	Sampling depth (m)	Temp (°C)	Salinity (ppt)	DO (mg/L)	pН	Turbidity (NTU)			
Mid-Flood	26/02/2007	12:00	5.5	4.5	19.2	31.6	7.7	8.3	2.0			
Mid-Flood	05/03/2007	13:30	5.7	4.7	18.8	31.8	7.7	8.4	1.1			
Mid-Flood	12/03/2007	13:00	5.8	4.8	18.3	31.5	7.6	8.3	1.3			
Mid-Flood	19/03/2007	14:00	5.5	4.5	17.1	31.2	7.9	8.2	1.0			

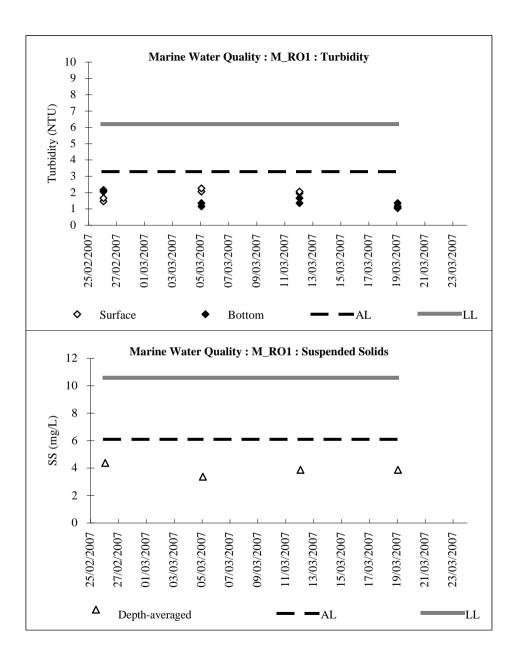
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		Mid-Ebb			Mid-Flood		Depth-averaged
M_RO1	Surface	Midlle	Bottom	Surface	Midlle	Bottom	SS (mg/L)
26/02/2007	3.0	-	3.0	4.0	-	6.0	4.0
05/03/2007	3.0	-	2.0	3.0	-	4.0	3.0
12/03/2007	3.0	-	3.0	3.0	-	5.0	3.5
19/03/2007	4.0	-	4.0	3.0	-	3.0	3.5

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KLW	Surface									
tide condition	Date	time	Water depth (m)	Sampling depth (m)	Temp (°C)	Salinity (ppt)	DO (mg/L)	pН	Turbidity (NTU)	
Mid-Ebb	26/02/2007	09:12	13.1	1.0	18.5	29.7	8.0	8.1	1.1	
Mid-Ebb	05/03/2007	09:12	13.0	1.0	18.3	29.9	7.7	8.2	1.0	
Mid-Ebb	12/03/2007	08:42	13.2	1.0	17.9	29.8	7.6	8.1	1.3	
Mid-Ebb	19/03/2007	10:12	12.6	1.0	17.4	29.1	7.9	8.1	1.0	

KLW	Surface										
tide condition	Date	time	Water depth (m)	Sampling depth (m)	Temp (°C)	Salinity (ppt)	DO (mg/L)	pН	Turbidity (NTU)		
Mid-Flood	26/02/2007	12:12	13.6	1.0	19.3	31.5	7.9	8.3	1.3		
Mid-Flood	05/03/2007	13:42	14.0	1.0	19.0	31.7	7.6	8.4	1.2		
Mid-Flood	12/03/2007	13:12	13.8	1.0	18.2	31.9	7.7	8.3	1.4		
Mid-Flood	19/03/2007	08:11	13.1	1.0	17.1	31.3	7.8	8.1	1.3		

Remarks:

Action level	Bold & Italic
Limit level	Bold
< detection limit	Grey

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KLW		Middle								
tide condition	Date	time	Water depth (m)	Sampling depth (m)	Temp (°C)	Salinity (ppt)	DO (mg/L)	pН	Turbidity (NTU)	
Mid-Ebb	26/02/2007	09:11	13.1	6.6	18.7	29.7	8.0	8.1	1.6	
Mid-Ebb	05/03/2007	09:11	13.0	6.5	18.5	29.9	7.7	8.2	1.6	
Mid-Ebb	12/03/2007	08:41	13.2	6.6	18.2	29.9	7.6	8.2	1.9	
Mid-Ebb	19/03/2007	10:11	12.6	6.3	17.4	29.1	7.8	8.1	1.0	

KLW	Middle										
tide condition	Date	time	Water depth (m)	Sampling depth (m)	Temp (°C)	Salinity (ppt)	DO (mg/L)	pН	Turbidity (NTU)		
Mid-Flood	26/02/2007	12:11	13.6	6.8	19.1	31.9	7.9	8.3	1.5		
Mid-Flood	05/03/2007	13:41	14.0	7.0	19.0	31.8	7.7	8.4	1.3		
Mid-Flood	12/03/2007	13:11	13.8	6.9	18.3	31.9	7.6	8.4	1.9		
Mid-Flood	19/03/2007	14:11	13.1	6.6	17.2	30.9	7.9	8.4	1.0		

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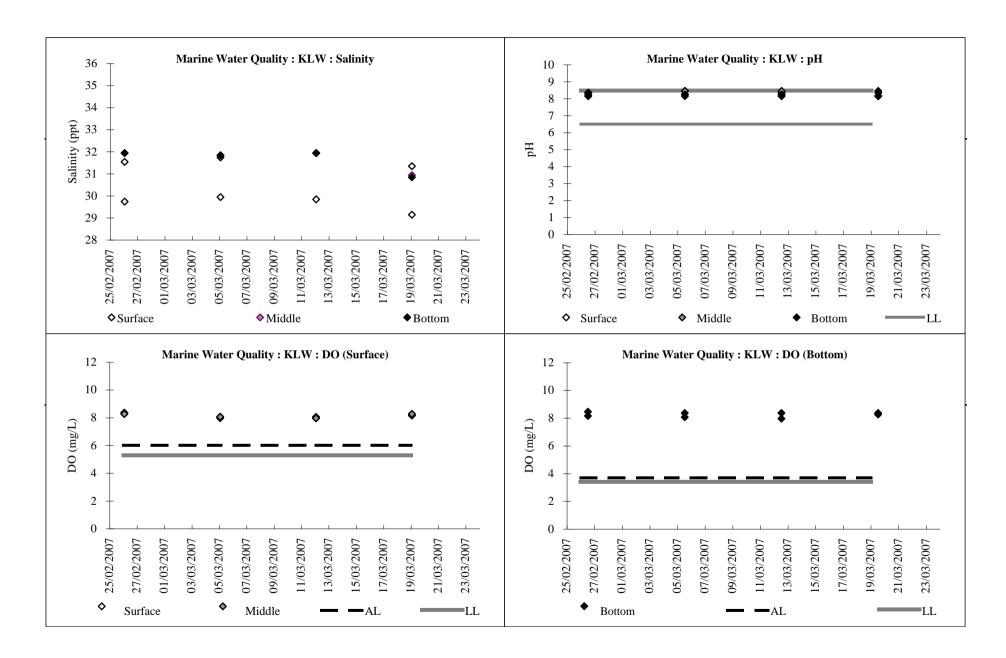
KLW		Bottom										
tide condition	Date	time	Water depth (m)	Sampling depth (m)	Temp (°C)	Salinity (ppt)	DO (mg/L)	pН	Turbidity (NTU)			
Mid-Ebb	26/02/2007	9:10	13.1	12.1	18.7	29.8	8.1	8.2	1.0			
Mid-Ebb	05/03/2007	9:10	13.0	12.0	18.5	29.9	8.0	8.1	1.8			
Mid-Ebb	12/03/2007	8:40	13.2	12.2	18.3	29.9	8.0	8.1	2.0			
Mid-Ebb	19/03/2007	10:10	12.6	11.6	17.2	29.0	7.9	8.1	1.0			

KLW		Bottom								
tide condition	Date	time	Water depth (m)	Sampling depth (m)	Temp (°C)	Salinity (ppt)	DO (mg/L)	pН	Turbidity (NTU)	
Mid-Flood	26/02/2007	12:10	13.6	12.6	19.1	31.9	7.8	8.3	1.3	
Mid-Flood	05/03/2007	13:40	14.0	13.0	19.1	31.8	7.7	8.2	1.6	
Mid-Flood	12/03/2007	13:10	13.8	12.8	18.4	31.9	7.6	8.2	1.5	
Mid-Flood	19/03/2007	14:10	13.1	12.1	17.3	30.8	8.0	8.3	1.3	

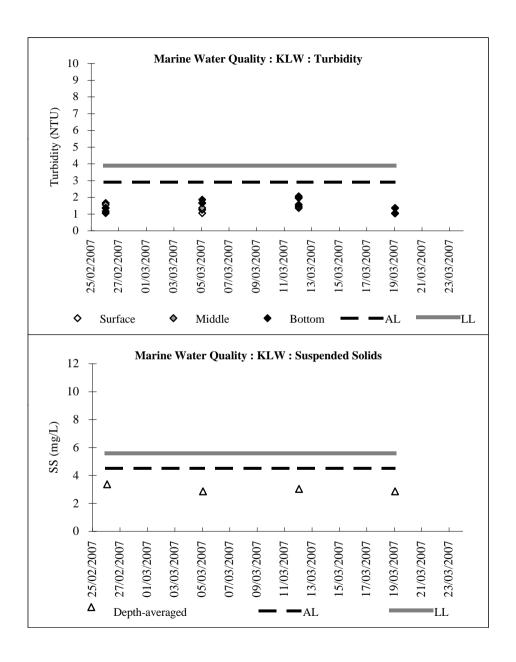
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		Mid-Ebb			Mid-Flood		Depth-averaged
KLW	Surface	Midlle	Bottom	Surface	Midlle	Bottom	SS (mg/L)
26/02/2007	4.0	3.0	4.0	2.0	3.0	2.0	3.0
05/03/2007	2.0	3.0	3.0	2.0	3.0	2.0	2.5
12/03/2007	2.0	3.0	4.0	2.0	2.0	3.0	2.7
19/03/2007	4.0	2.0	3.0	2.0	2.0	2.0	2.5

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M_A		Surface										
tide condition	Date	time	Water depth (m)	Sampling depth (m)	Temp (°C)	Salinity (ppt)	DO (mg/L)	pН	Turbidity (NTU)			
Mid-Ebb	26/02/2007	09:32	8.0	1.0	18.4	29.7	7.8	8.1	1.9			
Mid-Ebb	05/03/2007	09:32	7.8	1.0	18.4	29.7	7.7	8.2	1.6			
Mid-Ebb	12/03/2007	09:02	7.7	1.0	18.0	29.5	7.7	8.1	1.8			
Mid-Ebb	19/03/2007	10:32	7.8	1.0	17.5	29.0	8.0	8.1	1.4			

M_A		Surface								
tide condition	Date	time	Water depth (m)	Sampling depth (m)	Temp (°C)	Salinity (ppt)	DO (mg/L)	pН	Turbidity (NTU)	
Mid-Flood	26/02/2007	12:32	8.5	1.0	20.3	31.3	7.7	8.3	2.2	
Mid-Flood	05/03/2007	14:02	8.4	1.0	19.1	31.6	7.5	8.3	1.9	
Mid-Flood	12/03/2007	13:32	8.3	1.0	18.3	31.8	7.6	8.3	2.1	
Mid-Flood	19/03/2007	14:32	8.5	1.0	17.1	31.5	7.9	8.4	1.3	

Remarks:

Action level	Bold & Italic
Limit level	Bold
< detection limit	Grey

M_A Page 13 of 62

A		Middle								
tide condition	Date	time	Water depth (m)	Sampling depth (m)	Temp (°C)	Salinity (ppt)	DO (mg/L)	pН	Turbidity (NTU)	
Mid-Ebb	26/02/2007	09:31	8.0	4.0	18.5	29.8	7.9	8.1	1.6	
Mid-Ebb	05/03/2007	09:31	7.8	3.9	18.4	29.7	7.6	8.2	1.9	
Mid-Ebb	12/03/2007	09:01	7.7	3.9	18.3	29.6	7.7	8.2	1.8	
Mid-Ebb	19/03/2007	10:31	7.8	3.9	17.4	29.2	7.9	8.1	1.1	

M_A		Middle									
tide condition	Date	time	Water depth (m)	Sampling depth (m)	Temp (°C)	Salinity (ppt)	DO (mg/L)	pН	Turbidity (NTU)		
Mid-Flood	26/02/2007	12:31	8.5	4.3	19.3	31.5	7.9	8.3	1.3		
Mid-Flood	05/03/2007	14:01	8.4	4.2	19.1	31.6	7.8	8.4	1.6		
Mid-Flood	12/03/2007	13:31	8.3	4.2	18.5	31.8	7.5	8.3	2.1		
Mid-Flood	19/03/2007	14:31	8.5	4.3	17.0	31.1	8.0	8.4	1.2		

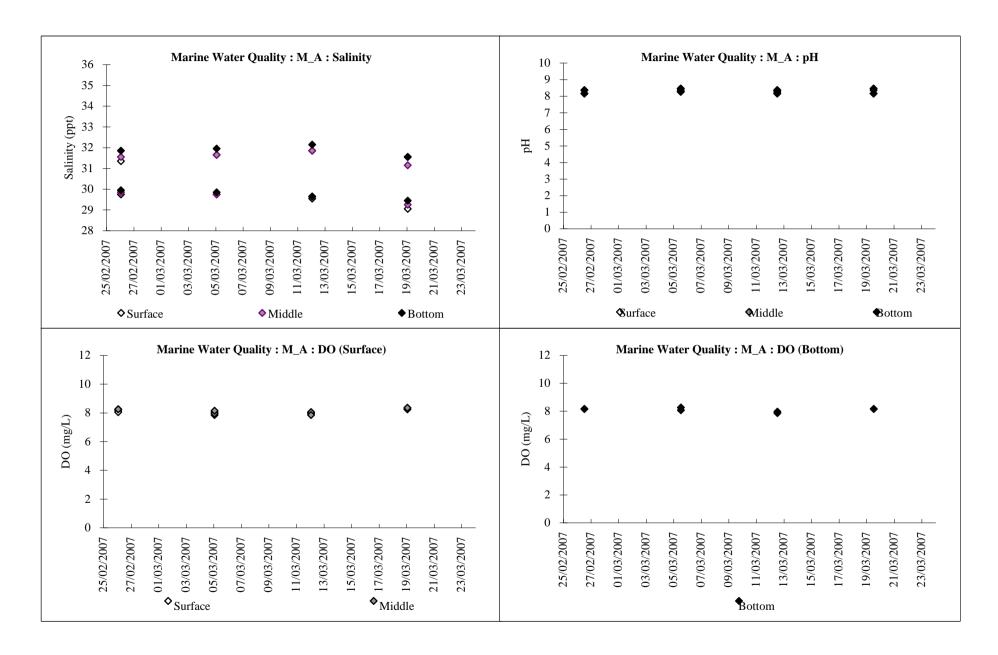
M_A Page 14 of 62

M_A					Bottom				
tide condition	Date	time	Water depth (m)	Sampling depth (m)	Temp (°C)	Salinity (ppt)	DO (mg/L)	pН	Turbidity (NTU)
Mid-Ebb	26/02/2007	9:30	8.0	7.0	18.5	29.9	7.8	8.1	1.8
Mid-Ebb	05/03/2007	9:30	7.8	6.8	18.5	29.8	7.7	8.2	1.7
Mid-Ebb	12/03/2007	9:00	7.7	6.7	18.3	29.6	7.6	8.1	1.3
Mid-Ebb	19/03/2007	10:30	7.8	6.8	17.4	29.4	7.8	8.1	1.5

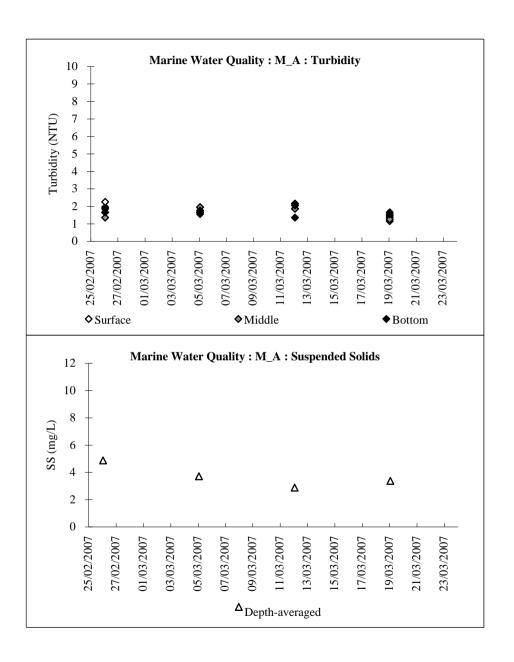
M_A		Bottom								
tide condition	Date	time	Water depth (m)	Sampling depth (m)	Temp (°C)	Salinity (ppt)	DO (mg/L)	pН	Turbidity (NTU)	
Mid-Flood	26/02/2007	12:30	8.5	7.5	19.1	31.8	7.8	8.3	1.6	
Mid-Flood	05/03/2007	14:00	8.4	7.4	19.1	31.9	7.9	8.4	1.5	
Mid-Flood	12/03/2007	13:30	8.3	7.3	18.4	32.1	7.5	8.3	2.0	
Mid-Flood	19/03/2007	14:30	8.5	7.5	17.2	31.5	7.8	8.3	1.6	

		Mid-Ebb			Mid-Flood		Depth-averaged
M_A	Surface	Midlle	Bottom	Surface	Midlle	Bottom	SS (mg/L)
26/02/2007	4.0	5.0	3.0	5.0	6.0	4.0	4.5
05/03/2007	3.0	3.0	4.0	3.0	4.0	3.0	3.3
12/03/2007	2.0	3.0	3.0	2.0	2.0	3.0	2.5
19/03/2007	3.0	4.0	3.0	4.0	2.0	2.0	3.0

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M_Marsh					Surface				
tide condition	Date	time	Water depth (m)	Sampling depth (m)	Temp (°C)	Salinity (ppt)	DO (mg/L)	pН	Turbidity (NTU)
Mid-Ebb	26/02/2007	09:47	8.3	1.0	18.4	29.8	7.5	8.1	1.9
Mid-Ebb	05/03/2007	09:47	8.0	1.0	18.4	29.7	7.6	8.2	1.6
Mid-Ebb	12/03/2007	09:17	8.1	1.0	18.3	29.7	7.7	8.1	1.5
Mid-Ebb	19/03/2007	10:47	7.9	1.0	17.5	29.3	7.7	8.2	1.0

M_Marsh		Surface								
tide condition	Date	time	Water depth (m)	Sampling depth (m)	Temp (°C)	Salinity (ppt)	DO (mg/L)	pН	Turbidity (NTU)	
Mid-Flood	26/02/2007	12:47	8.5	1.0	19.7	31.6	7.6	8.3	2.3	
Mid-Flood	05/03/2007	14:17	8.7	1.0	19.1	31.4	7.6	8.4	1.9	
Mid-Flood	12/03/2007	13:47	8.3	1.0	18.2	31.9	7.5	8.3	2.1	
Mid-Flood	19/03/2007	14:47	8.3	1.0	17.2	31.1	7.8	8.3	1.0	

Remarks:

Action level	Bold & Italic
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)	pН	Turbidity (NTU)
Mid-Ebb	26/02/2007	09:46	8.3	4.2	18.4	29.9	7.6	8.1	1.8
Mid-Ebb	05/03/2007	09:46	8.0	4.0	18.4	29.6	7.7	8.2	1.8
Mid-Ebb	12/03/2007	09:16	8.1	4.1	18.3	29.6	7.6	8.1	2.1
Mid-Ebb	19/03/2007	10:46	7.9	4.0	17.5	29.3	7.8	8.1	1.1

M_Marsh		Middle								
tide condition	Date	time	Water depth (m)	Sampling depth (m)	Temp (°C)	Salinity (ppt)	DO (mg/L)	pН	Turbidity (NTU)	
Mid-Flood	26/02/2007	12:46	8.5	4.3	19.3	31.5	7.7	8.3	2.0	
Mid-Flood	05/03/2007	14:16	8.7	4.4	19.1	31.8	7.6	8.3	2.0	
Mid-Flood	12/03/2007	13:46	8.3	4.2	18.4	31.9	7.7	8.3	1.6	
Mid-Flood	19/03/2007	14:46	8.3	4.2	17.2	31.4	7.9	8.4	1.0	

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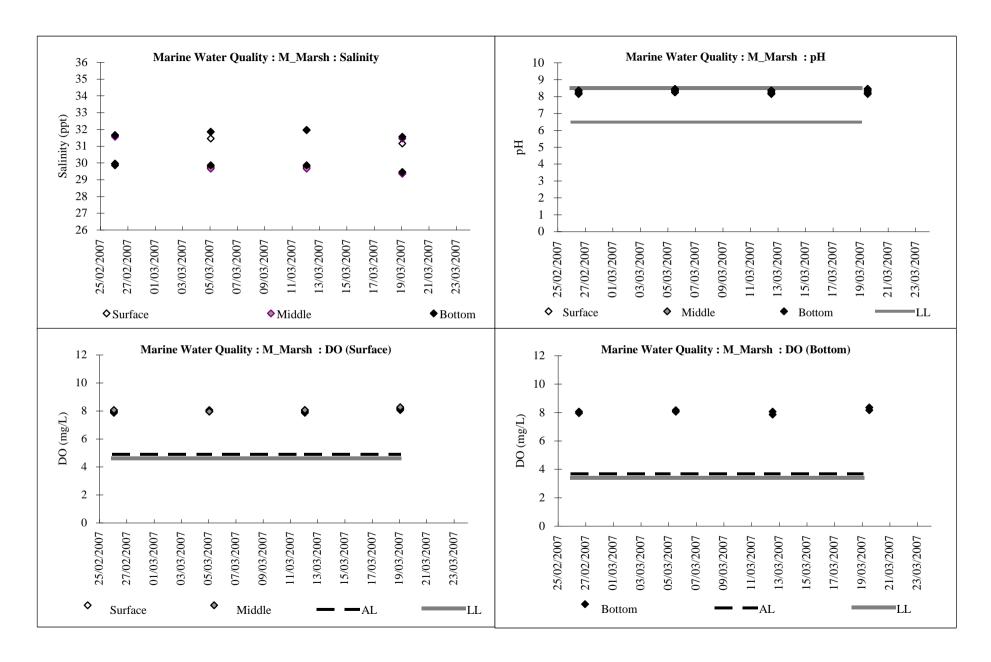
M_Marsh		Bottom								
tide condition	Date	time	Water depth (m)	Sampling depth (m)	Temp (°C)	Salinity (ppt)	DO (mg/L)	pН	Turbidity (NTU)	
Mid-Ebb	26/02/2007	9:45	8.3	7.3	18.5	29.9	7.6	8.1	2.1	
Mid-Ebb	05/03/2007	9:45	8.0	7.0	18.4	29.8	7.7	8.2	2.2	
Mid-Ebb	12/03/2007	9:15	8.1	7.1	18.3	29.8	7.7	8.1	1.3	
Mid-Ebb	19/03/2007	10:45	7.9	6.9	17.4	29.4	7.8	8.1	1.0	

M_Marsh	Bottom										
tide condition	Date	time	Water depth (m)	Sampling depth (m)	Temp (°C)	Salinity (ppt)	DO (mg/L)	pН	Turbidity (NTU)		
Mid-Flood	26/02/2007	12:45	8.5	7.5	19.1	31.6	7.7	8.2	2.4		
Mid-Flood	05/03/2007	14:15	8.7	7.7	19.1	31.8	7.8	8.3	1.9		
Mid-Flood	12/03/2007	13:45	8.3	7.3	18.2	31.9	7.5	8.2	2.1		
Mid-Flood	19/03/2007	14:45	8.3	7.3	17.3	31.5	8.0	8.4	1.0		

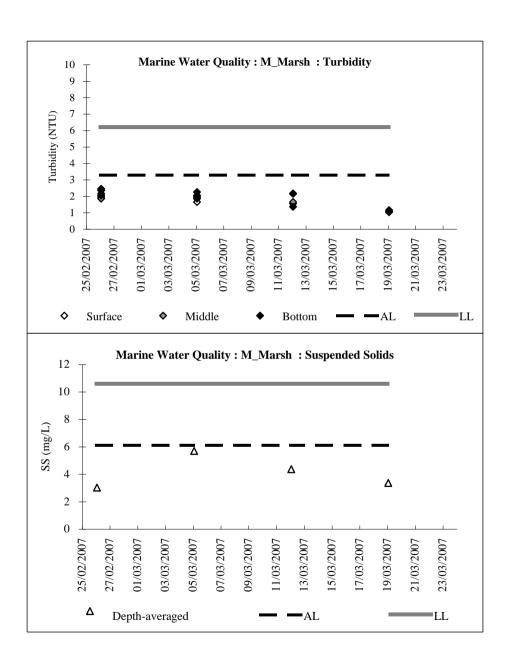
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		Mid-Ebb			Depth-averaged		
M_Marsh	Surface	Midlle	Bottom	Surface	Midlle	Bottom	SS (mg/L)
26/02/2007	3.0	3.0	2.0	3.0	2.0	3.0	2.7
05/03/2007	5.0	5.0	7.0	7.0	5.0	3.0	5.3
12/03/2007	5.0	4.0	4.0	4.0	4.0	3.0	4.0
19/03/2007	3.0	3.0	4.0	3.0	2.0	3.0	3.0

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TTC		Surface									
tide condition	Date	time	Water depth (m)	Sampling depth (m)	Temp (°C)	Salinity (ppt)	DO (mg/L)	pН	Turbidity (NTU)		
Mid-Ebb	26/02/2007	09:57	9.7	1.0	18.5	29.8	7.6	8.0	1.9		
Mid-Ebb	05/03/2007	10:07	9.7	1.0	18.4	29.7	7.7	8.1	2.3		
Mid-Ebb	12/03/2007	09:37	9.9	1.0	18.0	29.6	7.6	8.0	1.6		
Mid-Ebb	19/03/2007	11:07	9.6	1.0	17.5	29.4	7.8	8.1	1.1		

TTC		Surface										
tide condition	Date	time	Water depth (m)	Sampling depth (m)	Temp (°C)	Salinity (ppt)	DO (mg/L)	pН	Turbidity (NTU)			
Mid-Flood	26/02/2007	13:07	10.3	1.0	20.0	31.6	7.6	8.2	2.3			
Mid-Flood	05/03/2007	14:27	10.4	1.0	19.2	31.7	7.8	8.3	1.7			
Mid-Flood	12/03/2007	13:57	10.0	1.0	17.9	31.5	7.5	8.3	1.8			
Mid-Flood	19/03/2007	14:57	10.0	1.0	17.3	31.5	7.9	8.4	1.2			

Action level	Bold & Italic
Limit level	Bold
< detection limit	Grey

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TTC		Middle									
tide condition	Date	time	Water depth (m)	Sampling depth (m)	Temp (°C)	Salinity (ppt)	DO (mg/L)	pН	Turbidity (NTU)		
Mid-Ebb	26/02/2007	09:56	9.7	4.9	18.7	30.0	7.6	8.1	1.6		
Mid-Ebb	05/03/2007	10:06	9.7	4.9	18.4	29.7	7.7	8.2	1.3		
Mid-Ebb	12/03/2007	09:36	9.9	5.0	18.2	29.9	7.6	8.1	1.8		
Mid-Ebb	19/03/2007	11:06	9.6	4.8	17.4	29.7	7.8	8.1	1.1		

TTC		Middle									
tide condition	Date	time	Water depth (m)	Sampling depth (m)	Temp (°C)	Salinity (ppt)	DO (mg/L)	pН	Turbidity (NTU)		
Mid-Flood	26/02/2007	13:06	10.3	5.2	19.0	31.9	7.6	8.2	1.8		
Mid-Flood	05/03/2007	14:26	10.4	5.2	19.1	31.8	7.6	8.3	1.5		
Mid-Flood	12/03/2007	13:56	10.0	5.0	18.1	31.9	7.5	8.3	1.8		
Mid-Flood	19/03/2007	14:56	10.0	5.0	17.3	31.8	7.8	8.4	1.6		

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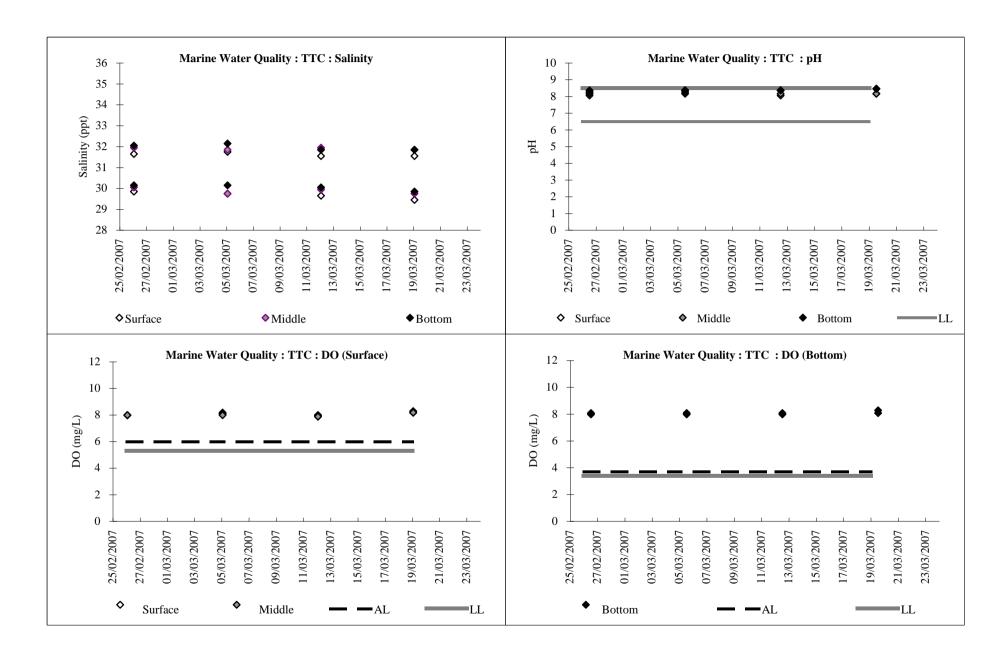
TTC		Bottom										
tide condition	Date	time	Water depth (m)	Sampling depth (m)	Temp (°C)	Salinity (ppt)	DO (mg/L)	pН	Turbidity (NTU)			
Mid-Ebb	26/02/2007	9:55	9.7	8.7	18.8	30.1	7.6	8.1	1.5			
Mid-Ebb	05/03/2007	10:05	9.7	8.7	18.4	30.1	7.7	8.2	1.6			
Mid-Ebb	12/03/2007	9:35	9.9	8.9	18.2	30.0	7.6	8.1	2.3			
Mid-Ebb	19/03/2007	11:05	9.6	8.6	17.3	29.8	7.7	8.1	1.1			

TTC		Bottom										
tide condition	Date	time	Water depth (m)	Sampling depth (m)	Temp (°C)	Salinity (ppt)	DO (mg/L)	pН	Turbidity (NTU)			
Mid-Flood	26/02/2007	13:05	10.3	9.3	19.0	32.0	7.7	8.3	1.9			
Mid-Flood	05/03/2007	14:25	10.4	9.4	19.2	32.1	7.6	8.3	2.1			
Mid-Flood	12/03/2007	13:55	10.0	9.0	18.2	31.8	7.7	8.3	1.4			
Mid-Flood	19/03/2007	14:55	10.0	9.0	17.4	31.8	7.9	8.4	1.1			

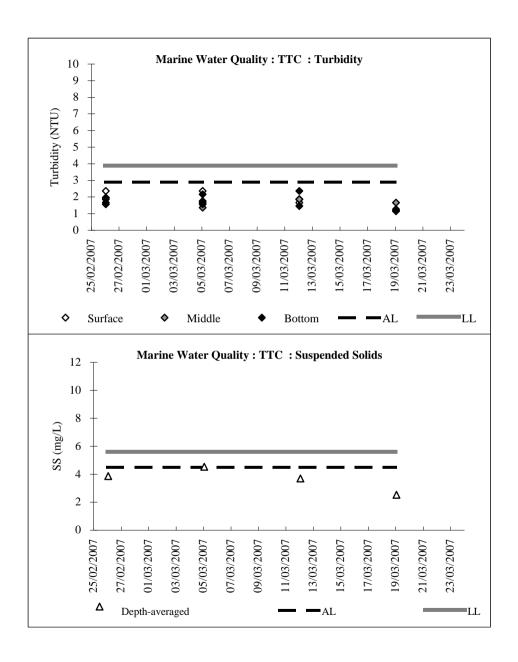
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		Mid-Ebb			Mid-Flood				
TTC	Surface	Midlle	Bottom	Surface	Midlle	Bottom	SS (mg/L)		
26/02/2007	2.0	5.0	3.0	3.0	5.0	3.0	3.5		
05/03/2007	4.0	3.0	5.0	4.0	5.0	4.0	4.2		
12/03/2007	5.0	3.0	2.0	3.0	5.0	2.0	3.3		
19/03/2007	2.0	2.0	2.0	3.0	2.0	2.0	2.2		

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M_BP		Surface									
tide condition	Date	time	Water depth (m)	Sampling depth (m)	Temp (°C)	Salinity (ppt)	DO (mg/L)	pН	Turbidity (NTU)		
Mid-Ebb	26/02/2007	10:07	8.3	1.0	18.7	30.1	7.6	8.1	1.8		
Mid-Ebb	05/03/2007	10:17	8.4	1.0	18.5	30.2	7.7	8.2	1.5		
Mid-Ebb	12/03/2007	09:47	8.1	1.0	18.1	30.0	7.7	8.1	1.4		
Mid-Ebb	19/03/2007	11:17	8.1	1.0	17.5	30.0	7.9	8.2	1.0		

M_BP		Surface										
tide condition	Date	time	Water depth (m)	Sampling depth (m)	Temp (°C)	Salinity (ppt)	DO (mg/L)	рН	Turbidity (NTU)			
Mid-Flood	26/02/2007	13:17	8.7	1.0	20.2	32.0	7.6	8.3	1.5			
Mid-Flood	05/03/2007	14:37	8.5	1.0	19.1	32.2	7.6	8.3	1.9			
Mid-Flood	12/03/2007	14:07	8.8	1.0	17.9	32.1	7.7	8.2	2.0			
Mid-Flood	19/03/2007	15:07	8.4	1.0	17.3	31.9	7.9	8.4	1.4			

Ttoman.	
Action level	Bold & Italic
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)	pН	Turbidity (NTU)			
Mid-Ebb	26/02/2007	10:06	8.3	4.2	18.7	30.2	7.7	8.1	1.5			
Mid-Ebb	05/03/2007	10:16	8.4	4.2	18.5	30.2	7.6	8.2	2.1			
Mid-Ebb	12/03/2007	09:46	8.1	4.1	18.2	30.1	7.6	8.1	1.9			
Mid-Ebb	19/03/2007	11:16	8.1	4.1	17.5	30.0	7.9	8.2	1.1			

M_BP		Middle									
tide condition	Date	time	Water depth (m)	Sampling depth (m)	Temp (°C)	Salinity (ppt)	DO (mg/L)	pН	Turbidity (NTU)		
Mid-Flood	26/02/2007	13:16	8.7	4.4	19.1	32.1	7.6	8.2	1.6		
Mid-Flood	05/03/2007	14:36	8.5	4.3	19.2	32.3	7.6	8.3	1.8		
Mid-Flood	12/03/2007	14:06	8.8	4.4	18.1	32.1	7.7	8.3	1.5		
Mid-Flood	19/03/2007	15:06	8.4	4.2	17.4	32.0	7.8	8.4	1.1		

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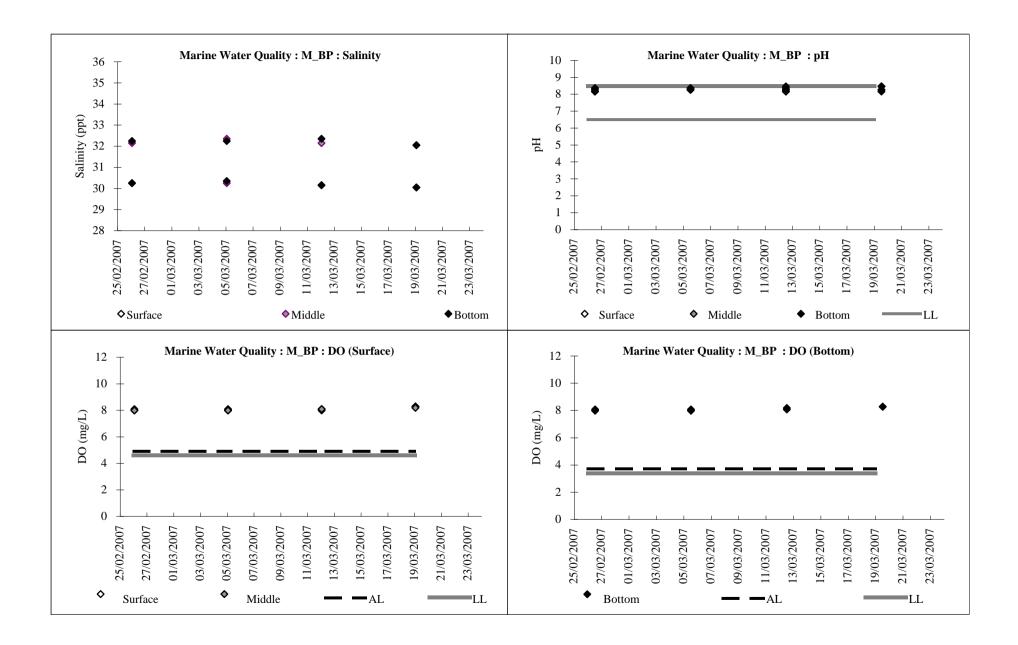
M_BP		Bottom										
tide condition	Date	time	Water depth (m)	Sampling depth (m)	Temp (°C)	Salinity (ppt)	DO (mg/L)	pН	Turbidity (NTU)			
Mid-Ebb	26/02/2007	10:05	8.3	7.3	18.8	30.2	7.7	8.1	1.8			
Mid-Ebb	05/03/2007	10:15	8.4	7.4	18.5	30.3	7.7	8.2	2.3			
Mid-Ebb	12/03/2007	9:45	8.1	7.1	18.1	30.1	7.8	8.2	1.3			
Mid-Ebb	19/03/2007	11:15	8.1	7.1	17.5	30.0	7.9	8.1	1.0			

M_BP		Bottom									
tide condition	Date	time	Water depth (m)	Sampling depth (m)	Temp (°C)	Salinity (ppt)	DO (mg/L)	pН	Turbidity (NTU)		
Mid-Flood	26/02/2007	13:15	8.7	7.7	19.1	32.2	7.6	8.3	1.5		
Mid-Flood	05/03/2007	14:35	8.5	7.5	19.2	32.2	7.6	8.3	1.7		
Mid-Flood	12/03/2007	14:05	8.8	7.8	18.2	32.3	7.7	8.4	2.1		
Mid-Flood	19/03/2007	15:05	8.4	7.4	17.4	32.0	7.9	8.4	1.1		

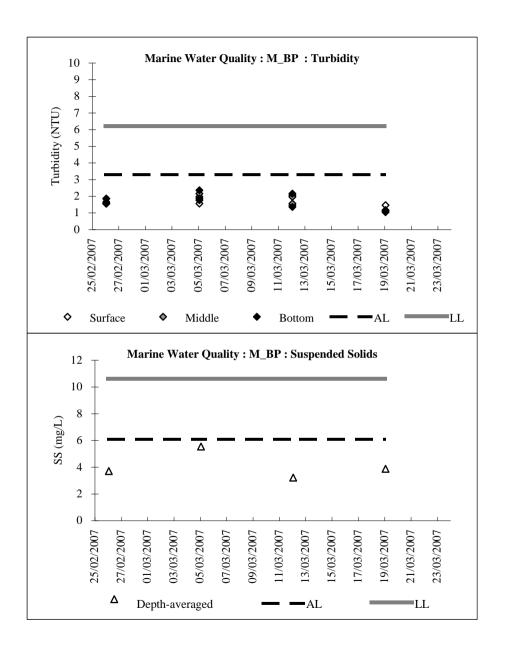
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		Mid-Ebb				Depth-averaged	
M_BP	Surface	Midlle	Bottom	Surface	Midlle	Bottom	SS (mg/L)
26/02/2007	5.0	3.0	3.0	3.0	3.0	3.0	3.3
05/03/2007	6.0	7.0	5.0	4.0	3.0	6.0	5.2
12/03/2007	3.0	2.0	3.0	2.0	2.0	5.0	2.8
19/03/2007	4.0	4.0	4.0	4.0	2.0	3.0	3.5

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M_Coral		Surface										
tide condition	Date	time	Water depth (m)	Sampling depth (m)	Temp (°C)	Salinity (ppt)	DO (mg/L)	pН	Turbidity (NTU)			
Mid-Ebb	26/02/2007	10:17	8.2	1.0	18.8	30.1	7.7	8.1	1.6			
Mid-Ebb	05/03/2007	11:27	8.3	1.0	18.5	30.2	7.7	8.2	1.9			
Mid-Ebb	12/03/2007	10:57	8.3	1.0	18.2	30.1	7.7	8.1	1.5			
Mid-Ebb	19/03/2007	12:27	8.4	1.0	17.5	29.9	7.8	8.1	1.0			

M_Coral		Surface										
tide condition	Date	time	Water depth (m)	Sampling depth (m)	Temp (°C)	Salinity (ppt)	DO (mg/L)	pН	Turbidity (NTU)			
Mid-Flood	26/02/2007	14:52	8.6	1.0	20.1	32.1	7.6	8.3	1.5			
Mid-Flood	05/03/2007	14:47	8.7	1.0	19.2	32.3	7.8	8.3	2.1			
Mid-Flood	12/03/2007	14:17	8.7	1.0	18.1	32.2	7.5	8.4	1.6			
Mid-Flood	19/03/2007	15:17	8.8	1.0	17.3	32.0	7.9	8.4	1.5			

T COTTION	
Action level	Bold & Italic
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)	pН	Turbidity (NTU)			
Mid-Ebb	26/02/2007	10:16	8.2	4.1	18.7	30.2	7.6	8.2	1.9			
Mid-Ebb	05/03/2007	11:26	8.3	4.2	18.5	30.3	7.7	8.2	1.4			
Mid-Ebb	12/03/2007	10:56	8.3	4.2	18.2	30.2	7.6	8.2	1.6			
Mid-Ebb	19/03/2007	12:26	8.4	4.2	17.5	30.0	8.0	8.1	1.1			

M_Coral		Middle										
tide condition	Date	time	Water depth (m)	Sampling depth (m)	Temp (°C)	Salinity (ppt)	DO (mg/L)	pН	Turbidity (NTU)			
Mid-Flood	26/02/2007	14:51	8.6	4.3	19.9	32.1	7.7	8.3	2.1			
Mid-Flood	05/03/2007	14:46	8.7	4.4	19.2	32.6	7.5	8.3	1.7			
Mid-Flood	12/03/2007	14:16	8.7	4.4	18.1	32.3	7.7	8.4	1.9			
Mid-Flood	19/03/2007	15:16	8.8	4.4	17.3	32.1	7.9	8.3	1.0			

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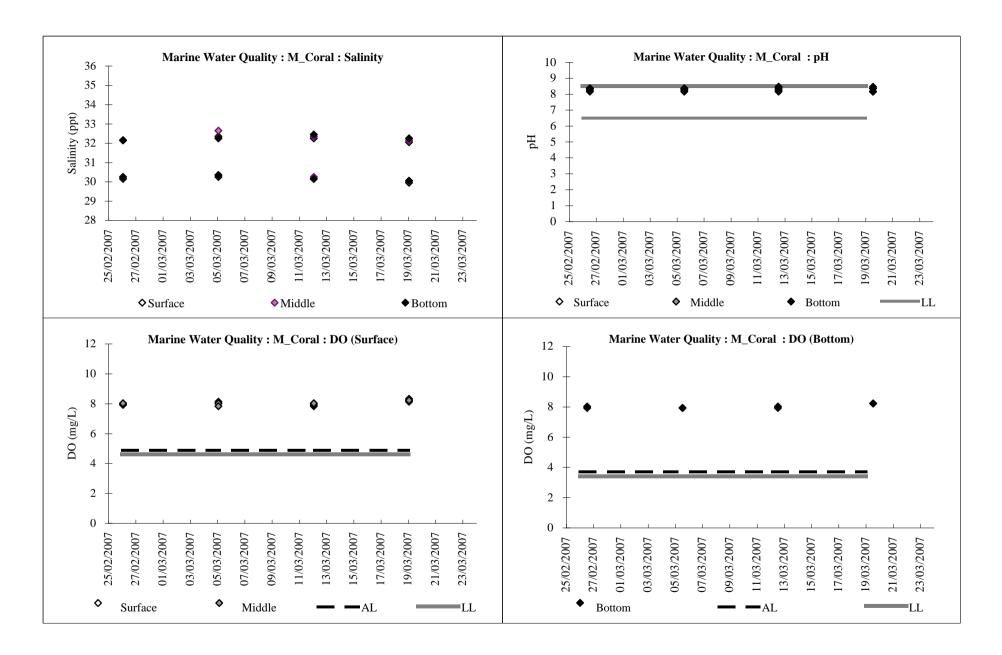
M_Coral		Bottom										
tide condition	Date	time	Water depth (m)	Sampling depth (m)	Temp (°C)	Salinity (ppt)	DO (mg/L)	pН	Turbidity (NTU)			
Mid-Ebb	26/02/2007	10:15	8.2	7.2	18.7	30.2	7.7	8.2	1.5			
Mid-Ebb	05/03/2007	11:25	8.3	7.3	18.6	30.3	7.6	8.1	1.6			
Mid-Ebb	12/03/2007	10:55	8.3	7.3	18.2	30.1	7.7	8.2	1.8			
Mid-Ebb	19/03/2007	12:25	8.4	7.4	17.5	30.0	7.9	8.1	1.1			

M_Coral		Bottom									
tide condition	Date	time	Water depth (m)	Sampling depth (m)	Temp (°C)	Salinity (ppt)	DO (mg/L)	рН	Turbidity (NTU)		
Mid-Flood	26/02/2007	14:50	8.6	7.6	20.0	32.1	7.6	8.3	2.0		
Mid-Flood	05/03/2007	14:45	8.7	7.7	19.3	32.2	7.6	8.3	1.7		
Mid-Flood	12/03/2007	14:15	8.7	7.7	18.1	32.4	7.6	8.3	2.1		
Mid-Flood	19/03/2007	15:15	8.8	7.8	17.3	32.2	7.9	8.3	1.0		

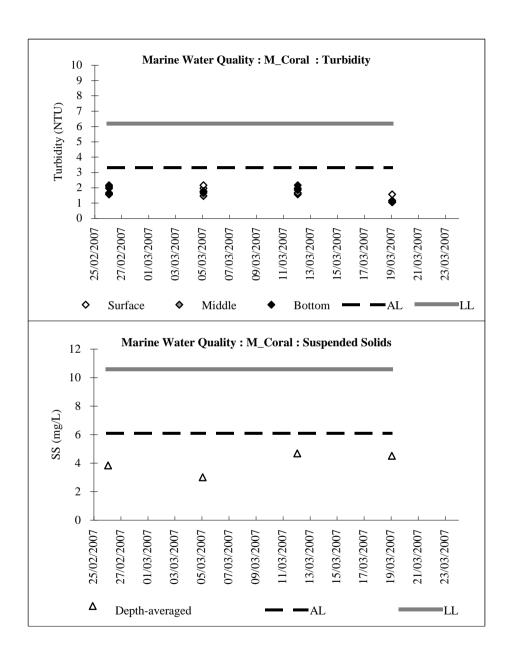
M_Coral Page 39 of 62

		Mid-Ebb				Depth-averaged	
M_Coral	Surface	Midlle	Bottom	Surface	Midlle	Bottom	SS (mg/L)
26/02/2007	4.0	3.0	4.0	4.0	3.0	3.0	3.5
05/03/2007	2.0	2.0	2.0	3.0	3.0	4.0	2.7
12/03/2007	3.0	2.0	7.0	7.0	3.0	4.0	4.3
19/03/2007	6.0	4.0	4.0	5.0	4.0	2.0	4.2

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M_B		Surface										
tide condition	Date	time	Water depth (m)	Sampling depth (m)	Temp (°C)	Salinity (ppt)	DO (mg/L)	pН	Turbidity (NTU)			
Mid-Ebb	26/02/2007	10:27	16.8	1.0	18.9	30.2	7.7	8.2	1.3			
Mid-Ebb	05/03/2007	12:12	16.8	1.0	18.5	30.4	7.6	8.2	1.7			
Mid-Ebb	12/03/2007	11:42	16.7	1.0	18.0	30.3	7.8	8.1	1.3			
Mid-Ebb	19/03/2007	13:12	16.7	1.0	17.6	30.0	7.8	8.1	1.0			

M_B		Surface										
tide condition	Date	time	Water depth (m)	Sampling depth (m)	Temp (°C)	Salinity (ppt)	DO (mg/L)	рН	Turbidity (NTU)			
Mid-Flood	26/02/2007	15:02	17.3	1.0	19.5	32.2	7.6	8.3	1.6			
Mid-Flood	05/03/2007	14:57	17.5	1.0	19.2	32.3	7.6	8.3	1.9			
Mid-Flood	12/03/2007	14:27	17.4	1.0	17.8	32.0	7.8	8.4	1.2			
Mid-Flood	19/03/2007	15:27	17.3	1.0	17.3	32.0	7.9	8.4	1.3			

Action level	Bold & Italic
Limit level	Bold
< detection limit	Grey

B		Middle									
tide condition	Date	time	Water depth (m)	Sampling depth (m)	Temp (°C)	Salinity (ppt)	DO (mg/L)	pН	Turbidity (NTU)		
Mid-Ebb	26/02/2007	10:26	16.8	8.4	19.2	30.4	7.6	8.2	1.1		
Mid-Ebb	05/03/2007	12:11	16.8	8.4	18.5	30.3	7.7	8.2	1.3		
Mid-Ebb	12/03/2007	11:41	16.7	8.4	18.1	30.4	7.8	8.1	1.1		
Mid-Ebb	19/03/2007	13:11	16.7	8.4	17.6	30.1	7.9	8.1	1.0		

M_B		Middle										
tide condition	Date	time	Water depth (m)	Sampling depth (m)	Temp (°C)	Salinity (ppt)	DO (mg/L)	pН	Turbidity (NTU)			
Mid-Flood	26/02/2007	15:01	17.3	8.7	19.7	32.3	7.7	8.3	1.3			
Mid-Flood	05/03/2007	14:56	17.5	8.8	19.3	32.4	7.6	8.4	1.4			
Mid-Flood	12/03/2007	14:26	17.4	8.7	17.9	32.2	7.8	8.4	1.2			
Mid-Flood	19/03/2007	15:26	17.3	8.7	17.3	32.1	8.0	8.4	1.2			

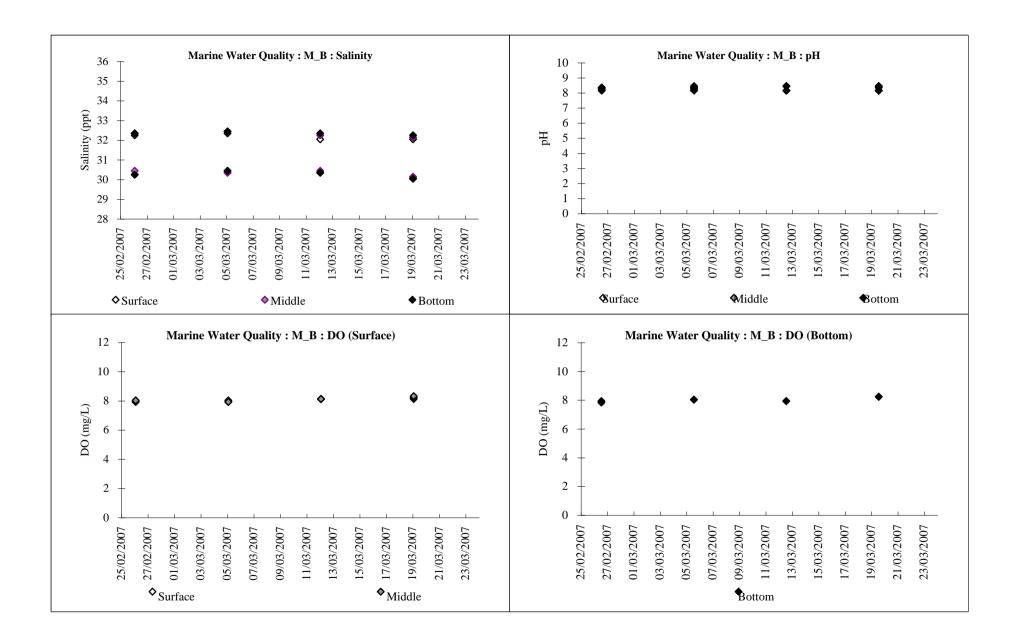
M_B Page 44 of 62

M_B		Bottom										
tide condition	Date	time	Water depth (m)	Sampling depth (m)	Temp (°C)	Salinity (ppt)	DO (mg/L)	pН	Turbidity (NTU)			
Mid-Ebb	26/02/2007	10:25	16.8	15.8	19.2	30.2	7.6	8.1	1.0			
Mid-Ebb	05/03/2007	12:10	16.8	15.8	18.5	30.4	7.7	8.1	1.3			
Mid-Ebb	12/03/2007	11:40	16.7	15.7	18.2	30.3	7.6	8.1	1.1			
Mid-Ebb	19/03/2007	13:10	16.7	15.7	17.6	30.0	7.9	8.1	1.0			

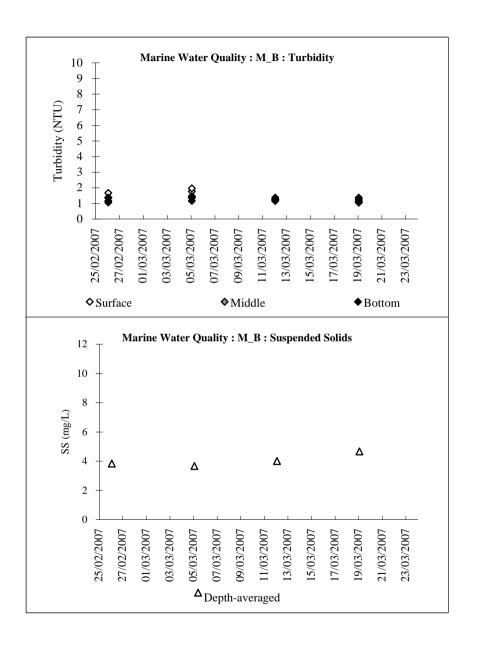
M_B		Bottom									
tide condition	Date	time	Water depth (m)	Sampling depth (m)	Temp (°C)	Salinity (ppt)	DO (mg/L)	pН	Turbidity (NTU)		
Mid-Flood	26/02/2007	15:00	17.3	16.3	19.6	32.3	7.5	8.2	1.3		
Mid-Flood	05/03/2007	14:55	17.5	16.5	19.3	32.4	7.7	8.3	1.1		
Mid-Flood	12/03/2007	14:25	17.4	16.4	18.1	32.3	7.6	8.4	1.2		
Mid-Flood	19/03/2007	15:25	17.3	16.3	17.4	32.2	7.9	8.3	1.1		

		Mid-Ebb			Mid-Flood		Depth-averaged
M_B	Surface	Midlle	Bottom	Surface	Midlle	Bottom	SS (mg/L)
26/02/2007	5.0	3.0	3.0	3.0	5.0	2.0	3.5
05/03/2007	3.0	2.0	3.0	3.0	6.0	3.0	3.3
12/03/2007	6.0	3.0	4.0	3.0	4.0	2.0	3.7
19/03/2007	4.0	2.0	7.0	4.0	4.0	5.0	4.3

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KS		Surface										
tide condition	Date	time	Water depth (m)	Sampling depth (m)	Temp (°C)	Salinity (ppt)	DO (mg/L)	pН	Turbidity (NTU)			
Mid-Ebb	26/02/2007	10:47	12.6	1.0	18.9	30.1	7.6	8.2	1.8			
Mid-Ebb	05/03/2007	12:32	12.8	1.0	18.5	30.3	7.6	8.1	2.1			
Mid-Ebb	12/03/2007	12:02	12.8	1.0	18.1	30.1	7.7	8.2	2.3			
Mid-Ebb	19/03/2007	13:32	12.6	1.0	17.6	30.2	7.8	8.1	1.0			

KS		Surface										
tide condition	Date	time	Water depth (m)	Sampling depth (m)	Temp (°C)	Salinity (ppt)	DO (mg/L)	pН	Turbidity (NTU)			
Mid-Flood	26/02/2007	15:32	13.7	1.0	19.9	32.3	7.7	8.3	1.9			
Mid-Flood	05/03/2007	15:27	13.6	1.0	19.2	32.4	7.7	8.3	1.7			
Mid-Flood	12/03/2007	14:57	13.2	1.0	18.1	32.2	7.6	8.4	1.2			
Mid-Flood	19/03/2007	15:57	13.2	1.0	17.4	32.3	7.9	8.4	1.0			

Action level	Bold & Italic
Limit level	Bold
< detection limit	Grey

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KS		Middle										
tide condition	Date	time	Water depth (m)	Sampling depth (m)	Temp (°C)	Salinity (ppt)	DO (mg/L)	pН	Turbidity (NTU)			
Mid-Ebb	26/02/2007	10:46	12.6	6.3	18.7	30.2	7.6	8.2	1.6			
Mid-Ebb	05/03/2007	12:31	12.8	6.4	18.6	30.3	7.7	8.2	1.1			
Mid-Ebb	12/03/2007	12:01	12.8	6.4	18.3	30.1	7.6	8.1	1.3			
Mid-Ebb	19/03/2007	13:31	12.6	6.3	17.6	30.2	7.9	8.1	1.1			

KS		Middle								
tide condition	Date	time	Water depth (m)	Sampling depth (m)	Temp (°C)	Salinity (ppt)	DO (mg/L)	pН	Turbidity (NTU)	
Mid-Flood	26/02/2007	15:31	13.7	6.9	19.9	32.2	7.7	8.4	1.5	
Mid-Flood	05/03/2007	15:26	13.6	6.8	19.3	32.3	7.6	8.3	1.9	
Mid-Flood	12/03/2007	14:56	13.2	6.6	18.2	32.5	7.8	8.3	1.4	
Mid-Flood	19/03/2007	15:56	13.2	6.6	17.4	32.3	8.0	8.4	1.0	

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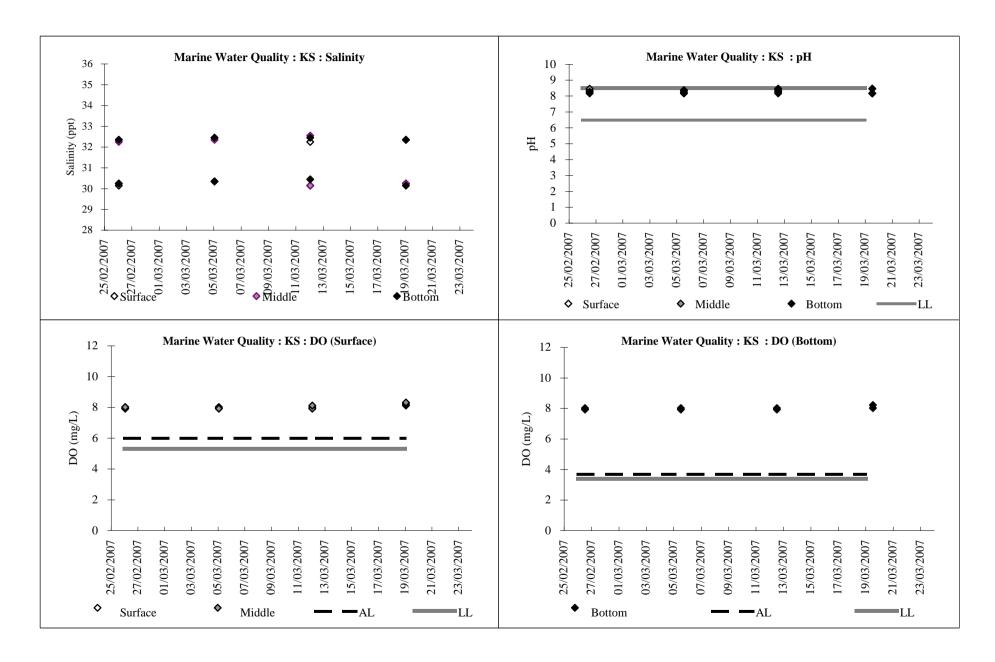
KS		Bottom									
tide condition	Date	time	Water depth (m)	Sampling depth (m)	Temp (°C)	Salinity (ppt)	DO (mg/L)	pН	Turbidity (NTU)		
Mid-Ebb	26/02/2007	10:45	12.6	11.6	18.8	30.2	7.6	8.1	1.9		
Mid-Ebb	05/03/2007	12:30	12.8	11.8	18.6	30.3	7.7	8.1	1.8		
Mid-Ebb	12/03/2007	12:00	12.8	11.8	18.3	30.4	7.5	8.2	1.5		
Mid-Ebb	19/03/2007	13:30	12.6	11.6	17.6	30.1	7.9	8.1	1.2		

KS		Bottom								
tide condition	Date	time	Water depth (m)	Sampling depth (m)	Temp (°C)	Salinity (ppt)	DO (mg/L)	pН	Turbidity (NTU)	
Mid-Flood	26/02/2007	15:30	13.7	12.7	19.9	32.3	7.7	8.2	2.0	
Mid-Flood	05/03/2007	15:25	13.6	12.6	19.3	32.4	7.8	8.3	2.0	
Mid-Flood	12/03/2007	14:55	13.2	12.2	18.2	32.4	7.5	8.4	1.7	
Mid-Flood	19/03/2007	15:55	13.2	12.2	17.4	32.3	7.9	8.4	1.2	

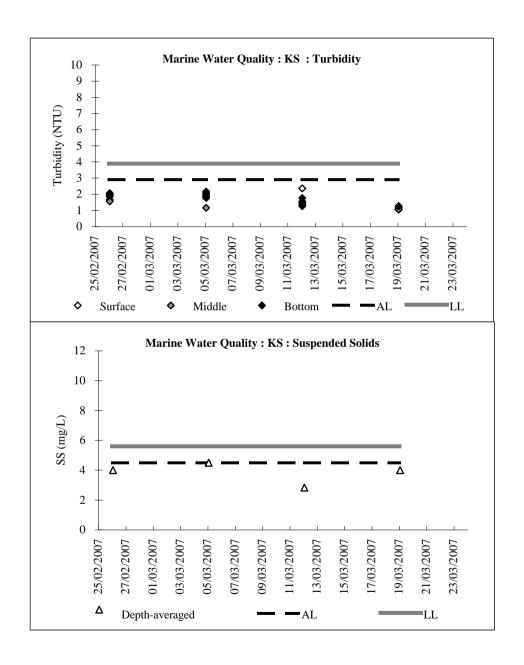
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		Mid-Ebb				Depth-averaged	
KS	Surface	Midlle	Bottom	Surface	Midlle	Bottom	SS (mg/L)
26/02/2007	4.0	3.0	4.0	4.0	5.0	2.0	3.7
05/03/2007	5.0	5.0	4.0	4.0	4.0	3.0	4.2
12/03/2007	3.0	3.0	2.0	2.0	3.0	2.0	2.5
19/03/2007	4.0	4.0	4.0	4.0	3.0	3.0	3.7

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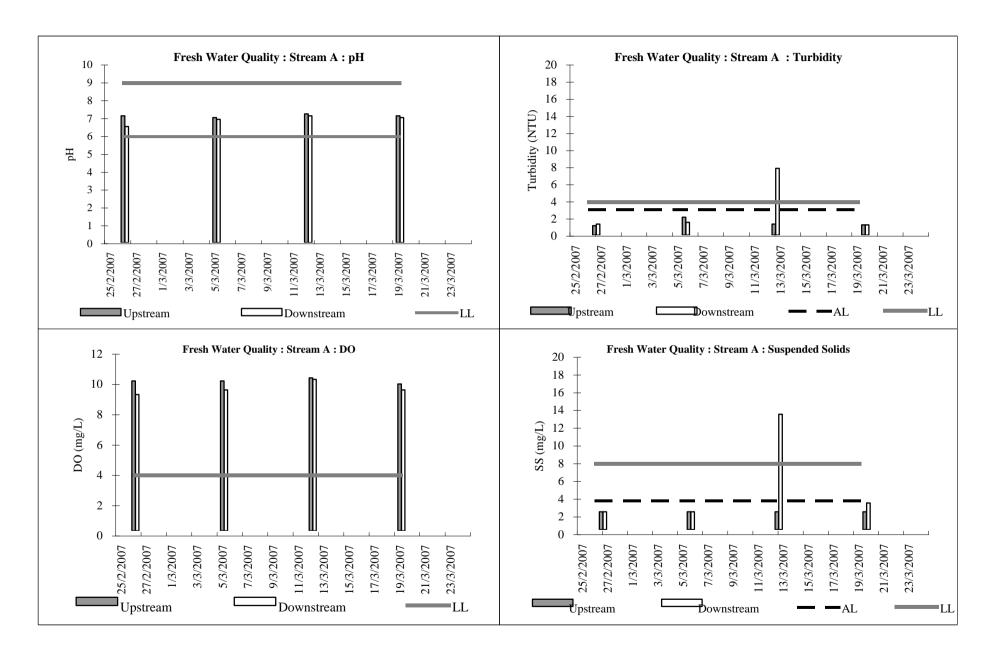
KS Page 54 of 62

F_UA		Mid depth							
Date	time Temp (°C) Salinity (ppt) DO (mg/L) pH Turbidity (NTU) SS (m								
26/02/2007	13:40	15.6	< 0.1	9.9	7.1	1.1	2.0		
05/03/2007	11:05	15.4	< 0.1	9.9	7.0	2.1	2.0		
12/03/2007	10:35	14.1	< 0.1	10.1	7.2	1.3	2.0		
19/03/2007	12:05	15.9	< 0.1	9.7	7.1	1.2	2.0		

_	F_DA		Mid depth								
	Date	time	Temp (°C)	Salinity (ppt)	DO (mg/L)	pН	Turbidity (NTU)	SS (mg/L)			
	26/02/2007	13:45	16.8	< 0.1	9.0	6.5	1.3	2.0			
	05/03/2007	11:10	15.8	< 0.1	9.3	6.9	1.5	2.0			
	12/03/2007	10:40	14.4	< 0.1	10.0	7.1	7.8	13.0			
	19/03/2007	12:10	16.1	< 0.1	9.3	7.0	1.2	3.0			

Action level	Bold & Italic
Limit level	Bold
< detection limit	Grey

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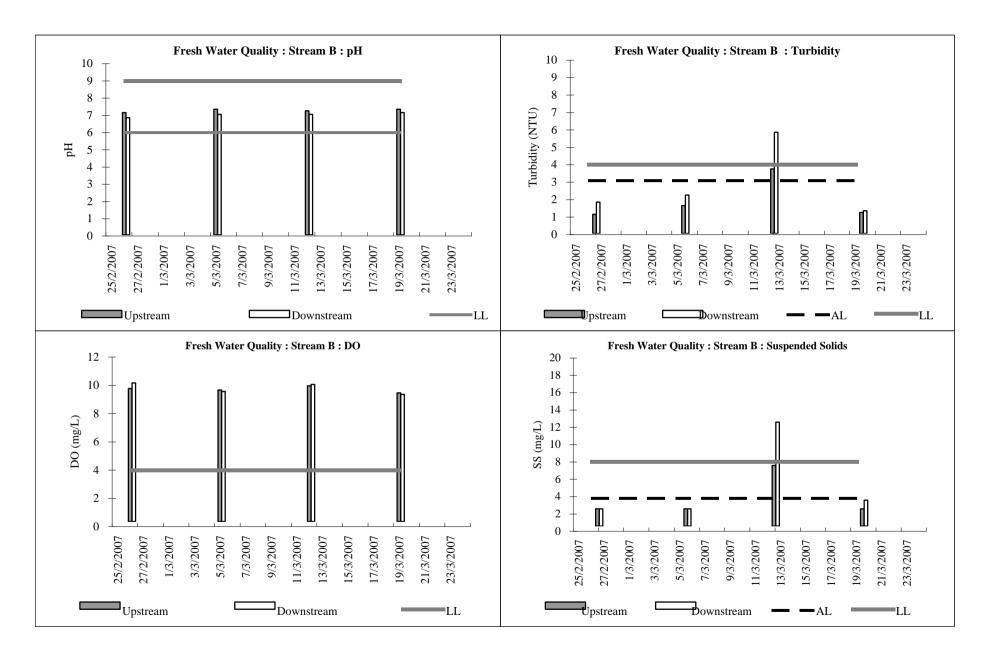
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F_UB		Mid depth							
Date	time	Temp (°C)	Salinity (ppt)	DO (mg/L)	pН	Turbidity (NTU)	SS (mg/L)		
26/02/2007	14:00	16.2	< 0.1	9.4	7.1	1.1	2.0		
05/03/2007	10:40	16.1	< 0.1	9.3	7.3	1.6	2.0		
12/03/2007	10:10	14.6	< 0.1	9.6	7.2	3.7	7.0		
19/03/2007	11:40	16.7	< 0.1	9.1	7.3	1.2	2.0		

_	F_DB		Mid depth								
	Date	time	Temp (°C)	Salinity (ppt)	DO (mg/L)	pН	Turbidity (NTU)	SS (mg/L)			
	26/02/2007	14:10	15.5	< 0.1	9.8	6.8	1.8	2.0			
	05/03/2007	10:50	16.3	< 0.1	9.2	7.0	2.2	2.0			
	12/03/2007	10:20	14.3	< 0.1	9.7	7.0	5.8	12.0			
	19/03/2007	11:50	17.0	< 0.1	9.0	7.1	1.3	3.0			

Action level	Bold & Italic
Limit level	Bold
< detection limit	Grey

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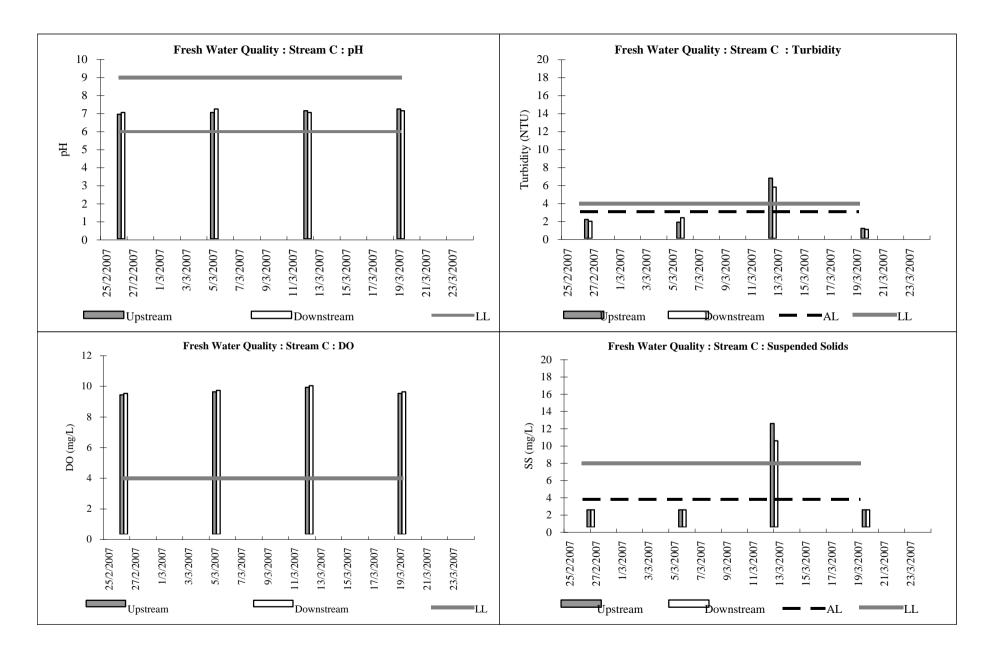
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F_UC		Mid depth								
Date	time	Temp (°C)	Salinity (ppt)	DO (mg/L)	pН	Turbidity (NTU)	SS (mg/L)			
26/02/2007	14:25	16.6	< 0.1	9.1	6.9	2.1	2.0			
05/03/2007	11:45	15.8	< 0.1	9.3	7.0	1.8	2.0			
12/03/2007	11:15	14.1	< 0.1	9.6	7.1	6.7	12.0			
19/03/2007	12:45	15.9	< 0.1	9.2	7.2	1.1	2.0			

F_DC		Mid depth								
Date	time	Temp (°C)	Salinity (ppt)	DO (mg/L)	pН	Turbidity (NTU)	SS (mg/L)			
26/02/2007	14:35	16.9	< 0.1	9.2	7.0	1.9	2.0			
05/03/2007	11:55	15.9	< 0.1	9.4	7.2	2.3	2.0			
12/03/2007	11:25	14.2	< 0.1	9.7	7.0	5.7	10.0			
19/03/2007	12:55	16.3	< 0.1	9.3	7.1	1.0	2.0			

Action level	Bold & Italic
Limit level	Bold
< detection limit	Grey

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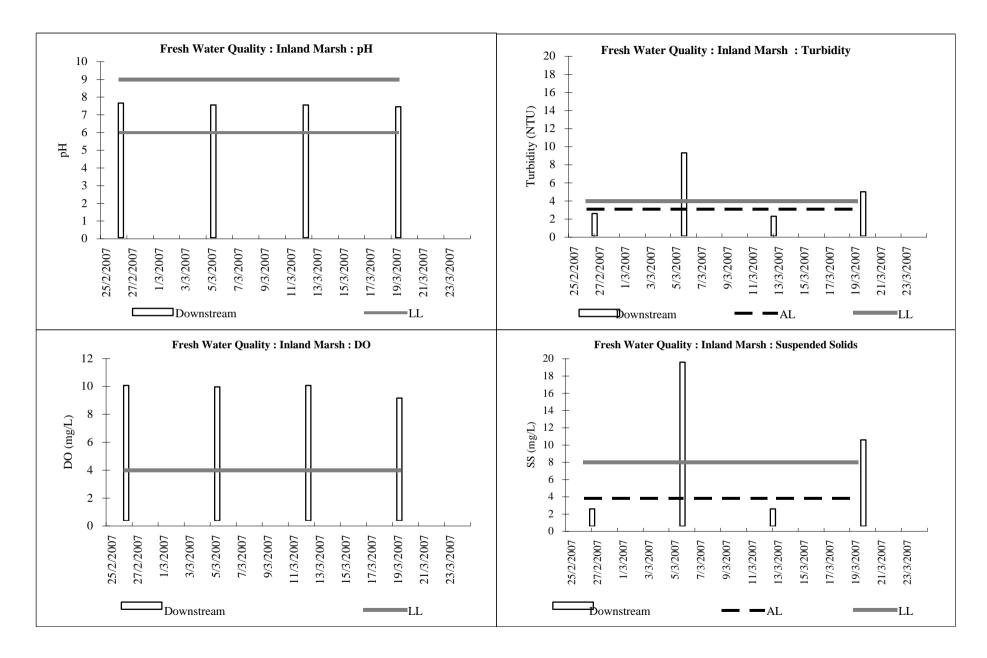
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F_Inland M		Mid depth									
Date	time	Temp (°C)	Salinity (ppt)	DO (mg/L)	pН	Turbidity (NTU)	SS (mg/L)				
26/02/2007	12:55	15.0	< 0.1	9.7	7.6	2.5	2.0				
05/03/2007	09:55	15.2	< 0.1	9.6	7.5	9.2	19.0				
12/03/2007	09:25	15.1	< 0.1	9.7	7.5	2.2	2.0				
19/03/2007	10:55	16.7	< 0.1	8.8	7.4	4.9	10.0				

Remarks:

Action level	Bold & Italic
Limit level	Bold
< detection limit	Grey

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F_Inland M Page 62 of 62

M_A					Surfa	ce				
tide condition	Date	time	SS (ma/L)	NH ₃ -N	NO ₃ -N	NO ₂ -N	TIN	TP	Chlorophyll a	Pesticides
tide condition	Date	unie	SS (mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(ug/L)	(ug/L)
Mid-Ebb	26-Feb-07	09:27	4.0	0.04	0.01	0.01	0.06	0.01	2.8	
Mid-Ebb	28-Feb-07	09:02	-	0.04	0.01	0.01	0.06	0.01	1.7	
Mid-Ebb	02-Mar-07	09:02	-	0.02	0.05	0.01	0.08	0.01	1.1	
Mid-Ebb	05-Mar-07	09:27	3.0	0.01	0.01	0.01	0.01	0.01	1.9	
Mid-Ebb	07-Mar-07	09:02	-	0.03	0.01	0.01	0.05	0.01	2.2	
Mid-Ebb	09-Mar-07	09:32	-	0.02	0.01	0.01	0.04	0.01	1.5	
Mid-Ebb	12-Mar-07	08:57	2.0	0.05	0.02	0.01	0.08	0.01	0.7	
Mid-Ebb	14-Mar-07	09:02	-	0.03	0.01	0.01	0.05	0.01	1.2	
Mid-Ebb	16-Mar-07	09:32	-	0.03	0.01	0.01	0.05	0.01	0.5	
Mid-Ebb	19-Mar-07	10:27	3.0	0.02	0.02	0.01	0.05	0.01	2.6	•
Mid-Ebb	21-Mar-07	09:32	-	0.04	0.02	0.01	0.07	0.01	0.9	
Mid-Ebb	23-Mar-07	14:32	-	0.04	0.02	0.01	0.07	0.01	0.5	•

M_A					Surfac	e				
tide condition	Date	time	SS (mg/L)	NH ₃ -N	NO ₃ -N	NO ₂ -N	TIN	TP	Chlorophyll a	Pesticides
tide condition	Date	unie	SS (IIIg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(ug/L)	(ug/L)
Mid-Flood	26-Feb-07	12:27	5.0	0.03	0.01	0.01	0.05	0.01	3.5	
Mid-Flood	28-Feb-07	13:32	-	0.04	0.01	0.01	0.06	0.01	1.4	
Mid-Flood	02-Mar-07	14:32	-	0.02	0.01	0.01	0.04	0.01	0.9	
Mid-Flood	05-Mar-07	13:57	3.0	0.01	0.01	0.01	0.01	0.01	1.6	
Mid-Flood	07-Mar-07	13:32	-	0.03	0.01	0.01	0.05	0.01	1.9	
Mid-Flood	09-Mar-07	13:32	1	0.02	0.01	0.01	0.04	0.01	1.1	
Mid-Flood	12-Mar-07	13:27	2.0	0.03	0.02	0.01	0.06	0.01	0.7	
Mid-Flood	14-Mar-07	13:32	-	0.04	0.01	0.01	0.06	0.01	0.5	
Mid-Flood	16-Mar-07	13:02	-	0.04	0.02	0.01	0.07	0.01	0.5	
Mid-Flood	19-Mar-07	14:27	4.0	0.01	0.02	0.01	0.04	0.01	2.2	
Mid-Flood	21-Mar-07	14:02	-	0.04	0.02	0.01	0.07	0.01	0.7	
Mid-Flood	23-Mar-07	10:32	-	0.02	0.02	0.01	0.05	0.01	0.5	

Remarks:

Action level	Bold & Italic
Limit level	Bold
< detection limit	Grey

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M_A					Midd	e				
tide condition	Date	time	SS (ma/L)	NH ₃ -N	NO ₃ -N	NO ₂ -N	TIN	TP	Chlorophyll a	Pesticides
tide condition	Date	unie	SS (mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(ug/L)	(ug/L)
Mid-Ebb	26-Feb-07	09:26	5.0	0.03	0.01	0.01	0.05	0.01	3.7	
Mid-Ebb	28-Feb-07	09:01	-	0.04	0.01	0.01	0.06	0.01	1.5	
Mid-Ebb	02-Mar-07	09:01	-	0.01	0.01	0.01	0.01	0.01	1.2	
Mid-Ebb	05-Mar-07	09:26	3.0	0.01	0.01	0.01	0.01	0.01	1.8	
Mid-Ebb	07-Mar-07	09:01	-	0.03	0.01	0.01	0.05	0.01	1.4	
Mid-Ebb	09-Mar-07	09:31	-	0.02	0.01	0.01	0.04	0.01	2.0	
Mid-Ebb	12-Mar-07	08:56	3.0	0.03	0.02	0.01	0.06	0.01	0.7	
Mid-Ebb	14-Mar-07	09:01	-	0.03	0.02	0.01	0.06	0.01	0.5	
Mid-Ebb	16-Mar-07	09:31	-	0.02	0.02	0.01	0.05	0.01	0.5	
Mid-Ebb	19-Mar-07	10:26	4.0	0.02	0.02	0.01	0.05	0.01	1.9	•
Mid-Ebb	21-Mar-07	09:31	-	0.01	0.02	0.01	0.04	0.01	0.7	
Mid-Ebb	23-Mar-07	14:31	-	0.06	0.03	0.01	0.10	0.01	0.5	•

M_A					Middle	е				
tide condition	Date	time	SS (mg/L)	NH ₃ -N	NO ₃ -N	NO ₂ -N	TIN	TP	Chlorophyll a	Pesticides
tide condition	Date	unie	SS (IIIg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(ug/L)	(ug/L)
Mid-Flood	26-Feb-07	12:26	6.0	0.02	0.01	0.01	0.04	0.01	3.6	
Mid-Flood	28-Feb-07	13:31	-	0.04	0.01	0.01	0.06	0.01	1.4	
Mid-Flood	02-Mar-07	14:31	-	0.03	0.01	0.01	0.05	0.01	1.3	
Mid-Flood	05-Mar-07	13:56	4.0	0.01	0.01	0.01	0.01	0.01	1.6	
Mid-Flood	07-Mar-07	13:31	-	0.03	0.01	0.01	0.05	0.01	1.3	
Mid-Flood	09-Mar-07	13:31	-	0.03	0.01	0.01	0.05	0.01	1.5	
Mid-Flood	12-Mar-07	13:26	2.0	0.03	0.02	0.01	0.06	0.01	0.6	
Mid-Flood	14-Mar-07	13:31	-	0.06	0.01	0.01	0.08	0.01	0.5	
Mid-Flood	16-Mar-07	13:01	-	0.01	0.01	0.01	0.01	0.01	0.5	
Mid-Flood	19-Mar-07	14:26	2.0	0.01	0.02	0.01	0.04	0.01	1.9	
Mid-Flood	21-Mar-07	14:01	-	0.04	0.03	0.01	0.08	0.01	0.6	
Mid-Flood	23-Mar-07	10:31	-	0.06	0.02	0.01	0.09	0.01	0.5	

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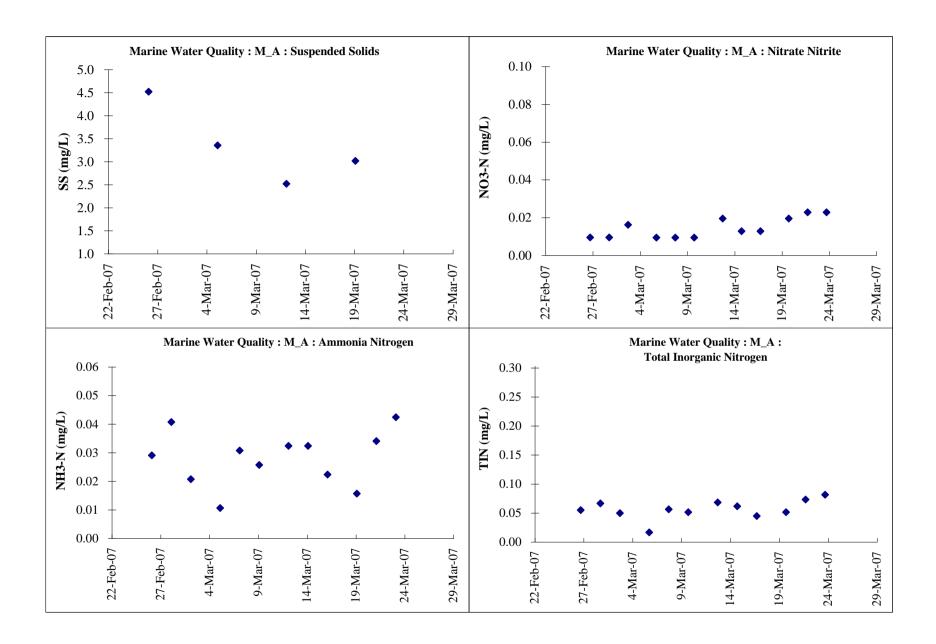
M_A		Bottom										
tide condition	Date	time	SS (ma/L)	NH ₃ -N	NO ₃ -N	NO ₂ -N	TIN	TP	Chlorophyll a	Pesticides		
tide condition	Date	ume	SS (mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(ug/L)	(ug/L)		
Mid-Ebb	26-Feb-07	09:25	3.0	0.03	0.01	0.01	0.05	0.01	3.0			
Mid-Ebb	28-Feb-07	09:00	-	0.04	0.01	0.01	0.06	0.01	1.3			
Mid-Ebb	02-Mar-07	09:00	-	0.02	0.01	0.01	0.04	0.01	1.3			
Mid-Ebb	05-Mar-07	09:25	4.0	0.01	0.01	0.01	0.01	0.01	1.5			
Mid-Ebb	07-Mar-07	09:00	-	0.03	0.01	0.01	0.05	0.01	1.7			
Mid-Ebb	09-Mar-07	09:30	-	0.03	0.01	0.01	0.05	0.01	1.4			
Mid-Ebb	12-Mar-07	08:55	3.0	0.03	0.02	0.01	0.06	0.01	0.6			
Mid-Ebb	14-Mar-07	09:00	-	0.02	0.01	0.01	0.04	0.01	0.5			
Mid-Ebb	16-Mar-07	09:30	-	0.02	0.01	0.01	0.04	0.01	0.5			
Mid-Ebb	19-Mar-07	10:25	3.0	0.02	0.02	0.01	0.05	0.01	2.1			
Mid-Ebb	21-Mar-07	09:30	-	0.04	0.03	0.01	0.08	0.01	0.6			
Mid-Ebb	23-Mar-07	14:30	-	0.03	0.03	0.01	0.07	0.01	0.5			

M_A					Bottor	n				
tide condition	Date	time	SS (ma/L)	NH ₃ -N	NO ₃ -N	NO ₂ -N	TIN	TP	Chlorophyll a	Pesticides
tide condition	Date	ume	SS (mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(ug/L)	(ug/L)
Mid-Flood	26-Feb-07	12:25	4.0	0.02	0.01	0.01	0.04	0.01	2.9	
Mid-Flood	28-Feb-07	13:30	-	0.04	0.01	0.01	0.06	0.01	1.2	
Mid-Flood	02-Mar-07	14:30	-	0.02	0.01	0.01	0.04	0.01	1.2	
Mid-Flood	05-Mar-07	13:55	3.0	0.01	0.01	0.01	0.01	0.01	1.8	
Mid-Flood	07-Mar-07	13:30	-	0.03	0.01	0.01	0.05	0.01	1.4	
Mid-Flood	09-Mar-07	13:30	-	0.03	0.01	0.01	0.05	0.01	1.3	
Mid-Flood	12-Mar-07	13:25	3.0	0.02	0.02	0.01	0.05	0.01	0.7	
Mid-Flood	14-Mar-07	13:30	-	0.01	0.02	0.01	0.04	0.01	0.5	
Mid-Flood	16-Mar-07	13:00	-	0.01	0.01	0.01	0.01	0.01	0.5	
Mid-Flood	19-Mar-07	14:25	2.0	0.01	0.02	0.01	0.04	0.01	1.9	
Mid-Flood	21-Mar-07	14:00	-	0.03	0.02	0.01	0.06	0.01	0.5	
Mid-Flood	23-Mar-07	10:30	-	0.04	0.02	0.01	0.07	0.01	0.5	

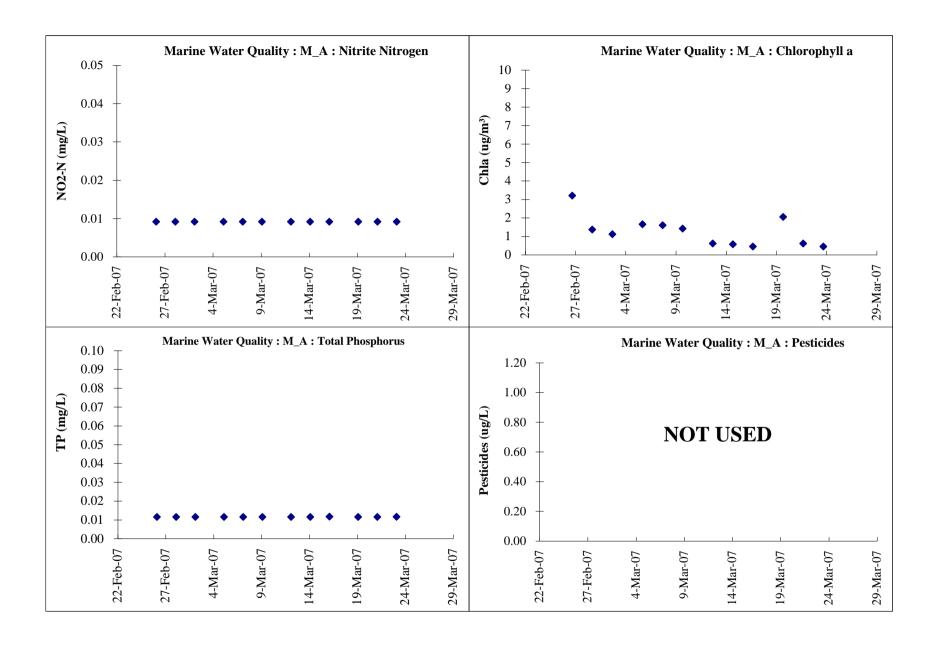
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				Depth-a	averaged			
M_A	SS (mg/L)	NH ₃ -N (mg/L)	NO ₃ -N (mg/L)	NO ₂ -N (mg/L)	TIN (mg/L)	TP (mg/L)	Chlorophyll a (ug/L)	Pesticides (ug/L)
26-Feb-07	5	0.03	0.01	0.01	0.05	0.01	3.3	
28-Feb-07	-	0.04	0.01	0.01	0.06	0.01	1.4	
02-Mar-07	-	0.02	0.02	0.01	0.04	0.01	1.2	
05-Mar-07	3	0.01	0.01	0.01	0.01	0.01	1.7	
07-Mar-07	-	0.03	0.01	0.01	0.05	0.01	1.7	
09-Mar-07	-	0.03	0.01	0.01	0.04	0.01	1.5	
12-Mar-07	2	0.03	0.02	0.01	0.06	0.01	0.7	
14-Mar-07	-	0.03	0.01	0.01	0.05	0.01	0.6	
16-Mar-07	-	0.02	0.01	0.01	0.04	0.01	0.5	
19-Mar-07	3	0.01	0.02	0.01	0.04	0.01	2.1	•
21-Mar-07	-	0.03	0.02	0.01	0.07	0.01	0.7	•
23-Mar-07	-	0.04	0.02	0.01	0.07	0.01	0.5	•

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M_Marsh					Surfac	9				
41.4 4141	D-4-	4	CC (/L)	NH ₃ -N	NO ₃ -N	NO ₂ -N	TIN	TP	Chlorophyll a	Pesticides
tide condition	Date	time	SS (mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(ug/L)	(ug/L)
Mid-Ebb	26-Feb-07	09:37	3	0.04	0.01	0.01	0.06	0.01	2.4	
Mid-Ebb	28-Feb-07	09:12	-	0.05	0.02	0.01	0.08	0.01	1.3	
Mid-Ebb	02-Mar-07	09:12	-	0.03	0.01	0.01	0.05	0.01	0.8	
Mid-Ebb	05-Mar-07	09:37	5	0.02	0.01	0.01	0.04	0.01	1.4	
Mid-Ebb	07-Mar-07	09:12	-	0.03	0.01	0.01	0.05	0.01	1.2	
Mid-Ebb	09-Mar-07	09:42	_	0.04	0.01	0.01	0.06	0.01	1.0	
Mid-Ebb	12-Mar-07	09:07	5	0.04	0.02	0.01	0.07	0.01	0.5	
Mid-Ebb	14-Mar-07	09:12	-	0.02	0.01	0.01	0.04	0.01	0.5	
Mid-Ebb	16-Mar-07	09:42	-	0.03	0.02	0.01	0.06	0.01	0.5	
Mid-Ebb	19-Mar-07	10:37	3	0.02	0.02	0.01	0.05	0.01	2.1	
Mid-Ebb	21-Mar-07	09:42	-	0.04	0.02	0.01	0.07	0.01	0.7	
Mid-Ebb	23-Mar-07	14:42	-	0.04	0.03	0.01	0.08	0.01	0.5	

M_Marsh					Surfac	e				
tide condition	Data	time	CC (m ~/I)	NH ₃ -N	NO ₃ -N	NO ₂ -N	TIN	TP	Chlorophyll a	Pesticides
ude condition	Date	ume	SS (mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(ug/L)	(ug/L)
Mid-Flood	26-Feb-07	12:37	3	0.03	0.01	0.01	0.05	0.01	2.1	
Mid-Flood	28-Feb-07	13:42	-	0.04	0.01	0.01	0.06	0.01	0.9	
Mid-Flood	02-Mar-07	14:42	-	0.02	0.01	0.01	0.04	0.01	0.8	
Mid-Flood	05-Mar-07	14:07	7	0.01	0.01	0.01	0.01	0.01	1.6	
Mid-Flood	07-Mar-07	13:42	-	0.03	0.01	0.01	0.05	0.01	1.1	
Mid-Flood	09-Mar-07	13:42	=	0.03	0.01	0.01	0.05	0.01	1.4	
Mid-Flood	12-Mar-07	13:37	4	0.02	0.02	0.01	0.05	0.01	0.5	
Mid-Flood	14-Mar-07	13:42	=	0.02	0.02	0.01	0.05	0.01	0.5	
Mid-Flood	16-Mar-07	13:12	-	0.01	0.01	0.01	0.01	0.01	0.5	
Mid-Flood	19-Mar-07	14:37	3	0.02	0.02	0.01	0.05	0.01	1.6	
Mid-Flood	21-Mar-07	14:12	-	0.02	0.02	0.01	0.05	0.01	1.2	
Mid-Flood	23-Mar-07	10:42	=	0.02	0.03	0.01	0.06	0.01	0.5	

Remarks:

Action level	Bold & Italic
Limit level	Bold
< detection limit	Grey

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M_Marsh					Middle	e				
tido condition	Doto	time	CC (m ~/I)	NH ₃ -N	NO ₃ -N	NO ₂ -N	TIN	TP	Chlorophyll a	Pesticides
tide condition	Date	ume	SS (mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(ug/L)	(ug/L)
Mid-Ebb	26-Feb-07	09:36	3	0.04	0.01	0.01	0.06	0.01	1.8	
Mid-Ebb	28-Feb-07	09:11	=	0.05	0.01	0.01	0.07	0.01	1.1	
Mid-Ebb	02-Mar-07	09:11	-	0.04	0.01	0.01	0.06	0.01	0.7	
Mid-Ebb	05-Mar-07	09:36	5	0.01	0.01	0.01	0.01	0.01	2.5	
Mid-Ebb	07-Mar-07	09:11	-	0.03	0.01	0.01	0.05	0.01	1.7	
Mid-Ebb	09-Mar-07	09:41	-	0.02	0.01	0.01	0.04	0.01	1.5	
Mid-Ebb	12-Mar-07	09:06	4	0.04	0.02	0.01	0.07	0.01	0.6	
Mid-Ebb	14-Mar-07	09:11	-	0.02	0.01	0.01	0.04	0.01	0.5	
Mid-Ebb	16-Mar-07	09:41	=	0.04	0.02	0.01	0.07	0.01	0.5	
Mid-Ebb	19-Mar-07	10:36	3	0.02	0.01	0.01	0.04	0.01	1.3	
Mid-Ebb	21-Mar-07	09:41	-	0.04	0.02	0.01	0.07	0.01	1.1	
Mid-Ebb	23-Mar-07	14:41	-	0.03	0.03	0.01	0.07	0.01	0.5	

M_Marsh		Middle										
tide condition	Date	time	CC (ma/L)	NH ₃ -N	NO ₃ -N	NO ₂ -N	TIN	TP	Chlorophyll a	Pesticides		
tide colldition	Date	ume	SS (mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(ug/L)	(ug/L)		
Mid-Flood	26-Feb-07	12:36	2	0.04	0.01	0.01	0.06	0.01	2.2			
Mid-Flood	28-Feb-07	13:41	-	0.11	0.01	0.01	0.13	0.01	0.9			
Mid-Flood	02-Mar-07	14:41	-	0.03	0.01	0.01	0.05	0.01	0.8			
Mid-Flood	05-Mar-07	14:06	5	0.01	0.01	0.01	0.01	0.01	2.8			
Mid-Flood	07-Mar-07	13:41	-	0.03	0.01	0.01	0.05	0.01	1.5			
Mid-Flood	09-Mar-07	13:41	=	0.03	0.01	0.01	0.05	0.01	1.4			
Mid-Flood	12-Mar-07	13:36	4	0.04	0.02	0.01	0.07	0.01	0.5			
Mid-Flood	14-Mar-07	13:41	=	0.02	0.02	0.01	0.05	0.01	0.5			
Mid-Flood	16-Mar-07	13:11	-	0.01	0.01	0.01	0.01	0.01	0.5			
Mid-Flood	19-Mar-07	14:36	2	0.02	0.02	0.01	0.05	0.01	1.4			
Mid-Flood	21-Mar-07	14:11	-	0.02	0.03	0.01	0.06	0.01	1.0			
Mid-Flood	23-Mar-07	10:41	-	0.03	0.03	0.01	0.07	0.01	0.5			

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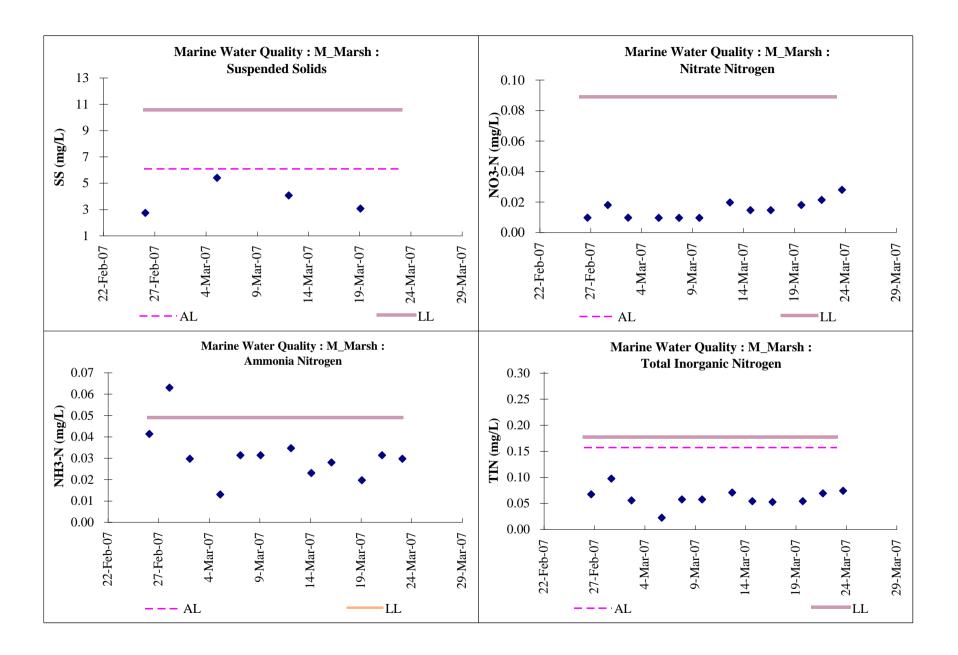
M_Marsh					Botton	n				
4: 4 1:4:	Dete	4	CC (/L)	NH ₃ -N	NO ₃ -N	NO ₂ -N	TIN	TP	Chlorophyll a	Pesticides
tide condition	Date	time	SS (mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(ug/L)	(ug/L)
Mid-Ebb	26-Feb-07	09:35	2	0.05	0.01	0.01	0.07	0.01	1.2	
Mid-Ebb	28-Feb-07	09:10	-	0.06	0.01	0.01	0.08	0.01	1.0	
Mid-Ebb	02-Mar-07	09:10	-	0.02	0.01	0.01	0.04	0.01	0.6	
Mid-Ebb	05-Mar-07	09:35	7	0.01	0.01	0.01	0.01	0.01	3.3	
Mid-Ebb	07-Mar-07	09:10	-	0.03	0.01	0.01	0.05	0.01	2.1	
Mid-Ebb	09-Mar-07	09:40	_	0.03	0.01	0.01	0.05	0.01	1.5	
Mid-Ebb	12-Mar-07	09:05	4	0.03	0.02	0.01	0.06	0.01	0.7	
Mid-Ebb	14-Mar-07	09:10	-	0.02	0.01	0.01	0.04	0.01	0.5	
Mid-Ebb	16-Mar-07	09:40	-	0.03	0.02	0.01	0.06	0.01	0.5	
Mid-Ebb	19-Mar-07	10:35	4	0.01	0.02	0.01	0.04	0.01	1.5	•
Mid-Ebb	21-Mar-07	09:40	-	0.03	0.02	0.01	0.06	0.01	0.6	
Mid-Ebb	23-Mar-07	14:40	-	0.03	0.03	0.01	0.07	0.01	0.5	

M_Marsh		Bottom										
tide condition	Date	time	SS (mg/L)	NH ₃ -N	NO ₃ -N	NO ₂ -N	TIN	TP	Chlorophyll a	Pesticides		
tide condition	Date	ume	SS (IIIg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(ug/L)	(ug/L)		
Mid-Flood	26-Feb-07	12:35	3	0.04	0.01	0.01	0.06	0.01	1.7			
Mid-Flood	28-Feb-07	13:40	-	0.06	0.05	0.01	0.12	0.01	0.8			
Mid-Flood	02-Mar-07	14:40	-	0.03	0.01	0.01	0.05	0.01	0.6			
Mid-Flood	05-Mar-07	14:05	3	0.01	0.01	0.01	0.01	0.01	3.1			
Mid-Flood	07-Mar-07	13:40	-	0.03	0.01	0.01	0.05	0.01	1.8			
Mid-Flood	09-Mar-07	13:40	=	0.03	0.01	0.01	0.05	0.01	1.6			
Mid-Flood	12-Mar-07	13:35	3	0.03	0.02	0.01	0.06	0.01	0.6			
Mid-Flood	14-Mar-07	13:40	=	0.03	0.02	0.01	0.06	0.01	0.5			
Mid-Flood	16-Mar-07	13:10	-	0.04	0.01	0.01	0.06	0.01	0.5			
Mid-Flood	19-Mar-07	14:35	3	0.02	0.02	0.01	0.05	0.01	1.4	•		
Mid-Flood	21-Mar-07	14:10	-	0.03	0.02	0.01	0.06	0.01	0.5			
Mid-Flood	23-Mar-07	10:40	-	0.02	0.02	0.01	0.05	0.01	0.5			

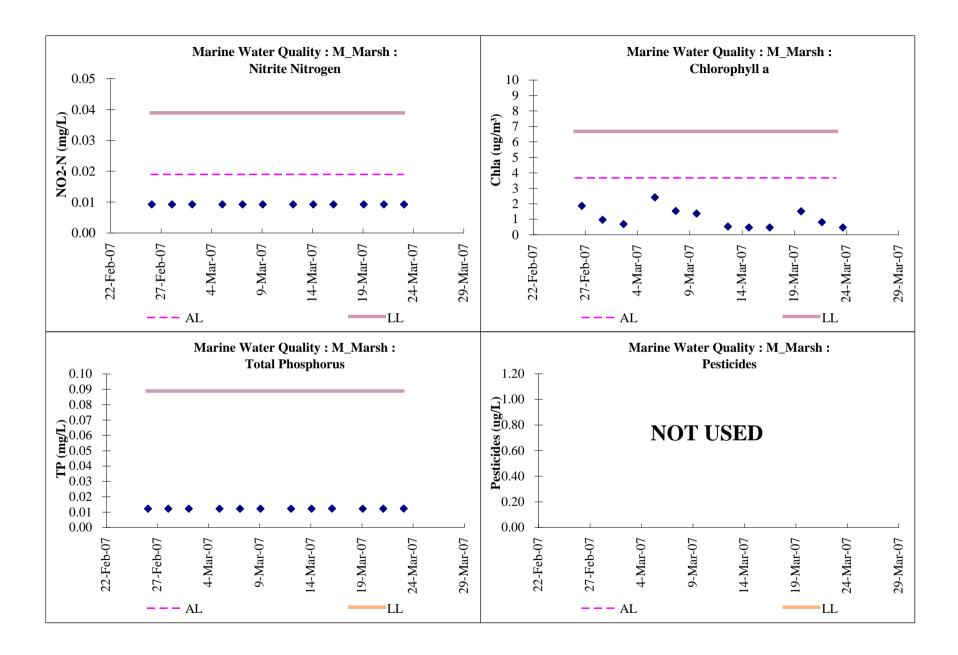
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				Depth-a	veraged			
M Manah	CC (may/L)	NH ₃ -N	NO ₃ -N	NO ₂ -N	TIN	TP	Chlorophyll a	Pesticides
M_Marsh	SS (mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(ug/L)	(ug/L)
26-Feb-07	3	0.04	0.01	0.01	0.06	0.01	1.9	
28-Feb-07	-	0.06	0.02	0.01	0.09	0.01	1.0	
02-Mar-07	-	0.03	0.01	0.01	0.05	0.01	0.7	
05-Mar-07	5	0.01	0.01	0.01	0.01	0.01	2.5	
07-Mar-07	-	0.03	0.01	0.01	0.05	0.01	1.6	
09-Mar-07	-	0.03	0.01	0.01	0.05	0.01	1.4	
12-Mar-07	4	0.03	0.02	0.01	0.06	0.01	0.6	
14-Mar-07	-	0.02	0.02	0.01	0.05	0.01	0.5	
16-Mar-07	-	0.03	0.02	0.01	0.04	0.01	0.5	
19-Mar-07	3	0.02	0.02	0.01	0.05	0.01	1.6	
21-Mar-07	-	0.03	0.02	0.01	0.06	0.01	0.8	•
23-Mar-07	-	0.03	0.03	0.01	0.07	0.01	0.5	

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TTC					Surfac	e				
tide condition	Doto	4ima	CC (m ~/I)	NH ₃ -N	NO ₃ -N	NO ₂ -N	TIN	TP	Chlorophyll a	Pesticides
tide condition	Date	time	SS (mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(ug/L)	(ug/L)
Mid-Ebb	26-Feb-07	09:47	2.0	0.03	0.01	0.01	0.05	0.01	3.4	
Mid-Ebb	28-Feb-07	09:32	=	0.04	0.01	0.01	0.06	0.01	1.2	
Mid-Ebb	02-Mar-07	09:32	-	0.02	0.01	0.01	0.04	0.07	0.6	
Mid-Ebb	05-Mar-07	09:57	4.0	0.01	0.01	0.01	0.01	0.01	2.2	
Mid-Ebb	07-Mar-07	09:32	-	0.03	0.01	0.01	0.05	0.01	1.2	
Mid-Ebb	09-Mar-07	10:02	=	0.02	0.01	0.01	0.04	0.01	1.3	
Mid-Ebb	12-Mar-07	09:27	5.0	0.04	0.02	0.01	0.07	0.01	0.5	
Mid-Ebb	14-Mar-07	09:32	-	0.04	0.01	0.01	0.06	0.01	0.5	
Mid-Ebb	16-Mar-07	10:02	-	0.01	0.02	0.01	0.04	0.01	0.5	
Mid-Ebb	19-Mar-07	10:57	2.0	0.01	0.02	0.01	0.04	0.01	2.7	
Mid-Ebb	21-Mar-07	10:02	-	0.02	0.02	0.01	0.05	0.01	0.8	•
Mid-Ebb	23-Mar-07	14:52	=	0.03	0.03	0.01	0.07	0.01	0.5	

TTC					Surfac	e				
tide condition	Date	tima	SS (mg/L)	NH ₃ -N	NO ₃ -N	NO ₂ -N	TIN	TP	Chlorophyll a	Pesticides
tide collation	Date	time	SS (mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(ug/L)	(ug/L)
Mid-Flood	26-Feb-07	12:57	3.0	0.03	0.01	0.01	0.05	0.01	2.4	
Mid-Flood	28-Feb-07	13:52	-	0.03	0.01	0.01	0.05	0.01	1.4	
Mid-Flood	02-Mar-07	14:52	-	0.02	0.01	0.01	0.04	0.01	1.0	
Mid-Flood	05-Mar-07	14:17	4.0	0.01	0.01	0.01	0.01	0.01	2.5	
Mid-Flood	07-Mar-07	13:52	-	0.03	0.01	0.01	0.05	0.01	1.8	
Mid-Flood	09-Mar-07	13:52	=	0.02	0.01	0.01	0.04	0.01	1.1	
Mid-Flood	12-Mar-07	13:47	3.0	0.04	0.02	0.01	0.07	0.01	1.1	
Mid-Flood	14-Mar-07	13:52	-	0.03	0.02	0.01	0.06	0.01	0.5	
Mid-Flood	16-Mar-07	13:22	-	0.01	0.02	0.01	0.04	0.01	0.5	
Mid-Flood	19-Mar-07	14:47	3.0	0.01	0.01	0.01	0.01	0.01	2.2	
Mid-Flood	21-Mar-07	14:22	-	0.02	0.02	0.01	0.05	0.01	1.0	
Mid-Flood	23-Mar-07	11:02	-	0.05	0.02	0.01	0.08	0.01	0.5	

Remarks:

Action level	Bold & Italic
Limit level	Bold
< detection limit	Grey

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TTC					Middle	2				
tide condition	Doto	time	CC (m ~/I)	NH ₃ -N	NO ₃ -N	NO ₂ -N	TIN	TP	Chlorophyll a	Pesticides
tide condition	Date	ume	SS (mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(ug/L)	(ug/L)
Mid-Ebb	26-Feb-07	09:46	5.0	0.04	0.01	0.01	0.06	0.01	2.9	
Mid-Ebb	28-Feb-07	09:31	=	0.04	0.01	0.01	0.06	0.01	1.2	
Mid-Ebb	02-Mar-07	09:31	-	0.02	0.01	0.01	0.04	0.01	1.0	
Mid-Ebb	05-Mar-07	09:56	3.0	0.01	0.01	0.01	0.01	0.01	2.5	
Mid-Ebb	07-Mar-07	09:31	-	0.03	0.01	0.01	0.05	0.01	1.7	
Mid-Ebb	09-Mar-07	10:01	-	0.02	0.01	0.01	0.04	0.01	1.6	
Mid-Ebb	12-Mar-07	09:26	3.0	0.03	0.02	0.01	0.06	0.01	0.7	
Mid-Ebb	14-Mar-07	09:31	-	0.03	0.01	0.01	0.05	0.01	0.5	
Mid-Ebb	16-Mar-07	10:01	-	0.01	0.01	0.01	0.01	0.01	0.5	
Mid-Ebb	19-Mar-07	10:56	2.0	0.02	0.01	0.01	0.04	0.01	2.2	
Mid-Ebb	21-Mar-07	10:01	-	0.02	0.02	0.01	0.05	0.01	0.5	
Mid-Ebb	23-Mar-07	14:51	-	0.03	0.02	0.01	0.06	0.01	0.5	

TTC		Middle										
tide condition	Doto	4ima	CC (m ~/I)	NH ₃ -N	NO ₃ -N	NO ₂ -N	TIN	TP	Chlorophyll a	Pesticides		
tide condition	Date	time	SS (mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(ug/L)	(ug/L)		
Mid-Flood	26-Feb-07	12:56	5.0	0.03	0.01	0.01	0.05	0.01	3.5			
Mid-Flood	28-Feb-07	13:51	=	0.04	0.01	0.01	0.06	0.01	1.6			
Mid-Flood	02-Mar-07	14:51	-	0.02	0.01	0.01	0.04	0.01	0.9			
Mid-Flood	05-Mar-07	14:16	5.0	0.01	0.01	0.01	0.01	0.01	2.4			
Mid-Flood	07-Mar-07	13:51	-	0.03	0.01	0.01	0.05	0.01	2.0			
Mid-Flood	09-Mar-07	13:51	=	0.01	0.01	0.01	0.01	0.01	1.4			
Mid-Flood	12-Mar-07	13:46	5.0	0.03	0.02	0.01	0.06	0.01	0.9			
Mid-Flood	14-Mar-07	13:51	=	0.02	0.02	0.01	0.05	0.01	0.5			
Mid-Flood	16-Mar-07	13:21	-	0.01	0.02	0.01	0.04	0.01	0.5			
Mid-Flood	19-Mar-07	14:46	2.0	0.01	0.02	0.01	0.04	0.01	1.3			
Mid-Flood	21-Mar-07	14:21	-	0.03	0.02	0.01	0.06	0.01	0.5			
Mid-Flood	23-Mar-07	11:01	-	0.02	0.02	0.01	0.05	0.01	0.5			

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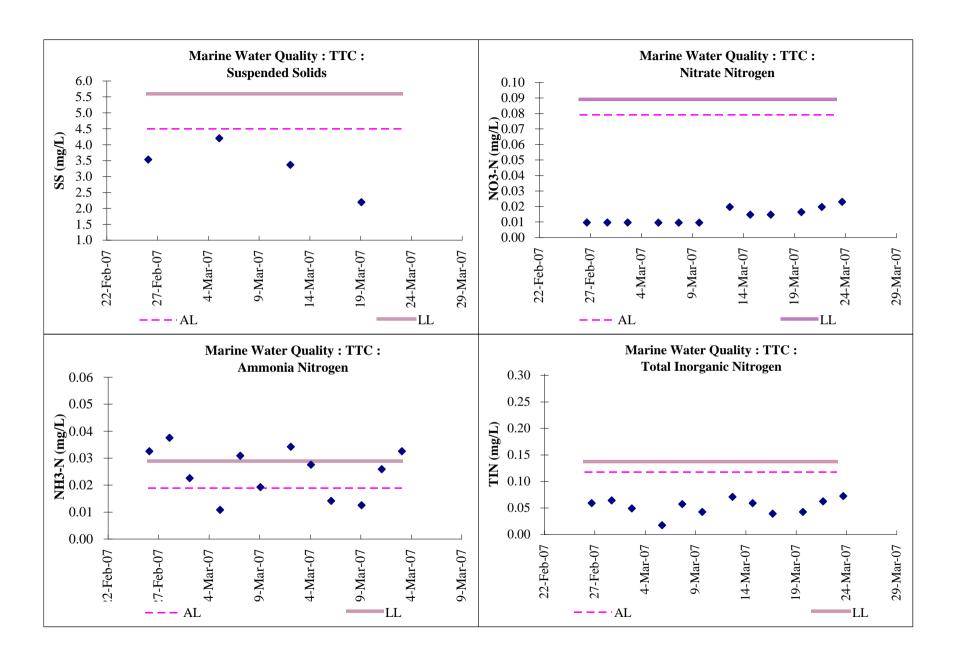
TTC					Bottor	n				
tide condition	Doto	4:	CC (m ~/I)	NH ₃ -N	NO ₃ -N	NO ₂ -N	TIN	TP	Chlorophyll a	Pesticides
tide condition	Date	time	SS (mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(ug/L)	(ug/L)
Mid-Ebb	26-Feb-07	09:45	3.0	0.03	0.01	0.01	0.05	0.01	2.4	
Mid-Ebb	28-Feb-07	09:30	=	0.04	0.01	0.01	0.06	0.01	1.7	
Mid-Ebb	02-Mar-07	09:30	-	0.03	0.01	0.01	0.05	0.01	0.9	
Mid-Ebb	05-Mar-07	09:55	5.0	0.01	0.01	0.01	0.01	0.01	2.0	
Mid-Ebb	07-Mar-07	09:30	-	0.03	0.01	0.01	0.05	0.01	1.8	
Mid-Ebb	09-Mar-07	10:00	=	0.02	0.01	0.01	0.04	0.01	2.1	
Mid-Ebb	12-Mar-07	09:25	2.0	0.03	0.02	0.01	0.06	0.01	0.6	
Mid-Ebb	14-Mar-07	09:30	-	0.02	0.01	0.01	0.04	0.01	0.5	
Mid-Ebb	16-Mar-07	10:00	-	0.03	0.01	0.01	0.05	0.01	0.5	
Mid-Ebb	19-Mar-07	10:55	2.0	0.01	0.02	0.01	0.04	0.01	1.9	
Mid-Ebb	21-Mar-07	10:00	-	0.03	0.02	0.01	0.06	0.01	0.5	
Mid-Ebb	23-Mar-07	14:50	-	0.04	0.03	0.01	0.08	0.01	0.5	

TTC		Bottom								
tide condition	Doto	4:	CC (m ~/I)	NH ₃ -N	NO ₃ -N	NO ₂ -N	TIN	TP	Chlorophyll a	Pesticides
tide condition	Date	time	SS (mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(ug/L)	(ug/L)
Mid-Flood	26-Feb-07	12:55	3.0	0.03	0.01	0.01	0.05	0.01	2.3	
Mid-Flood	28-Feb-07	13:50	-	0.03	0.01	0.01	0.05	0.01	1.4	
Mid-Flood	02-Mar-07	14:50	-	0.02	0.01	0.01	0.04	0.01	0.8	
Mid-Flood	05-Mar-07	14:15	4.0	0.01	0.01	0.01	0.01	0.01	2.2	
Mid-Flood	07-Mar-07	13:50	-	0.03	0.01	0.01	0.05	0.01	2.2	
Mid-Flood	09-Mar-07	13:50	=	0.02	0.01	0.01	0.04	0.01	1.9	
Mid-Flood	12-Mar-07	13:45	2.0	0.03	0.02	0.01	0.06	0.01	0.7	
Mid-Flood	14-Mar-07	13:50	=	0.02	0.02	0.01	0.05	0.01	0.5	
Mid-Flood	16-Mar-07	13:20	-	0.01	0.01	0.01	0.01	0.01	0.5	
Mid-Flood	19-Mar-07	14:45	2.0	0.01	0.02	0.01	0.04	0.01	1.9	•
Mid-Flood	21-Mar-07	14:20	-	0.03	0.02	0.01	0.06	0.01	0.6	
Mid-Flood	23-Mar-07	11:00	-	0.02	0.02	0.01	0.05	0.01	0.5	•

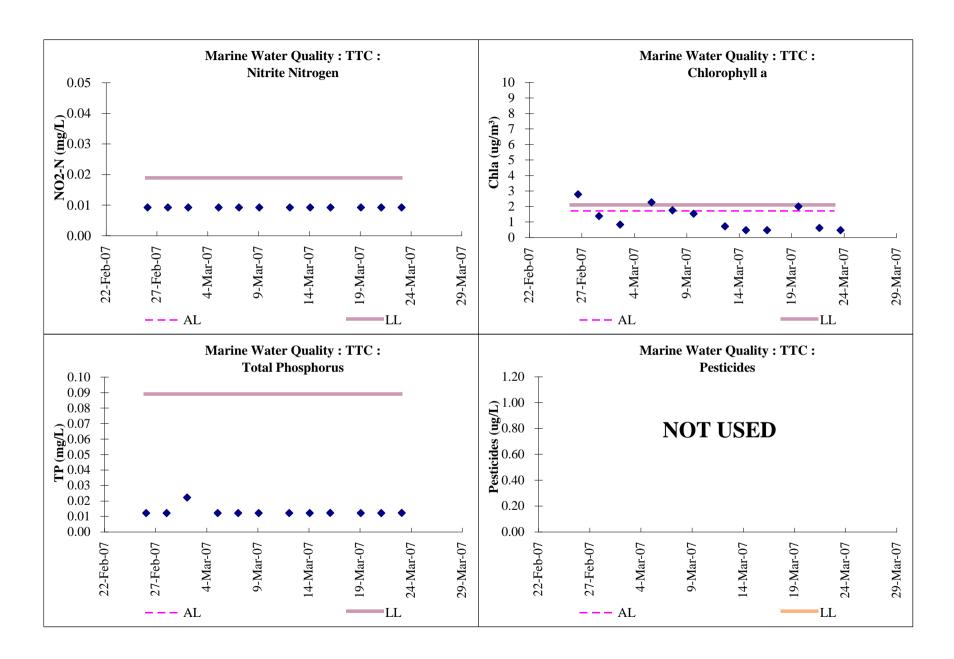
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				Depth-	averaged			
TTC	CC (/I)	NH ₃ -N	NO ₃ -N	NO ₂ -N	TIN	TP	Chlorophyll a	Pesticides
110	SS (mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(ug/L)	(ug/L)
26-Feb-07	3	0.03	0.01	0.01	0.05	0.01	2.8	
28-Feb-07	-	0.04	0.01	0.01	0.06	0.01	1.4	
02-Mar-07	-	0.02	0.01	0.01	0.04	0.02	0.9	
05-Mar-07	4	0.01	0.01	0.01	0.01	0.01	2.3	
07-Mar-07	-	0.03	0.01	0.01	0.05	0.01	1.8	
09-Mar-07	-	0.02	0.01	0.01	0.03	0.01	1.6	
12-Mar-07	3	0.03	0.02	0.01	0.06	0.01	0.7	
14-Mar-07	-	0.03	0.02	0.01	0.05	0.01	0.5	
16-Mar-07	-	0.01	0.02	0.01	0.03	0.01	0.5	
19-Mar-07	2	0.01	0.02	0.01	0.03	0.01	2.0	
21-Mar-07	-	0.03	0.02	0.01	0.05	0.01	0.7	•
23-Mar-07	-	0.03	0.02	0.01	0.06	0.01	0.5	

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M_BP					Surfac	e				
tide condition	Doto	time	CC (ma/L)	NH ₃ -N	NO ₃ -N	NO ₂ -N	TIN	TP	Chlorophyll a	Pesticides
tide condition	Date	ume	SS (mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(ug/L)	(ug/L)
Mid-Ebb	26-Feb-07	09:57	5	0.04	0.01	0.01	0.06	0.01	2.2	
Mid-Ebb	28-Feb-07	09:42	-	0.04	0.01	0.01	0.06	0.01	1.9	
Mid-Ebb	02-Mar-07	09:42	=	0.02	0.01	0.01	0.04	0.01	1.2	
Mid-Ebb	05-Mar-07	10:07	6	0.01	0.01	0.01	0.01	0.01	2.2	
Mid-Ebb	07-Mar-07	09:42	-	0.03	0.01	0.01	0.05	0.01	1.5	
Mid-Ebb	09-Mar-07	10:12	-	0.02	0.01	0.01	0.04	0.01	1.5	
Mid-Ebb	12-Mar-07	09:37	3	0.04	0.02	0.01	0.07	0.01	0.8	
Mid-Ebb	14-Mar-07	09:42	-	0.05	0.01	0.01	0.07	0.01	0.6	
Mid-Ebb	16-Mar-07	10:12	-	0.01	0.01	0.01	0.01	0.01	0.5	
Mid-Ebb	19-Mar-07	11:07	4	0.03	0.02	0.01	0.06	0.01	1.6	
Mid-Ebb	21-Mar-07	10:12	-	0.02	0.02	0.01	0.05	0.01	0.6	
Mid-Ebb	23-Mar-07	15:02	-	0.03	0.02	0.01	0.06	0.01	0.5	`

M_BP		Surface								
tide condition	Date	time	SS (mg/L)	NH ₃ -N	NO ₃ -N	NO ₂ -N	TIN	TP	Chlorophyll a	Pesticides
tide condition	Date	time	SS (mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(ug/L)	(ug/L)
Mid-Flood	26-Feb-07	13:07	3	0.03	0.01	0.01	0.05	0.01	3.4	
Mid-Flood	28-Feb-07	14:02	-	0.03	0.01	0.01	0.05	0.01	1.9	
Mid-Flood	02-Mar-07	15:02	-	0.04	0.01	0.01	0.06	0.01	1.1	
Mid-Flood	05-Mar-07	14:27	4	0.01	0.01	0.01	0.01	0.01	2.4	
Mid-Flood	07-Mar-07	14:02	-	0.03	0.01	0.01	0.05	0.01	1.7	
Mid-Flood	09-Mar-07	14:02	-	0.01	0.01	0.01	0.01	0.01	1.1	
Mid-Flood	12-Mar-07	13:57	2	0.02	0.01	0.01	0.04	0.01	0.9	
Mid-Flood	14-Mar-07	14:02	-	0.05	0.01	0.01	0.07	0.01	0.6	
Mid-Flood	16-Mar-07	13:32	-	0.01	0.01	0.01	0.01	0.01	0.5	
Mid-Flood	19-Mar-07	14:57	4	0.01	0.01	0.01	0.01	0.01	1.4	
Mid-Flood	21-Mar-07	14:32	-	0.01	0.02	0.01	0.04	0.01	0.6	
Mid-Flood	23-Mar-07	11:12	-	0.03	0.02	0.01	0.06	0.01	0.5	•

Remarks:

Action level	Bold & Italic
Limit level	Bold
< detection limit	Grey

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M_BP					Middle	e				
tide condition	Date	time	SS (m ~/I)	NH ₃ -N	NO ₃ -N	NO ₂ -N	TIN	TP	Chlorophyll a	Pesticides
tide condition	Date	ume	SS (mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(ug/L)	(ug/L)
Mid-Ebb	26-Feb-07	09:56	3	0.03	0.01	0.01	0.05	0.01	3.0	
Mid-Ebb	28-Feb-07	09:41	-	0.03	0.01	0.01	0.05	0.01	2.3	
Mid-Ebb	02-Mar-07	09:41	-	0.02	0.01	0.01	0.04	0.01	1.0	
Mid-Ebb	05-Mar-07	10:06	7	0.01	0.01	0.01	0.01	0.01	2.6	
Mid-Ebb	07-Mar-07	09:41	=	0.03	0.01	0.01	0.05	0.01	2.3	
Mid-Ebb	09-Mar-07	10:11	-	0.04	0.01	0.01	0.06	0.01	1.9	
Mid-Ebb	12-Mar-07	09:36	2	0.02	0.02	0.01	0.05	0.01	1.3	
Mid-Ebb	14-Mar-07	09:41	-	0.02	0.01	0.01	0.04	0.01	0.5	
Mid-Ebb	16-Mar-07	10:11	=	0.04	0.01	0.01	0.06	0.01	0.5	
Mid-Ebb	19-Mar-07	11:06	4	0.01	0.01	0.01	0.01	0.01	1.5	
Mid-Ebb	21-Mar-07	10:11	-	0.01	0.02	0.01	0.04	0.01	0.6	
Mid-Ebb	23-Mar-07	15:01	-	0.02	0.02	0.01	0.05	0.01	0.5	•

M_BP		Middle								
tide condition	Date	time	SS (mg/L)	NH ₃ -N	NO ₃ -N	NO ₂ -N	TIN	TP	Chlorophyll a	Pesticides
tide condition	Date	ume	SS (mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(ug/L)	(ug/L)
Mid-Flood	26-Feb-07	13:06	3	0.02	0.01	0.01	0.04	0.01	3.4	
Mid-Flood	28-Feb-07	14:01	-	0.04	0.01	0.01	0.06	0.01	2.0	
Mid-Flood	02-Mar-07	15:01	-	0.03	0.01	0.01	0.05	0.01	1.1	
Mid-Flood	05-Mar-07	14:26	3	0.01	0.01	0.01	0.01	0.01	2.7	
Mid-Flood	07-Mar-07	14:01	-	0.03	0.01	0.01	0.05	0.01	1.6	
Mid-Flood	09-Mar-07	14:01	-	0.02	0.01	0.01	0.04	0.01	1.7	
Mid-Flood	12-Mar-07	13:56	2	0.01	0.02	0.01	0.04	0.01	0.8	
Mid-Flood	14-Mar-07	14:01	-	0.01	0.01	0.01	0.01	0.01	0.5	
Mid-Flood	16-Mar-07	13:31	-	0.03	0.01	0.01	0.05	0.01	0.5	
Mid-Flood	19-Mar-07	14:56	2	0.01	0.01	0.01	0.01	0.01	1.7	
Mid-Flood	21-Mar-07	14:31	-	0.01	0.02	0.01	0.04	0.01	0.8	_
Mid-Flood	23-Mar-07	11:11	-	0.01	0.02	0.01	0.04	0.01	0.5	

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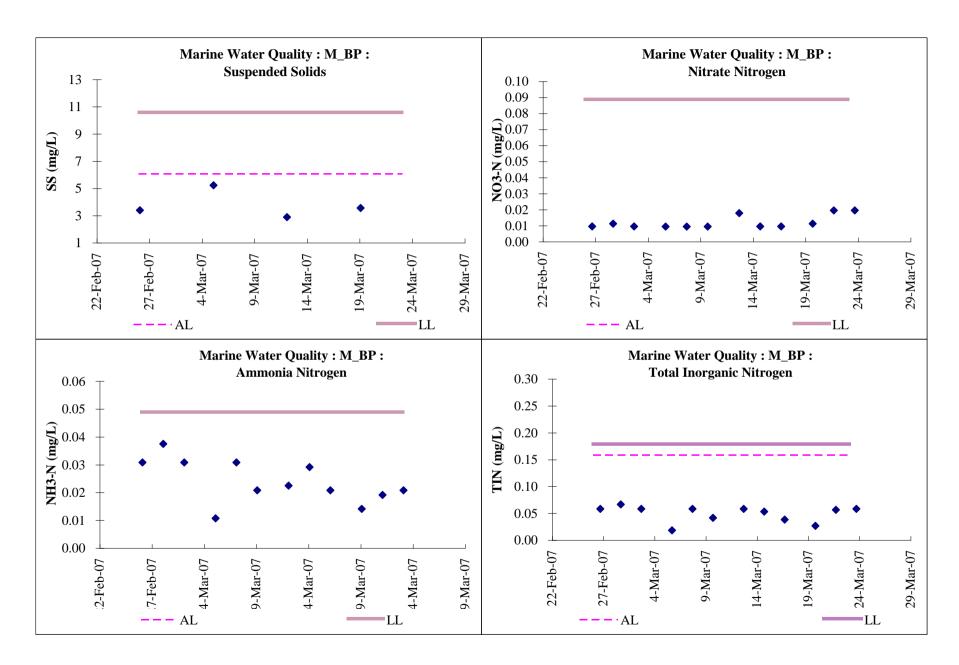
M_BP		Bottom								
tide condition	Data	tima	CC (m ~/I)	NH ₃ -N	NO ₃ -N	NO ₂ -N	TIN	TP	Chlorophyll a	Pesticides
tide condition	Date	time	SS (mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(ug/L)	(ug/L)
Mid-Ebb	26-Feb-07	09:55	3	0.02	0.01	0.01	0.04	0.01	2.7	
Mid-Ebb	28-Feb-07	09:40	-	0.04	0.02	0.01	0.07	0.01	1.5	
Mid-Ebb	02-Mar-07	09:40	-	0.03	0.01	0.01	0.05	0.01	1.4	
Mid-Ebb	05-Mar-07	10:05	5	0.01	0.01	0.01	0.01	0.01	2.7	
Mid-Ebb	07-Mar-07	09:40	=	0.03	0.01	0.01	0.05	0.01	2.1	
Mid-Ebb	09-Mar-07	10:10	=	0.01	0.01	0.01	0.01	0.01	1.8	
Mid-Ebb	12-Mar-07	09:35	3	0.02	0.02	0.01	0.05	0.01	1.0	
Mid-Ebb	14-Mar-07	09:40	-	0.02	0.01	0.01	0.04	0.01	0.5	
Mid-Ebb	16-Mar-07	10:10	=	0.02	0.01	0.01	0.04	0.01	0.5	
Mid-Ebb	19-Mar-07	11:05	4	0.01	0.01	0.01	0.01	0.01	1.9	
Mid-Ebb	21-Mar-07	10:10	-	0.05	0.02	0.01	0.08	0.01	0.6	
Mid-Ebb	23-Mar-07	15:00	-	0.02	0.02	0.01	0.05	0.01	0.5	•

M_BP	Bottom									
tide condition	Date	time	SS (mg/L)	NH ₃ -N	NO ₃ -N	NO ₂ -N	TIN	TP	Chlorophyll a	Pesticides
tide condition	Date	time	SS (mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(ug/L)	(ug/L)
Mid-Flood	26-Feb-07	13:05	3	0.04	0.01	0.01	0.06	0.01	2.8	
Mid-Flood	28-Feb-07	14:00	-	0.04	0.01	0.01	0.06	0.01	1.1	
Mid-Flood	02-Mar-07	15:00	-	0.04	0.01	0.01	0.06	0.01	0.6	
Mid-Flood	05-Mar-07	14:25	6	0.01	0.01	0.01	0.01	0.01	2.4	
Mid-Flood	07-Mar-07	14:00	-	0.03	0.01	0.01	0.05	0.01	2.1	
Mid-Flood	09-Mar-07	14:00	-	0.02	0.01	0.01	0.04	0.01	0.8	
Mid-Flood	12-Mar-07	13:55	5	0.02	0.02	0.01	0.05	0.01	1.1	
Mid-Flood	14-Mar-07	14:00	-	0.02	0.01	0.01	0.04	0.01	0.5	
Mid-Flood	16-Mar-07	13:30	-	0.01	0.01	0.01	0.01	0.01	0.5	
Mid-Flood	19-Mar-07	14:55	3	0.01	0.01	0.01	0.01	0.01	2.2	
Mid-Flood	21-Mar-07	14:30	-	0.01	0.02	0.01	0.04	0.01	0.7	•
Mid-Flood	23-Mar-07	11:10	-	0.01	0.02	0.01	0.04	0.01	0.5	

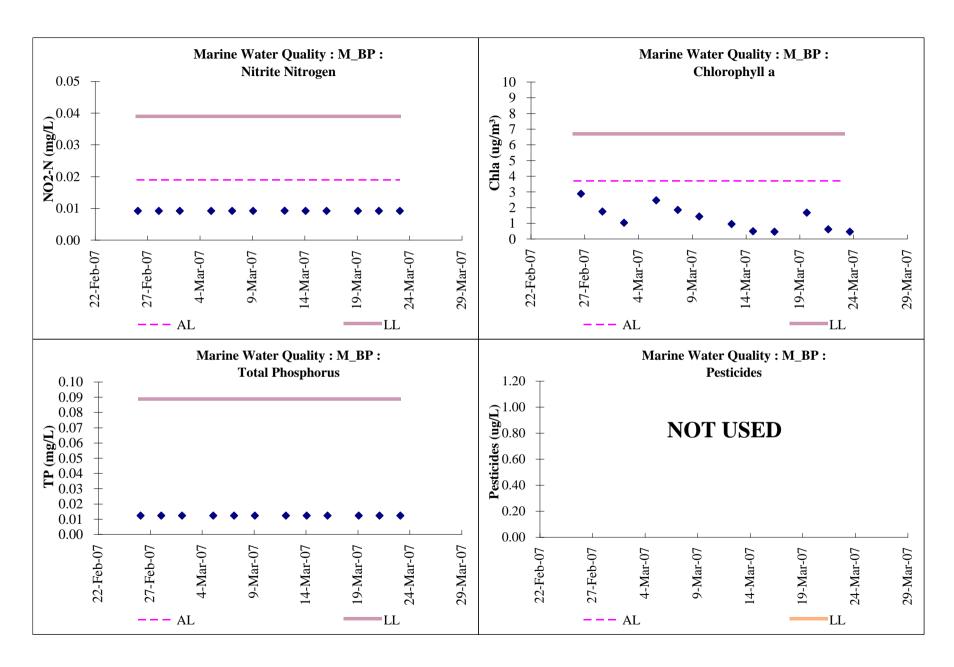
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				Depth-	averaged			
M DD	CC (ma/L)	NH ₃ -N	NO ₃ -N	NO ₂ -N	TIN	TP	Chlorophyll a	Pesticides
M_BP	SS (mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(ug/L)	(ug/L)
26-Feb-07	3	0.03	0.01	0.01	0.05	0.01	2.9	
28-Feb-07	-	0.04	0.01	0.01	0.06	0.01	1.8	
02-Mar-07	=	0.03	0.01	0.01	0.05	0.01	1.1	
05-Mar-07	5	0.01	0.01	0.01	0.01	0.01	2.5	
07-Mar-07	=	0.03	0.01	0.01	0.05	0.01	1.9	
09-Mar-07	=	0.02	0.01	0.01	0.03	0.01	1.5	
12-Mar-07	3	0.02	0.02	0.01	0.05	0.01	1.0	
14-Mar-07	-	0.03	0.01	0.01	0.04	0.01	0.5	
16-Mar-07	=	0.02	0.01	0.01	0.03	0.01	0.5	
19-Mar-07	3	0.01	0.01	0.01	0.02	0.01	1.7	
21-Mar-07	-	0.02	0.02	0.01	0.05	0.01	0.7	
23-Mar-07	-	0.02	0.02	0.01	0.05	0.01	0.5	

M_BP Page 22 of 27



M_BP Page 23 of 27

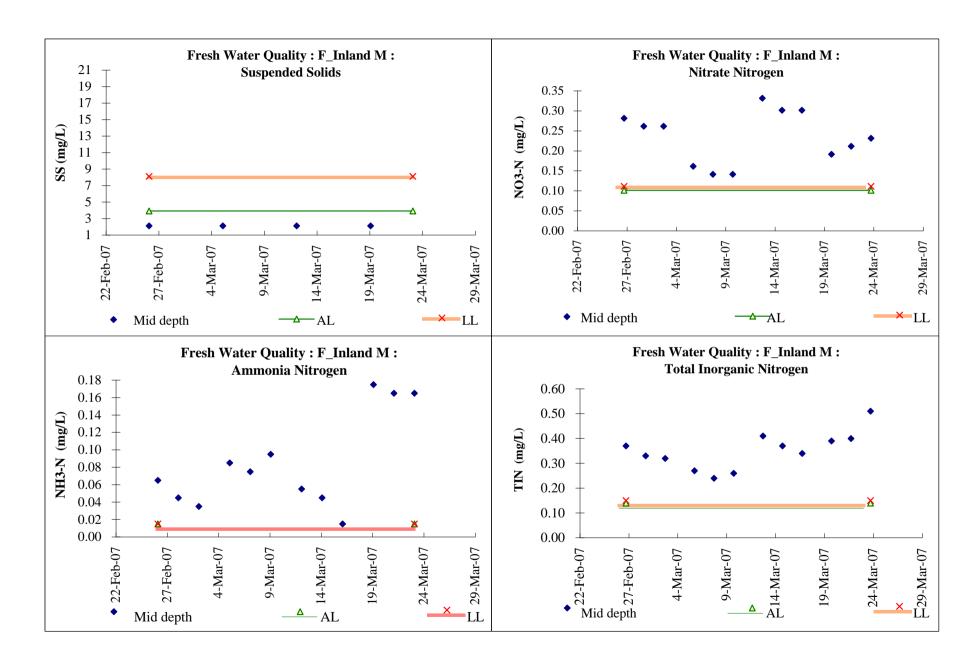


M_BP Page 24 of 27

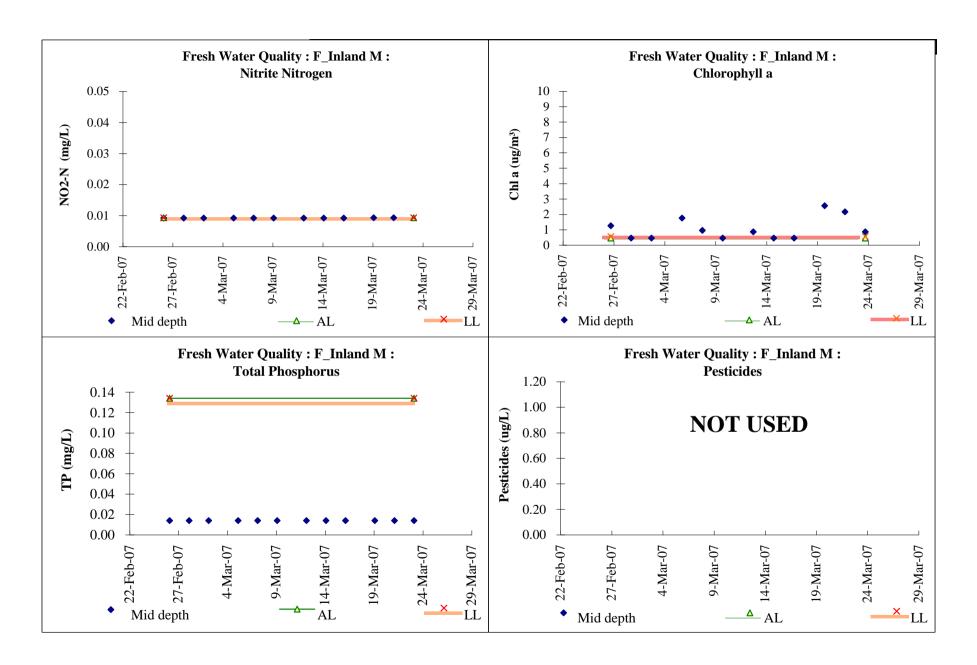
					Mid depth				
E Inland M	time	SS (mg/L)	NH ₃ -N	NO ₃ -N	NO ₂ -N	TIN	TP	Chlorophyll a	Pesticides
F_Inland M	ume	33 (IIIg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(ug/L)	(ug/L)
26-Feb-07	12:45	2	0.06	0.28	0.01	0.35	0.01	1.3	
28-Feb-07	09:20	-	0.04	0.26	0.01	0.31	0.01	0.5	
02-Mar-07	09:20	=	0.03	0.26	0.01	0.30	0.01	0.5	
05-Mar-07	09:45	2	0.08	0.16	0.01	0.25	0.01	1.8	
07-Mar-07	09:20	=	0.07	0.14	0.01	0.22	0.01	1.0	
09-Mar-07	09:50	=	0.09	0.14	0.01	0.24	0.01	0.5	
12-Mar-07	09:15	2	0.05	0.33	0.01	0.39	0.01	0.9	
14-Mar-07	09:20	-	0.04	0.30	0.01	0.35	0.01	0.5	
16-Mar-07	09:50	-	0.01	0.30	0.01	0.32	0.01	0.5	
19-Mar-07	10:45	2	0.17	0.19	0.01	0.37	0.01	2.6	
21-Mar-07	09:50	-	0.16	0.21	0.01	0.38	0.01	2.2	•
23-Mar-07	10:50	-	0.16	0.23	0.10	0.49	0.01	0.9	•

23-Mar-07	Bold & Italic
	Bold
< detection limit	Grey

F_Inland M Page 25 of 27



F_Inland M Page 26 of 27



F_Inland M Page 27 of 27

Ecology

Plate 5.3-1 Photos of Stream Habitat



Stream A and Buffer Zone



Stream Flow in upper Stream A and the permanent bridge



Buffer zone for Stream B Tributary B2



Stream B close-up



Stream C buffer zone



Close-up of Stream C



Shrimps in Stream C



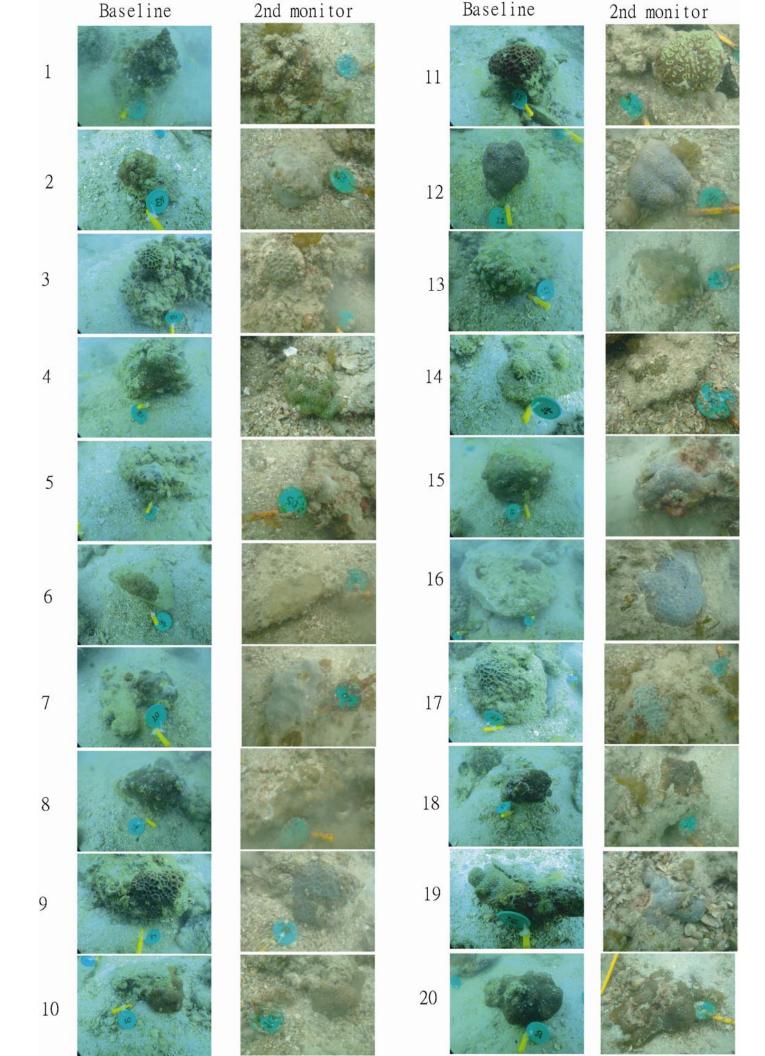
Crab burrow in Stream C

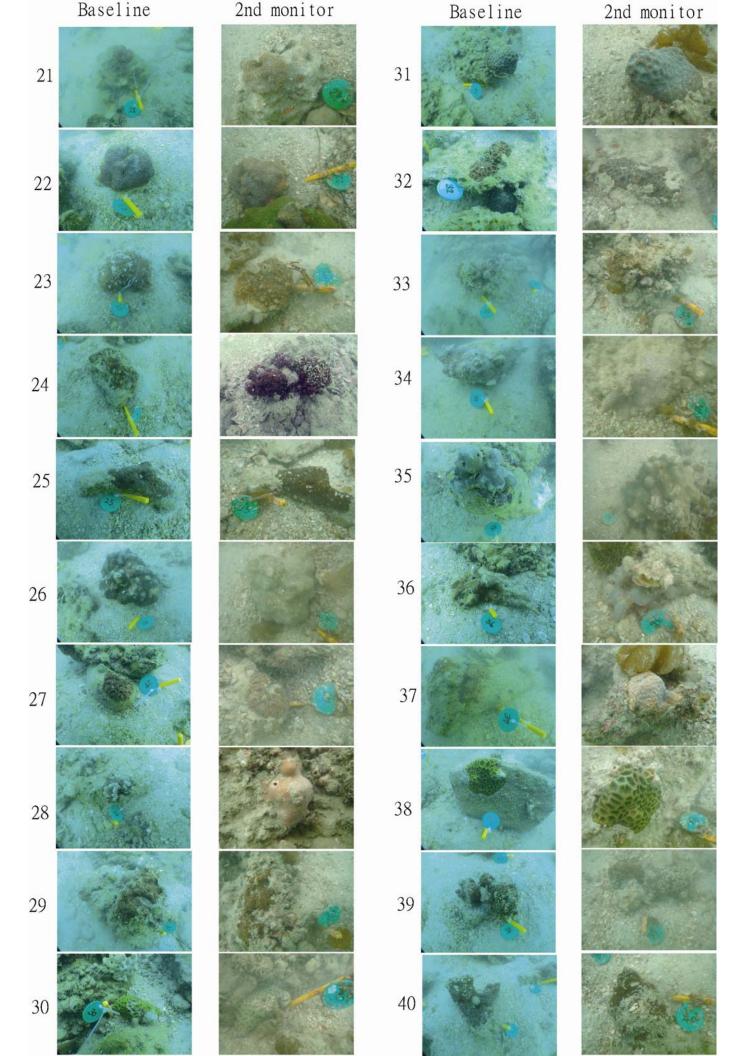


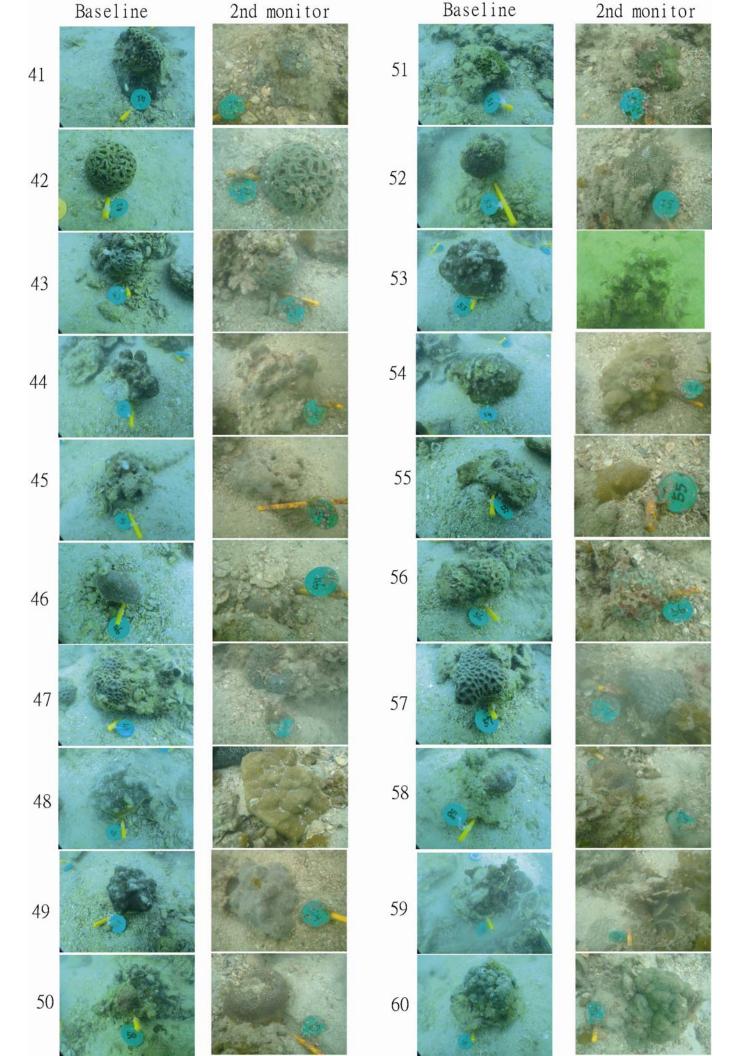
Shrimps in Stream D

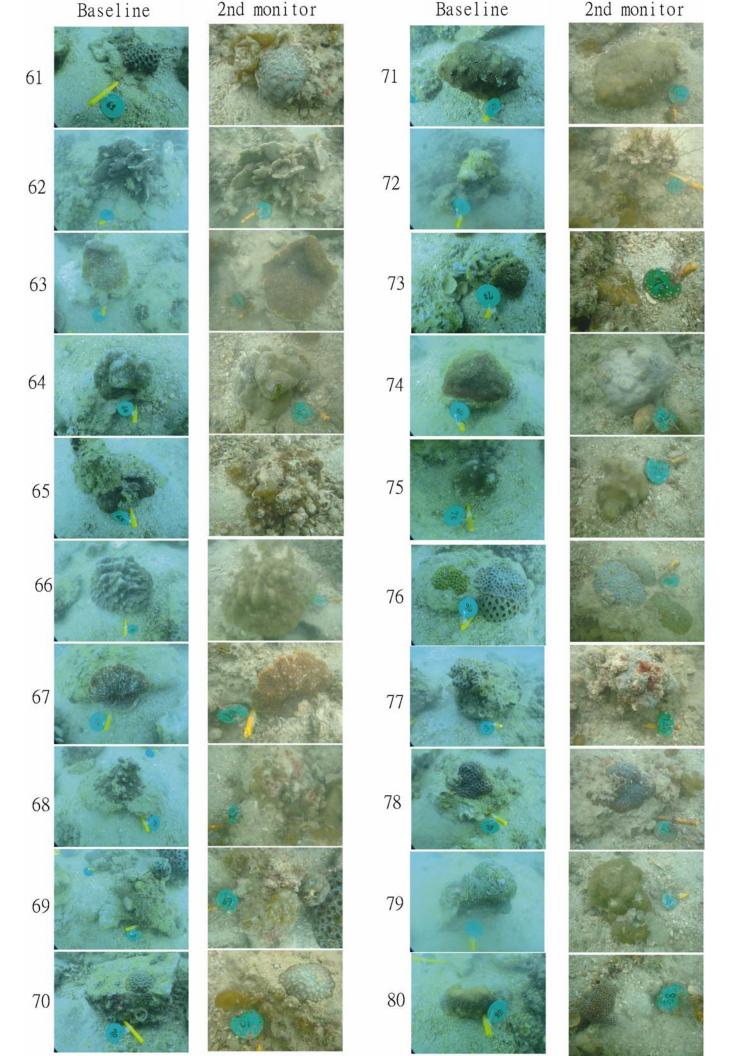


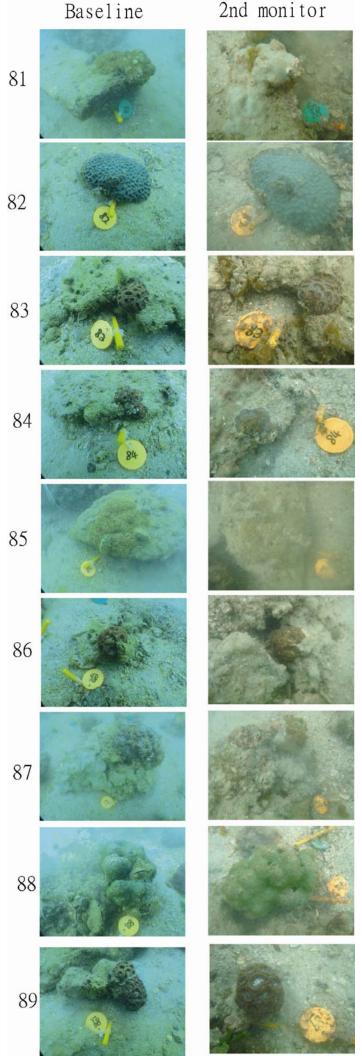
Close-up of Stream D

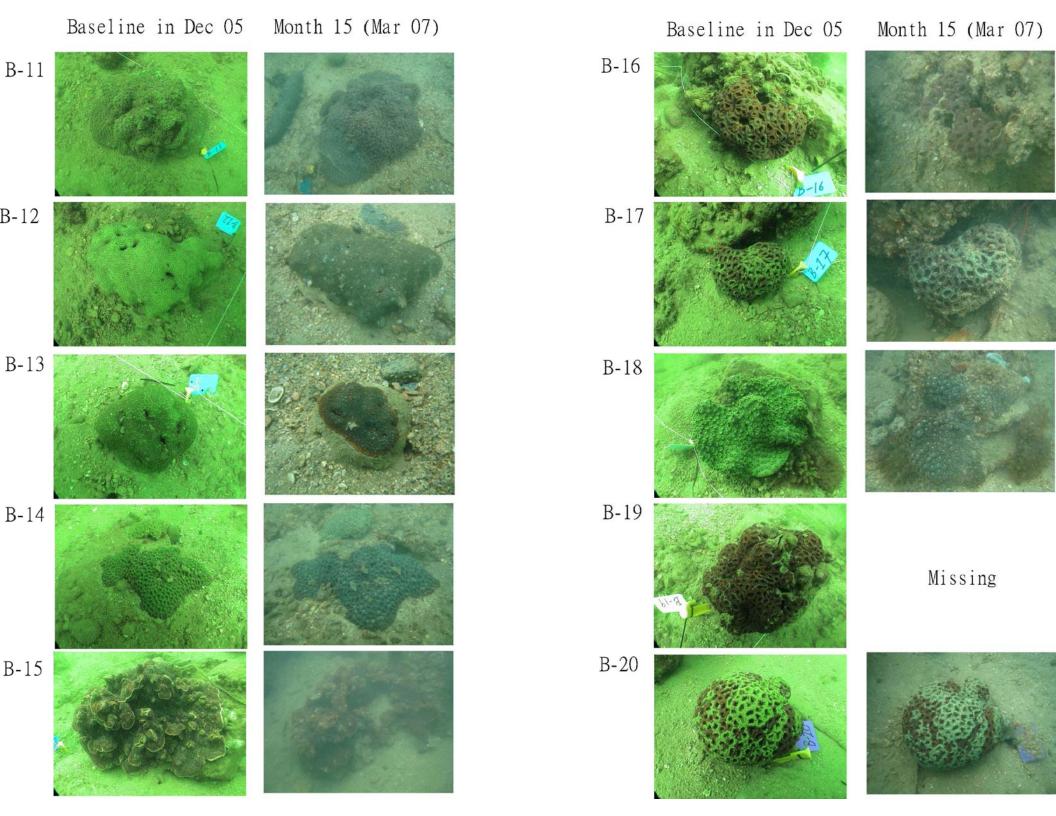


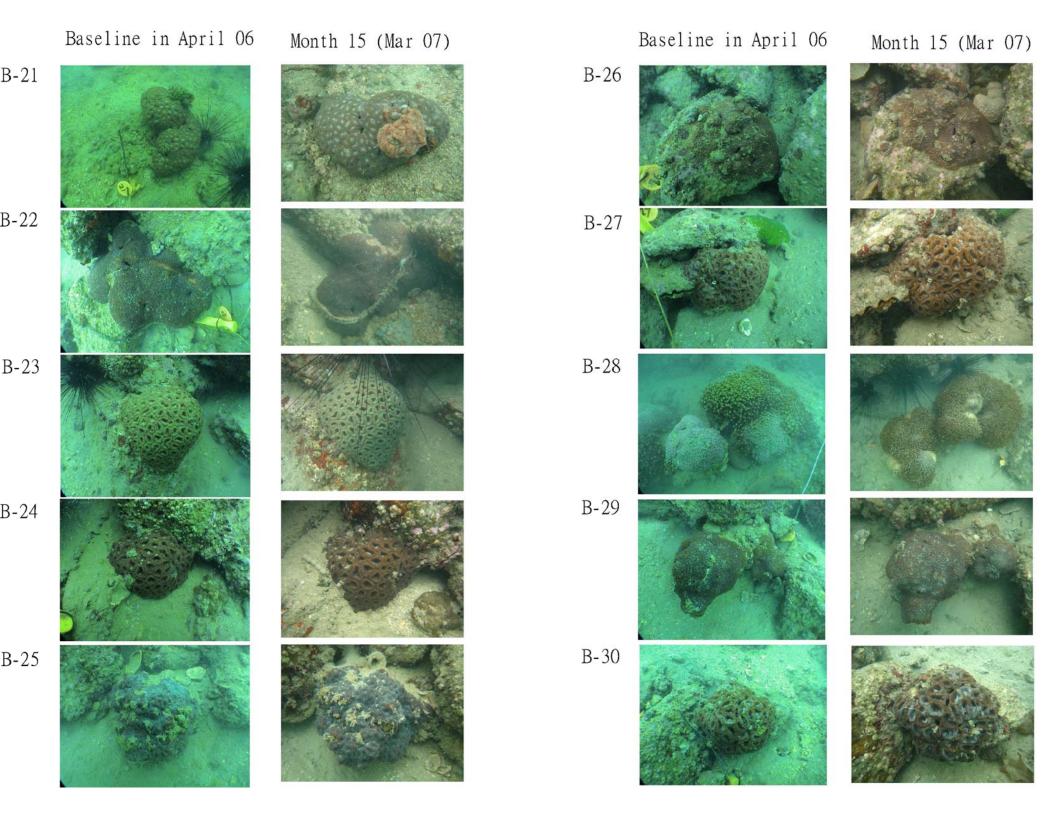


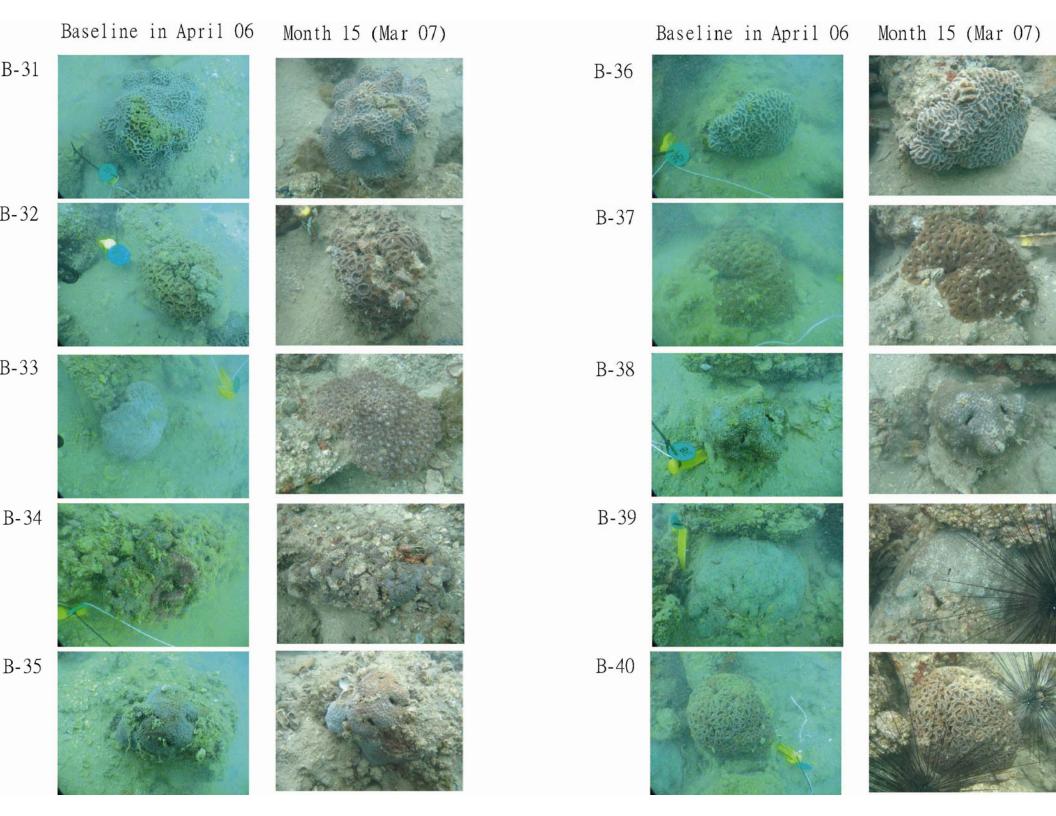


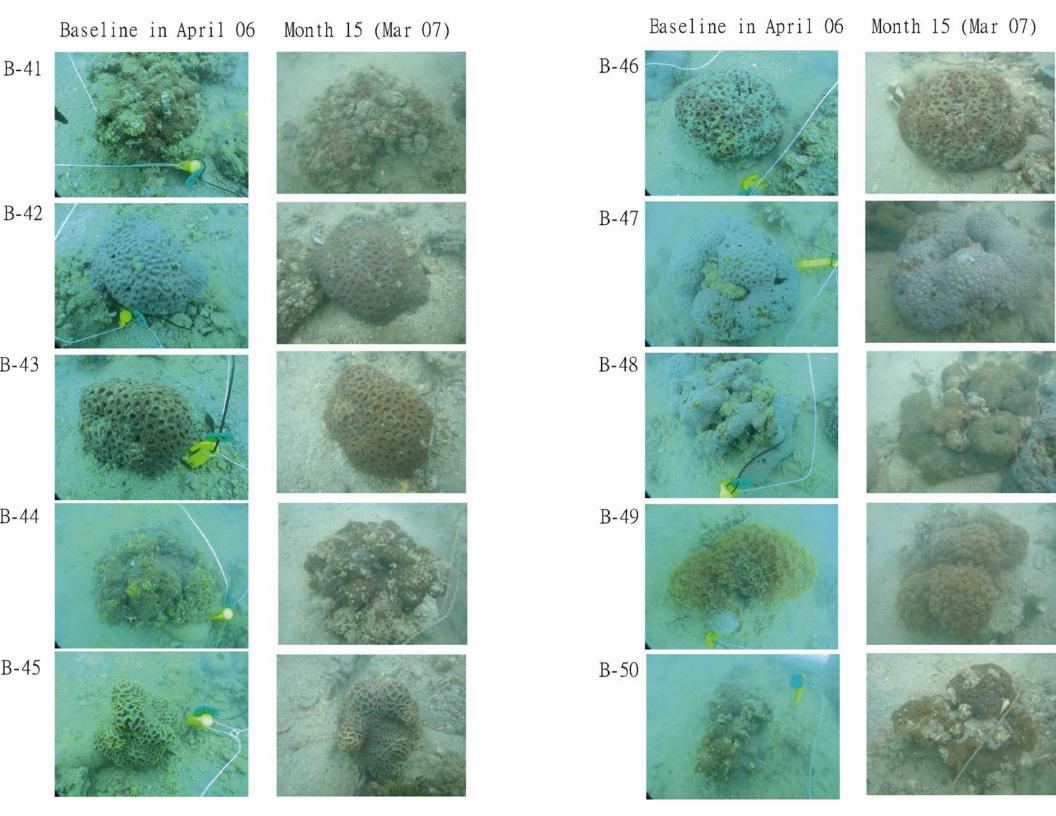


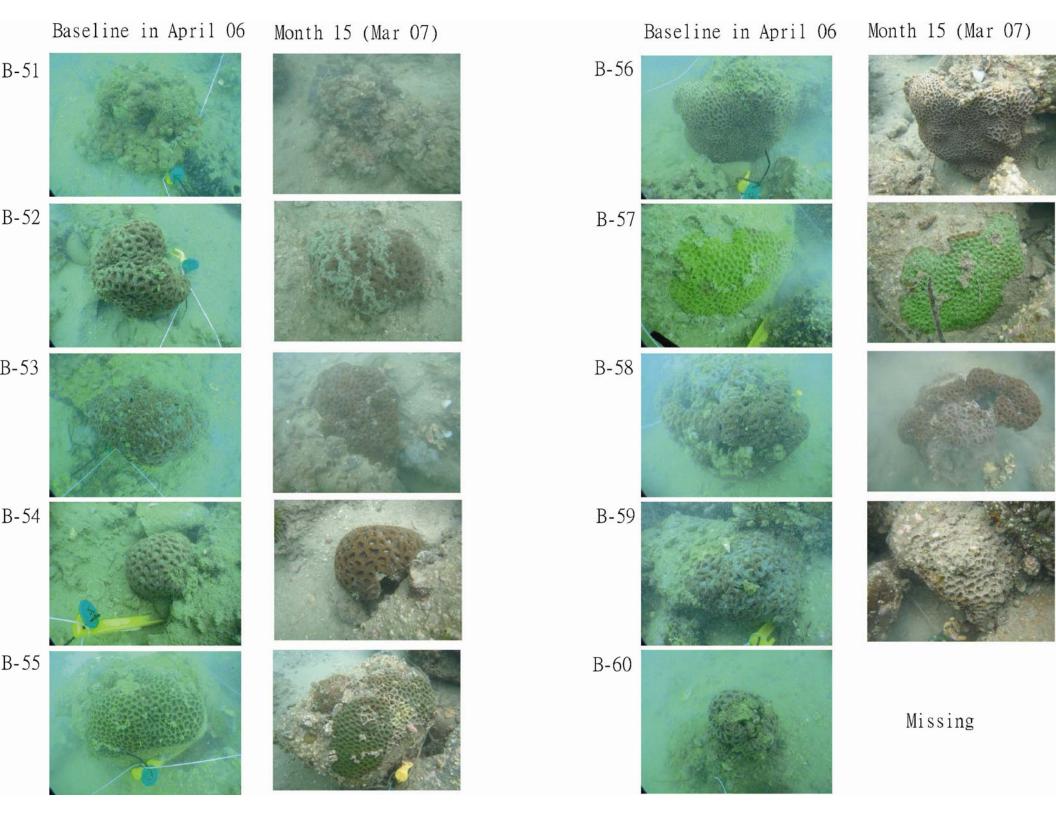


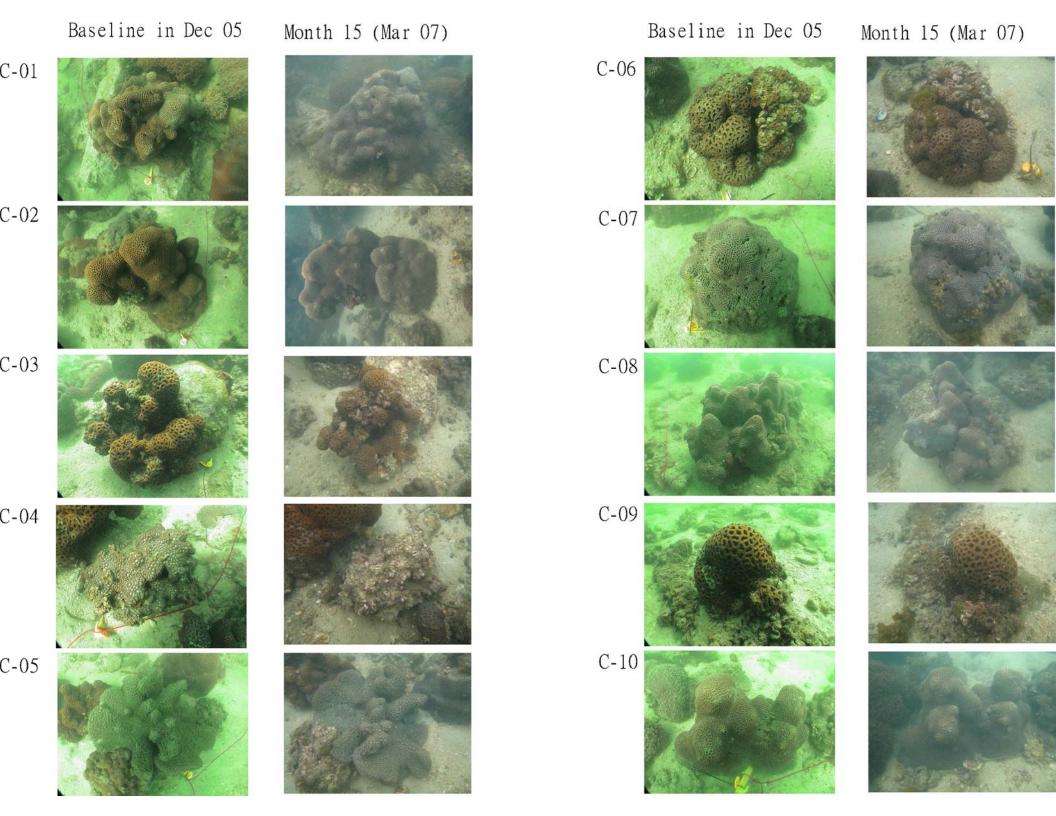


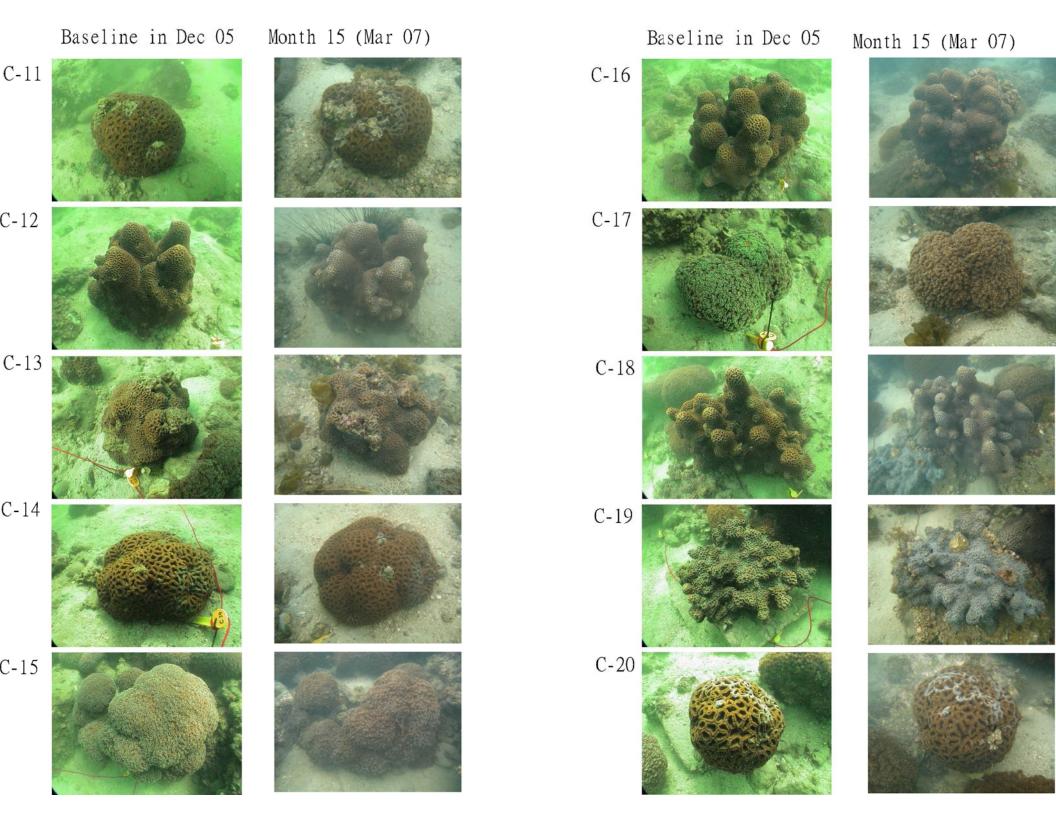


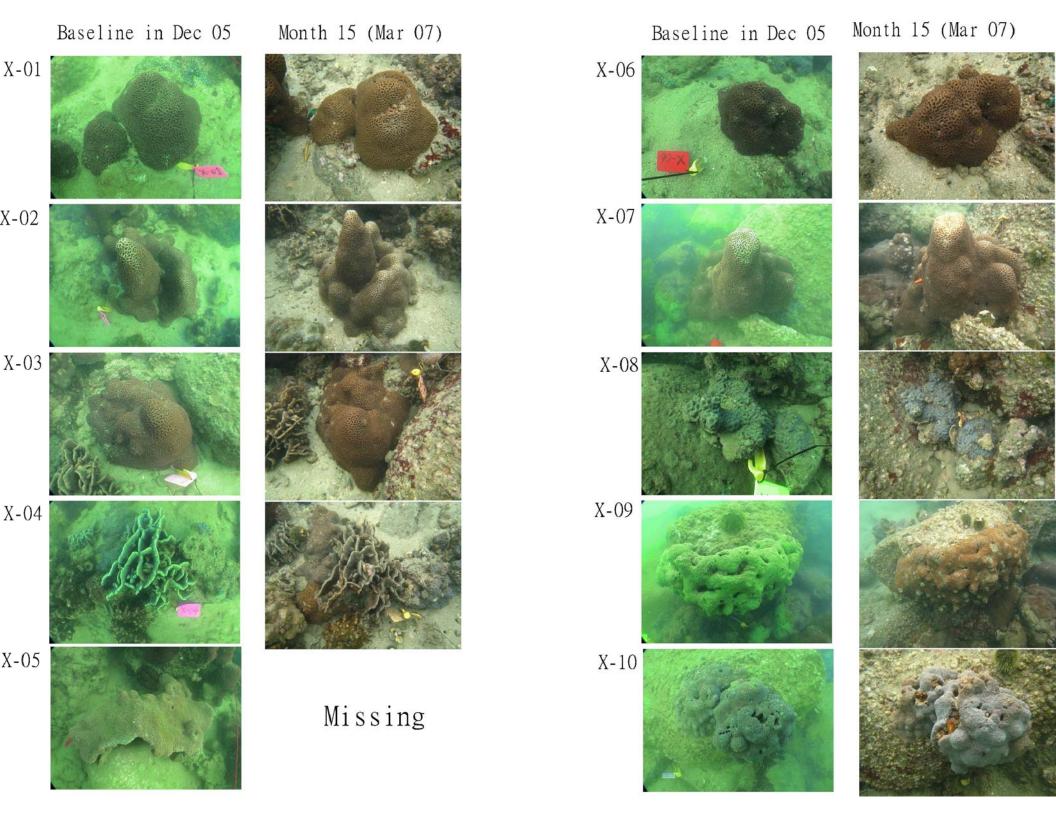


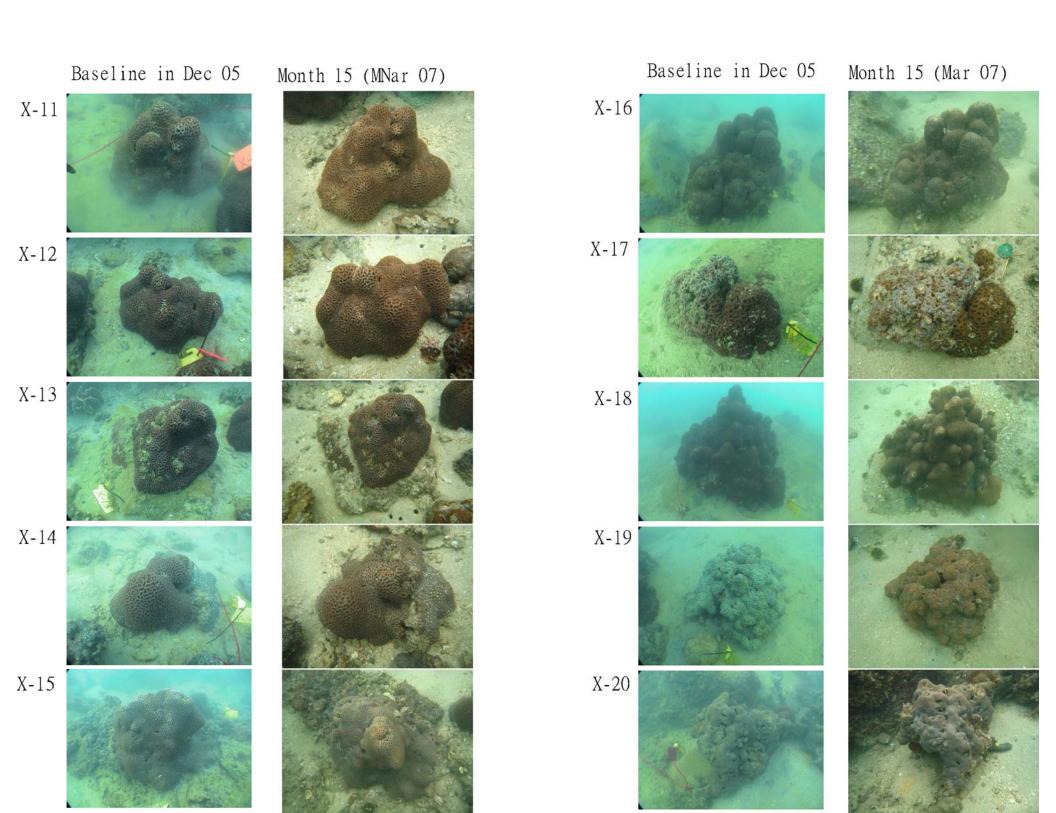












Annex F Calibration Certificates

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

Station	KSC Public Golf	Course Bungalov	v A (GCA B1)	Operator:	Po	Porky				
Cal. Date:	27-Feb-07			_ ,	27-4	.pr-07	•			
Equipment No.:	A-001-47T			Serial No.	B/M2	200HX	•			
				t Condition						
Temperat	ure, Ta (K)	289	Pressure,	Pa (mmHg)		769.6				
			Orifice Transfer S	tandard Information	nn .					
Seria	al No:	843	Slope, mc	2.00577		ept, bc	-0.00146			
Last Calibr	ation Date:	21-Dec-06	······································	mc x Qstd + bc	= [DH x (Pa/760) x		<u> </u>			
Next Calibr	ration Date:	21-Dec-07		Qstd = {[DH x (
		•								
	T			f TSP Sampler						
Resistance Plate		0	rfice	7	HV	S Flow Recorder				
No.	DH (orifice), in. of water	[DH x (Pa/760) x (298/Ta)] ^{1/2}		Qstd (m³/min) X - axis	Flow Recorder Reading (CFM)	Continuous Flow Reading IC (CFM				
18	13.1		3.70	1.84	53.0	54.16				
13	10.3		3.28	1.64	46.0	47.00				
10	7.7	2	2.84	1.41	39.0	39.85				
7	5.6	e 6	2.42	1.21	33.0	33.72				
5	3.2	1	.83	0.91	24.0	24.52				
By Linear Regre Slope, mw = Correlation Coe	31.5919 fficient* =		994	Intercept, bw =						
ii Correlation Co	emcient < 0.990,	check and recalib	rate.							
			Set Point (Calculation						
From the TSP Fie	eld Calibration Cu	rve, take Qstd = 1	.30m³/min							
From the Regress	sion Equation, the	"Y" value accordi	ng to							
		mw x	Qstd + bw = IC x	[(Pa/760) x (298/T	a)] ^{1/2}					
Therefore Cat Da	int 10 / 0		2 / D-) / T- / 200	×11/2						
i nerelore, Set Po	oint; IC = (mw x C	137) X (Wa + D181) / Pa) x (Ta / 298	3)]'''=	_	35.83				
_										
Remarks:										
-										
C Reviewer 7	Eddie Yan	og c	ignature:	Eddy)	r	Date: 1/3/20	107			
xo i teviewel	V	-4 5	yrialure	/VJ		Jale:				

ALS Laboratory Group

ANALYTICAL CHEMISTRY & TESTING SERVICES

Environmental Division



CERTIFICATE OF ANALYSIS

CONTACT:

MR WONG SIU HO

CLIENT:

ENOVATIVE ENV TECHNOLOGY CO

ADDRESS:

RM 3704 SIK MAN HOUSE

HOMANTIN ESTATE

KOWLOON

ORDER No.:

PROJECT:

Batch:

HK70960

Sub Batch:

0

LABORATORY:

HONG KONG

DATE RECEIVED: DATE OF ISSUE: 25/01/2007

SAMPLE TYPE:

31/01/2007

No of CAMPIL

EQUIPMENT

No. of SAMPLES:

1

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

Ms Wong Wai Man, Alice Laboratory Manager - Hong Kong

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.Ima Part of the ALS Laboratory Group
11/F, Chung Shun Knitting Centre, 1-3 Wing Yip Street, Kwai Chung, N.T., H.K.

Page 1 of 7

F, Chung Shun Knitting Centre, 1-3 Wing Yip Street, Kwai Chung, N.T., F Phone: 852-2610 1044 Fax: 852-2610 2021 www.alsenviro.com A Campbell Brothers Limited Company



Batch:

HK70960

Sub Batch : Date of Issue: 0

31/01/2007

Client:

ENOVATIVE ENV TECHNOLOGY CO

Client Reference:

Calibration of Tubidimeter

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 January, 2007

Testing Results:

Expected Reading	Recording Reading
0.00 NTU 4.00 NTU 16.0 NTU 80.0 NTU 160 NTU	0.2 NTU 3.90 NTU 16.1 NTU 80.0 NTU 159 NTU
Allowing Deviation	±10%

Ms Wong Wai Man, Alice



Batch:

HK70960

Sub Batch:

0

Date of Issue:

31/01/2007

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 January, 2007

Testing Results:

Expected Reading	Recording Reading
1412 uS/cm 6667 uS/cm 58670 uS/cm	1405 uS/cm 6732 uS/cm 57920 uS/cm
Allowing Deviation	±10%

Ms Wong Wai Man, Alice



Batch:

HK70960

Sub Batch:

0

Date of Issue:

31/01/2007

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 January, 2007

Testing Results:

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

Ms Wong Wai Man, Alice



Batch:

HK70960

Sub Batch :

0

Date of Issue:

31/01/2007

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 January, 2007

Testing Results:

Reference Temperature (°C)	Recorded Temperature (°C)
3.5 °C 20.1 °C	3.5 °C 20.0 °C
Allowing Deviation	±2.0°C

Ms Wong Wai Man, Alice Laboratory Manager - Hong Kong



Batch:

HK70960

Sub Batch:

0

Date of Issue:

31/01/2007

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.) 4500-0C & G

Date of Calibration:

25 January, 2007

Testing Results:

Expected Reading	Recording Reading
0.00 mg/L 2.70 mg/L 5.20 mg/L 9.00 mg/L	0.10 mg/L 2.90 mg/L 5.00 mg/L 8.80 mg/L
Allowing Deviation	±0.2 mg/L

Alice W M Wong



Batch:

HK70960

Sub Batch:

(

Date of Issue:

31/01/2007

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 January, 2007

Testing Results:

Expected Reading	Recording Reading
4.00	4.01
7.00	7.01
10.0	9.93
Allowing Deviation	±0.2 unit

Ms Wong Wai Man, Alice



Project:

Instrument:

Proposed Extension of Public Golf Course at Kau Sai Chau Island Daily checking and calibration record YSI 6920 (ENO 003)

Dete		pH checking	3	DO wet bulb calibration	Turbidity	checking	C+- CC	Remark	
Date	4.0	7.0	10.0		5 NTU	20 NTU	Staff	Remark	
26/02/07	4.0	6-9	10.1	100%	4.9	19.3	1/2		
5/03/07	4.1	6.9	100	100}	4.7	18.5	次		
2/03/07	3.9	6-9	10.0	100%	49	19.9	H		
19/03/07	3.9	7.0	9.9	100%	5-2	20.9	1)		
	1					1	<i>V</i> .		
							6		

Annex G Monitoring Programme for the next three months

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

May 2007						
Sun	Mon	Tue	Wed	Thu	Fri	Sat
		1	2	3	4	5
		Public Holiday	WQ AQ		WQ	
6	7	8	9	10	11	12
	WQ	AQ	WQ LV		WQ	
13	14	15	16	17	18	19
	WQ AQ			TE	TE	AQ
20	21	22	23	24	25	26
	WQ		LV	Public Holiday	AQ	
27	28	29	30	31		
	WQ		AQ			

June 2007	,					
Sun	Mon	Tue	Wed	Thu	Fri	Sat
					1	2
3	4	5	6	7	8	9
	WQ	AQ	LV			
10	11	12	13	14	15	16
	AQ					AQ
	WQ					
17	18	19	20	21	22	23
	WQ	Public	LV	TE	AQ	
	" ~	Holiday	L	I L	TE	
24	25	26	27	28	29	30
	WQ	ME	ME	AQ		

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 06) at the temporary barging point after the coral incident (23rd Mar 06), the monitoring frequency will be changed on quarterly basis (start from Sept 2006) till the end of the construction phase (Dec 06, Mar 07 and Jun 07). According to the latest construction programme submitted by the Contractor, it will extend from July 07 to Nov 07. The monitoring will require to be extended to Sept 07 subject to the actual site progress.

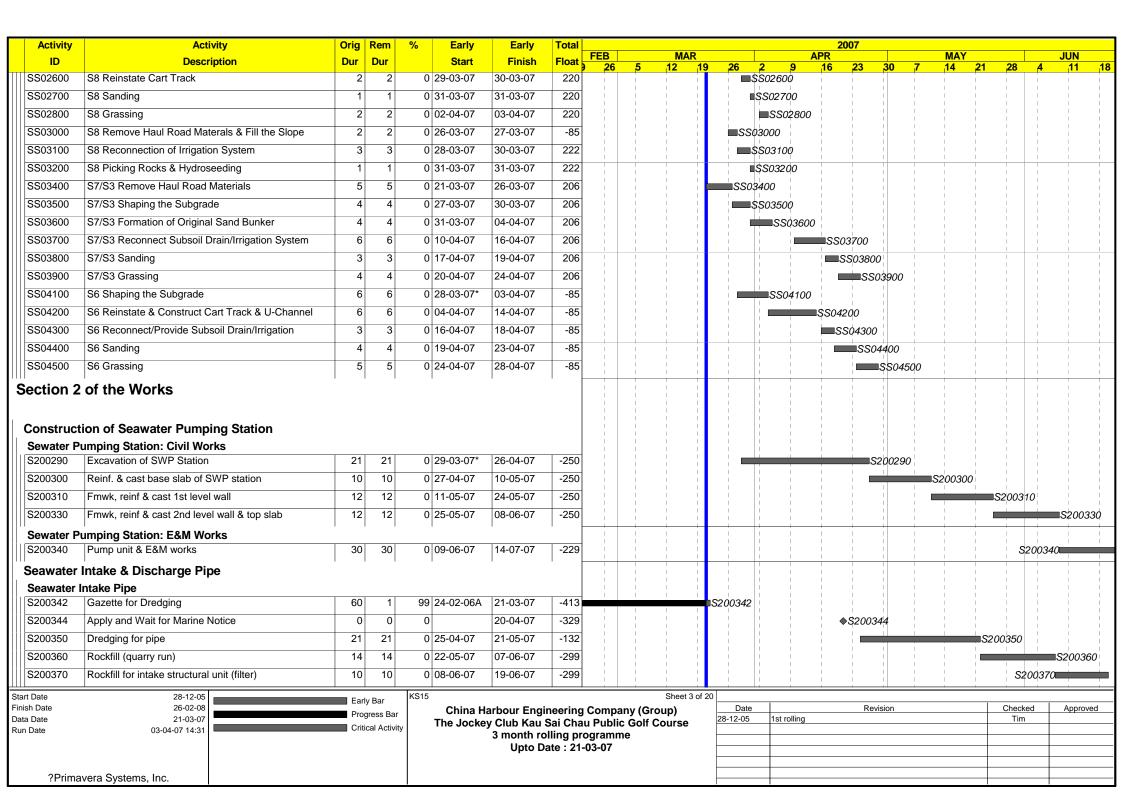
No dredging was carried out for the desalination plant pipeline construction. However, corals at Site D2 were transplanted in the Dec 2006. Transplanted coral monitoring on quarterly basis for one year was commenced after the completion of coral transplanted in Dec 2006. The monitoring of the transplanted coral was carried out in Mar 07, will be carried out in Jun 07 and Sept 07.

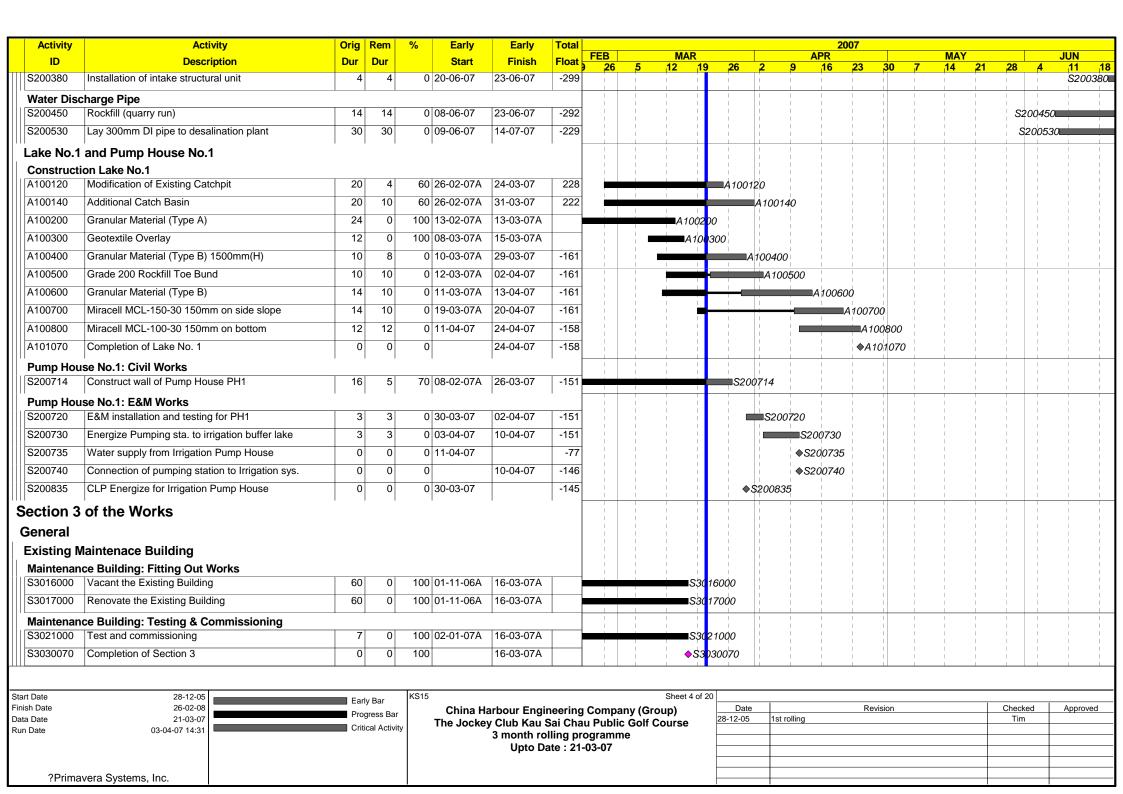
Planting turf is likely to be in mid-February 2007. Water quality monitoring and frequency will increase to three times a week for the first three months (mid-February to mid-May 2007), then decrease to weekly basis if no exceedance was recorded. The monitoring parameter will include nutrients and pesticides (only measured when actual application on site).

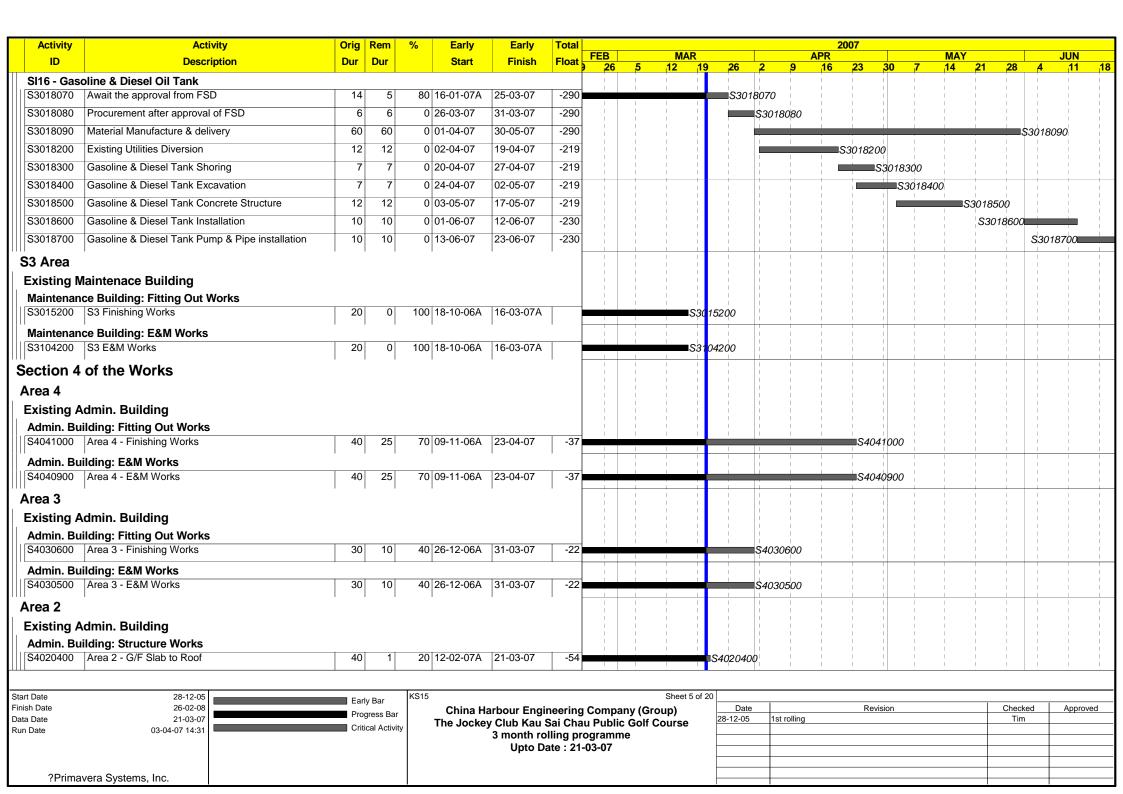
Annex H Construction Programme for the next three months

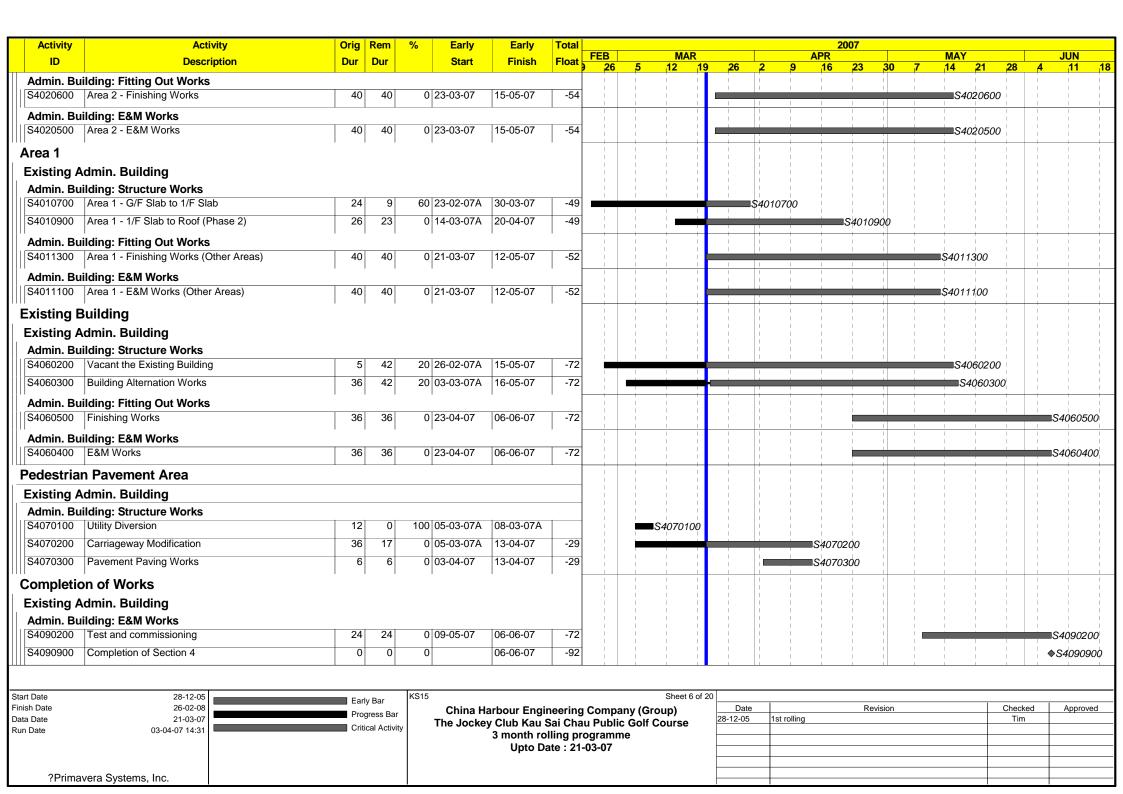
Activity	Activity	Orig	Rem	%	Early	Early	Total							200	07							
ID	Description		Dur		Start	Finish	Float	FEB 26	5	MAR 12 19	26	2	<u>9</u>	APR 16	23	30	7	MAY 14	21	28 4	JUN 11	
General &	R Preliminaries								-								1					
											 	1	1	 	 		1	 	1		 	
Project Ke									į		i	İ		İ	1		į	İ			į	1
Possessio								i	į	i i	į		į	į	į	i	į	i	į	i li	İ	i
	Letter of Acceptance	0	0		28-12-05A			i	į	i i	į	- li	j	į	į	i	į	i	į	i li	į	į
	Project Commencement	C	0 0		03-01-06A			1	I I	1 1		1	1	1	I I	1	1	1	I I	1 1	1	1
KSC00100	Possession of Portion 1	C	0	100	03-01-06A			1	1		1	1	1		I I	1	1	1	1			1
KSC00110	Possession of Portion 2	C	0	100	03-01-06A						-				1		1					
KSC00120	Possession of Portion 3	C	0	100	03-01-06A			i	į		į	li.	i	į	į	i	İ	i	į		İ	i
KSC00130	Possession of Portion 4	C	0	100	03-01-06A			1	T I	i i	1	İ	1	1	T T	1	T I	T I	1		1	
KSC00140	Possession of Portion 5	C	0	100	03-01-06A				I I		 		1	 	 		1	1	1		 	
	n of Works		. '						İ		1	1	i	į Į	I I		į	İ	İ		i	1
	Completion of Section 1	C		100		03-10-06A			I I		1			1	1				I I		1	1
KSC00152	Completion of Section 1 (Forecast) Alternative	C	0 0	0		02-04-07	-181		i			♦KS	C00152	2	Ì		İ		i			i
KSC00155	Completion of Section 2	C	0	100		03-10-06A		i	į	į į	i	- li	į	į	i i	i	i	i	į	i i	i	į
KSC00160	Completion of Section 2 (Forecast)	C	0	0		12-10-07	-374	1	I I			1	1	1	I I	1	1	1	1	1 1	1	1
KSC00162	Completion of Section 2 (Forecast) Desalination	C	0	100		29-01-07A			1		 		-	1	1	1	1	1	1			1
KSC00164	Completion of Section 2 (Forecast) Lake No.1	C	0	0		24-04-07	-203		1						♦KS	SC0016	4	1	İ	1 1		-
KSC00165	Completion of Section 3	C	0	100		06-12-06A			į			li	i	İ	- -	1	i	i	i		i I	i
KSC00170	Completion of Section 3 (Forecast)	C	0	0		21-09-07	-289		1			1		1	 	1	1	1	1		1	1
KSC00175	Completion of Section 4	C	0	0		20-03-07*	-14				KSC001	75			1						1	
KSC00180	Completion of Section 4 (Forecast)	C	0	0		06-06-07	-92		į			li.	i	İ	- -	i	i	i	i		♦KSC	018
KSC00185	Completion of Section 9	C	0	0		01-08-07*	0		-			1			1	1		1		1 1	1	
KSC00190	Completion of Section 9 (Forecast)	C	0 0	0		04-12-07	-125		1		 		1	 	 		1 1	1	1		 	1
Design an	d Submission	ı	1 1	'		ı	I		i	 		1	1	1	i I	1	1	İ	i I			1
_	n: Temporary Works								-		 		1	1	1	1	1	1	1		1	1
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	n of Works								l I			1	1	I I	 	1	1	1	1		1	1
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	<u> </u>											1		-			-	-	-	! ! !		
art Date	28-12-05	Ea	rly Bar	KS15				_		Sheet 1 of 2		_ 1				4-1				Observation	1 .	
nish Date ata Date	26-02-08 21-03-07		ogress Bar	·		arbour Engi y Club Kau \$					Dat 28-12-05		rolling		Re	vision				Checked Tim	App	roved
in Date	03-04-07 14:31	Cri	itical Activi	ty	THE JUCKE	3 month ro	lling pr	ogramn	, Gon (1e	Jour 36												
						Upto Da																
													•			•						
?Prima	vera Systems, Inc.																					

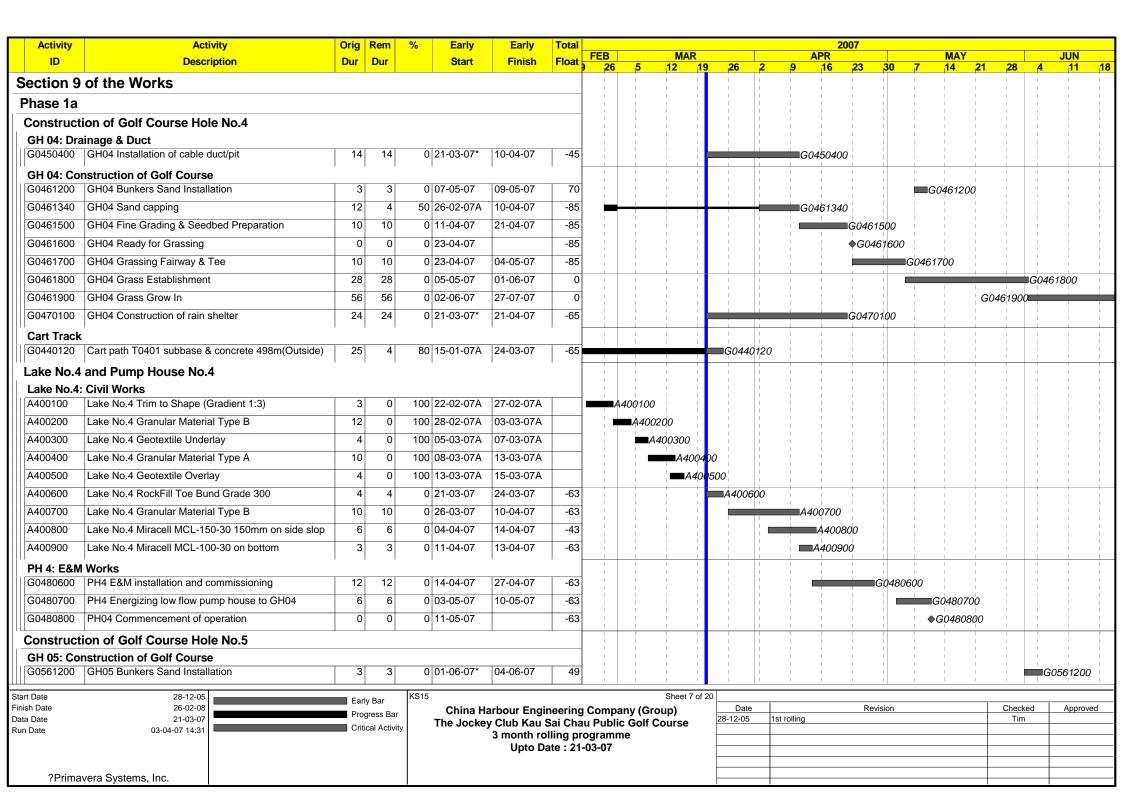
Activity	Activity	Orig	Rem	% Early	Early	Total				20	07							
ID	Description	Dur	Dur	Start	Finish	Float	FEB MAR			APR				MAY			JUN	
	· ·	Jui	- - - - - - - - - -	Ctart		out	26 5 12 19	26 2	9	16	23	30	7	14	21	28 4	11	18
1	tion of Low Level Intake Pumping Station									İ	İ				i i			i
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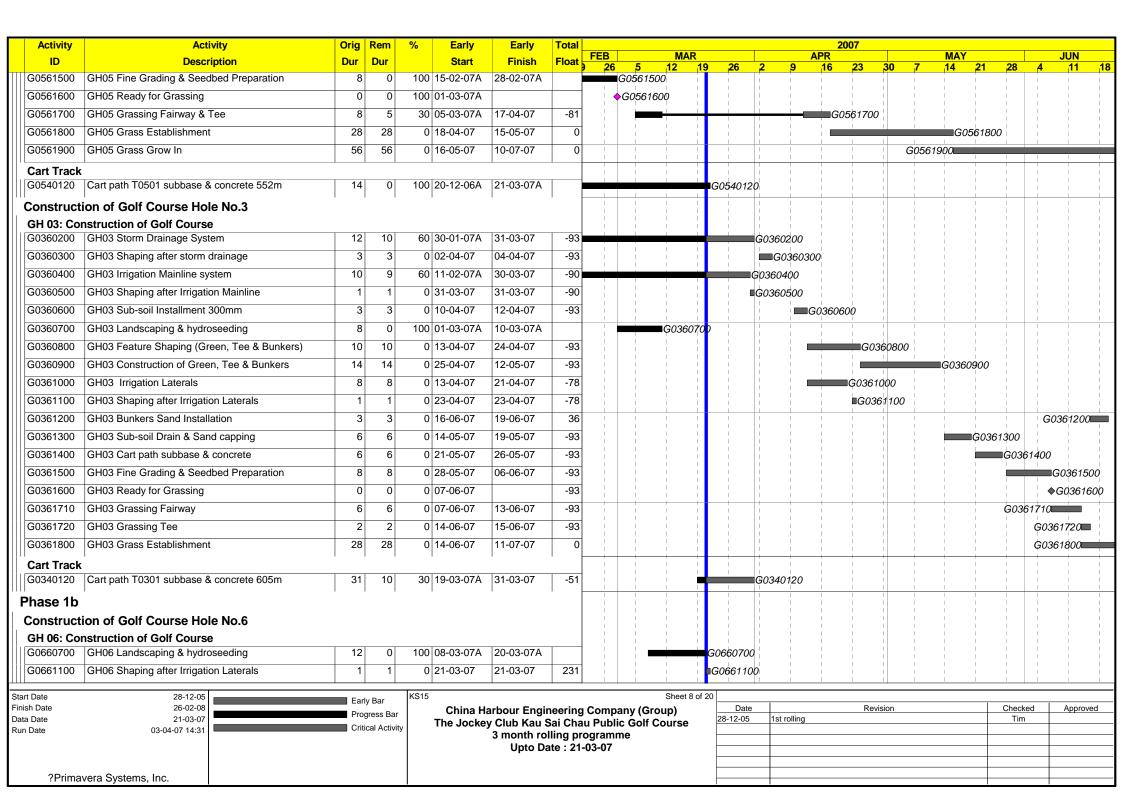


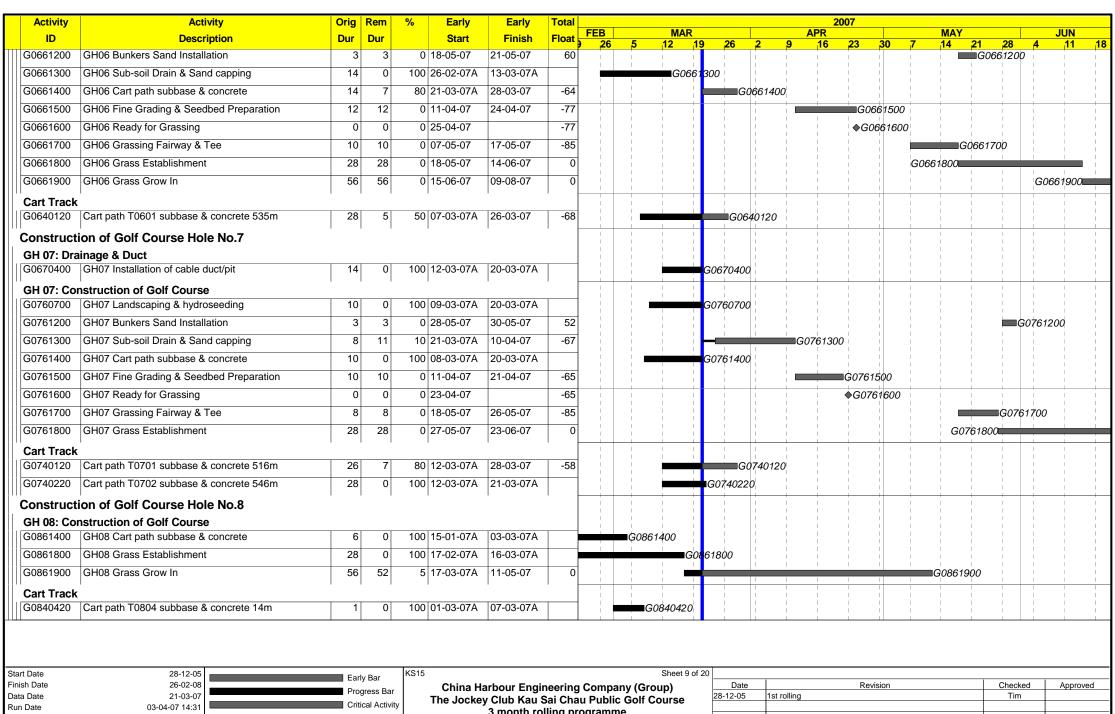








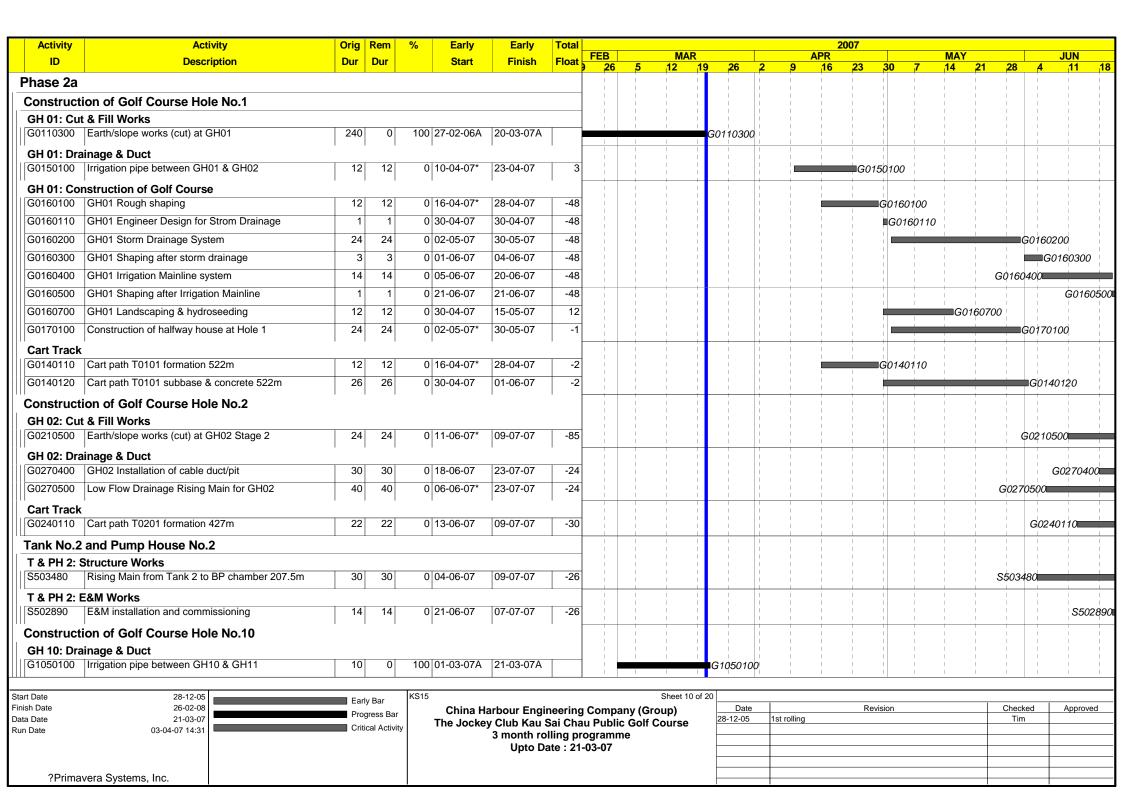


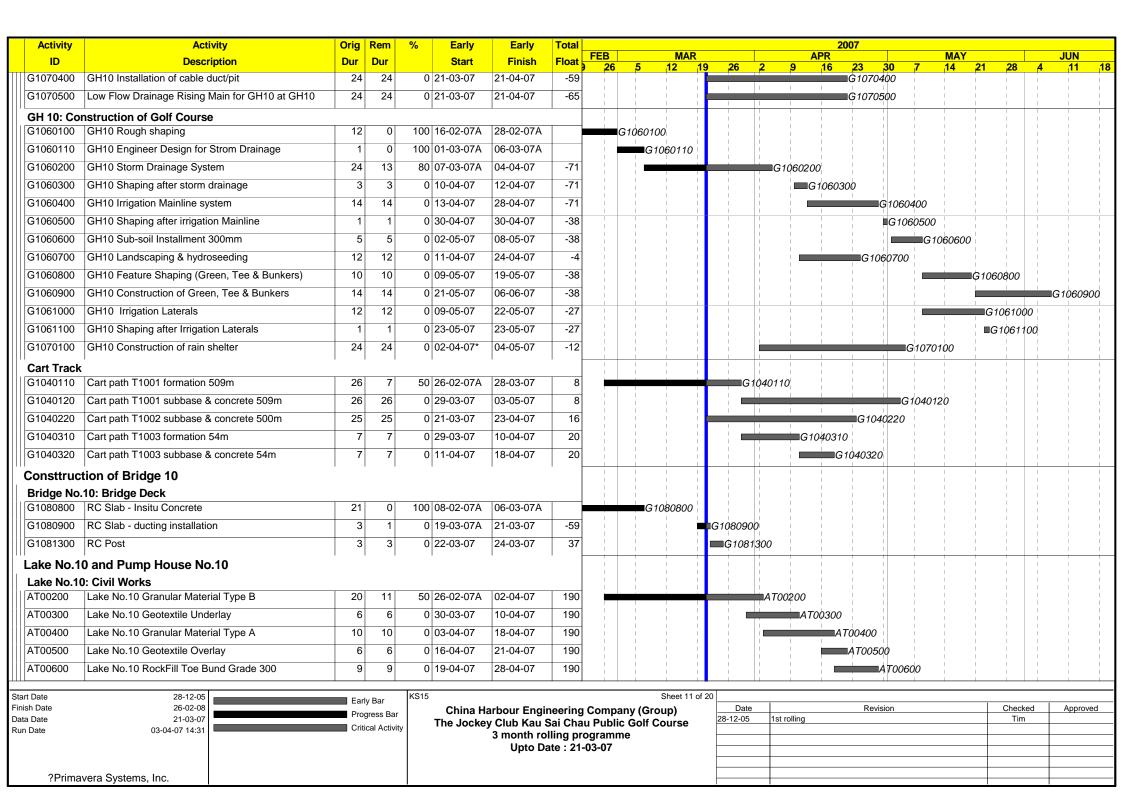


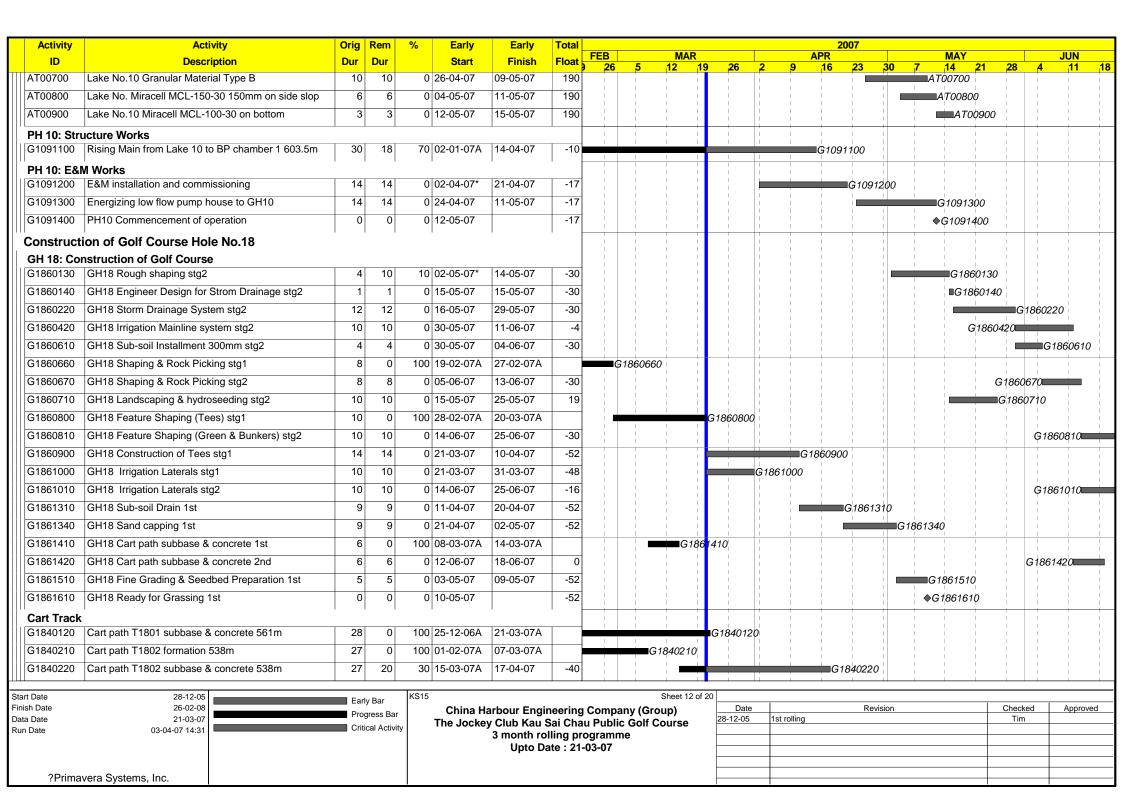
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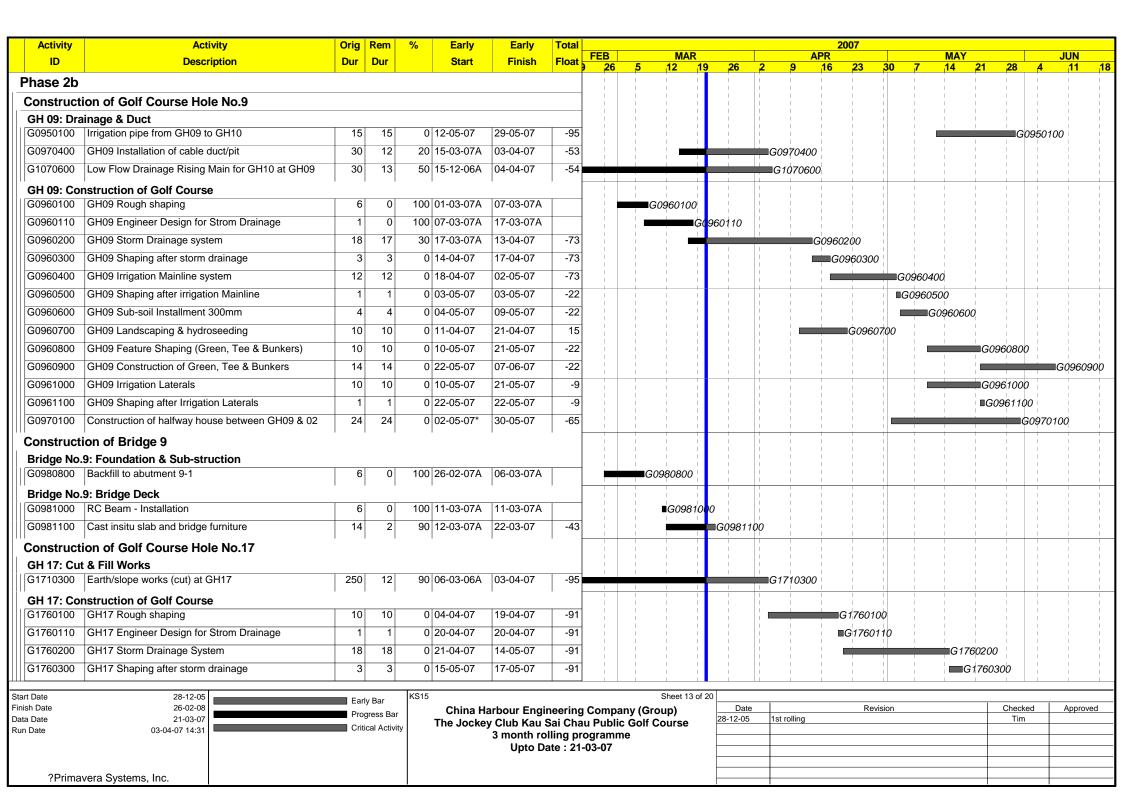
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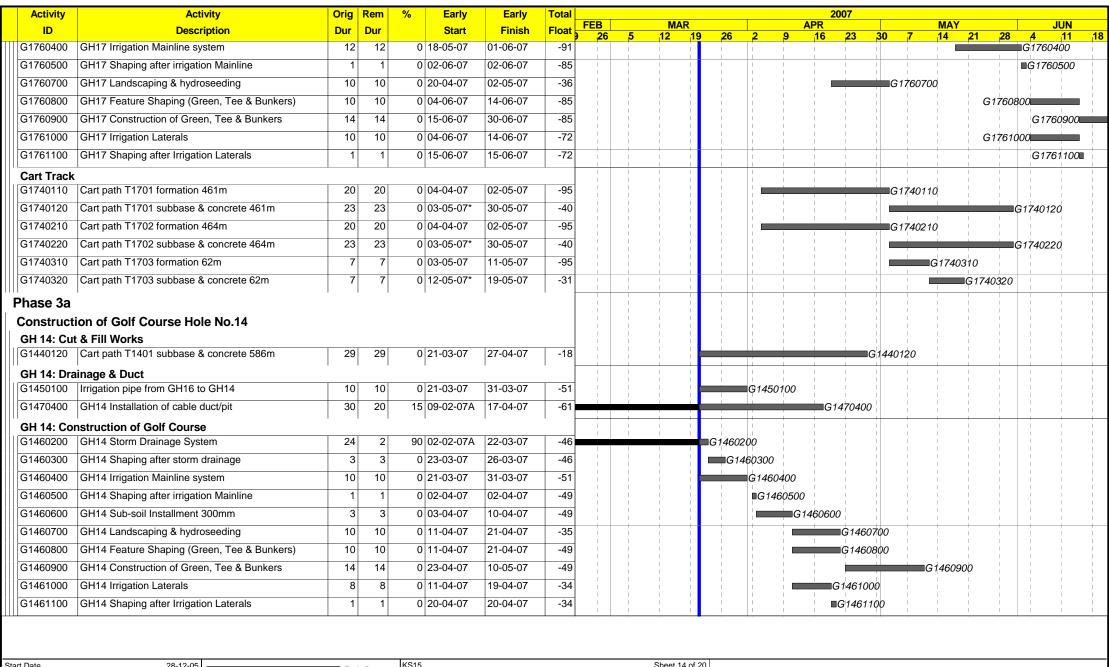
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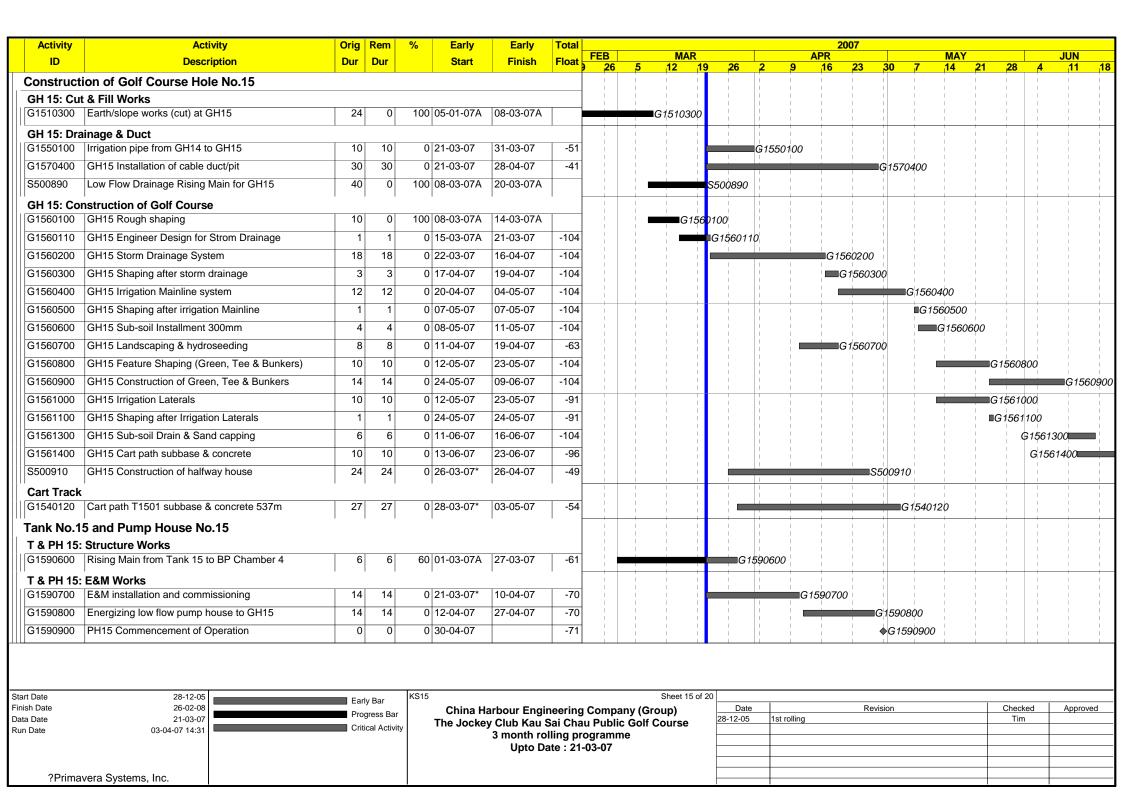


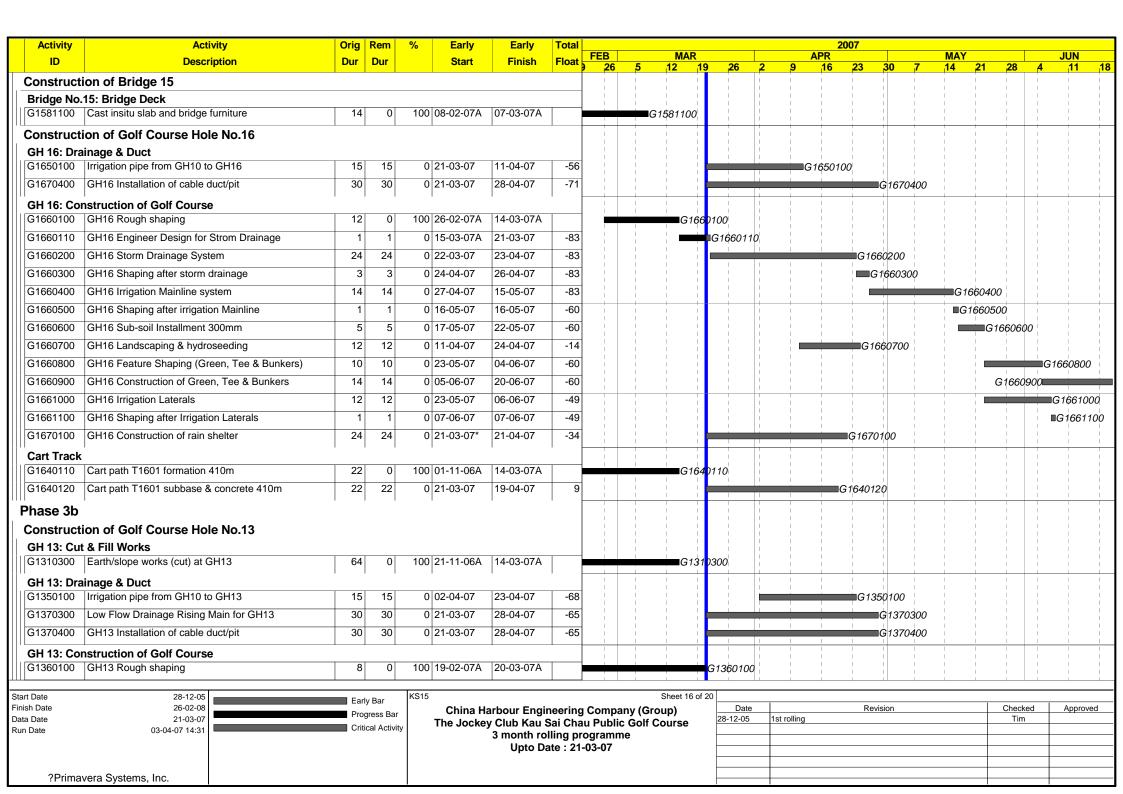


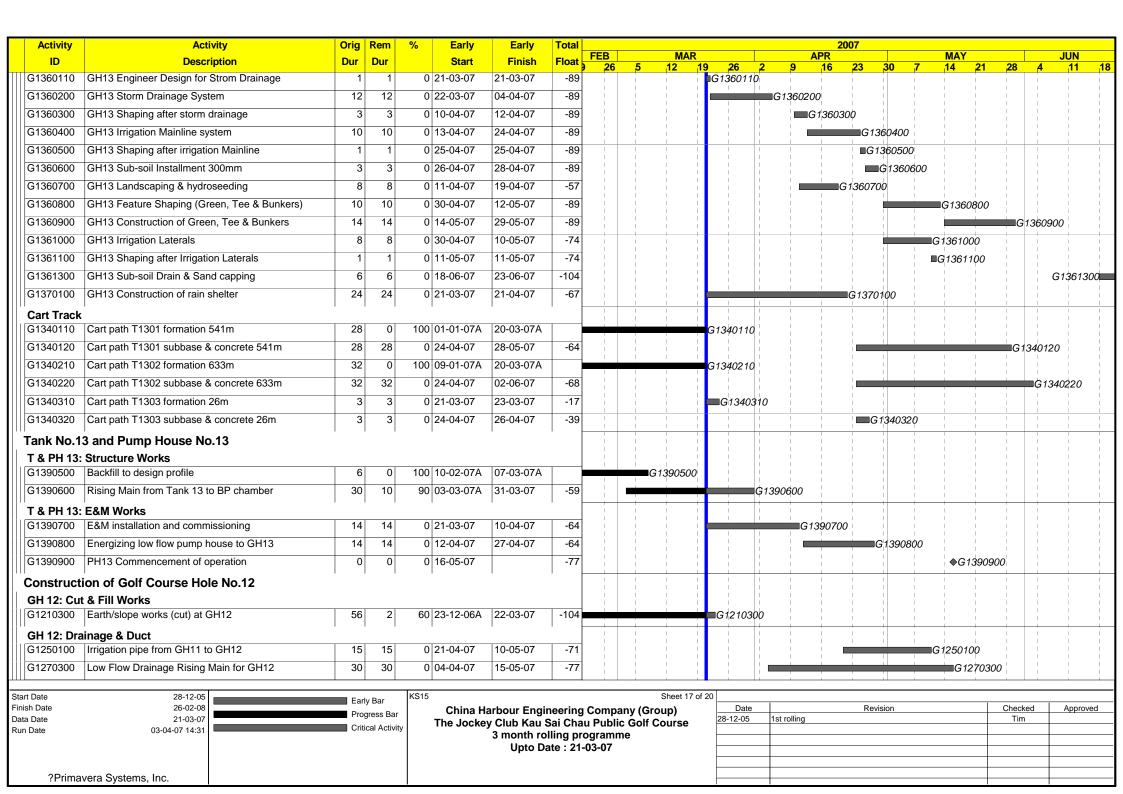


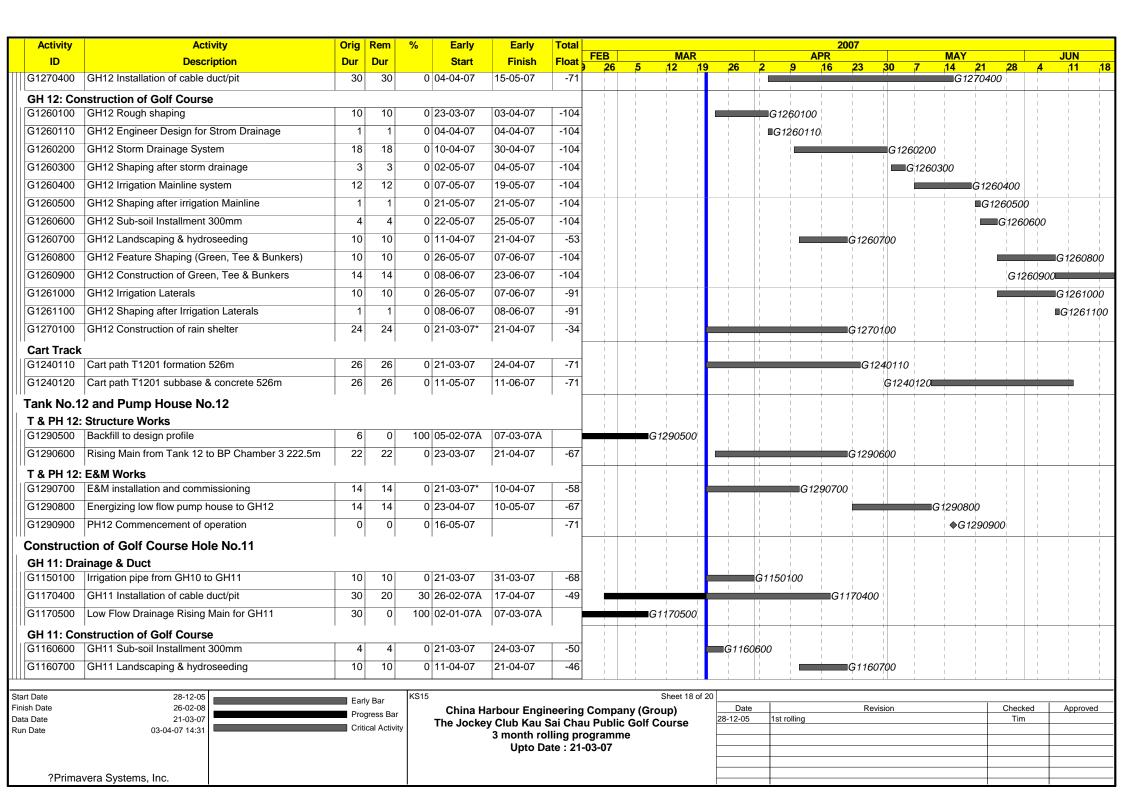


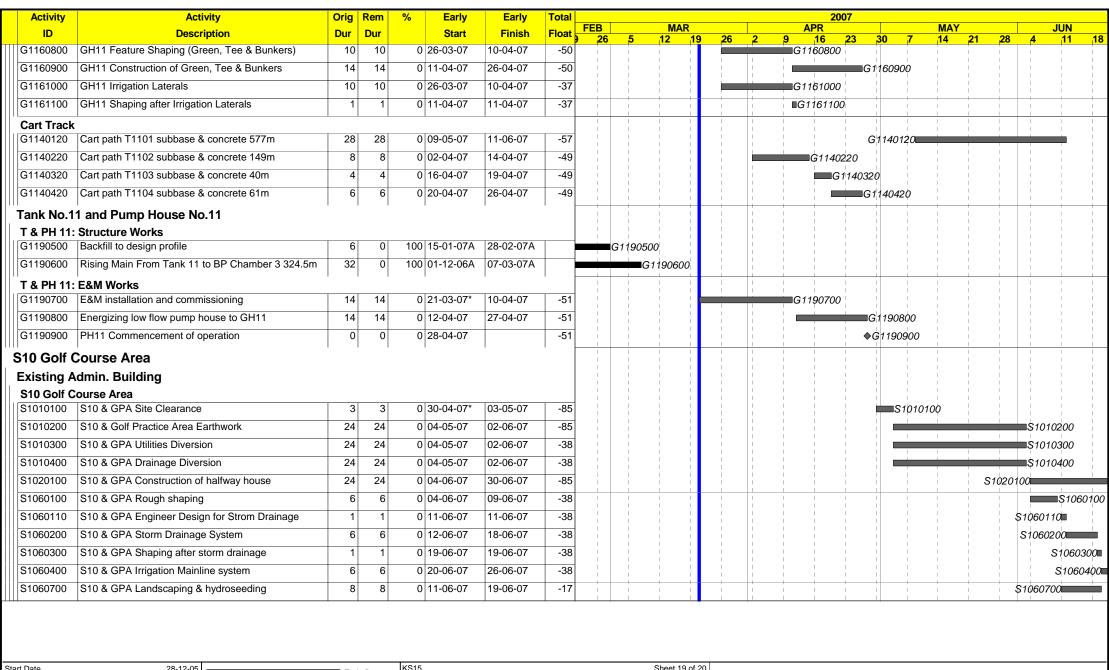
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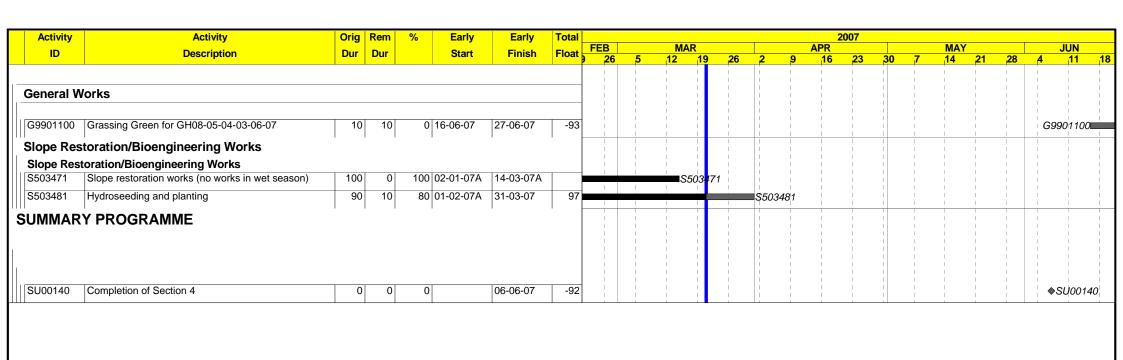








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FIGURES

March 2007 Black & Veatch

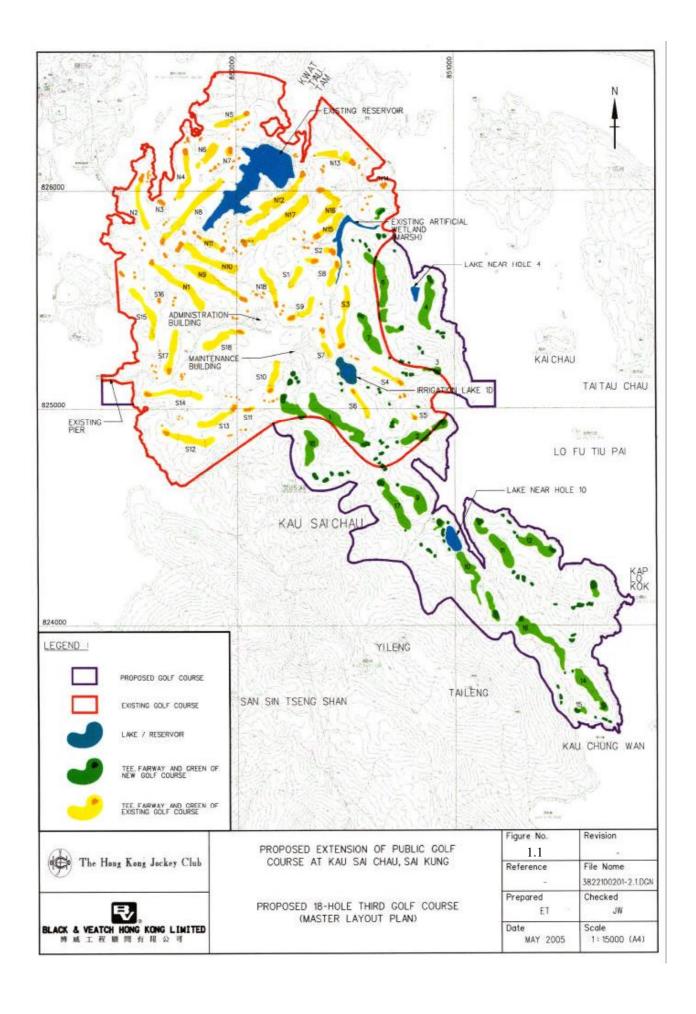
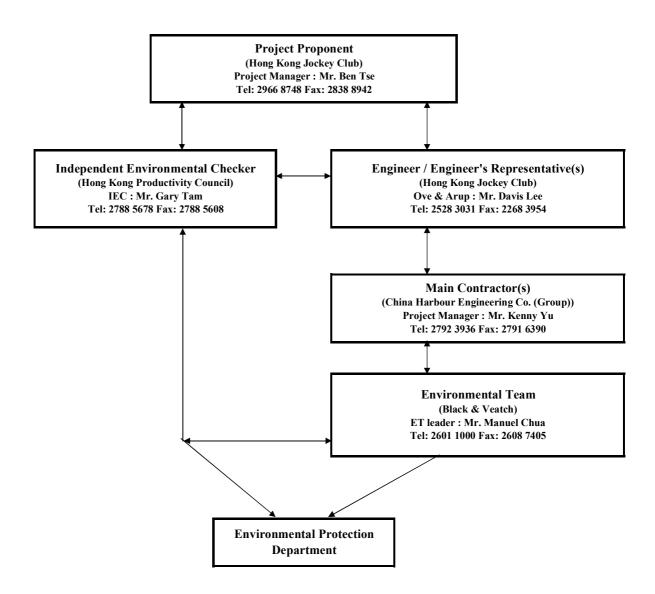
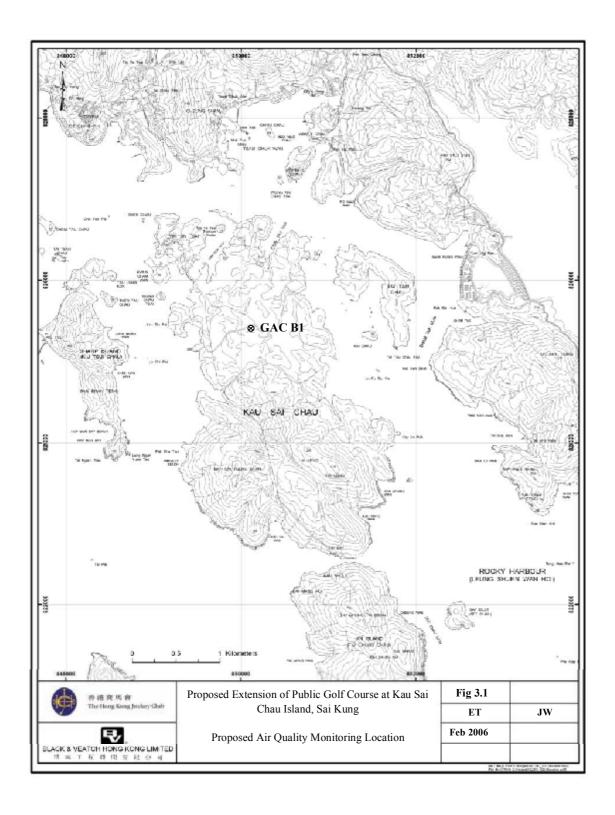
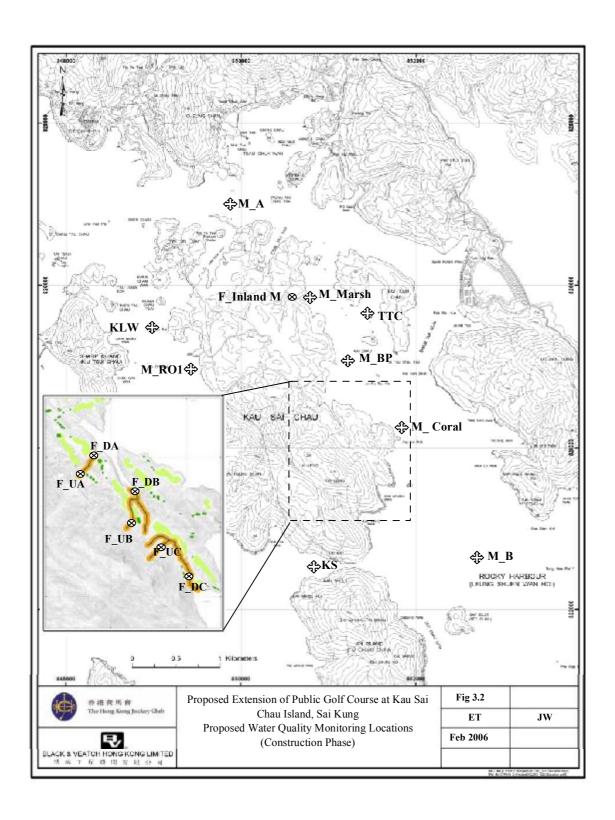


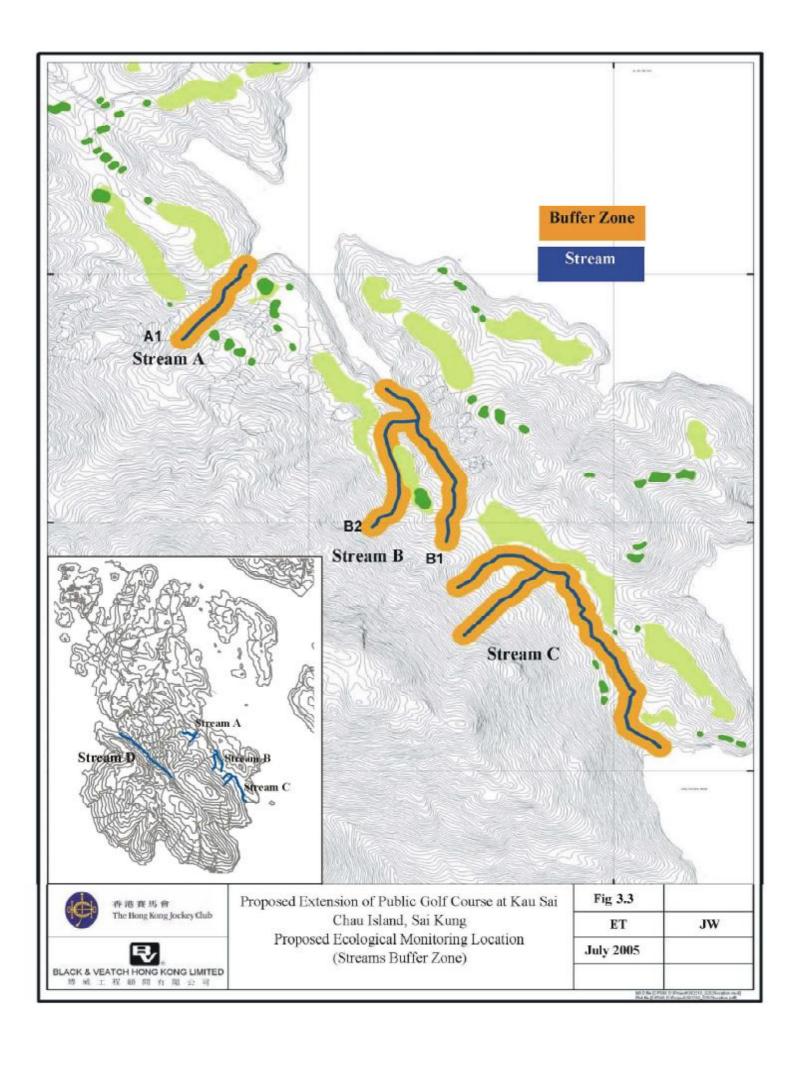
Figure 1.2
Project Organisation and Lines of Communication



figures.xls project organisation







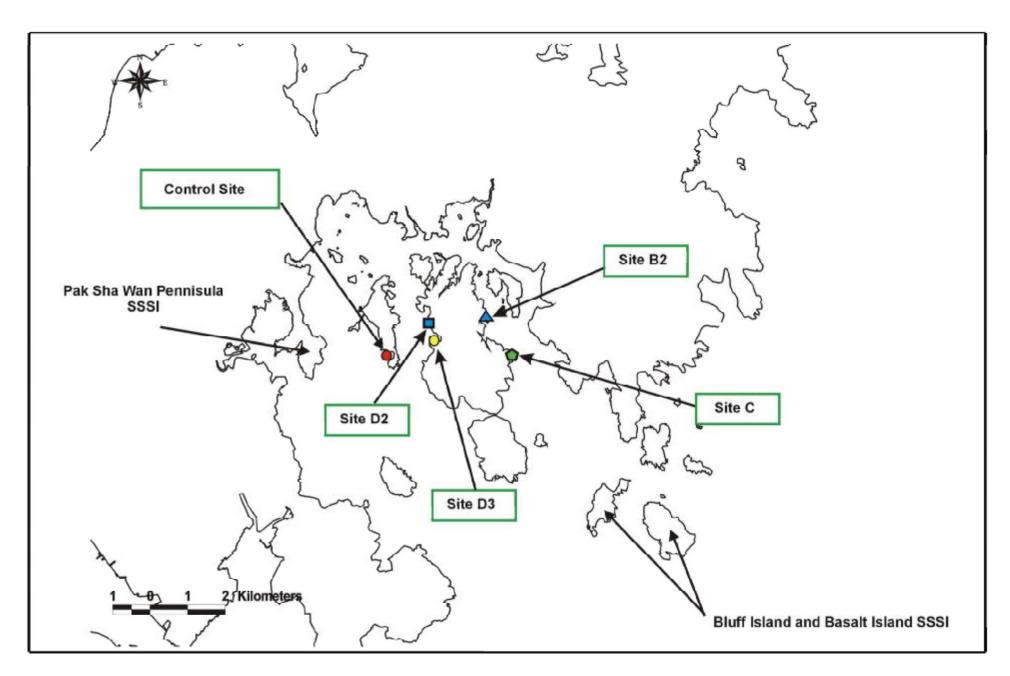


Figure 3.4a Site C, Site B2, Site D2 and a Control Site near the AFCD's Coral Buoy at Sharp Island

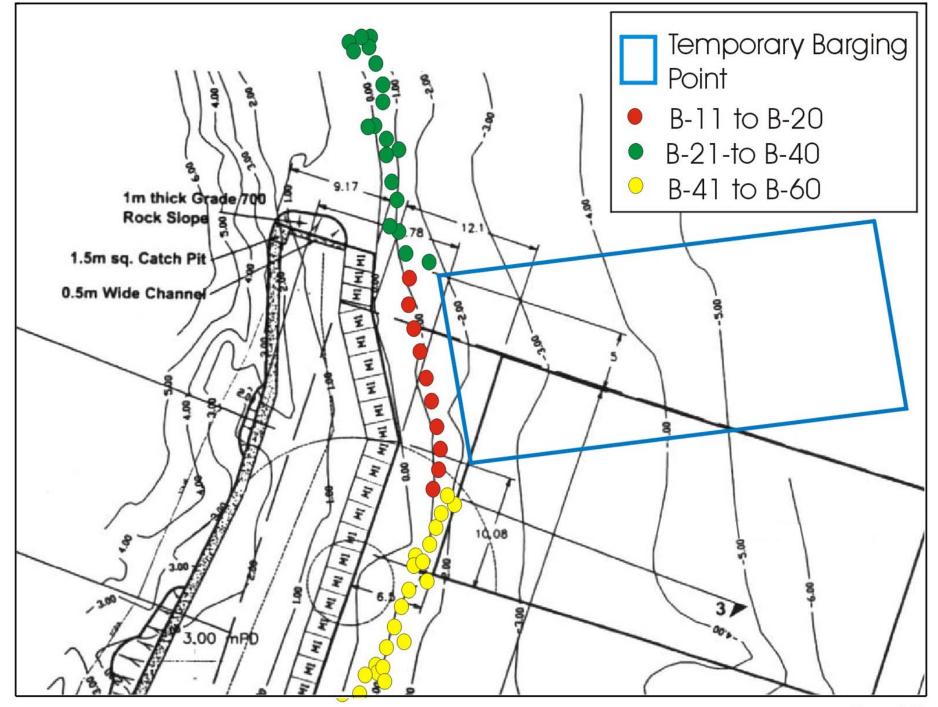
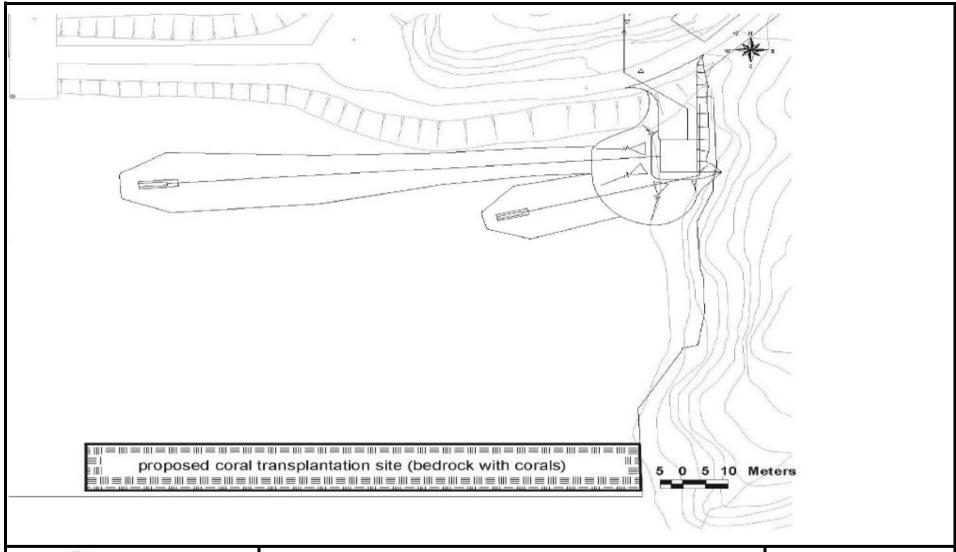


Figure 3.4b Indicative map of additional tagged corals at Site B2





香港賽馬會 The Hong Kong Jockey Club

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BLACK & VEATCH HONG KONG LIMITED 博威工程顧問有限公司 Proposed Patension of Public Golf Course at Kan Sai Chau Island, Sai Kung

Location of proposed coral transplantation site (Bedrock with corals)

	Fig 3.5
Prepared	Checked
ET	JW
Date	
	Jun-05

