

**Public Golf Course at Kau Sai Chau Island, Sai Kung**  
**Operation Phase**  
**Environmental Monitoring & Audit (EM&A) Report**  
**for May 2009**

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Report Authorized For  
Issue By:



For and on Behalf of  
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## **Executive Summary**

This is the fifteen Operation Phase Monthly Environmental Monitoring and Audit (EM&A) Report prepared by Black & Veatch for the Project “Proposed Extension of Public Golf Course at Kau Sai Chau Island, Sai Kung”. This report presents the results of the EM&A works conducted in the month of May 2009 (25<sup>th</sup> April to 24<sup>th</sup> May 2009).

### ***Water Quality***

2 sets of water quality monitoring were carried out on 30<sup>th</sup> April and 11<sup>th</sup> May 2009 at 9 marine and 6 freshwater monitoring locations. For F\_Filter (fresh water station), no filter effluent was discharging during sampling except during rainstorm events, thus no water sample was taken. Rainstorm events were recorded on 25<sup>th</sup> April, 21<sup>st</sup> May, 23<sup>rd</sup> and 24<sup>th</sup> May 2009 during this reporting month.

Exceedances found at M\_Marsh, KS and M\_RO2 marine station (mainly turbidity) and freshwater stations (F\_DA, F\_DB, F\_DC, Lake 1D, F\_Filter and F\_Inland M – mainly chlorophyll a) are considered non-project related during the reporting month.

According to the approved revised pesticides monitoring plan at East Course, the monitoring will reduce to bi-monthly during dry season (i.e. December and February only). Monthly monitoring for pesticides is required during wet season (i.e. April to October). Monthly pesticides monitoring at East Course was commenced during the reporting month.

### ***Marine Ecology***

The coral monitoring for the operation of the East Course commenced in July 2008. As the original baseline monitoring for the corals in Site D2 were conducted over 3.5 years before December 2005 and no construction phase monitoring was required for Site D2 due to the avoidance of dredging at the pier, the previously tagged corals at Site D2 have mostly lost the tags. 20 new corals were selected in Site D2 for operation phase monitoring purposes. The July 2008 coral monitoring covering Site D2, Site C and the Control Site served as the baseline for the operation phase. In accordance with the EM&A manual, the operation phase coral monitoring would cover two years. The frequency would be monthly for the first three months, and if no exceedance is recorded, the frequency will change to semi-annually. The present monitoring (October 2008) was the third monthly monitoring. No exceedance was recorded at impact station during the first three months (August, September and October 2008). The coral monitoring would change to semi-annually. The tentative coral monitoring schedule will be carried out in coming August 2009 during wet season.

### ***Landscaping & Visual***

In the present monitoring, it was observed that some dead trees (371 individuals) were still observed. The majority of these trees were still part of the 582 dead trees previously reported in March 2009 inspection. However, some landscape maintenance operations were carried out by the Contractor recently as some dead trees were removed. The Contractor was recommended to perform landscape maintenance operations, including replacing or removed all dead trees; providing stakes for leaning trees; re-staking all trees with broken/leaning tree stakes; pruning of die back tree branches; fertilizing of plants; and cutting of overgrown grass and removal of weeds on slopes, to ensure a healthy establishment of the compensatory planting. The Contractor was also reminded to update the drawings to show the locations of replacement/replanting trees after the replanting is implemented. The upcoming monitoring schedule will be in July 2009.

***Soil Nutrient***

The soil nutrient sampling and testing was completed in January 2008. The soil nutrient sampling and testing was carried out in March 2009. The results are presented in this monthly report. The upcoming sampling is scheduled in October 2009.

## 1. Introduction

### 1.1 Background of the Project

1.1.1 Black & Veatch (hereinafter called the “ET”) was appointed by The Jockey Club Kau Sai Chau Public Golf Course Limited (hereinafter called the "Project Proponent") to undertake Operation Phase of 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/A, 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 on water quality, marine ecology, landscape and visual and land contamination during operation phase are required for the Project.

1.1.2 This report summarises the environmental monitoring and audit works for the Project in **May 2009**.

### 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 **25<sup>th</sup> April to 24<sup>th</sup> May 2009**.

### 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**

<b>Section</b>		<b>Description</b>
<b>1</b>	Introduction	Details the scope and structure of the report
<b>2</b>	Project Information	Summarizes background and scope of the project and site description
<b>3</b>	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.
<b>4</b>	Monitoring Results	Summarizes the monitoring results obtained in the reporting period.
<b>5</b>	Environmental Non-conformance	Summarizes any monitoring exceedance, environmental complaints and environmental summons within the reporting period.
<b>6</b>	Conclusions	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. Application for Variation of an Environmental Permit by the Project Proponent was submitted on 2 August 2006 (Application No. VEP-222/2006) and the EP was superseded by EP-224/2005/A.

### **2.2 Site Description**

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

### **2.3 Summary of EM&A Requirements**

2.3.1 The EM&A programme requires environmental monitoring for water quality, marine ecology, landscape and visual and land contamination during operation phase. 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.



2.3.2 A summary of impact EM&A requirements is presented in Table 2.1.

**Table 2.1 Summary of Impact EM&A Requirements during Operation Phase**

<b>Impacts</b>	<b>Parameters/descriptions</b>	<b>Locations</b>	<b>Frequencies</b>
<b>Water Quality</b>	Dissolved Oxygen, Temperature, Turbidity, pH, Salinity, SS, NO <sub>3</sub> -N, NO <sub>2</sub> -N, NH <sub>3</sub> -N, TP, Chl-a and selected pesticides.	9 marine and 6 freshwater locations	2-year of monitoring period for the operation phase. Monitoring should be carried out on bi-weekly basis for the first 12 months, after when the frequency will be reviewed by EPD. Additional monitoring parameters at Lake 1D are required (TKN, Ortho-P and Conductivity)
	Dissolved Oxygen, Temperature, Turbidity, pH, Salinity, SS, NO <sub>3</sub> -N, NO <sub>2</sub> -N, NH <sub>3</sub> -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.
<b>Marine Ecology</b>	Natural corals	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.
<b>Landscape and Visual</b>	Audits to ensure effective implementation of mitigation measures	Golf course area and at visual sensitive receivers	Auditing inspections and reporting shall be undertaken once every two months for the first year of the operation phase.
<b>Soil Nutrient</b>	Nutrient Status of the Soil	Golf course	Twice annually

### 3. Environmental Monitoring Requirements

#### 3.1 Water Quality

##### Monitoring Requirement

3.1.1 Water quality monitoring was conducted in accordance with the EM&A Manual. Tables 3.1 to 3.3 show the established Action/Limit Levels for the water environmental monitoring parameters.

**Table 3.1 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
Chlorophyll a (mid-depth)	All	0.5 µg/L	All	0.6 µg/L

Remarks:

☆ : Action and limit levels are subjected to review especially for wet season.

Freshwater monitoring locations: F\_UA, F\_DA, F\_UB, F\_DB, F\_UC, F\_DC and F\_Inland Marsh

As most of the freshwater samples were reported of NH<sub>3</sub>-N, NO<sub>2</sub>-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

**Table 3.2 Action and Limit Levels for Water Quality Monitoring  
(applicable to irrigation lake 1D and existing reservoir)**

Parameter (mg/L unless stated)	Action and Limit Levels
pH	6.0 - 9.0 <sup>(1)</sup>
Turbidity (NTU)	-
Dissolved Oxygen	>4 <sup>(1)</sup>
Chlorophyll a (mg/m <sup>3</sup> )	<5 <sup>(1)</sup>
Nitrate N	0.20 <sup>(1)</sup>
Nitrite N	0.20 <sup>(1)</sup>
Ammoniacal N	0.50 <sup>(1)</sup>
Total Kjeldahl N	1.2 <sup>(2)</sup>
Total Phosphate	0.1 <sup>(1)</sup>
Ortho Phosphate	0.05 <sup>(1)</sup>
Conductivity (µS/cm)	<1000 <sup>(1)</sup>

Note: (1) These values are based on professional judgment and knowledge

(2) Based on 90<sup>th</sup> percentile of operational phase monitoring data (1996 to June 1998)

**Table 3.3 Derived Summaries of Action and Limit Levels for Marine Water Quality**

Parameters	Location	Action	Location	Limit
<b>DO (Surface &amp; Middle)</b>	FCZ	6.0 mg/L	FCZ	5.3 mg/L
	All except FCZ	4.9 mg/L	All except FCZ	4.6 mg/L
<b>DO (Bottom)</b>	All	3.7 mg/L	All	3.4 mg/L
<b>pH (depth-averaged)</b>		N/A	All	6.5 - 8.5
<b>SS (Depth-averaged)☆</b>	FCZ	4.5 mg/L	FCZ	5.6 mg/L
	All except FCZ	6.1 mg/L	All except FCZ	10.6 mg/L
<b>SS (Depth-averaged) Dredging for submarine pipelines⊕</b>	M_RO1	6.1 mg/L	M_RO1	10.6 mg/L
<b>Turbidity (Tby) (depth-averaged) ☆</b>	FCZ	2.9 NTU☼	FCZ	3.9 NTU☼
	All except FCZ	3.3 NTU☼	All except FCZ	6.2 NTU☼
<b>Ammonia Nitrogen (depth-averaged)</b>	FCZ	0.02 mg/L	FCZ	0.03 mg/L
	All except FCZ	0.05 mg/L Δ	All except FCZ	0.05 mg/L Δ
<b>Nitrate Nitrogen (depth-averaged)</b>	FCZ	0.08 mg/L	FCZ	0.09 mg/L
	All except FCZ	0.09mg/L Δ	All except FCZ	0.09 mg/L Δ
<b>Nitrite Nitrogen (depth-averaged)</b>	FCZ	0.02 mg/L θ	FCZ	0.02 mg/L θ
	All except FCZ	0.02 mg/L	All except FCZ	0.04 mg/L
<b>TIN (depth-averaged)</b>	FCZ	0.12 mg/L	FCZ	0.14 mg/L
	All except FCZ	0.16 mg/L	All except FCZ	0.18 mg/L
<b>Total Phosphorus (depth-averaged)</b>	All	0.09 mg/L Δ	All	0.09 mg/L Δ
<b>Chlorophyll a (depth-averaged)</b>	FCZ	1.8 µg/L	FCZ	2.2 µg/L
	All except FCZ	3.8 µg/L	All except FCZ	6.8 µg/L

Remarks:

☆ : Action and limit levels are subjected to review especially for wet season throughout the construction phase of the project.

⊕ : Action and limit levels are subjected to review before the dredging works.

☼ : All are based on EM&A baseline monitoring data due to marked difference between EPD turbidity data and those from the baseline survey.

Δ : For nutrient monitoring (except NO<sub>2</sub>-N) at non-FCZ stations, the trigger level has made reference to the existing golf course guideline values. The guideline value of NO<sub>2</sub>-N is below the current detection limit of 0.01mg/L and thus not used.

θ : The same action and limit level of 0.02 mg/L is determined from the EM&A baseline data as 78% of the NO<sub>2</sub>-N data are <= 0.01 mg/L and all remaining 22% equal to 0.02 mg/L.

**FCZ** including fish culture zones of Kai Lung Wan, Tai Tau Chau and Kau Sai

**All except FCZ** including remaining impact monitoring station of M\_RO1, M\_Marsh, M\_BP and M\_Coral.

Control monitoring locations: M\_A & M\_B

Monitoring Parameters, Frequency and Programme

- 3.1.2 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.
- 3.1.3 For the stream course, measurements shall be taken at mid-water depth.
- 3.1.4 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, salinity and conductivity (Lake 1D only).
- 3.1.5 Additional marine and freshwater water quality monitoring parameters for the impact monitoring during construction include nitrate nitrogen (NO<sub>3</sub>-N), nitrite nitrogen (NO<sub>2</sub>-N), ammonia nitrogen (NH<sub>3</sub>-N), total phosphate (TP) and selected pesticides. For Lake 1D, Total Kjeldahl Nitrogen (TKN) and Orthophosphate (Ortho P) are required.
- 3.1.6 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 3.1.5.

*Monitoring Frequency*

3.1.7 After reviewing the water quality monitoring results during construction phase and early operation phase, EPD<sup>1</sup> agreed to revise monitoring parameters and frequency are summarized in Table 3.4. The monitoring programme for the reporting period is shown in **Annex A**.

**Table 3.4 Water Quality Monitoring Parameter, Frequency and Locations**

Parameters	Location	Frequency	Sampling Depth
Dissolved Oxygen (mg/L)	<p><b>Marine Water</b> Fish culture zone stations: TTC, KLW, KS</p> <p>Control stations: M_A, M_B</p> <p>Impact stations: M_RO1, M_RO2, M_Marsh, M_Coral</p> <p><b>Freshwater Water</b> Stream A (F_DA) Stream B (F_DB) Stream C (F_DC) Inland Marsh (F_Inland_M) Filter System (F_Filter) Irrigation Lake 1D (F_lake 1D)</p>	<p><b>Bi-weekly</b></p> <p><u>Marine water</u> : 2 times per day – 1 for mid-flood and 1 for mid-ebb</p> <p><u>Freshwater</u> : Mid-depth per trip</p>	3 individual water depth samples (surface, middle & bottom)
Temperature (°C)			
Turbidity (NTU)			
pH			
Salinity (ppt)			
Suspended Solids (mg/L)			
Nutrients <sup>2</sup>			
Chemicals <sup>3</sup>	<p><b>Monthly (wet season) and Bi-Monthly (dry season)</b></p> <p><u>Marine water</u> : 2 times per day – 1 for mid-flood and 1 for mid-ebb</p> <p><u>Freshwater</u> : Mid-depth per trip</p>	1 composite sample (combine surface, middle and bottom) with replicate	

Wet season: Apr to October; Dry season: November to March

<sup>1</sup> EPD letter dated 14 July 2008 (Ref. no.: (6) in EP2/N8/O/47 Ax(7) Pt X) regarding the approval on the revised water quality monitoring proposal.

<sup>2</sup> Ammonia Nitrogen, Nitrate Nitrogen, Nitrite Nitrogen, Total Inorganic Nitrogen, Total Phosphorus and Chlorophyll a. For Lake 1D, addition nutrient parameters are Total Kjeldahl Nitrogen, Ortho Phosphate and Conductivity (µS/cm).

<sup>3</sup> Pesticides (approved lists are Imazaquin, Glyphosate, Oxadiazon, 2,4-D/Mecoprop, Chlorothalonil, Mancozeb, Iprodione, Fosetyl Aluminum, Chlorpyrifos, Fipronil and Imidachloprid).

Monitoring Locations

3.1.8 The water quality monitoring locations for marine and freshwater (**Figure 3.1**) are summarized in Table 3.5.

**Table 3.5 Water Quality Monitoring Locations during Operation Phase**

Identification Number	Location	Approx. Water Depth	No. of Depth
<i>Marine Water (9 stations)</i>			
TTC	Tai Tau Chau Fish Culture Zone	9.5 m	3
KLW	Kai Lung Wan Fish Culture Zone	13 m	3
KS	Kau Sai Fish Culture Zone	11 m	3
M_BP	Temporary barging point	9.6 m	3
M_RO1	Desalination plant south of the existing pier	5 m	2
M_RO2	Desalination plant south of the existing pier	13 m	3
M_Marsh	Discharge point at the existing marsh	7.7 m	3
M_Coral	Marine water of Port Shelter	10.2m	3
M_A	Water Control Station of Port Shelter	7.5 m	3
M_B	Water Control Station of Port Shelter	16.5 m	3
<i>Fresh Water (7 stations)</i>			
F_DA	downstream of stream A	Mid-depth	1
F_DB	downstream of stream B	Mid-depth	1
F_DC	downstream of stream C	Mid-depth	1
F_Inland M	Downstream of the existing marsh (Inland)	Mid-depth	1
F_lake 1D	Irrigation Lake 1D	Mid-depth	1
F_Filter	Filter effluent point at Holes 5 / 6	Mid-depth	1

Monitoring Equipment

*Dissolved Oxygen and Temperature Measuring Equipment*

3.1.9 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<sup>-1</sup> and 0 - 200% saturation; and
- a temperature of 0 - 45 degrees Celsius.

3.1.10 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).

- 3.1.11 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*

- 3.1.12 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*

- 3.1.13 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*

- 3.1.14 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*

- 3.1.15 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*

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

*pH*

- 3.1.17 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*

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

#### *Sample Containers and Storage*

- 3.1.19 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*

- 3.1.20 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

- 3.1.21 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.
- 3.1.22 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.
- 3.1.23 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*

- 3.1.24 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*

- 3.1.25 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**

<b>Determinant</b>	<b>Standard Method</b>	<b>Reporting Limit</b>
Suspended Solids	APHA 2540 D	2 mg/L
Nitrate Nitrogen	APHA 4500-NO <sub>3</sub> <sup>-</sup>	0.01 mg/L
Nitrite Nitrogen	APHA 4500-NO <sub>2</sub> <sup>-</sup>	0.01 mg/L
Ammonia Nitrogen	APHA 4500-NH <sub>3</sub> (D)	0.01 mg/L
Total phosphorus	ASTM D515-88B	0.02 mg/L*



Determinant	Standard Method	Reporting Limit
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*

- 3.1.26 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

- 3.1.27 The Event and Action Plan (EAP) for water quality monitoring is presented in **Annex B**.

## **3.2 Marine Ecology**

### Introduction

- 3.2.1 The marine ecological monitoring surveys are conducted in accordance with the EM&A manual.
- 3.2.2 As stipulated in the EM&A Manual, the ecological monitoring surveys for marine ecology included coral monitoring at both the eastern (Site C) and western (Site D2) coasts of Kau Sai Chau Island and Control Site. The purpose of the monitoring survey was to check the conditions of the tagged corals and the sites.

### Monitoring Frequency and Schedule

- 3.2.3 At each of the Site C and a Control Site near the AFCD's Coral Buoy at Sharp Island (**Figure 3.2**), 20 natural coral colonies are already selected and tagged during construction phase. If the tagged coral is found die or not suitable for sequent operation phase monitoring during the first month survey, new coral will be selected, tagged and replaced for the damage one. The species of corals had 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*. As the construction of the desalination plant intake and outfall at the existing pier was terminated, no dredging work had been carried out during the construction phase. According to the EM&A manual, no coral monitoring was required at Site D2 during the construction phase. As the original baseline coral monitoring at Site D2 was conducted 3.5 years ago (December 2005), most of the tags at the previous tagged corals were lost. Twenty (20) new corals were selected in Site D2 for operation phase monitoring purposes. The species of corals selected in Site D2 included the following 10 species: *Acropora tumida*, *Cyphastrea serailia*, *Favia speciosa*, *Favites chinensis*, *Goniastrea aspera*, *Goniopora columna*, *Gonipora stutchburyi*, *Pavona decussata*, *Porties lobata*, and *Turbinaria peltata*. The operation phase coral monitoring covering Site D2, Site C and the Control Site.
- 3.2.4 The coral monitoring will be conducted monthly for the first three months of the operation phase, and if no exceedance was recorded, the monitoring schedule will be changed to semi-annually (i.e. one dry season and one in wet season) during the rest of the operation phase. Monitoring survey will consist of checking tagged corals at both impact sites and control site. Percentages of survival, sedimentation and bleaching for each tagged corals will be recorded. The monitoring programme for the reporting period is shown in **Annex A**.

#### Event and Action Plans

- 3.2.5 The Event and Action Plan (EAP) for ecology monitoring is presented in **Annex B**.

### **3.3 Landscape and Visual**

- 3.3.1 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, regular site inspections on trees health will be conducted.
- 3.3.2 Landscape and Visual Audit conducted during the Operational Phase of the project to follow up the compensatory planting under the requirements of the EIA for Proposed Extension of Public Golf Course at Kau Sai Chau , Sai Kung.
- 3.3.3 Under the Environmental Impact Assessment for the above, the proposed mitigation measures included both the compensatory planting works and treatment to structures. As stated in paragraphs 8.3 of the EM&A Manual, the contractor shall maintain all soft landscape works for a period of 12 months after implementation. This period shall be the establishment period and will be year one of the operation phase. Auditing inspections and reporting shall be undertaken once every two months of the operation phase.

#### Scope of Audit

- 3.3.4 The broad scope of the audit on mitigation measures during operation phase of East Course is to monitor the maintenance operations of tree planting to ensure all compensatory plants are well developed and grow during the Establishment Period. The monitoring programme for the reporting period is shown in **Annex A**.

### **3.4 Soil Nutrient**

- 3.4.1 Routine soil testing for nutrients at East Course will be conducted semi-annually to ensure that nutrient applications to the golf course are having the desired effect. Adjustments, if necessary, are made to the applications program approved by Golf Course Superintendent to amend any soil imbalances or deficiencies in nutrients. The details of the fertilizers and pesticides application will also be recorded.

#### 4. Monitoring Results

4.1.1 Monitoring data are provided in **Annex C**.

##### 4.1 Water Quality

4.1.2 Marine and freshwater water quality monitoring were conducted at the 9 and 6 designated monitoring stations respectively. The desalination plant commenced operation in December 2008.

4.1.3 Monitoring of marine and freshwater locations was conducted on 2 occasions in April and May (30<sup>th</sup> April and 11<sup>th</sup> May 2009). The QA/QC results for laboratory testing in the reporting month are acceptable and summarised in **Annex D**. Rainstorm signal were hoisted on 25<sup>th</sup> April and 21<sup>st</sup>, 23<sup>rd</sup> and 24<sup>th</sup> May 2009 during the reporting month. Water samples were taken on 25<sup>th</sup> April, 21<sup>st</sup> and 24<sup>th</sup> May 2009.

4.1.4 As there is no water discharge from the Holes 5 / 6 through the drainage system during sampling except during rainstorm event, no water sample for F\_Filter was collected during the reporting month. Summary of fertilizer and pesticides applications are summarized in **Annex E**.

4.1.5 Chemical applications were applied during the reporting month. They are approved pesticides listed in the turfgrass management plan in the final EIA report.

##### Marine water

4.1.6 The marine water exceedance is summarised in **Table 4.1-1**.

4.1.7 Non-compliance of turbidity (ranging from 3 NTU to 6.7 NTU) were recorded at M\_Marsh and M\_RO2 stations. The non-compliance results were similar to the control stations M\_A and M\_B (ranging from 1.9 NTU to 3.9 NTU). It is believed that exceedances were caused by natural fluctuation/disturbance during the rainstorm events occurred on 25<sup>th</sup> April and 24<sup>th</sup> May 2009 on marine water quality. Therefore, exceedances are considered non-project related.

4.1.8 Non-compliance of chlorophyll a was recorded at KS station at 1.9 µg/L. The non-compliance was similar to the control stations M\_A and M\_B (ranging 1.0 to 1.7 µg/L). Therefore, exceedance is considered non-project related.

**Table 4.1-1 Marine Water Exceedance Summary (April to May 2009)**

Monitoring Location	Exceedance Level	Date	Parameters	Project-related
M_A	Action Level	24 May 2009	Turbidity	No
M_Marsh	Limit Level	24 May 2009	Turbidity	No
KS	Action Level	21 May 2009	Chl a	No
M_RO2	Action Level	25 April 2009	Turbidity	No

Fresh water

4.1.9 The fresh water exceedances are summarised in **Table 4.1-2**.

**Table 4.1-2 Fresh water Exceedance Summary (April to May 2009)**

Monitoring Location	Exceedance Level	Date	Parameters	Project-related
F_DA	Limit Level	25 April 2009	Chl a	No
	Limit Level	30 April 2009	NH <sub>3</sub> -N, Chl a	No
	Limit Level	11 May 2009	Chl a	No
	Action Level	21 May 2009	SS	No
	Limit Level	21 May 2009	Chl a	No
F_DB	Limit Level	25 April 2009	Chl a	No
	Limit Level	30 April 2009	Chl a	No
	Action Level	11 May 2009	SS	No
	Limit Level	11 May 2009	Chl a	No
	Limit Level	21 May 2009	Chl a	No
F_DC	Limit Level	25 April 2009	Chl a	No
	Limit Level	30 April 2009	Chl a	No
	Action Level	11 May 2009	SS	No
	Limit Level	11 May 2009	Chl a	No
	Limit Level	21 May 2009	Chl a	No
F_Inland M	Limit Level	25 April 2009	Chl a	No
	Limit Level	30 April 2009	Chl a	No
	Limit Level	21 May 2009	Chl a	No
	Limit Level	24 May 2009	Chl a	No
Lake 1D	Limit Level	25 April 2009	Ortho P, TP	Yes
	Limit Level	30 April 2009	Ortho P, TP	Yes
	Limit Level	11 May 2009	Ortho P, TP	Yes
	Limit Level	21 May 2009	Ortho P, TP	Yes
	Limit Level	24 May 2009	Ortho P, TP	Yes

4.1.10 Action level exceedances of SS (average value at 4 mg/L) were recorded at downstream A, B and C. Limit level exceedances of NH<sub>3</sub>-N (average value at 0.02 mg/L) was recorded at downstream A only. Limit level exceedances of chlorophyll a (average value 1.1 µg/L) were recorded at downstream A, B, C, F\_Inland M and F\_Filter.

4.1.11 For the exceedances level of SS and Chlorophyll a, the concentrations are low when compare to the natural environment variation for streams during wet season. Therefore, they are considered non-project related.

4.1.12 Water quality of the streams before any commencement works were measured in April 2006 in order to indicate natural variation between dry and wet seasons. By taking into account the seasonal variation (wet season) together with the baseline monitoring data (dry season), 95%-ile and 99%-ile for NH<sub>3</sub>-N are 0.08 mg/L and 0.21 mg/L, 95%-ile and 99%-ile for NO<sub>3</sub>-N are 0.55 and 0.85 mg/L and 95%-ile and 99%-ile for TIN are 0.71 mg/L and 1.08 mg/L. These concentrations are well within the wet season natural variation range. Therefore, it is considered that all exceedances are found non-project related.

4.1.13 The lake 1D is designed for temporary storage to collect the runoff from East Course through the closed low flow drainage system. The water will be recycled and reused as one of the irrigation water sources for the East Course. Exceedances of Ortho P and TP were recorded. As there is no overflow / discharge from the Lake 1D to marine or fresh water bodies, no further action has to be taken.

4.1.14 The monitoring of pesticides are summarised in **Table 4.1-3**. All applied pesticides were below detection limit.

**Table 4.1-3 Pesticides Monitoring Results (April to May 2009)**

Date	Monitoring Station	Parameters	Monitoring Result
29 <sup>th</sup> May 2009	M_Marsh, TTC, M_BP, M_Coral, KS, F_DA, F_DB, F_DC, F_Inland Marsh	Chlorpyrifos	undetectable
29 <sup>th</sup> May 2009	M_Marsh, TTC, M_BP, M_Coral, KS, F_DA, F_DB, F_DC, F_Inland Marsh	Chlorothalonil	undetectable

## 4.2 Marine Ecology

4.2.1 The upcoming semi-annual monitoring is scheduled in August 2009 during wet season.

## 4.3 Landscape & Visual

4.3.1 Site audit was carried out during the reporting month. The monitoring results are shown as follows. The tentative monitoring is scheduled in July 2009.

### *General Observations:*

- In the previous monitoring, among the 980 trees in as-built planting plan, 341 dead individuals were observed. But a large number of shrubs (mainly *Raphielepis indica*) were planted within the East Course, including the original planting locations, as well as some new areas not previously indicated on the landscape plan. In terms of number, those planted shrubs should be more than the tree numbers to be shown in planting plan. The Contractor should either replace these dead trees or removed them as maintenance works;
- Some landscape maintenance operations were carried out by the Contractor recently as some dead trees were removed;
- During the present audit, however, some dead trees (371 individuals) were still observed. The majority of these trees were still part of the 582 dead trees previously reported in March 2009 inspection;
- Some stakes for trees were found in poor conditions or leaning; and
- A detailed summary of the inspection was shown in **Annex C**.

### *Recommendations*

- The Contractor was recommended to perform landscape maintenance operations, including replacing or removed all dead trees; providing stakes for leaning trees; re-staking all trees with broken/leaning tree stakes; pruning of die back tree branches; fertilizing of plants; and cutting of overgrown grass and removal of weeds on slopes, to ensure a healthy establishment of the compensatory planting;
- The Contractor was reminded to replace or remove 371 dead trees, and any other trees found to be in poor conditions prior to the next site inspection;

- The Contractor was reminded to carry out regular inspection of all tree stakes, especially trees on locations where it could be easily blown over in strong wind conditions, and rectify all defects as soon as possible; and
- The Contractor was reminded to update the drawings to show the locations of replacement/replanting trees after the replanting is implemented.

#### 4.4 Soil Nutrient

4.4.1 The previous soil testing sampling was completed in January 2009. The soil testing was carried out in March 2009. The upcoming sampling is scheduled in October 2009. Table 4.4 summarizes the average values and standard deviation for East Course (18 holes) since the operation phase. According to the monitoring results, there is no trend of increase or decrease of nutrient accumulated in the soil.

**Table 4.4 Soil Nutrient at East Course (Mar 2008 to Mar 2009)**

Parameters	Soil Nutrient (Average)										
	Ca	Mg	K	P	S	B	Fe	Mn	Cu	Zn	Na
	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Green (Average)	549	74	149	68	26	1	276	58	5	22	47
<i>Green (SD)</i>	78	9	45	16	15	0	19	6	2	12	15
Fairway (Average)	673	95	102	42	13	1	338	56	1	4	57
<i>Fairway (SD)</i>	113	11	59	15	3	0	41	6	0	1	15
Tee (Average)	743	94	175	60	12	1	323	59	1	5	53
<i>Tee (SD)</i>	145	9	84	16	3	0	41	7	1	3	17

## **5. Conclusions**

- 5.1.1 The Environmental Monitoring and Audit (EM&A) Report presents the operational EM&A works undertaken during the period from 25<sup>th</sup> April to 24<sup>th</sup> May 2009 in accordance with EM&A Manual and the requirement under EP-224-2005/A.
- 5.1.2 Exceedances on marine stations and fresh water stations are recorded and considered non-project related. The exceedances are mainly due to the natural variation and rainstorm events.
- 5.1.3 The tentative coral monitoring is scheduled in August 2009 during wet season. Soil nutrient results are presented in this monthly report. The upcoming soil sampling is scheduled in October 2009.
- 5.1.4 The landscape and visual monitoring was carried during the reporting month. The Contractor was reminded to perform the landscape maintenance operation on regular basis and update the drawings to show the locations of replacement/replanting trees after the replanting is implemented.
- 5.1.5 No environmental complaint / summon was received during the reporting month.

# **Annex A**

## **Monitoring Programme for the reporting month**



<b>April 2009</b>						
Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
19	20	21	22	23	24	25 RWQ
26	27	28	29	30 WQ		

<b>May 2009</b>						
Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
					1	2
3	4	5	6	7	8	9
10	11 WQ	12	13	14	15	16
17	18	19	20	21 RWQ	22	23
24 RWQ	25	26	27 LV	28	29	30
31						

WQ: Water Quality Monitoring (WQ); Rainstorm Water Sampling (RWQ)  
 ME: Marine Ecology  
 LV: Landscape and Visual

# **Annex B**

## **Event Action Plan**

### **Event and Action Plan for Water Quality**

Should monitoring results of the water quality parameters at any designated monitoring station exceed the water quality criteria related to turf management, action the proposed actions to be taken shall be as follows:

- inform Golf Course Manager immediately and stop chemical application;
- notify EPD and AFCD;
- review the application and re-evaluate suitability and availability of alternatives to chemical controls, etc.;
- agree remedial measures with Golf Course Manager and inform EPD and AFCD;
- implement the agreed remedial measures immediately; and
- increase monitoring frequency and/or locations to demonstrate effectiveness of the remedial measures.

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

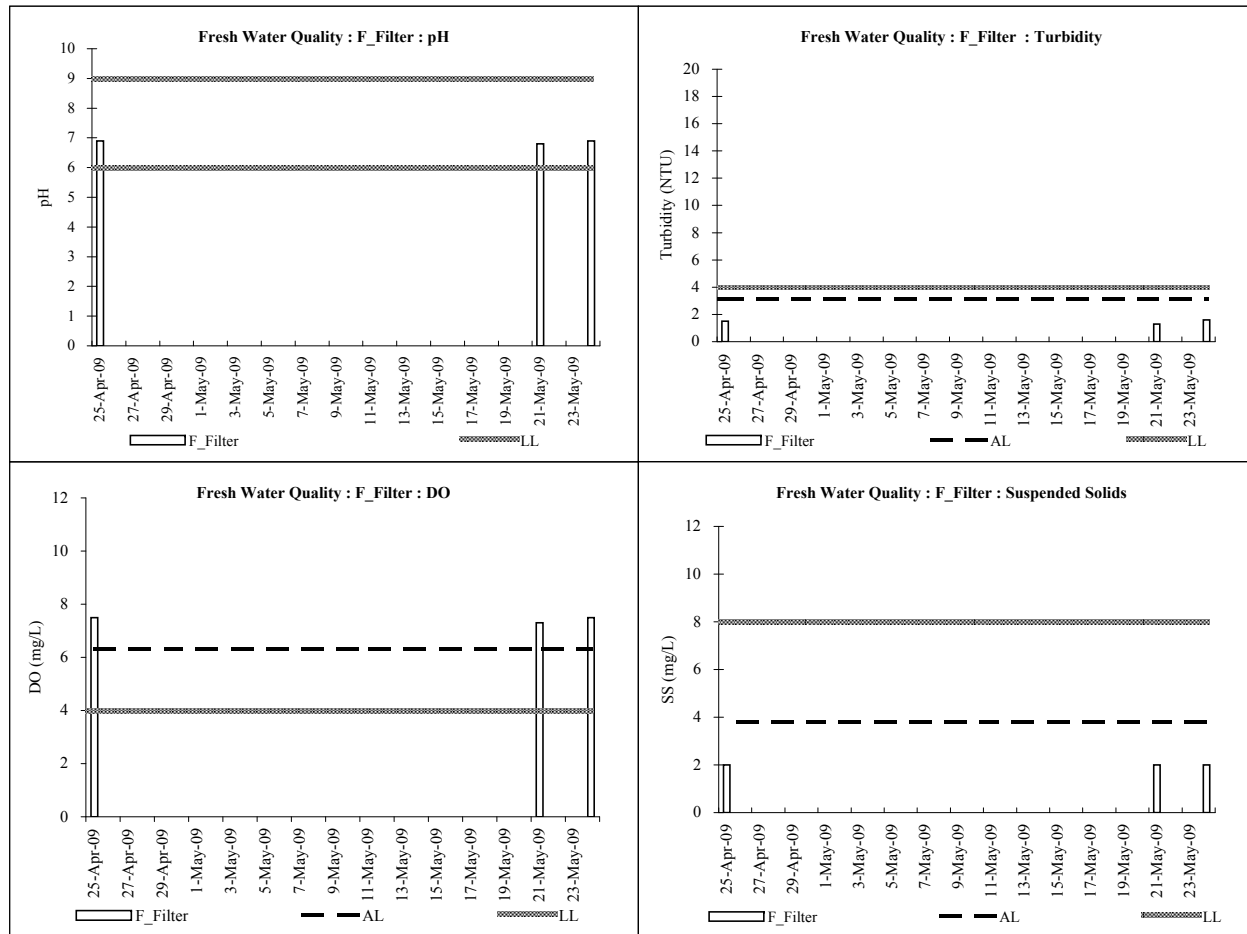
<b>Parameters</b>	<b>Action Level</b>	<b>Limit Level</b>
Sedimentation	a 15% increase in the percentage of sedimentation on the hard corals occurs at more than 20% of the tagged coral colonies at one or more monitoring sites	a 25% increase in the percentage of sedimentation on the hard corals occurs 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

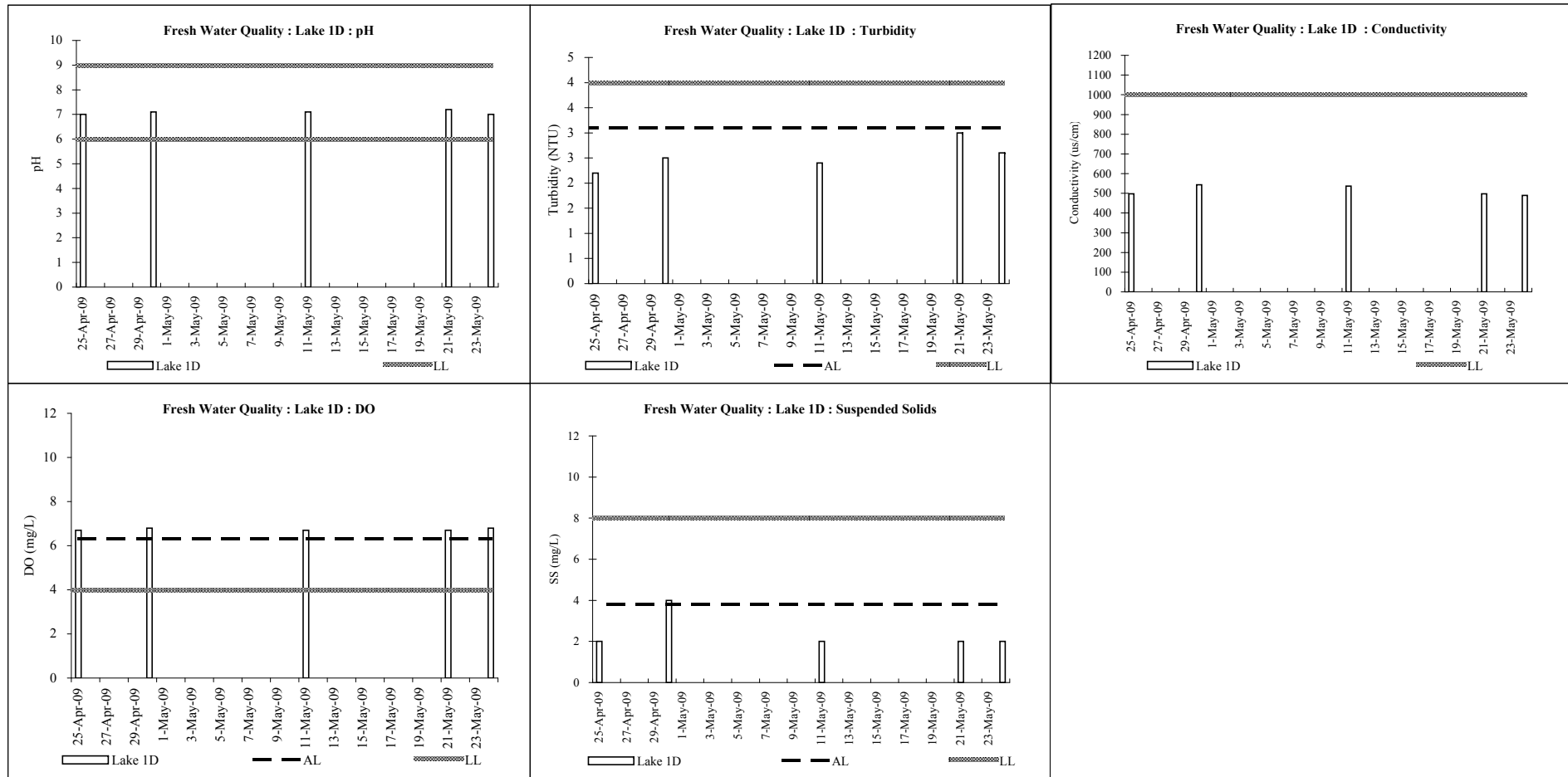
<b>Action</b>	<b>Action Level</b>	<b>Limit Level</b>
Operation phase	If the Action Level is exceeded the ET Leader should inform Golf Course Operator, EPD, and AFCD. The data from the water quality monitoring should also be reviewed. If the water quality monitoring shows no attributable effects of the installation works, then the Action Level is not triggered. If the water quality data indicate exceedances (salinity and/or pesticides) the ET Leader should discuss with the Golf Course Operator the most appropriate method of reducing salinity (e.g. reduce the daily operation time of the desalination plant), and/or control chemicals from runoff (e.g. reduce the frequency and quantity of chemical applied, check the intactness and effectiveness of the closed drainage system and stream buffer zone). This mitigated method should then be enacted on the next working day.	If the Limit Level is exceeded the ET Leader should inform all parties Golf Course Operator, EPD, and AFCD immediately. Should the Limit Level be exceeded, the Golf Course Operator should stop the operation of the desalination plant and/or the application of chemicals immediately and work out the solution according to the requirements of EPD and AFCD. The operation of the desalination plant and/or the application of chemicals would be suspended until an effective solution is identified.

# **Annex C**

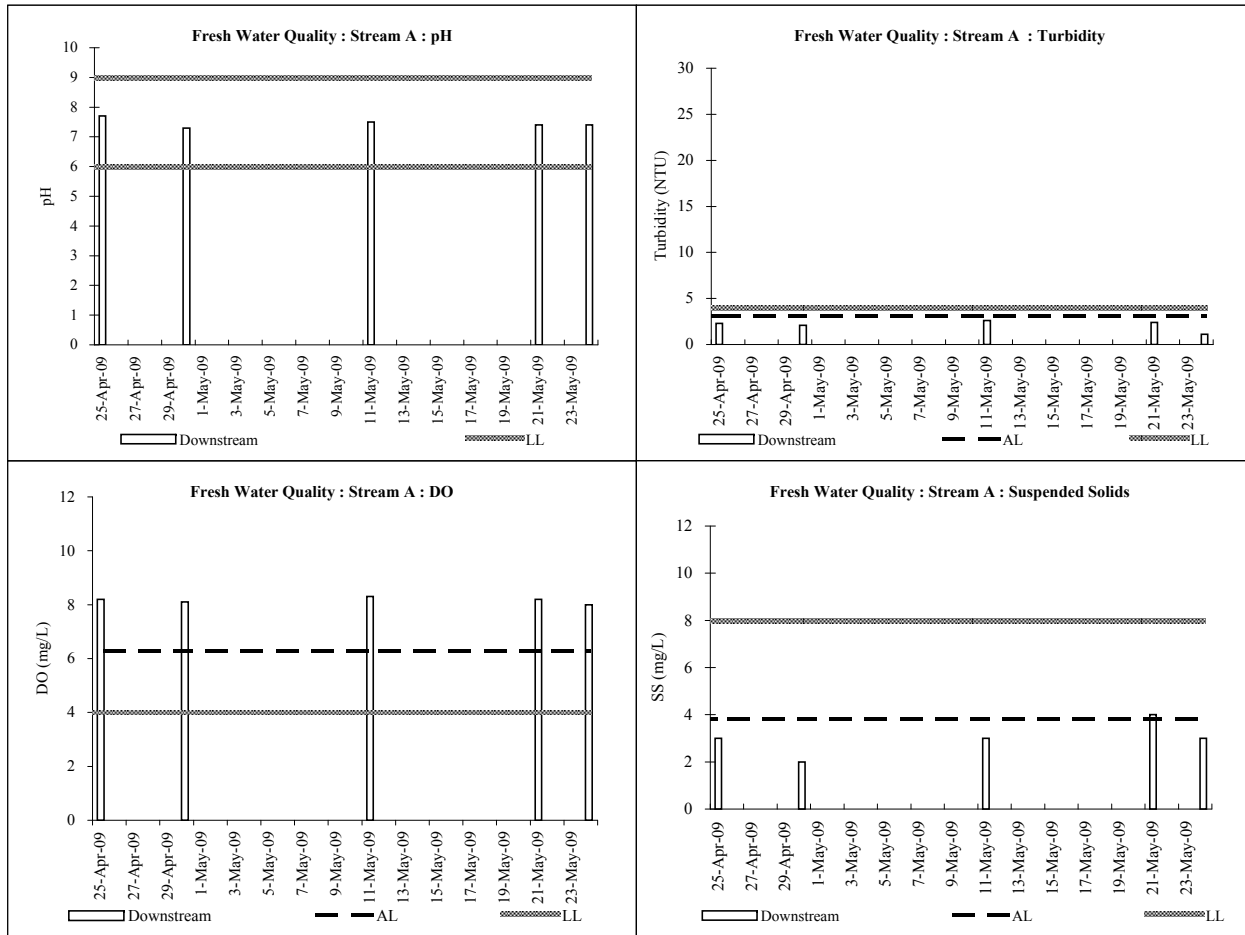
## **Monitoring results**

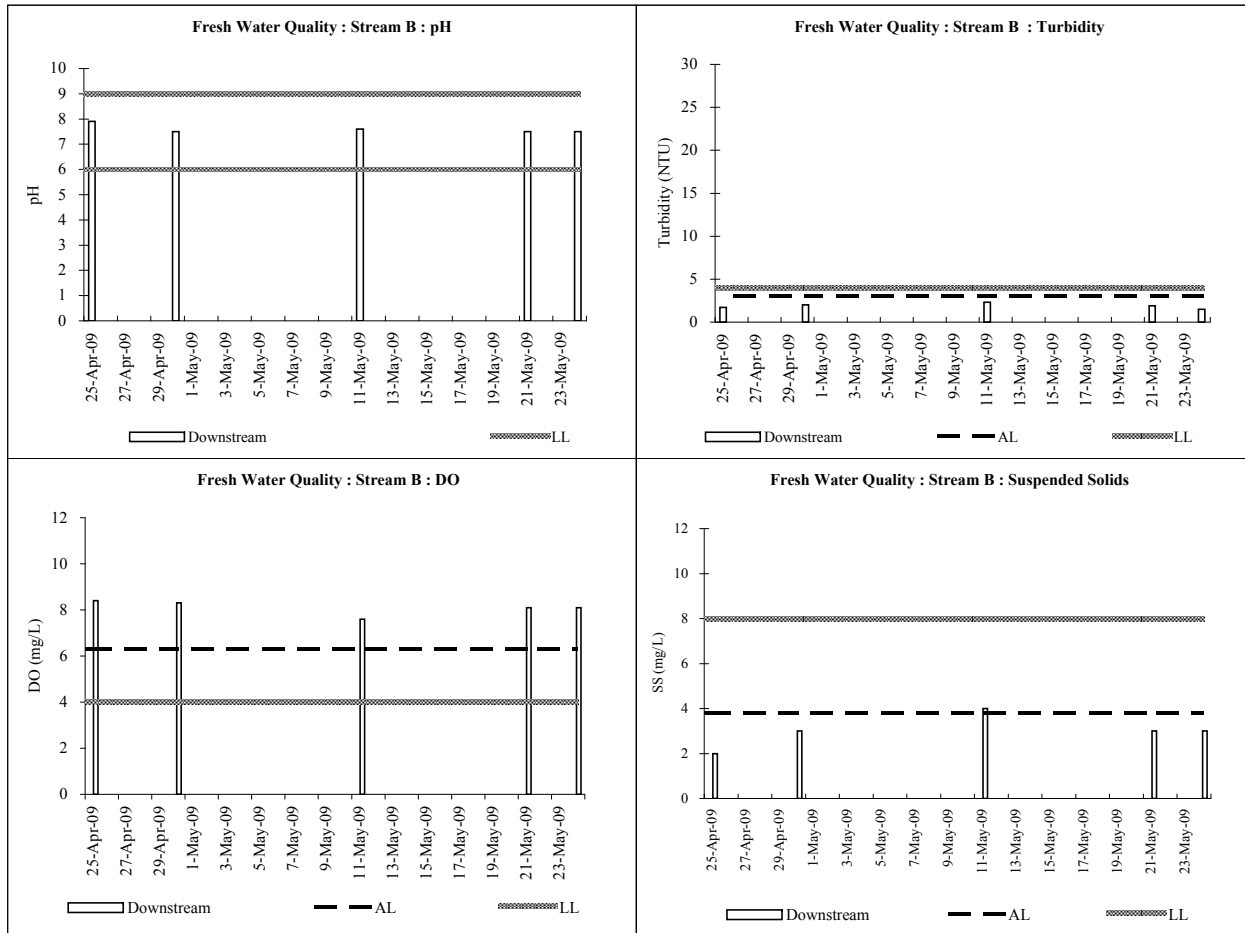
# Water Quality

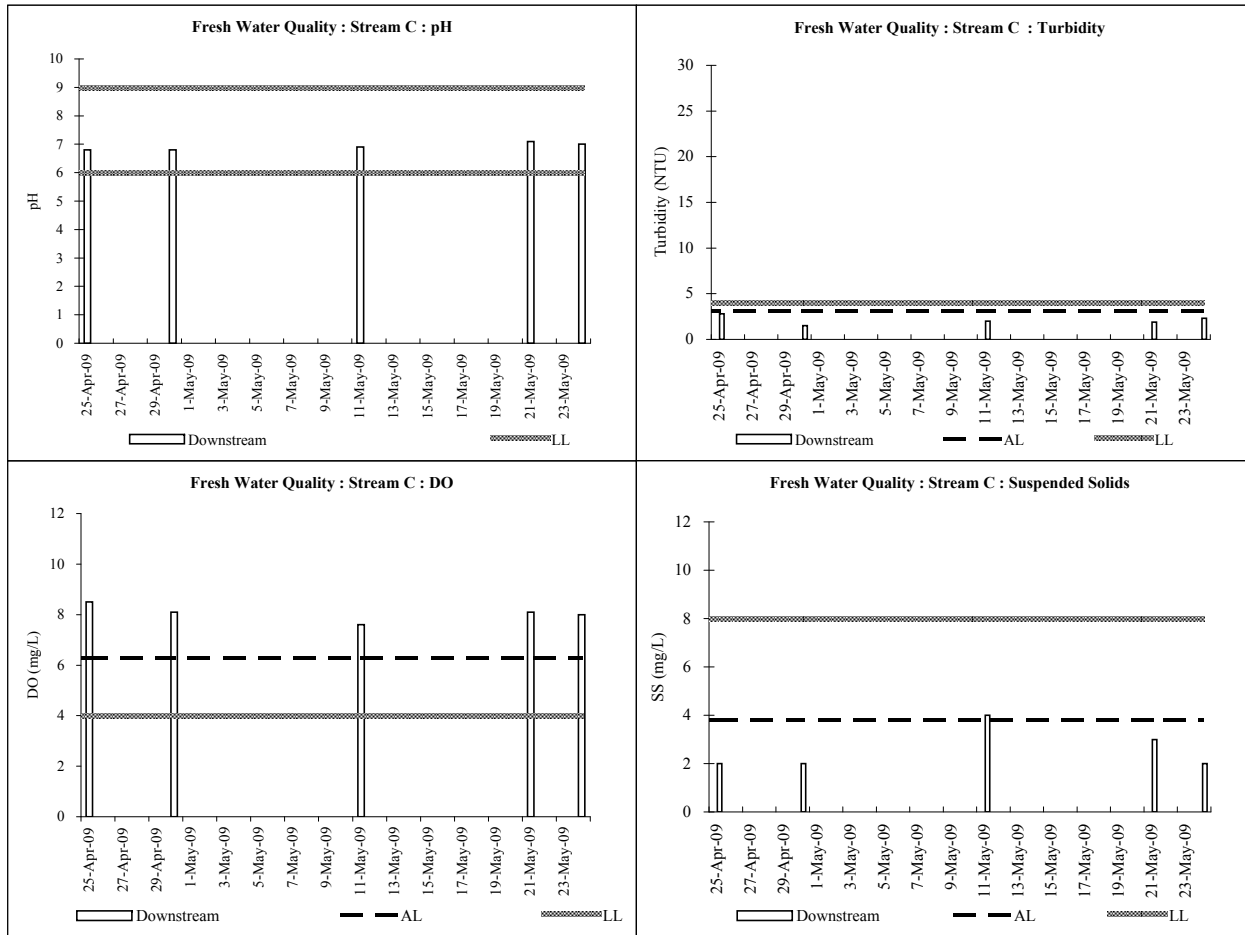


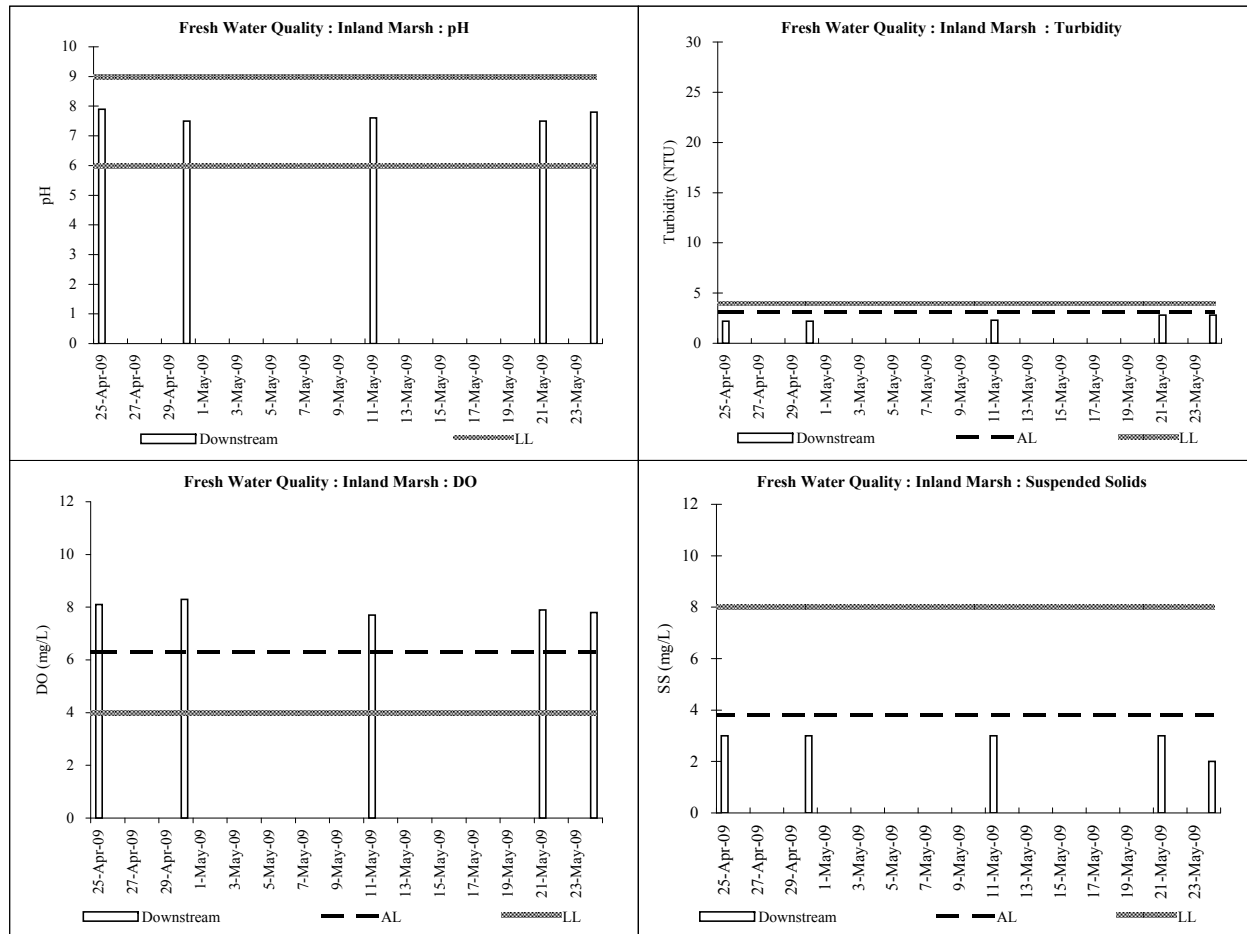


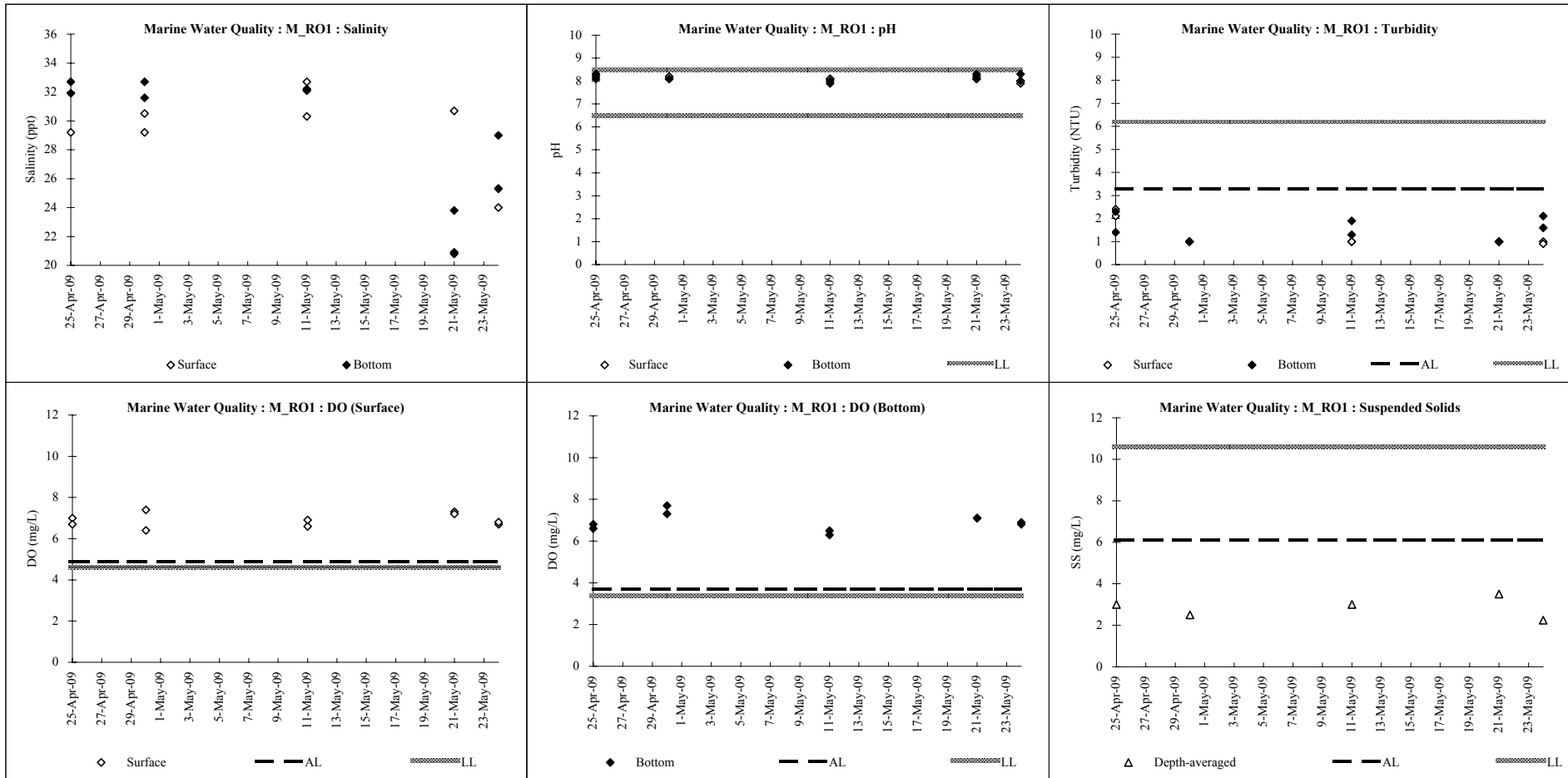


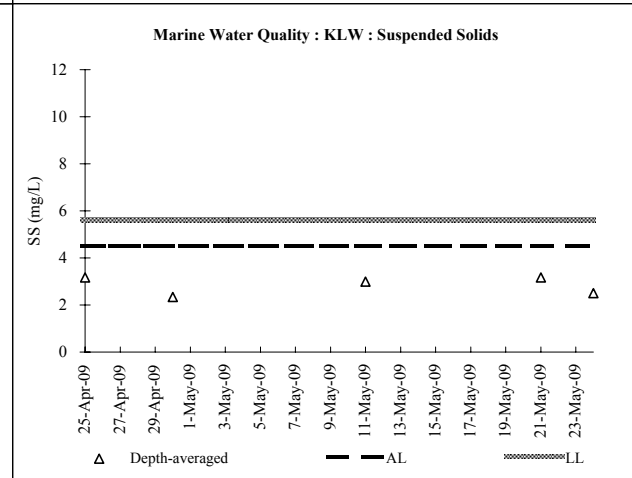
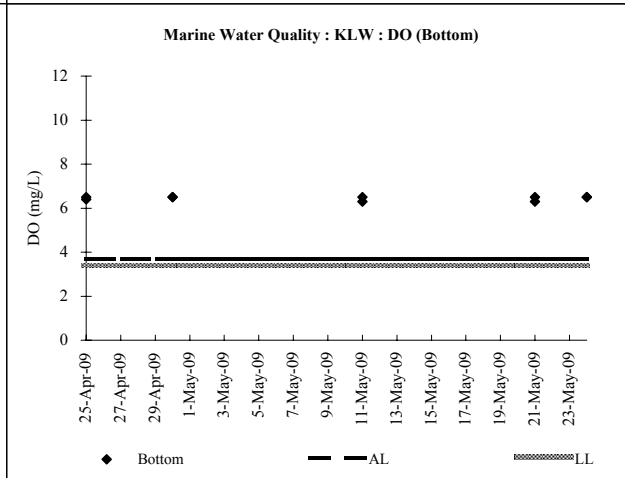
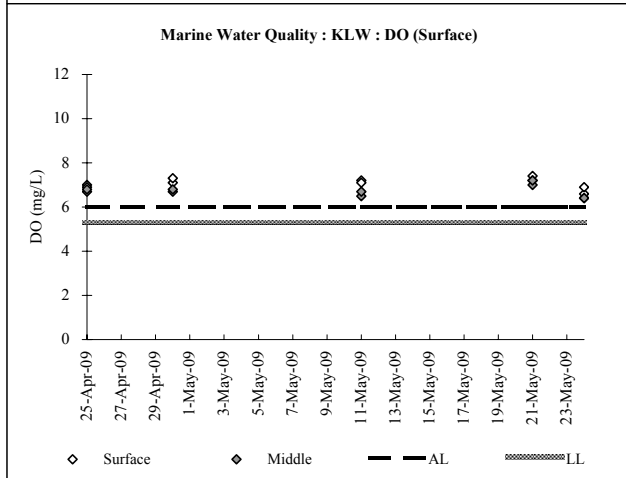
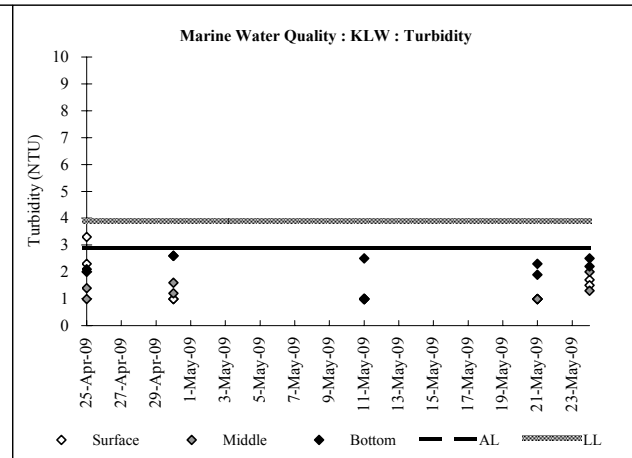
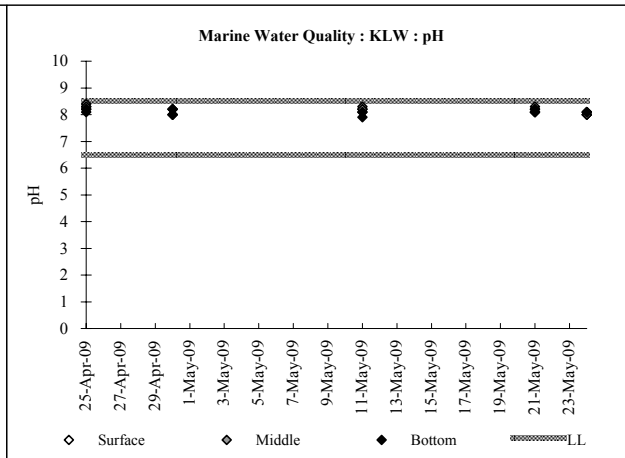
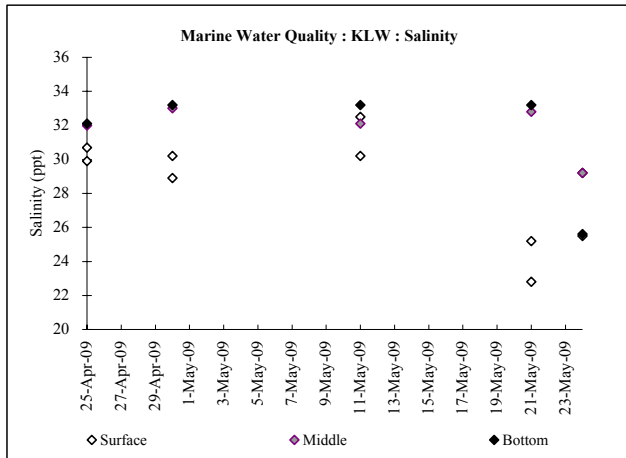


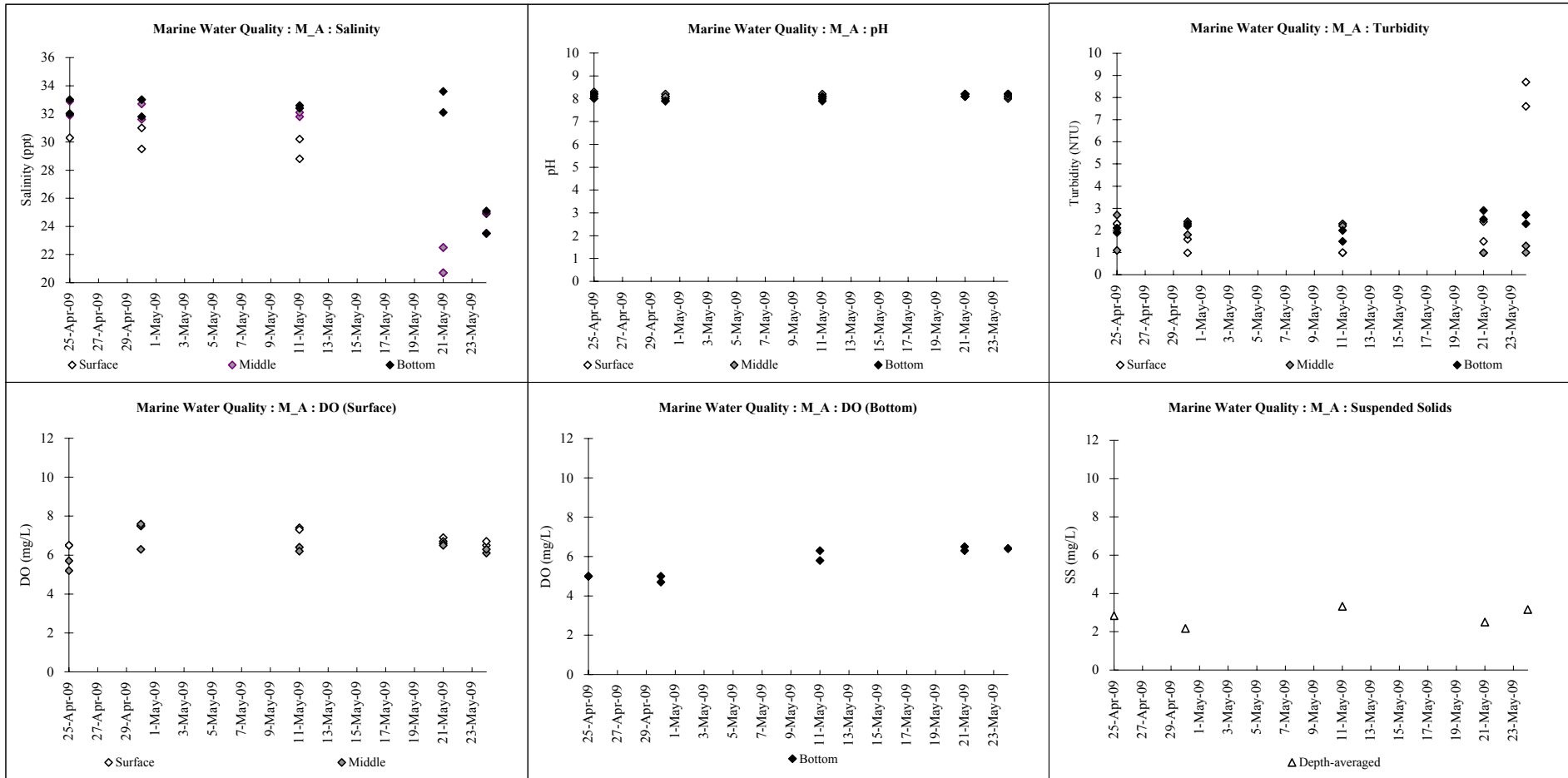


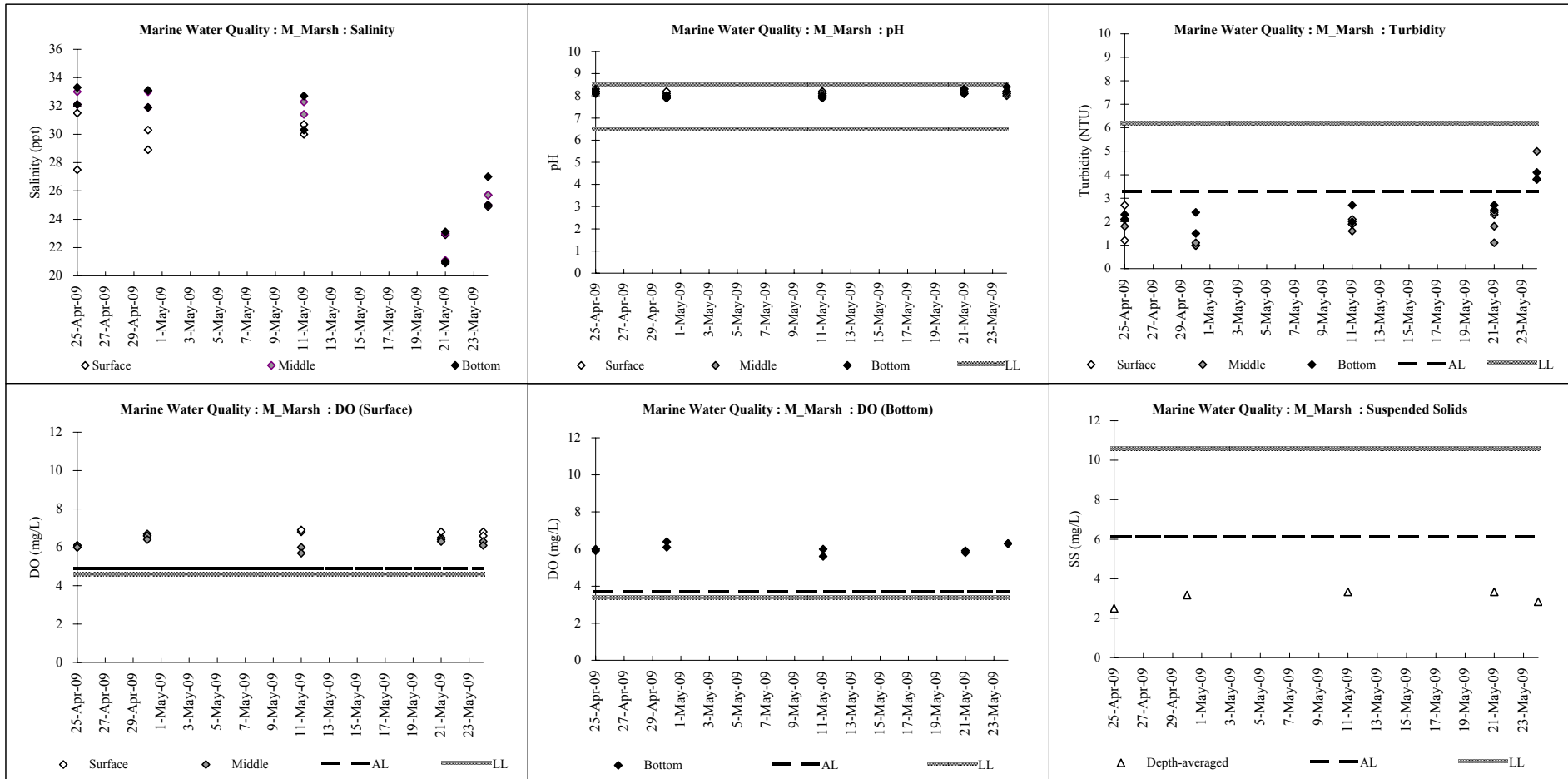




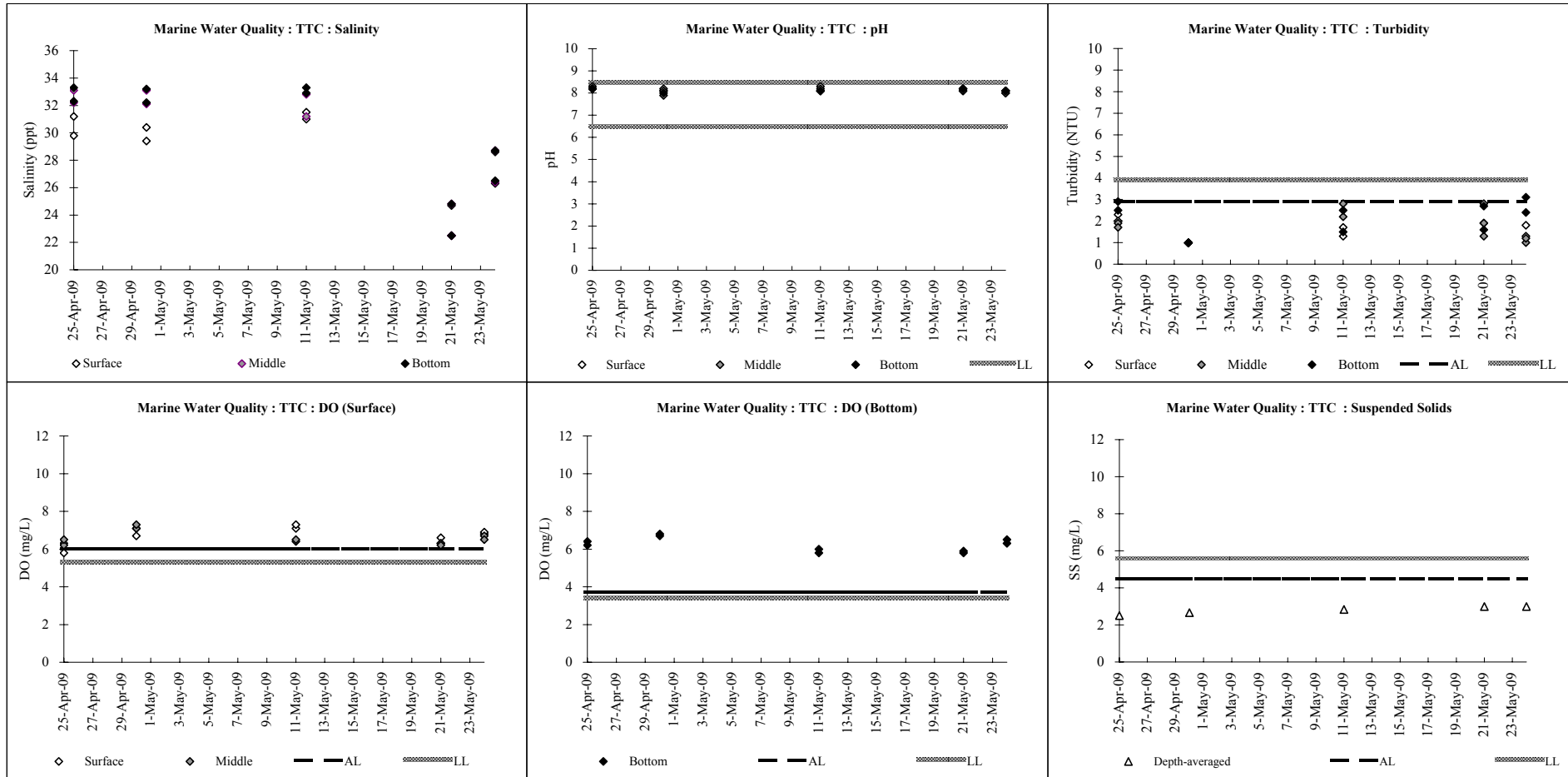


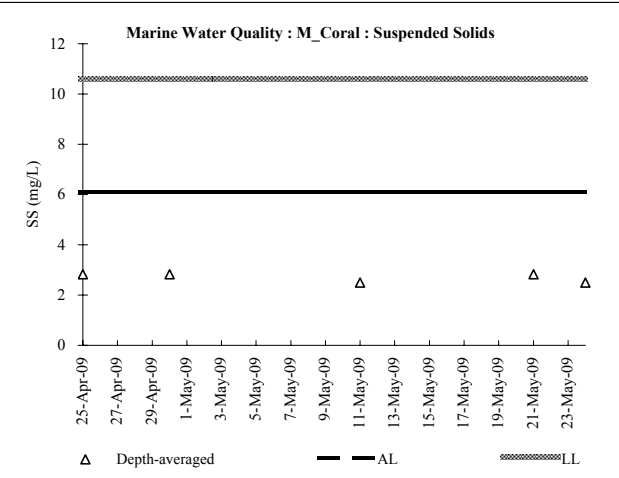
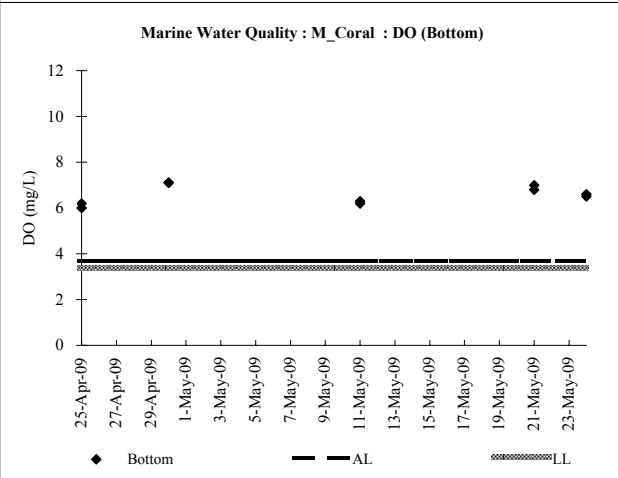
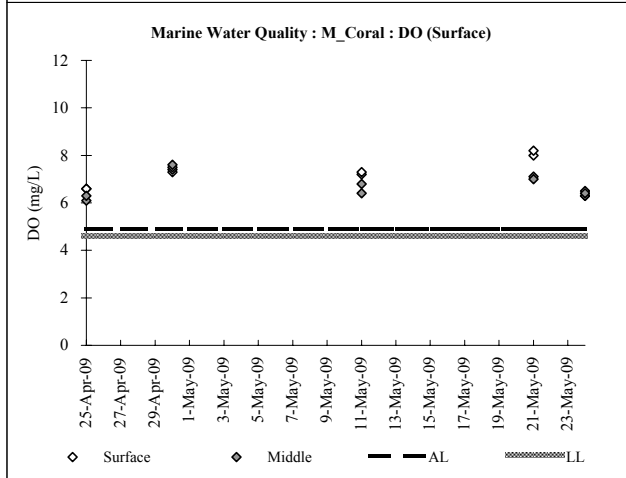
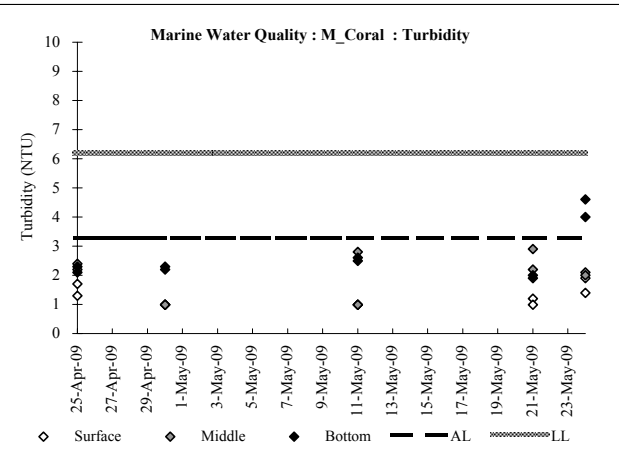
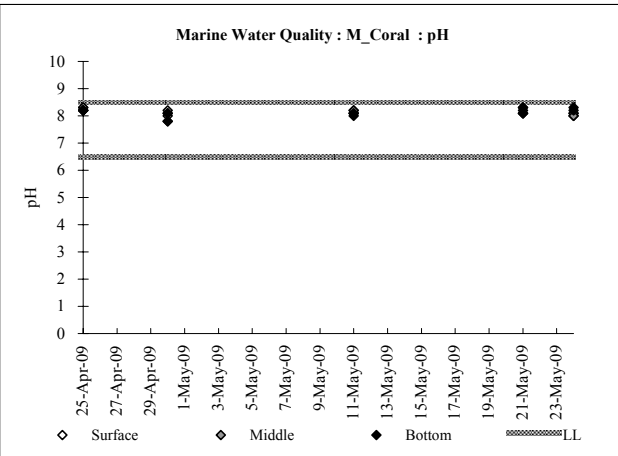
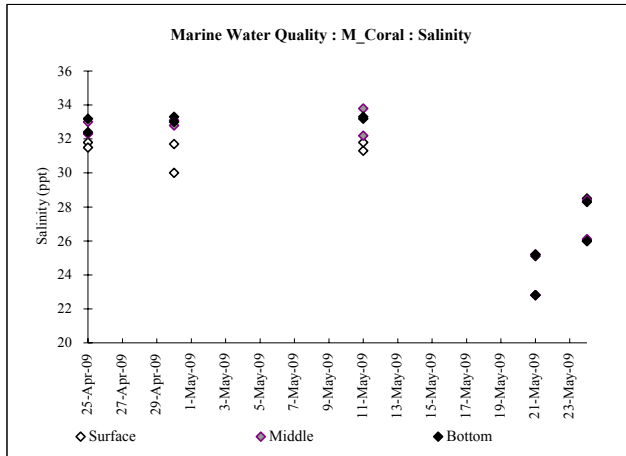


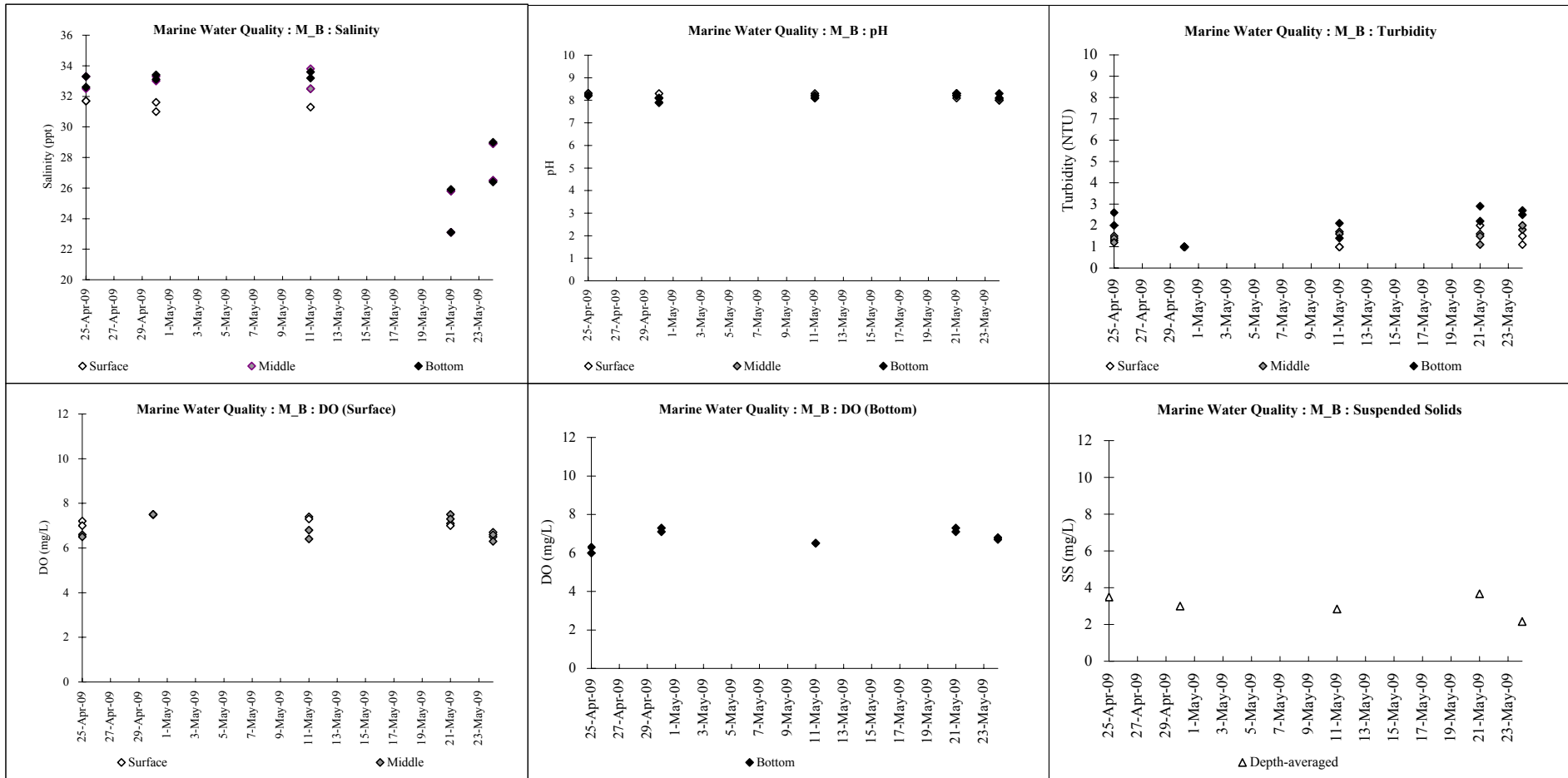


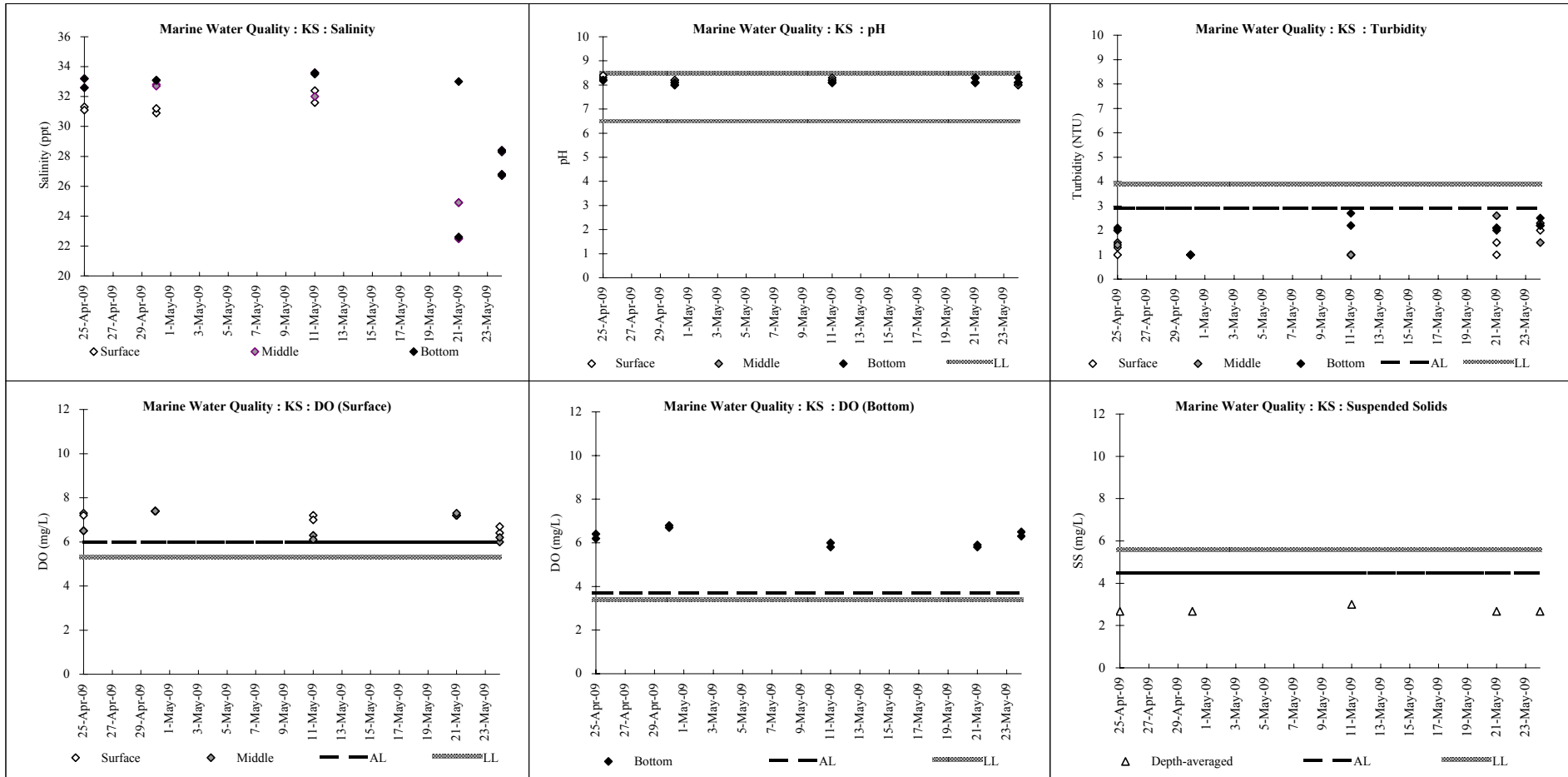


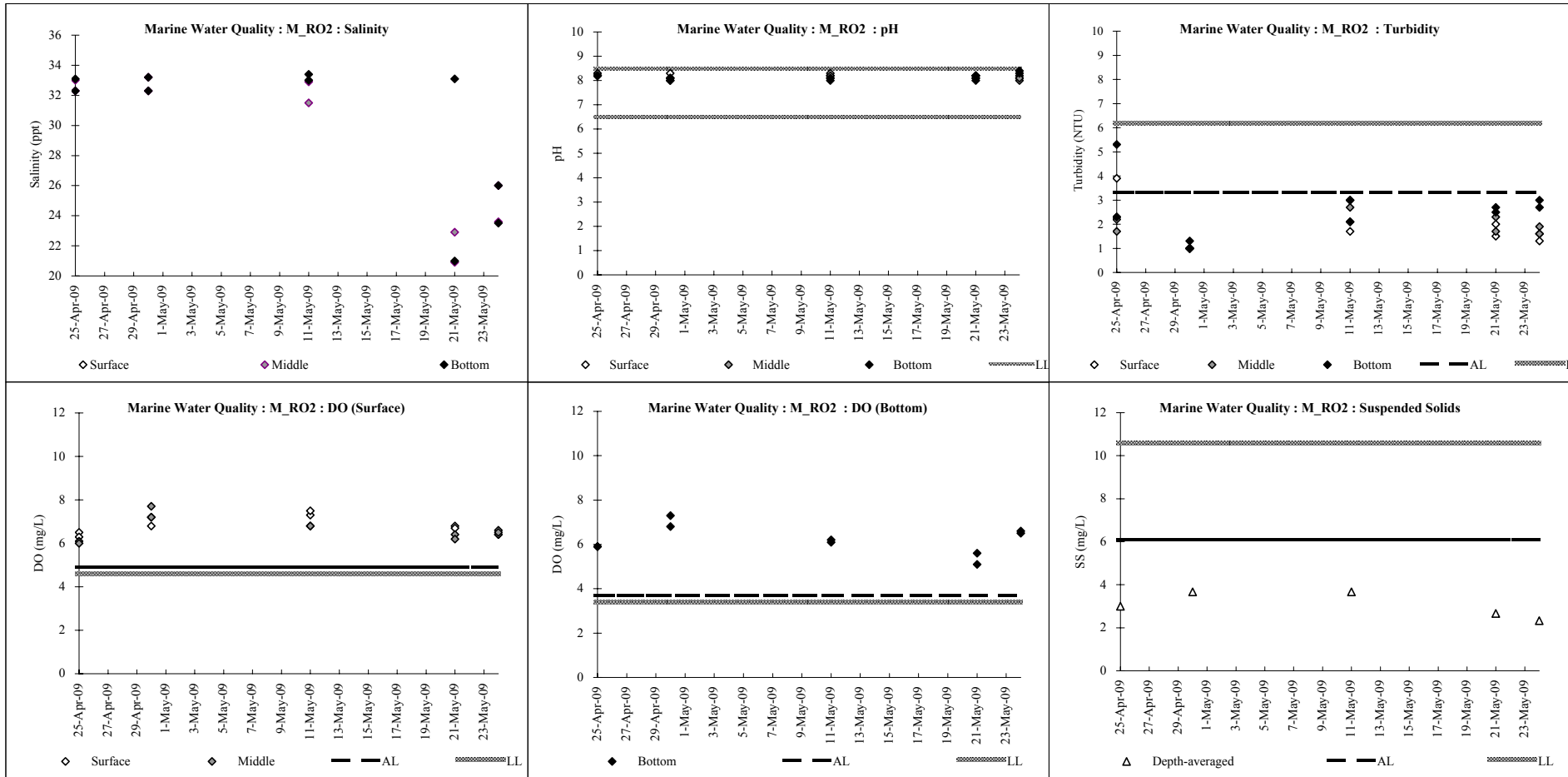


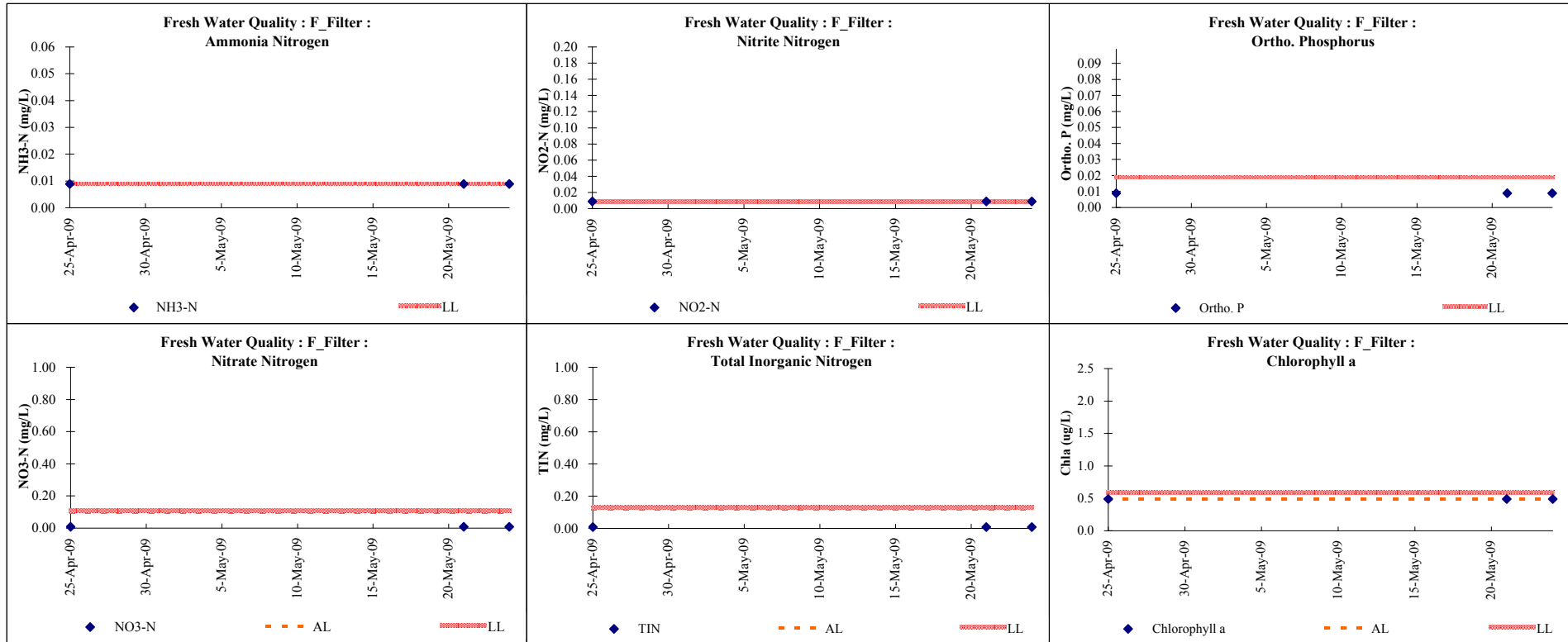


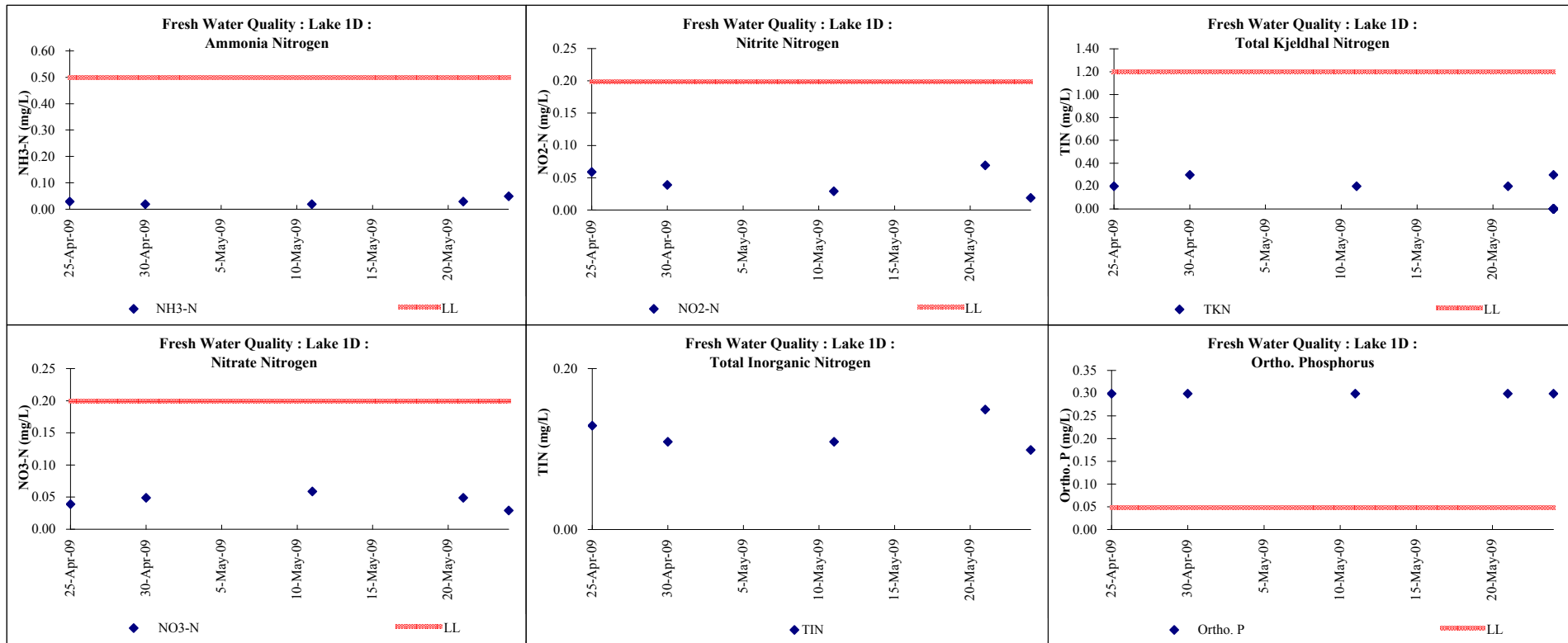


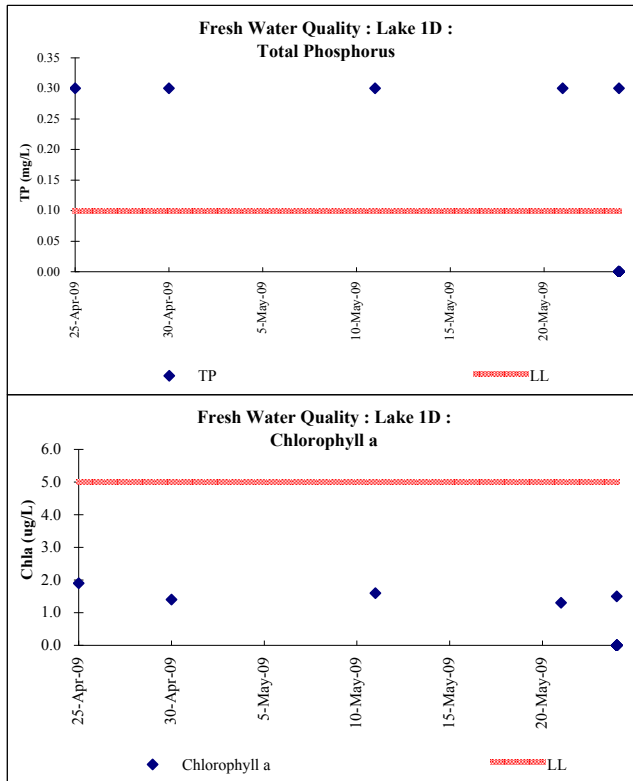




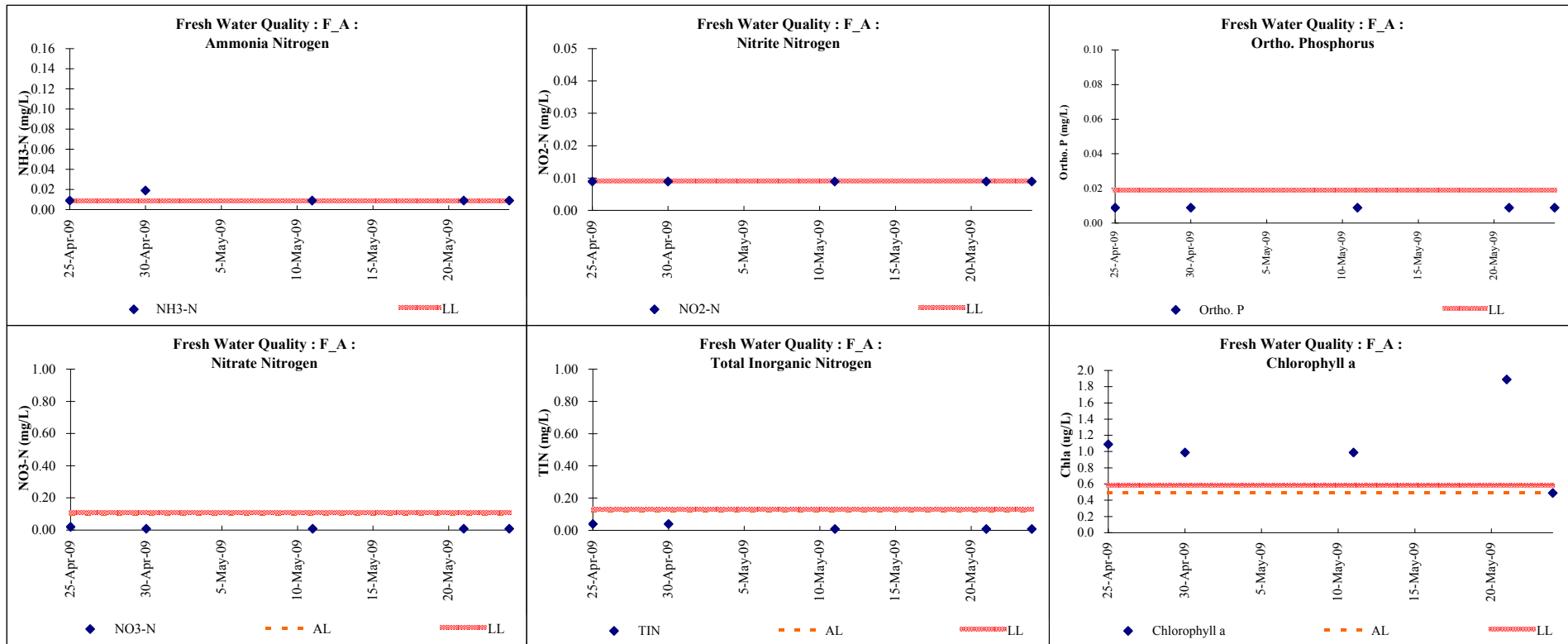


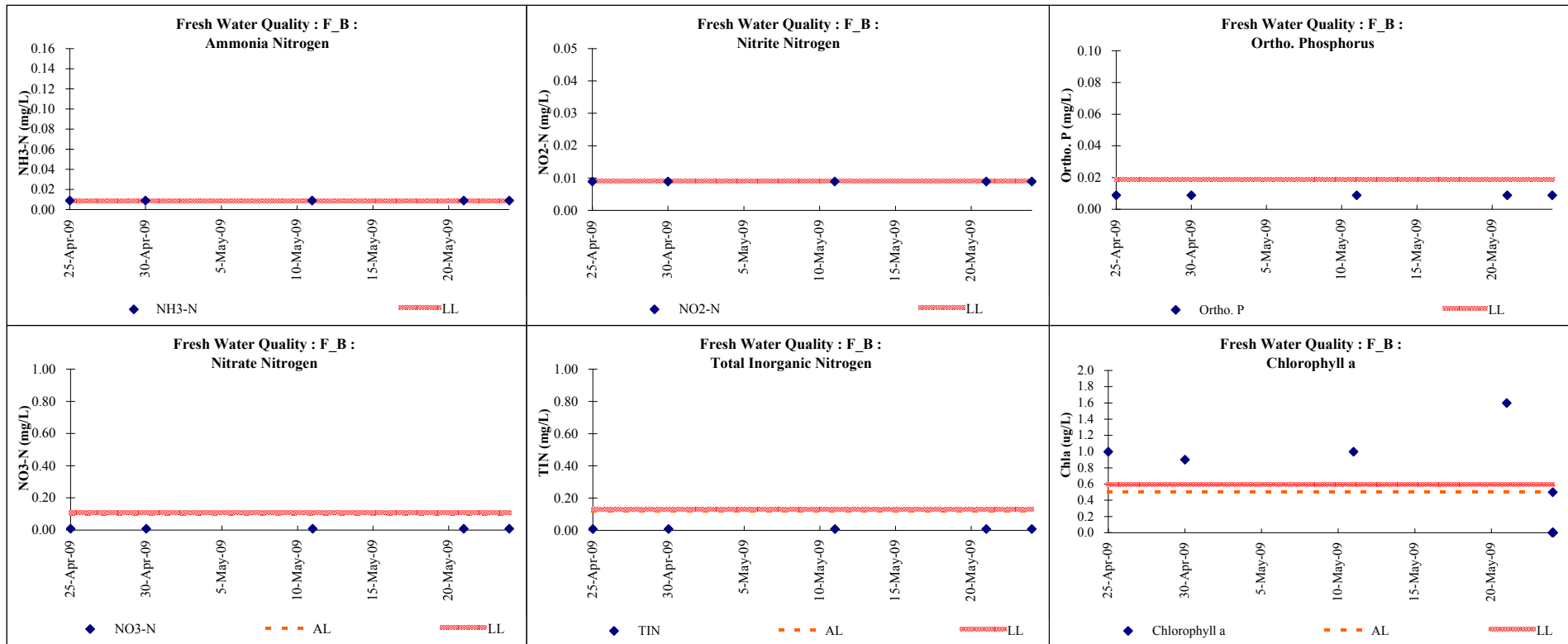


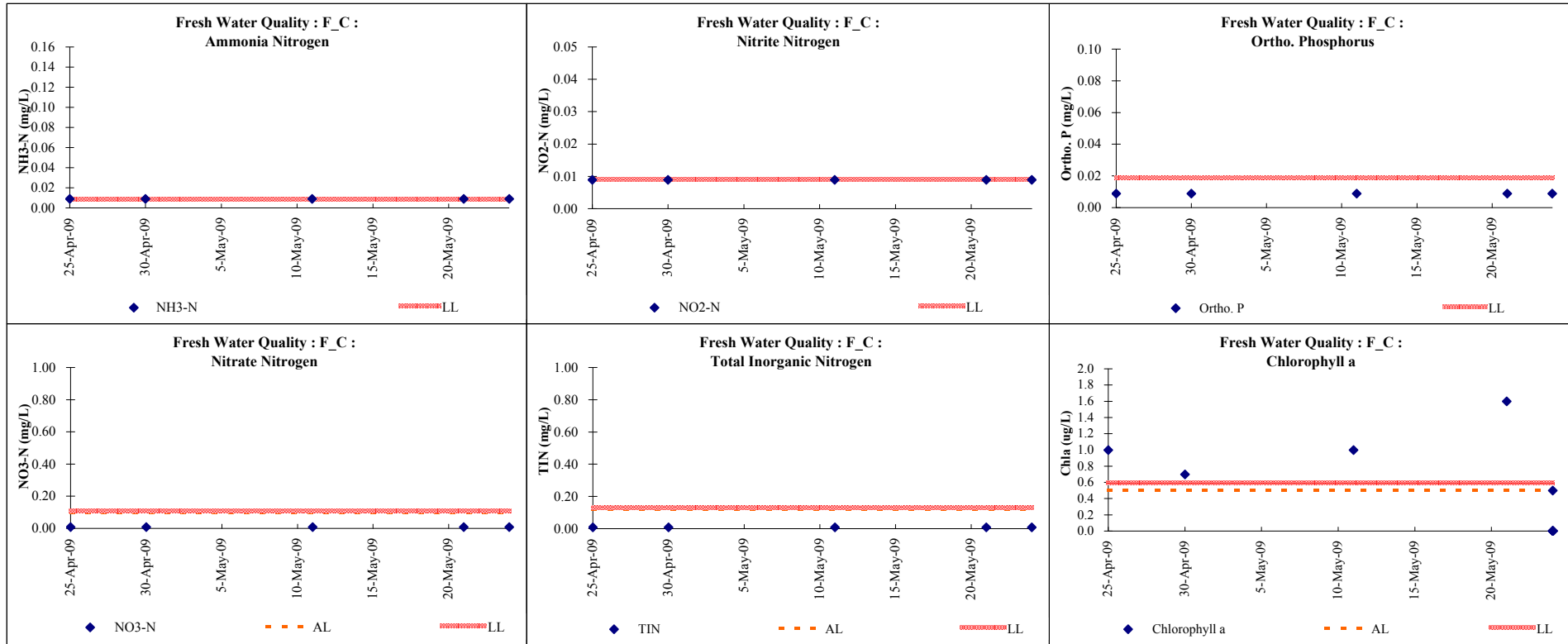


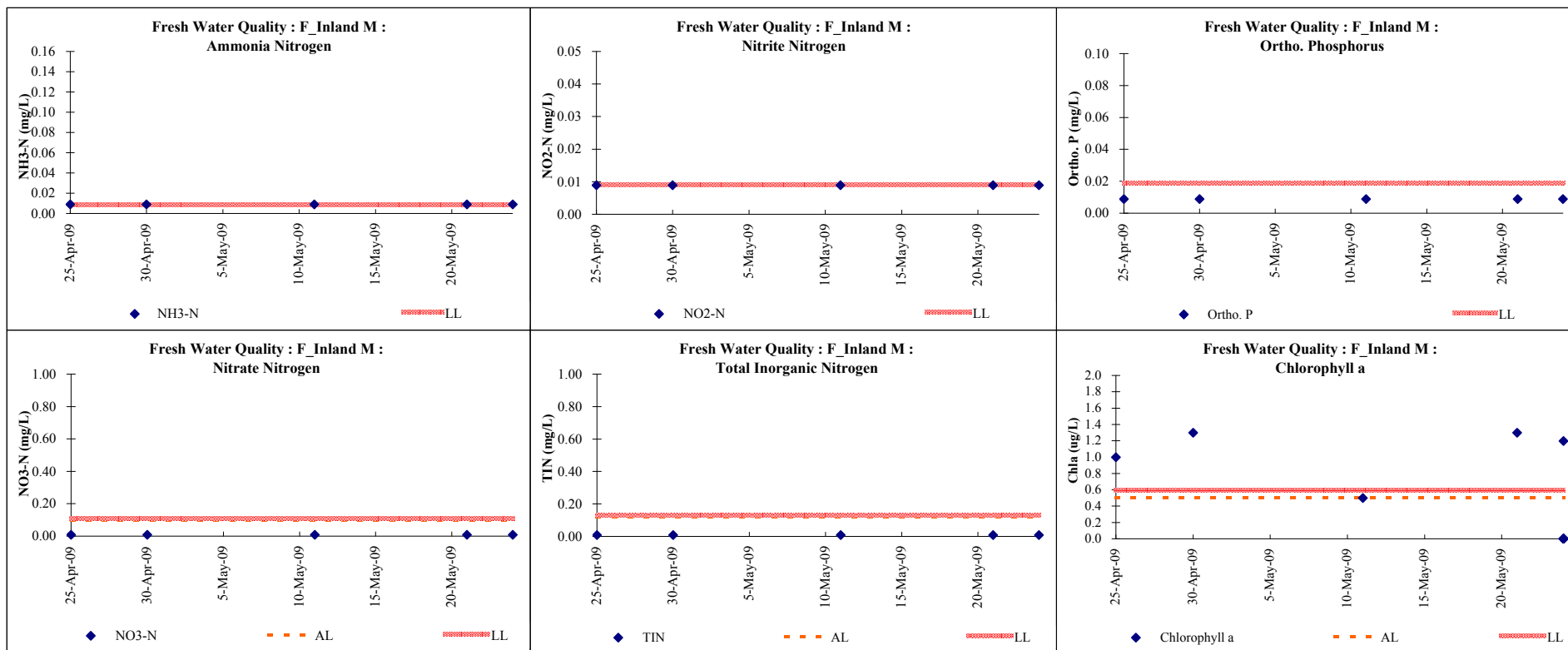


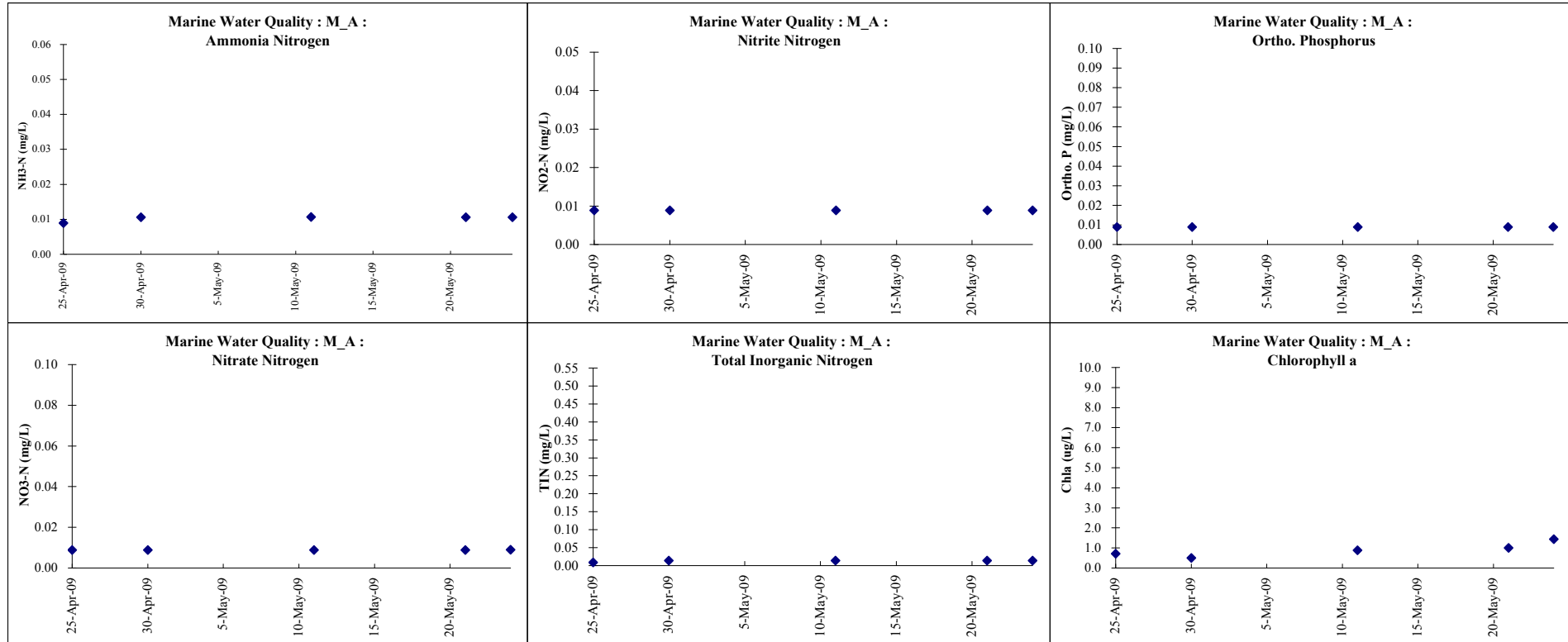


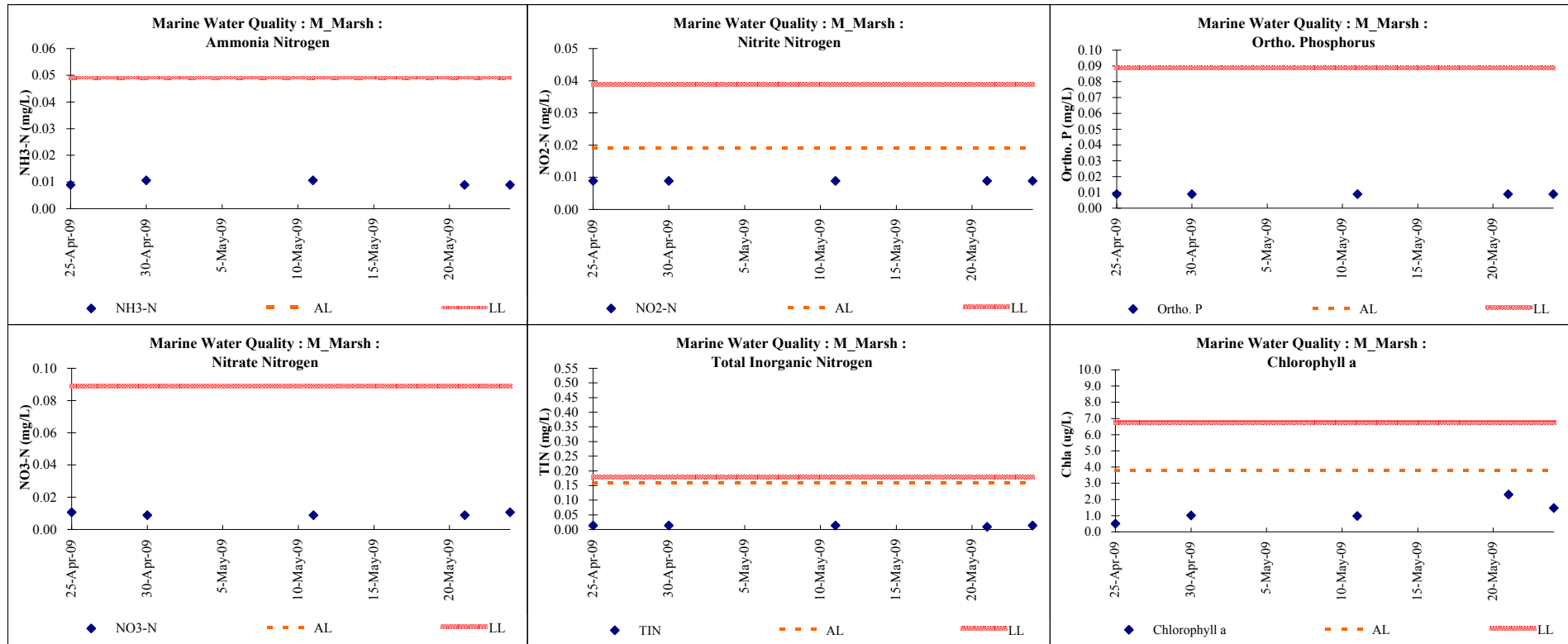


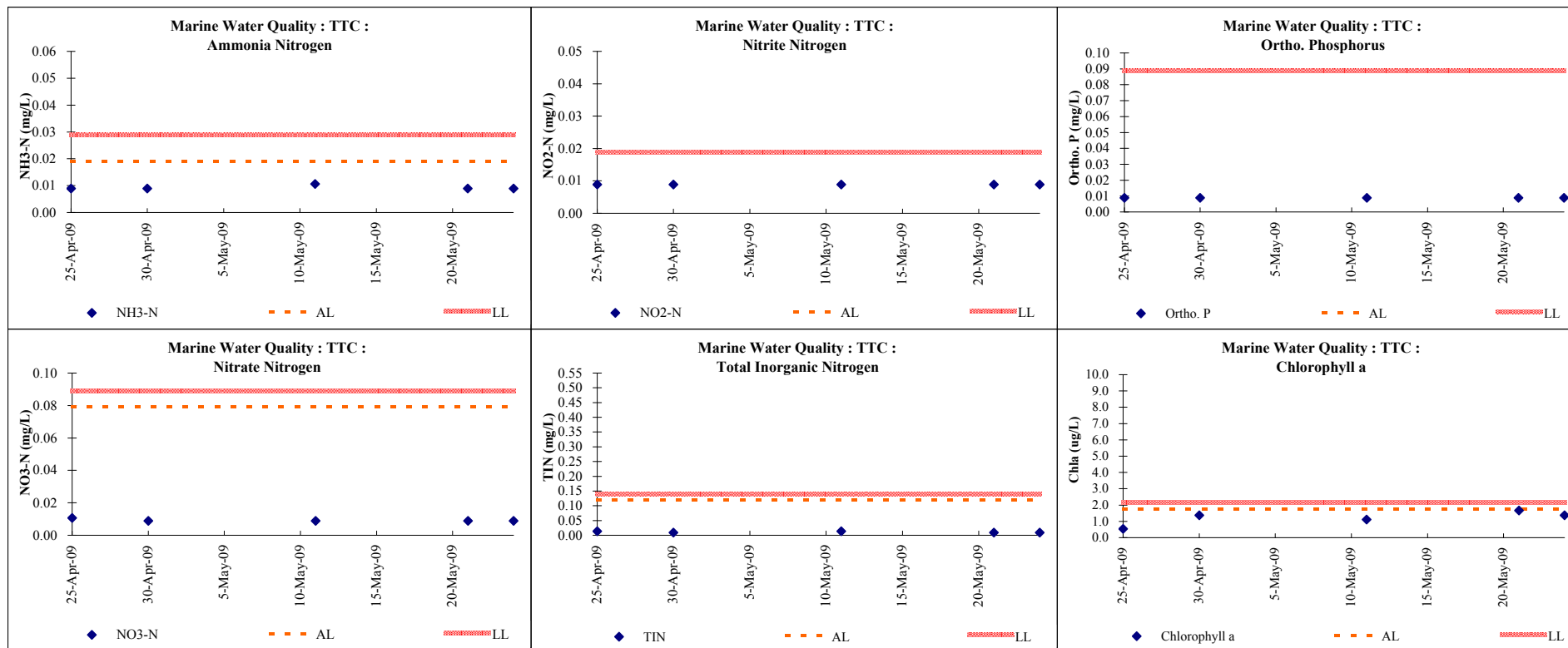


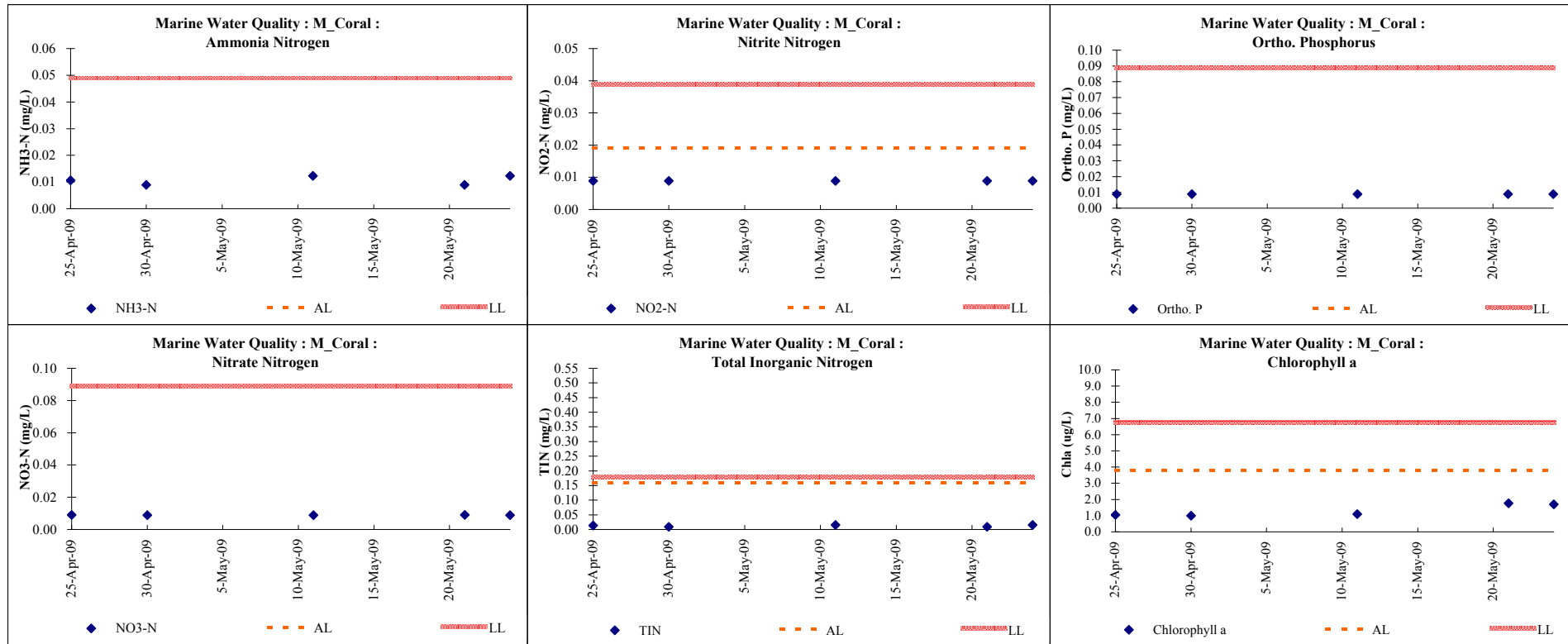




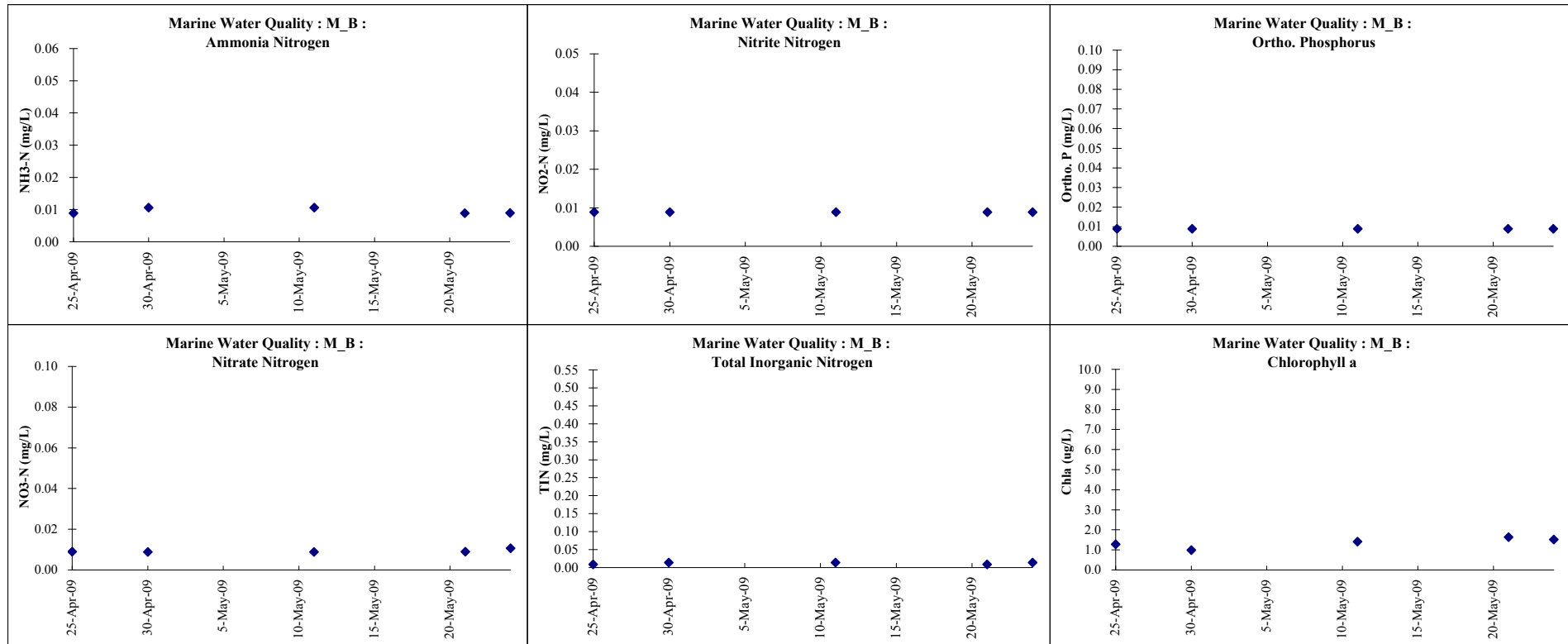


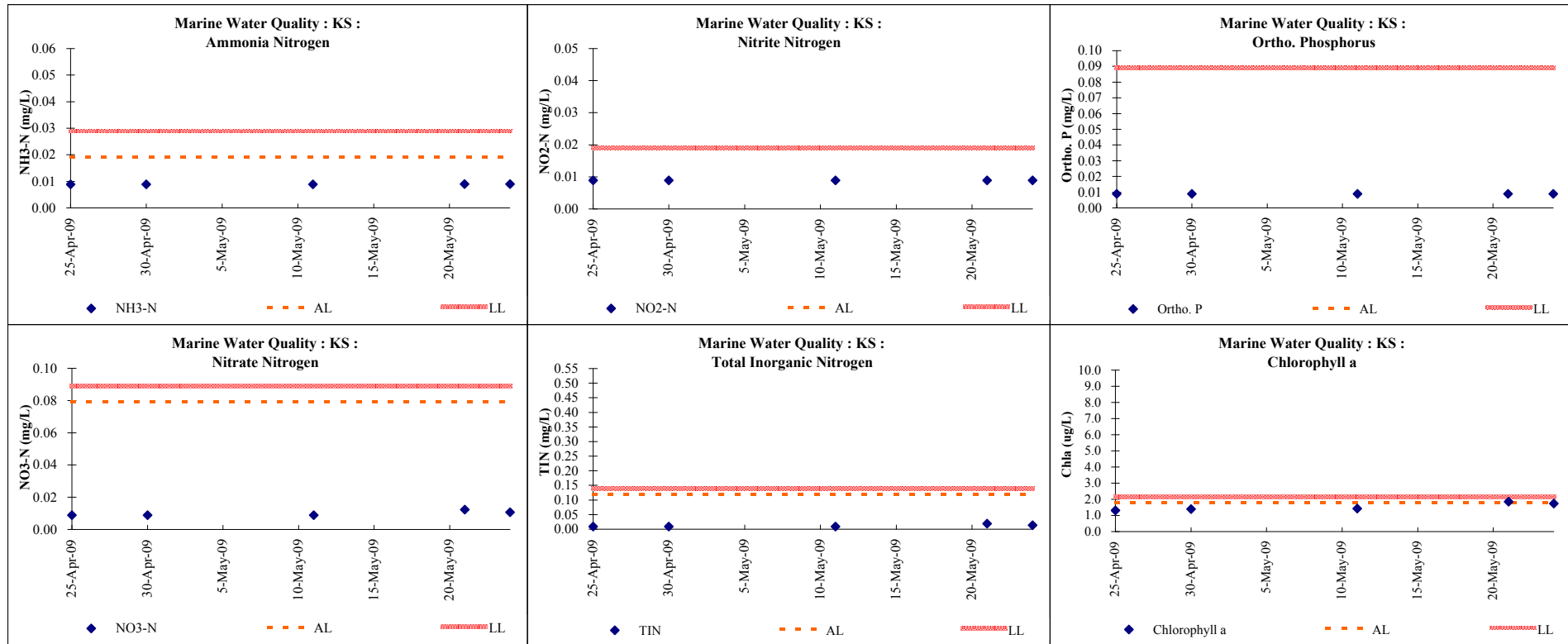












# Landscape and Visual

38 dead trees  
to be replaced

11 dead trees  
to be replaced

5

NO.	REV.	DATE	BY	DESCRIPTION



AS-CONSTRUCTED

**ARUP** CONSULTANTS  
INCORPORATED  
1000 BOULEVARD  
CITY CENTER ST. SUITE 1000  
ALBUQUERQUE, NM 87102  
Tel: 505.253.1000  
Fax: 505.253.1001

**H&G** HONG KONG  
CONSULTANTS  
LIMITED

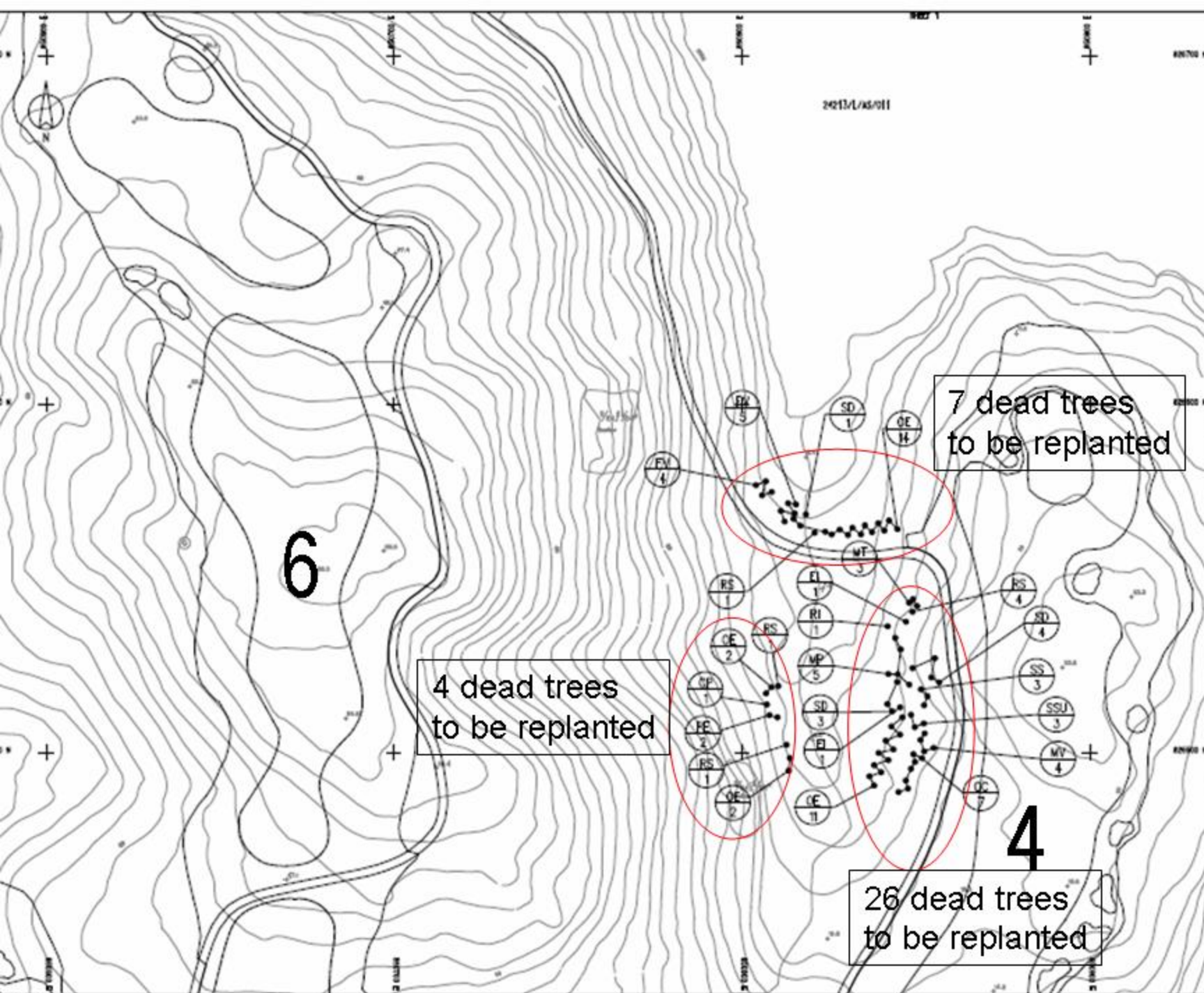
THE JOCKEY CLUB  
KAU SAE CHAU  
PUBLIC GOLF COURSE  
THIRD GOLF COURSE  
KAU SAI CHAU

PLANTING PLAN  
(TREE AND GRASS COVER)

DATE	ISSUED	DATE	ISSUED

AS-CONSTRUCTED

2013/11/15/011



24217/L/AS/011

KS70 4

7 dead trees  
to be replanted

4 dead trees  
to be replanted

26 dead trees  
to be replanted

6

4

NO.	DATE	REVISION



**ARUP** Group Limited  
Incorporated in Hong Kong  
15/F, One Pacific Century Centre  
118, Queen's Road East, Hong Kong  
ARUP (China) Limited  
Room 2101, One World Financial Centre  
221, Victoria Harbour Road, Hong Kong  
ARUP (Singapore) Private Limited  
100 Robinson Road, #11-01, Singapore 068912



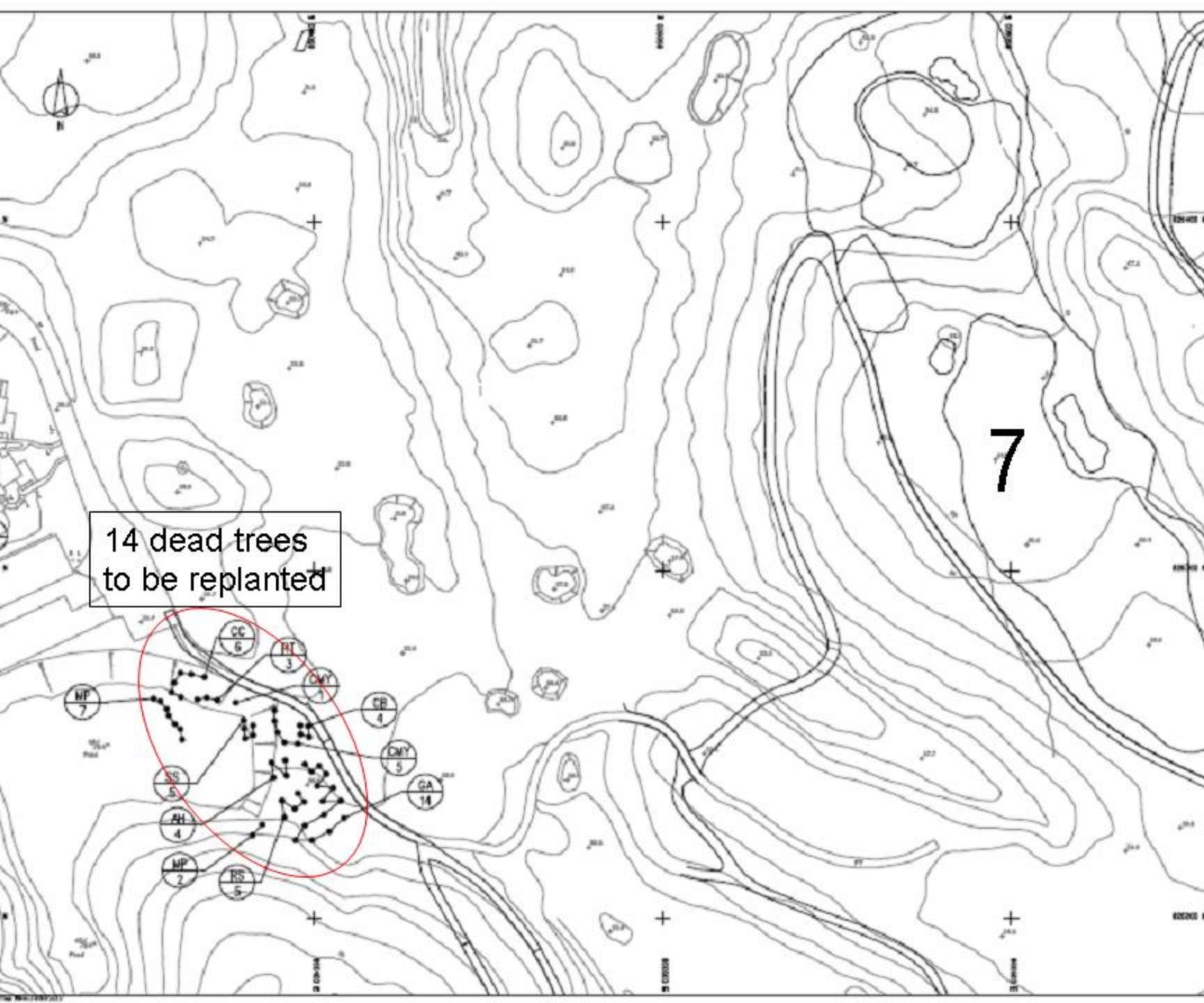
THE JOCKEY CLUB  
KAI SAE CHAU  
PUBLIC GOLF COURSE  
THIRD GOLF COURSE  
KAI SAE CHAU

PLANTING PLAN  
(TREE AND GRASS COVER)

DATE	ISSUED	REVISION	NO.

Scale: 1:1000  
Date: 11/02/02  
As-Constructed

24217/L/AS/012



14 dead trees  
to be replanted

NO. OF SHEETS	10
NO. OF SHEETS USED	10
DATE	2013
SCALE	1:1000
PROJECT	THE JOCKEY CLUB KAI SAE CHAI PUBLIC GOLF COURSE THIRD GOLF COURSE KAI SAE CHAI

**ARUP** CONSULTANTS  
 15/F, 150, Queen's Road East, Hong Kong  
 Tel: +852 2500 8600  
 Fax: +852 2500 8601  
 Email: arup@arup.com

**HEG** HONG KONG ENGINEERING GROUP  
 15/F, 150, Queen's Road East, Hong Kong  
 Tel: +852 2500 8600  
 Fax: +852 2500 8601  
 Email: hkg@heg.com.hk

THE JOCKEY CLUB  
 KAI SAE CHAI  
 PUBLIC GOLF COURSE  
 THIRD GOLF COURSE  
 KAI SAE CHAI

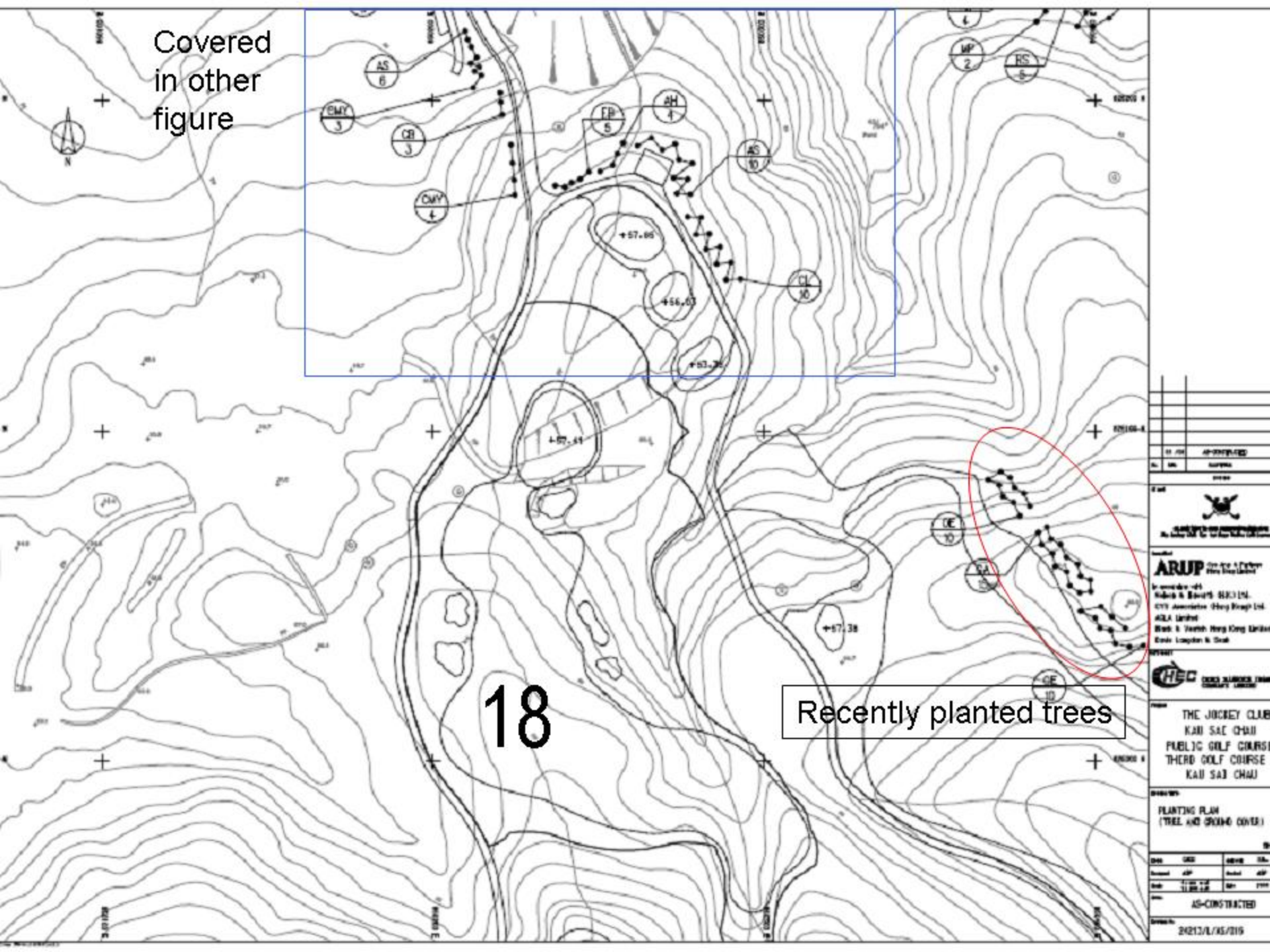
PLANTING PLAN  
 (TREE AND GRASS COVER)

NO.	DATE	BY	CHKD.
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2	11/05/13	...	...
3	11/05/13	...	...
4	11/05/13	...	...
5	11/05/13	...	...

2013A/16/013



Covered  
in other  
figure



18

Recently planted trees

Scale	1:1000
Sheet No.	ARUP/01/02
Date	2012/1/15

**ARUP** CONSULTANTS (HONG KONG) LIMITED  
25/F, ARUP CENTRE, 15 DES VOEUX ROAD, HONG KONG  
TEL: (852) 2500 8888  
WWW.ARUP.COM

**THE JOCKEY CLUB**  
KAU SAE CHAI  
PUBLIC GOLF COURSE  
THIRD GOLF COURSE  
KAU SAE CHAI

**PLANTING PLAN (TREE AND GRASS COVER)**

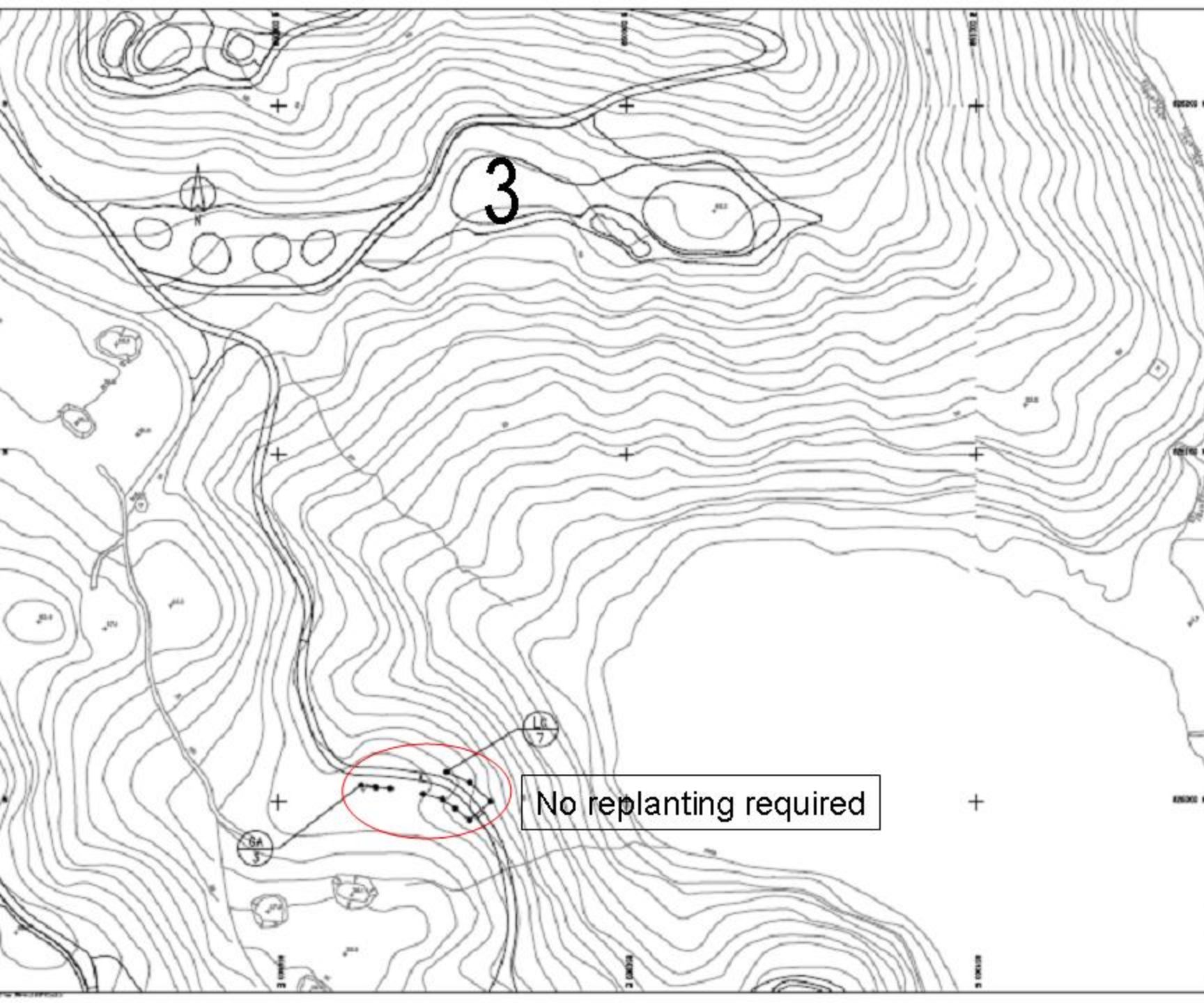
Scale	1:1000
Sheet No.	ARUP/01/02
Date	2012/1/15

AD-CONSTRUCTED

2012/1/15/019







3



No replanting required

Scale	AS-CONSTRUCTED
Sheet No.	000000



**ARUP** The World's Best  
 In association with  
 HOK & BENTLEY HOK LTD.  
 CIVIL ASSOCIATES Hong Kong Ltd.  
 HOK LIMITED  
 Mark A. Yee, Hon. King, King, King  
 Kevin Loughran & Scott



PROJECT  
**THE JOCKEY CLAI  
 KAU SAE CHAI  
 PUBLIC GOLF COURSE  
 THIRD GOLF COURSE  
 KAU SAE CHAI**

DESCRIPTION  
**PLANTING PLAN  
 (TREE AND GRASS COVER)**

DATE	NO.	BY	CHK.
01/01/00	001	AS	AS
02/01/00	002	AS	AS
03/01/00	003	AS	AS

STATUS  
 AS-CONSTRUCTED

DATE  
 24/12/00/01/01



1

8

9 dead trees  
to be replaced

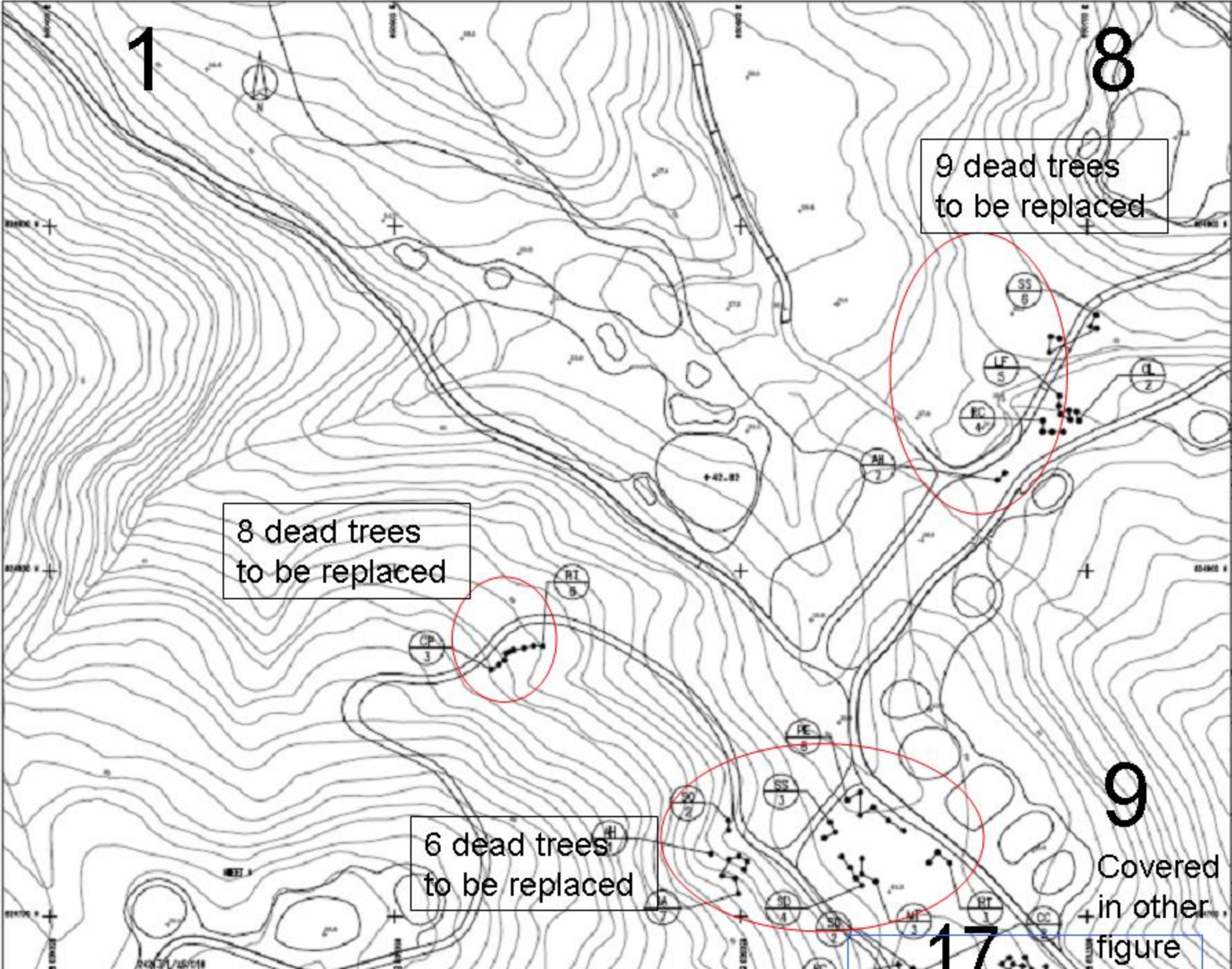
8 dead trees  
to be replaced

6 dead trees  
to be replaced

9

Covered  
in other  
figure

17



ARUP  
 In partnership with  
 The KAJ  
 PUBLIC  
 THIRD  
 KAJ

HEC

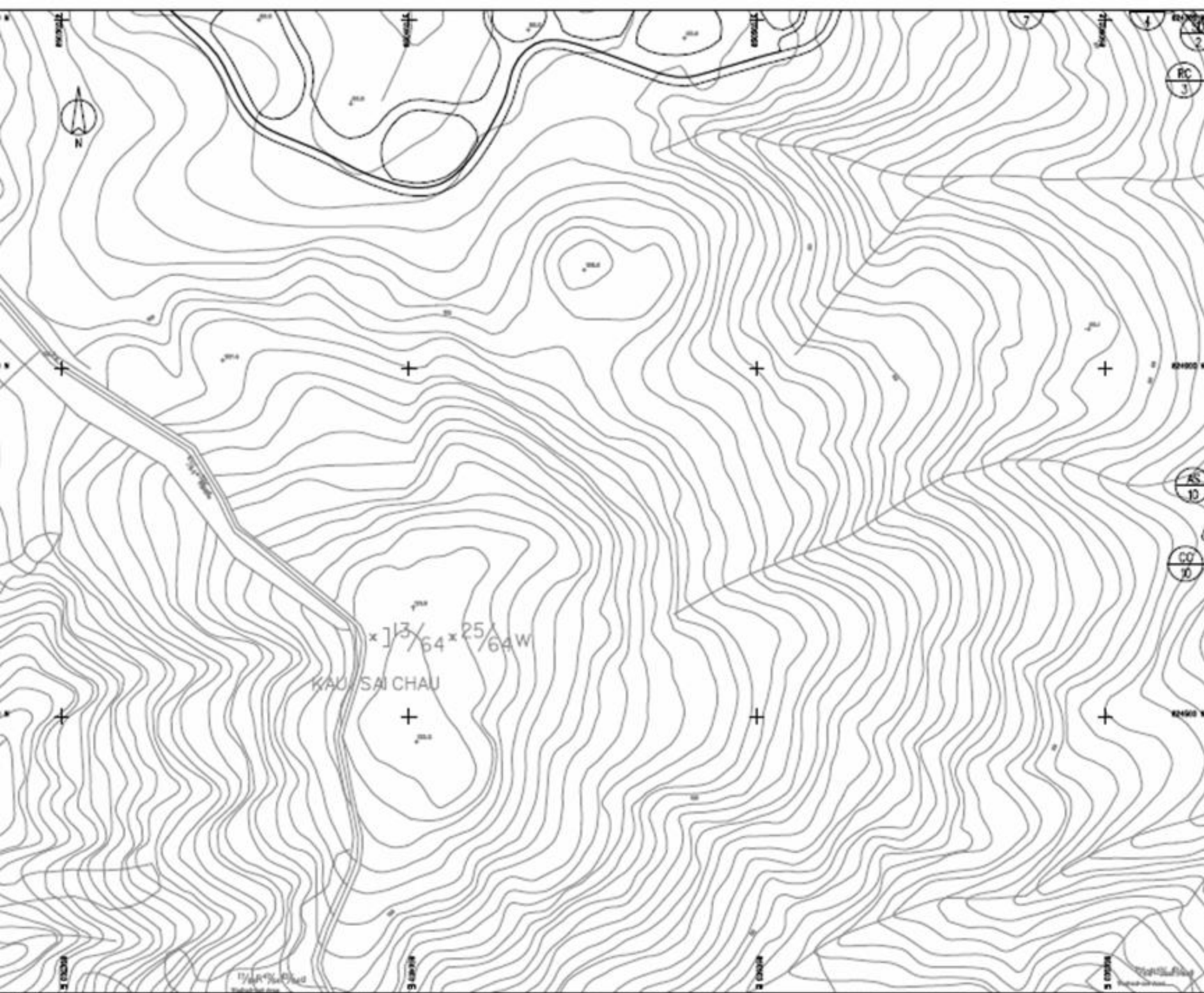
THE  
 KAJ  
 PUBLIC  
 THIRD  
 KAJ

PLANTING P  
 (TREE AND

DATE: 08/11/18  
 SCALE: 1:1000  
 SHEET: 11 OF 11  
 AS-4

24/08/2018





RC  
3

AS  
10

CC  
30

NO.	DESCRIPTION
1	AS-CONSTRUCTED
2	AS-CONSTRUCTED
3	AS-CONSTRUCTED
4	AS-CONSTRUCTED
5	AS-CONSTRUCTED
6	AS-CONSTRUCTED
7	AS-CONSTRUCTED
8	AS-CONSTRUCTED
9	AS-CONSTRUCTED
10	AS-CONSTRUCTED



**ARUP** CONSULTANTS  
 AN IRVING COMPANY  
 100 HONG KONG STREET  
 HONG KONG  
 TEL: (852) 2500 8600  
 FAX: (852) 2500 8601  
 WWW.ARUP.COM



THE JOCKEY CLUB  
 KAU SAI CHAU  
 PUBLIC GOLF COURSE  
 THIRD GOLF COURSE  
 KAU SAI CHAU

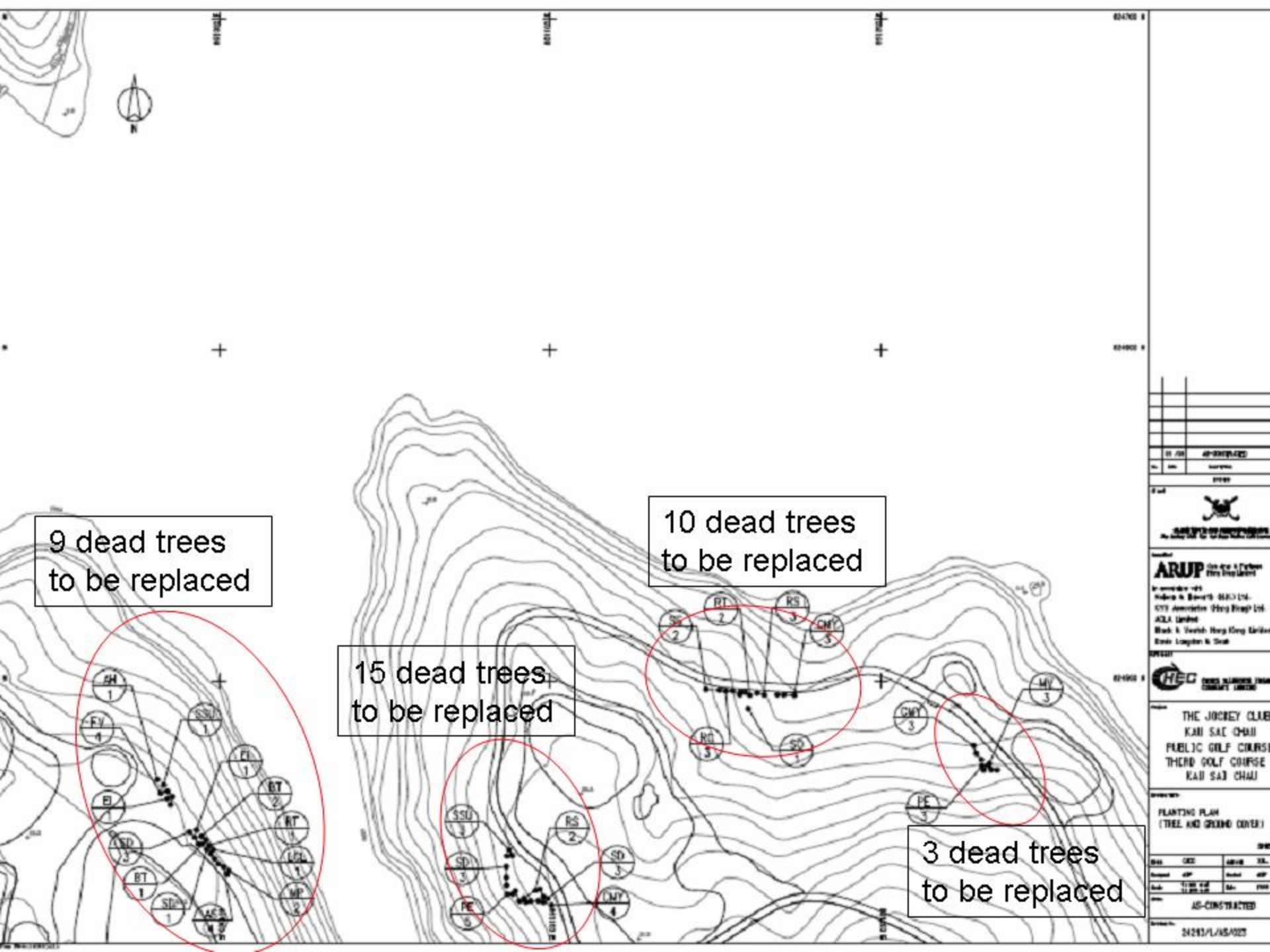
PLANTING PLAN  
 (TREE AND GRASS COVER)

DATE	ISSUE	BY	CHKD
11/05/21	1	AS	AS
12/05/21	2	AS	AS
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14/05/21	4	AS	AS
15/05/21	5	AS	AS
16/05/21	6	AS	AS
17/05/21	7	AS	AS
18/05/21	8	AS	AS
19/05/21	9	AS	AS
20/05/21	10	AS	AS

AS-CONSTRUCTED

24213/L/HS/021





9 dead trees  
to be replaced

15 dead trees  
to be replaced

10 dead trees  
to be replaced

3 dead trees  
to be replaced

024702 4

Project No.	024702
Client	ARUP
Scale	1:1000
Date	2023
Author	ARUP
Checker	ARUP
Approver	ARUP

ARUP  
150 Water Street, 29th Floor  
New York, NY 10038  
USA  
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Fax: +1 212 904 7001  
www.arup.com

THE JOCKEY CLUB  
KAI SAE CHAI  
PUBLIC GOLF COURSE  
THIRD GOLF COURSE  
KAI SAE CHAI

PLANTING PLAN  
(TREE AND GRASS COVER)

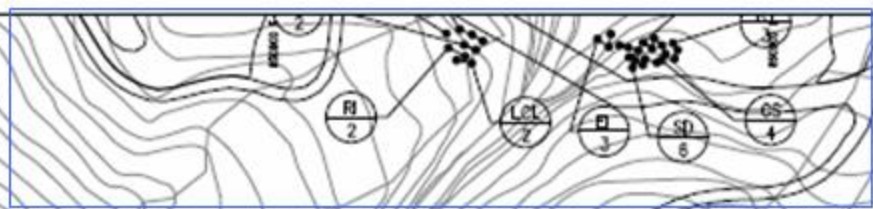
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1	1	...	...
2	1	...	...
3	1	...	...

AS-CONSTRUCTED

24283/L/AS/023



Covered  
in other  
figure



NO.	DATE	DESCRIPTION

**ARUP** On-site & Off-site  
New Site Layout  
In association with  
Hokins & Burt's (HK) Ltd.  
City Associates (Hong Kong) Ltd.  
AKA Limited  
Mark & Vivien Ho King King Limited  
Doris Lampton & Seah



THE JOCKEY CLUB  
KAU SAI CHAU  
PUBLIC GOLF COURSE  
THIRD GOLF COURSE  
KAU SAI CHAU

PLANTING PLAN  
(TREE AND GRASS COVER)

DATE	ISSUE	BY	CHKD

Scale: AS-CONSTRUCTED

24/12/14/AS/004

Covered  
in other  
figure

11

10

No replanting required

NO. OF SHEETS	40-CONSTRUCTED
NO. SHEETS	2000
DATE	2000
	
LAND DEVELOPMENT AUTHORITY The Survey and Mapping Office	

**ARUP** On-site & External  
New Site Layout  
In association with  
Hobbs & Bart's (HK) Ltd.  
Civil Association (Hong Kong) Ltd.  
ALTA Limited  
Mark & Vireth Hong Kong Limited  
Doris Lampton & Seah

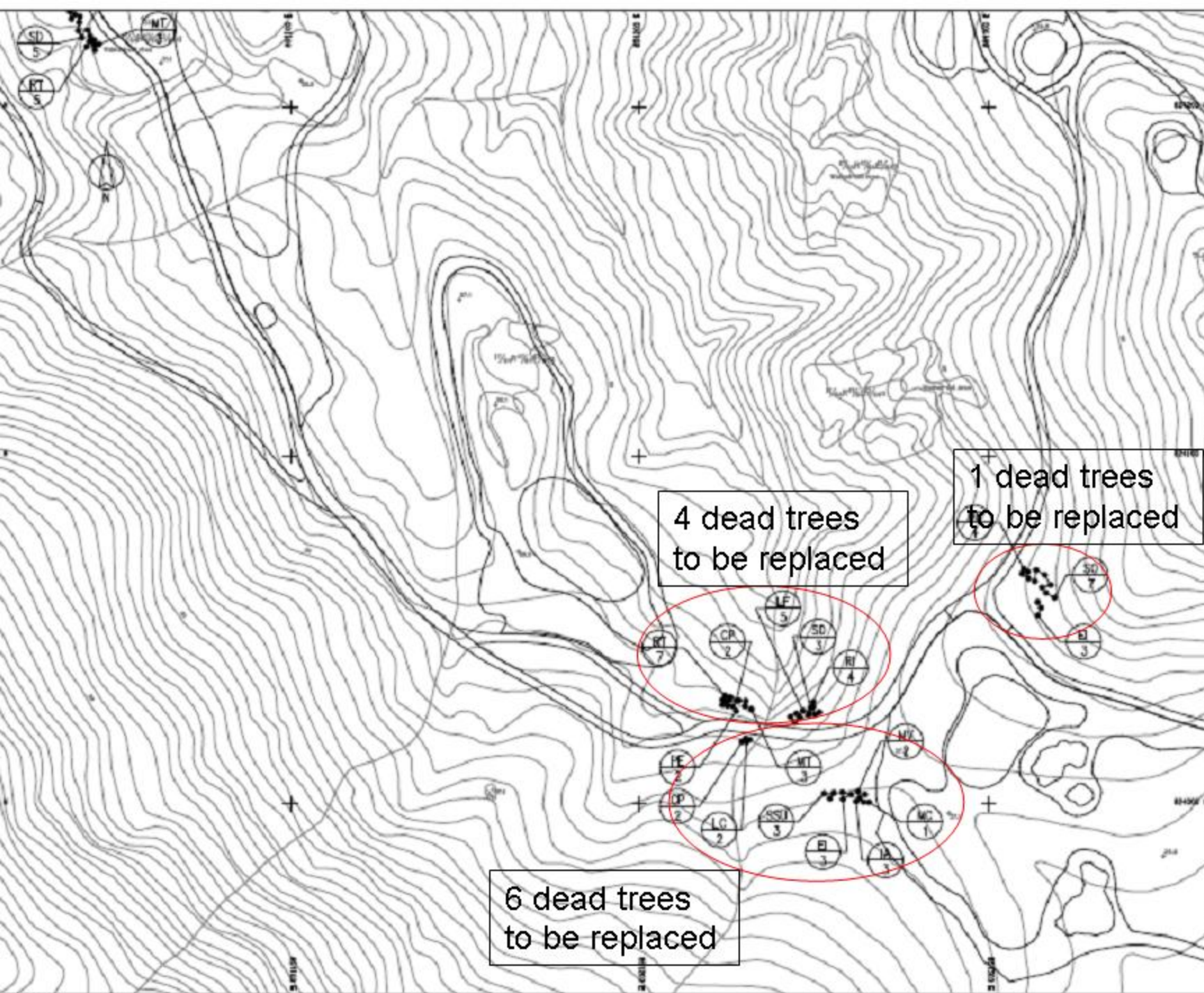
**HEC** HONG KONG ENGINEERING CONSULTANTS

THE JOCKEY CLUB  
KAU SAI CHAU  
PUBLIC GOLF COURSE  
THIRD GOLF COURSE  
KAU SAI CHAU

PLANTING PLAN  
(TREE AND GRASS COVER)

DATE	2000	DATE	2000
DESIGNED BY	GP	CHECKED BY	GP
DATE	11.05.00	DATE	2000
AS-CONSTRUCTED			






4 dead trees  
to be replaced

1 dead trees  
to be replaced

6 dead trees  
to be replaced

NO.	DATE	REVISION


  
**ARUP** CONSULTANTS  
 15/F, 150, Queen's Road East, Hong Kong  
 00852 2522 8888  
 www.arup.com

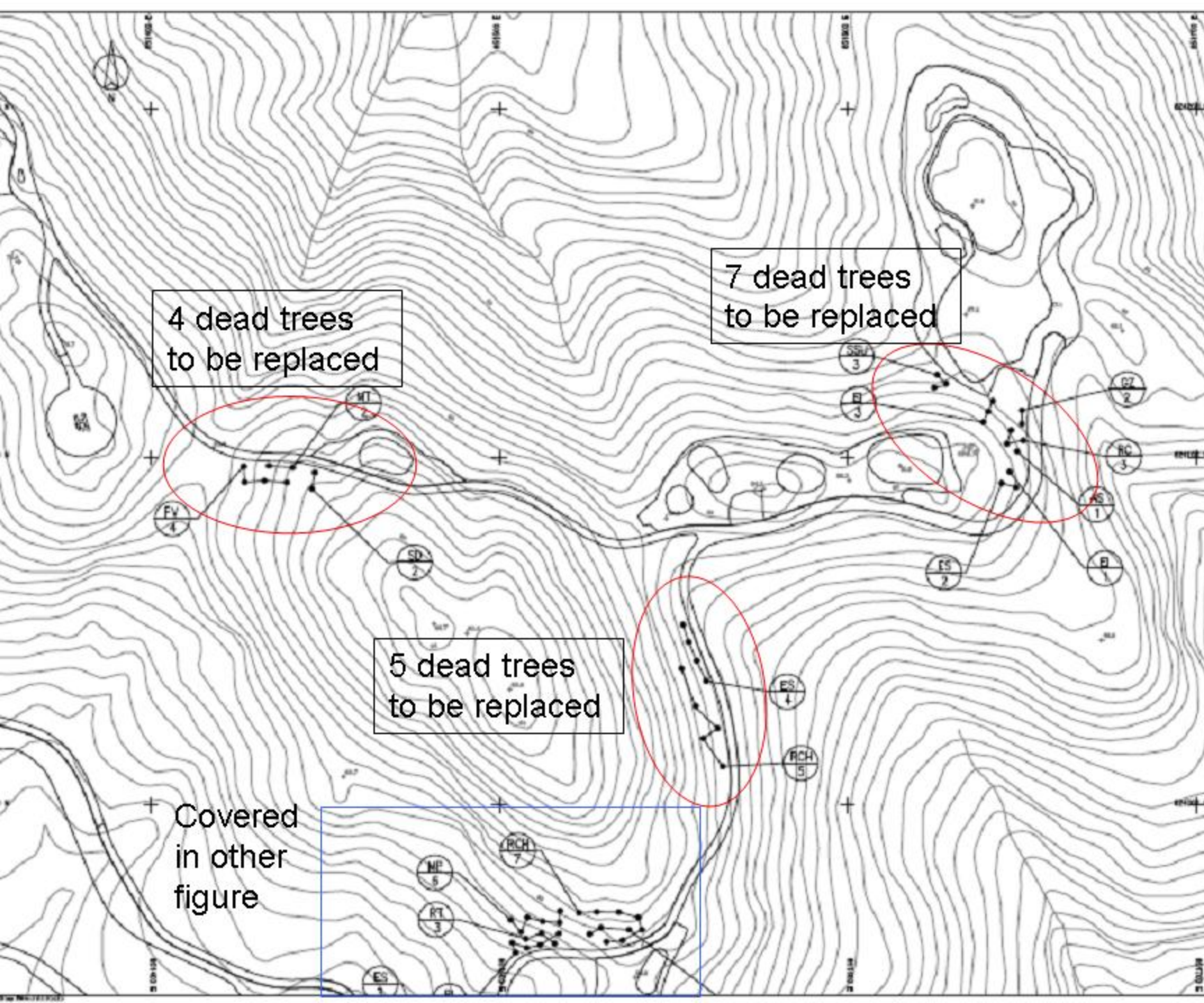

  
**HGC** HONG KONG GOLF COURSE  
 DEVELOPMENT COMPANY LIMITED

**THE JOCKEY CLUB**  
**KAU SAE CHAU**  
**PUBLIC GOLF COURSE**  
**THIRD GOLF COURSE**  
**KAU SAE CHAU**

**PLANTING PLAN**  
**(TREE AND GRASS COVER)**

DATE	BY	CHECKED	DATE

AS-CONTRACTED  
 24/11/14/02



4 dead trees  
to be replaced

7 dead trees  
to be replaced

5 dead trees  
to be replaced

Covered  
in other  
figure

NO.	REV.	DATE	BY

**ARUP** CONSULTANTS (HONG KONG) LIMITED
   
 15/F, BANK OF CHINA BUILDING, 100 QUEEN'S ROAD CENTRAL, HONG KONG
   
 ARUP (HONG KONG) LIMITED
   
 15/F, BANK OF CHINA BUILDING, 100 QUEEN'S ROAD CENTRAL, HONG KONG

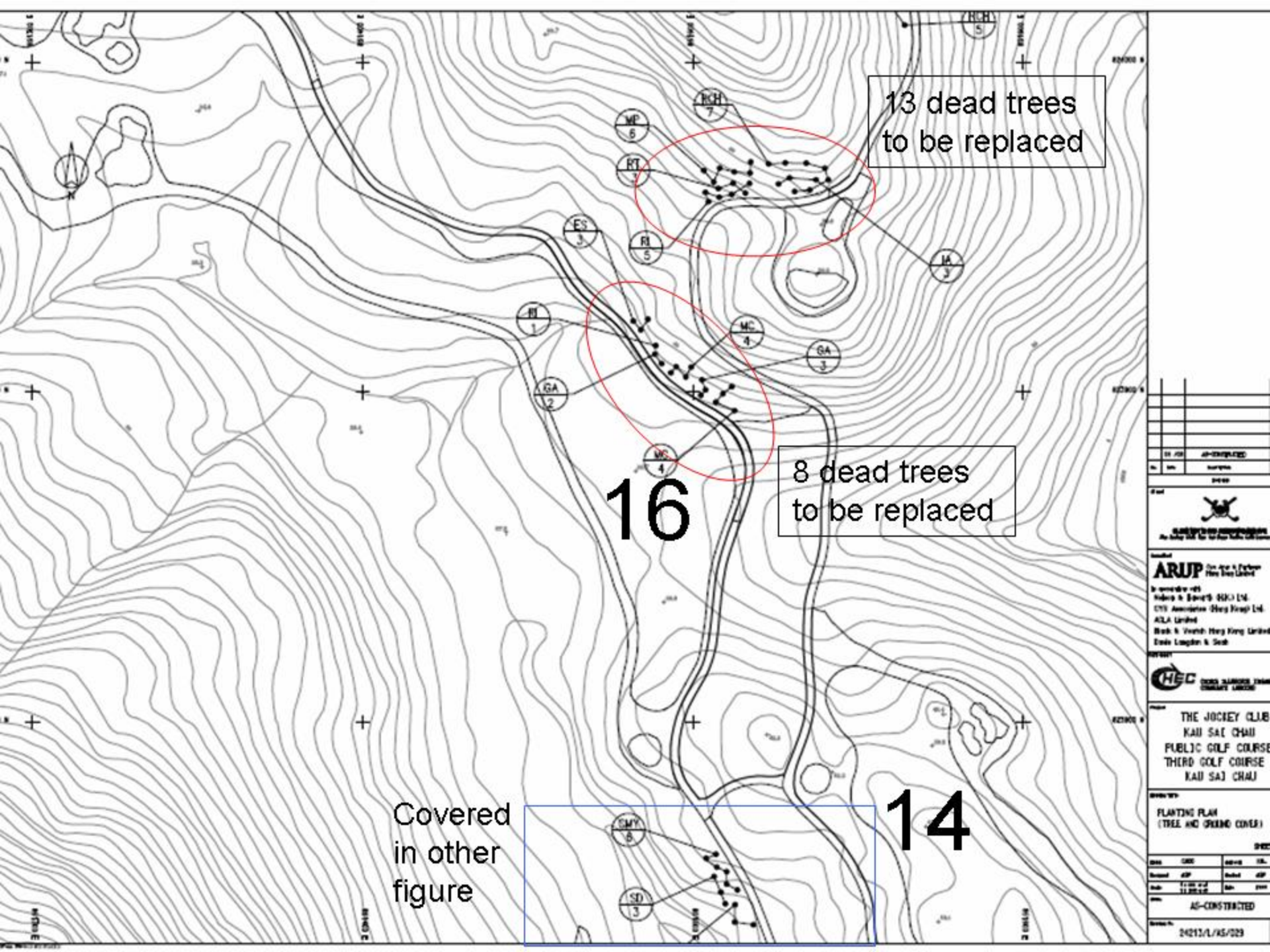
**HEC** HONG KONG ENGINEERING CONSULTANTS

**THE JOCKEY CLUB**  
**KAU SAE CHAU**  
**PUBLIC GOLF COURSE**  
**THIRD GOLF COURSE**  
**KAU SAE CHAU**

**PLANTING PLAN**  
**(TREE AND GRASS COVER)**

DATE	11/05/12	SCALE	AS SHOWN
DRAWN		CHECKED	
DATE		DATE	

11/05/12  
 11/05/12



13 dead trees  
to be replaced

8 dead trees  
to be replaced

16

14

Covered  
in other  
figure

DATE	DESCRIPTION

**ARUP** CONSULTANTS  
 100 HONG KONG STREET  
 HONG KONG  
 CHINA  
 TEL: +852 2911 2222  
 FAX: +852 2911 2222  
 WWW.ARUP.COM

**HEC** HONG KONG ENGINEERING CONSULTANTS LIMITED

THE JOCKEY CLUB  
 KAI SAI CHAU  
 PUBLIC GOLF COURSE  
 THIRD GOLF COURSE  
 KAI SAI CHAU

PLANTING PLAN  
(TREE AND GRASS COVER)

DATE	ISSUE	REVISION	BY

DATE: 11/05/03  
 SCALE: AS-CONSTRUCTED  
 DRAWN BY: [Name]  
 CHECKED BY: [Name]  
 DATE: 11/05/03



# S10

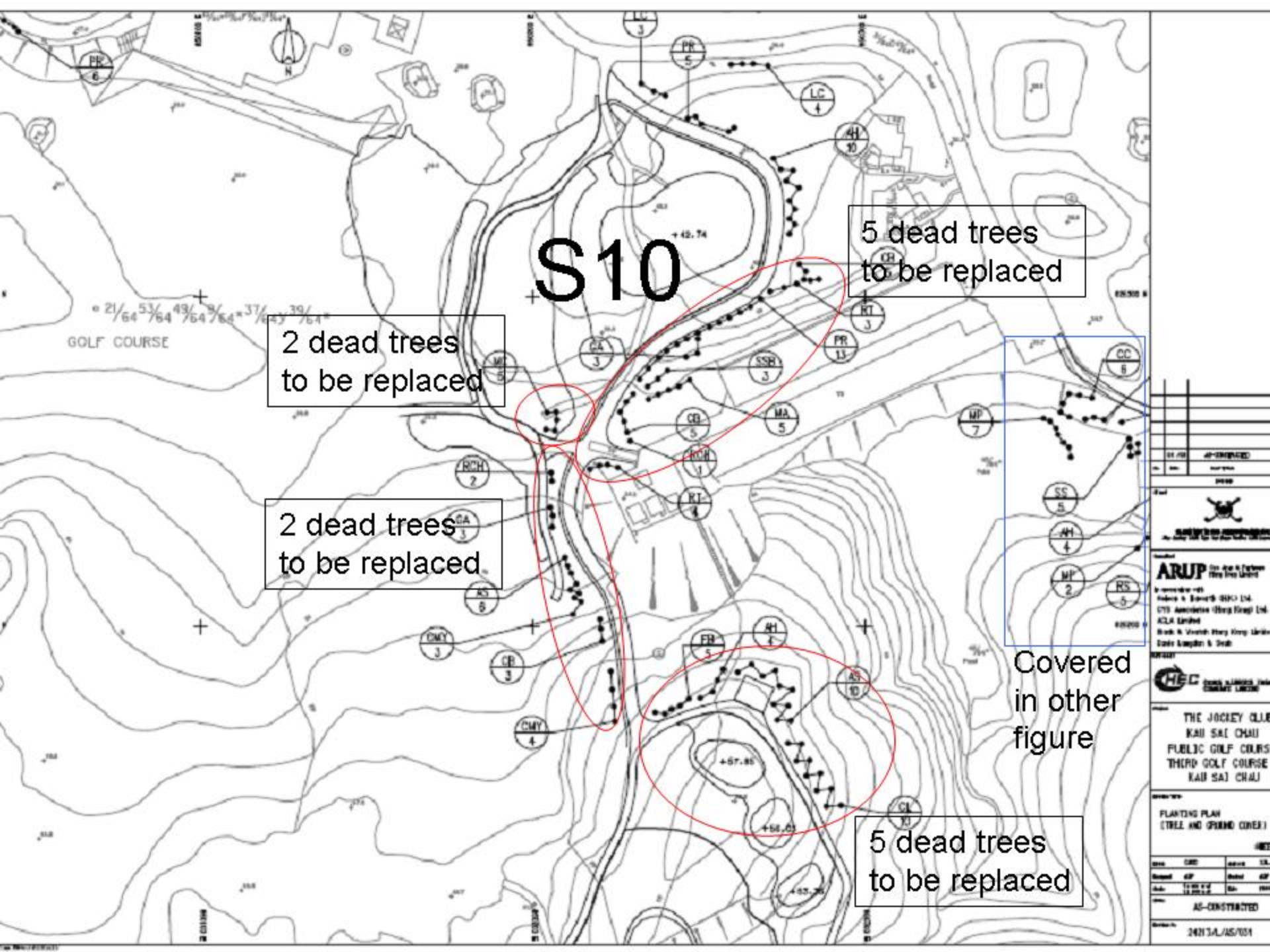
5 dead trees  
to be replaced

2 dead trees  
to be replaced

2 dead trees  
to be replaced

Covered  
in other  
figure

5 dead trees  
to be replaced



ARUP  
THE JOCKEY CLUB  
KAI SAI CHAI  
PUBLIC GOLF COURSE  
THIRD GOLF COURSE  
KAI SAI CHAI

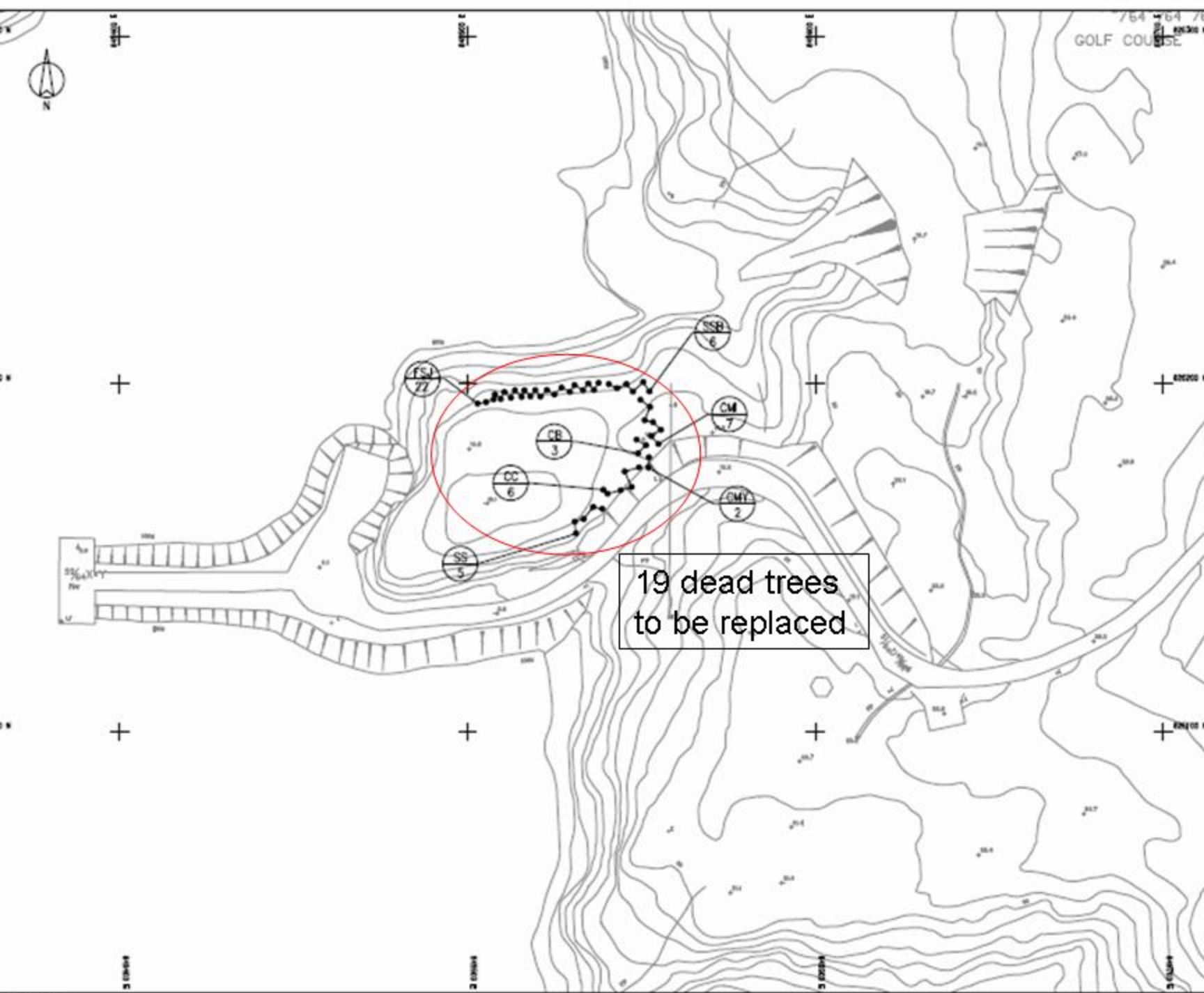
PLANTING PLAN  
(TREE AND SHRUB COVER)

NO.	CODE	QUANTITY	UNIT
1	...	...	...
2	...	...	...
3	...	...	...
4	...	...	...
5	...	...	...

AS-COMPLETED

24/11/14/AS/01





19 dead trees  
to be replaced

NO.	DESCRIPTION
1	...
2	...
3	...
4	...
5	...
6	...
7	...
8	...
9	...
10	...
11	...
12	...
13	...
14	...
15	...
16	...
17	...
18	...
19	...
20	...



**ARUP** CONSULTANTS  
 The ARUP Group Limited  
 11th Floor, 111 South Bay Street, Singapore  
 051 43434343  
 Fax: +65 6339 1100  
 Email: arup@arup.com



**THE JOCKEY CLUB**  
**KAU SAI CHAU**  
**PUBLIC GOLF COURSE**  
**THIRD GOLF COURSE**  
**KAU SAI CHAU**

PROJECT: PLANTING PLAN (TREE AND GRASS COVER)

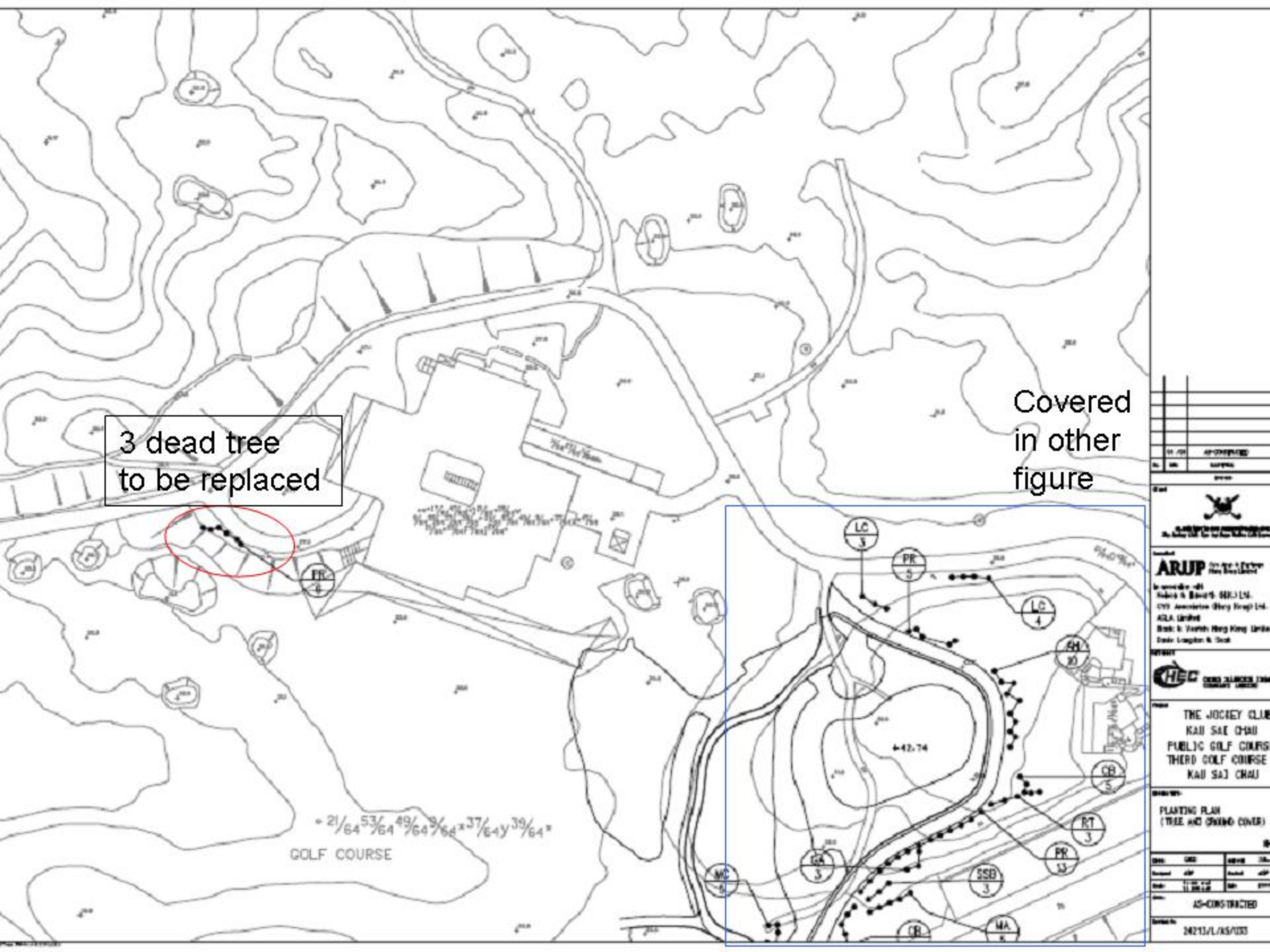
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11/05/02	02	ISSUED FOR TENDER
11/05/02	03	ISSUED FOR TENDER
11/05/02	04	ISSUED FOR TENDER
11/05/02	05	ISSUED FOR TENDER
11/05/02	06	ISSUED FOR TENDER
11/05/02	07	ISSUED FOR TENDER
11/05/02	08	ISSUED FOR TENDER
11/05/02	09	ISSUED FOR TENDER
11/05/02	10	ISSUED FOR TENDER
11/05/02	11	ISSUED FOR TENDER
11/05/02	12	ISSUED FOR TENDER
11/05/02	13	ISSUED FOR TENDER
11/05/02	14	ISSUED FOR TENDER
11/05/02	15	ISSUED FOR TENDER
11/05/02	16	ISSUED FOR TENDER
11/05/02	17	ISSUED FOR TENDER
11/05/02	18	ISSUED FOR TENDER
11/05/02	19	ISSUED FOR TENDER
11/05/02	20	ISSUED FOR TENDER

SCALE: AS CONSTRUCTED

DATE: 24/11/05/02

3 dead tree  
to be replaced

Covered  
in other  
figure



Scale	1:1000
North Arrow	True North

**ARUP** CONSULTANTS (HONG KONG) LIMITED  
Incorporated in Hong Kong  
25/F, AIA Tower, 250 Queen's Road Central, Hong Kong  
Tel: (852) 2500 8600  
Fax: (852) 2500 8601  
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**HEC** HONG KONG ENGINEERING CONSULTANTS LIMITED  
Incorporated in Hong Kong  
25/F, AIA Tower, 250 Queen's Road Central, Hong Kong  
Tel: (852) 2500 8600  
Fax: (852) 2500 8601  
www.hec.com.hk

**THE JOCKEY CLUB  
KAU SAE CHAU  
PUBLIC GOLF COURSE  
THIRD GOLF COURSE  
KAU SAE CHAU**

**PLANTING PLAN  
(TREE AND SHRUB COVER)**

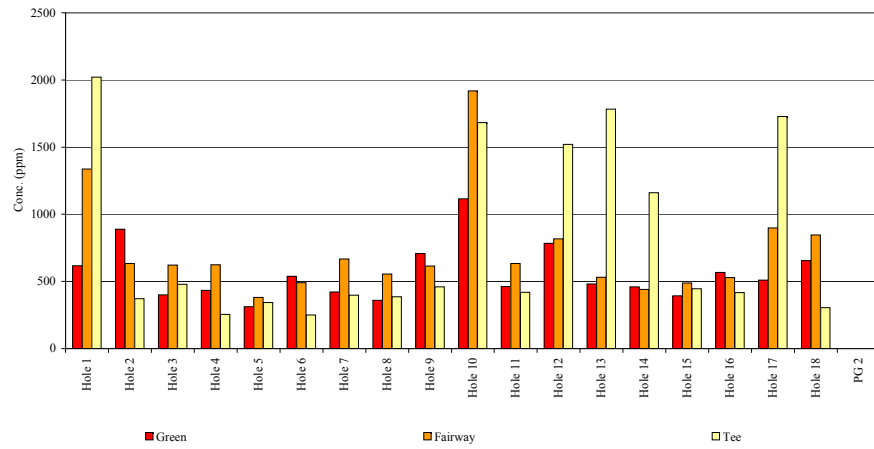
Scale	AS-CONSTRUCTED
Date	2013/1/15/03

# Soil Nutrient

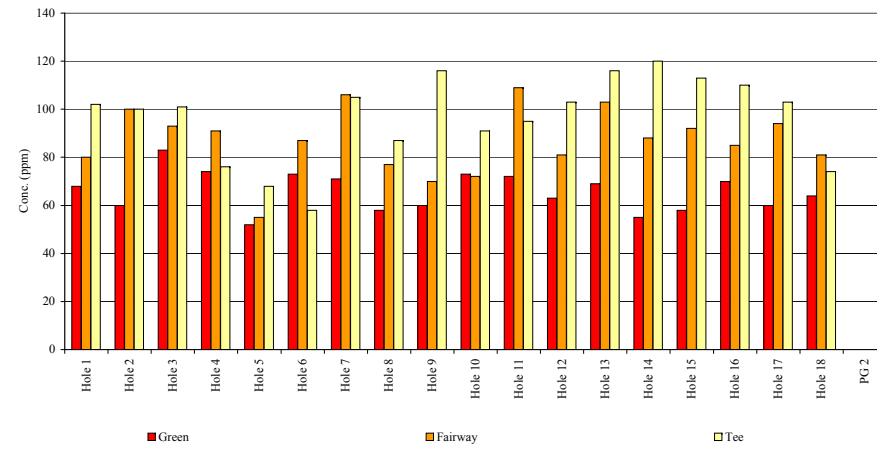
March 2009 - Soil Analysis

Parameter		Ca	Mg	K	P	S	B	Fe	Mn	Cu	Zn	Na	OM
		ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	
Hole 1	Green	617	68	107	102	21	0.46	221	54	6.76	35	38	0.50%
	Fairway	1337	80	94	32	8	0.57	235	70	0.91	4	40	0.50%
	Tee	2021	102	236	25	10	0.38	148	90	1.82	6	30	0.80%
Hole 2	Green	890	60	82	148	20	0.41	236	51	16.15	75	37	0.50%
	Fairway	633	100	108	50	10	0.60	394	58	1.25	5	51	0.70%
	Tee	371	100	341	50	12	0.50	523	79	8.10	24	39	0.70%
Hole 3	Green	400	83	166	70	20	0.43	285	60	7.52	38	35	0.60%
	Fairway	622	93	54	31	16	1.31	290	55	0.88	3	61	0.70%
	Tee	478	101	427	104	12	0.77	410	65	2.22	8	48	0.70%
Hole 4	Green	434	74	177	73	16	0.53	309	73	5.85	28	28	0.70%
	Fairway	625	91	79	51	12	1.47	419	50	1.08	3	48	0.70%
	Tee	256	76	188	65	14	0.34	244	33	2.66	5	27	0.60%
Hole 5	Green	312	52	115	48	14	0.42	252	48	3.89	20	26	0.50%
	Fairway	382	55	119	39	23	1.13	226	31	2.26	14	35	0.50%
	Tee	342	68	219	59	8	0.41	336	55	1.80	7	32	0.80%
Hole 6	Green	539	73	173	67	17	0.51	351	68	3.65	21	28	0.70%
	Fairway	492	87	106	35	12	1.01	503	37	0.68	3	48	0.70%
	Tee	250	58	135	54	8	0.36	233	27	1.64	5	34	0.70%
Hole 7	Green	422	71	160	65	15	0.45	292	54	2.22	12	31	0.70%
	Fairway	667	106	84	76	10	1.06	384	59	0.77	3	47	0.60%
	Tee	399	105	293	62	10	0.58	409	66	2.31	7	37	0.80%
Hole 8	Green	359	58	132	56	20	0.45	275	49	3.72	19	29	0.70%
	Fairway	555	77	79	64	18	0.74	445	34	0.80	2	45	0.70%
	Tee	386	87	239	108	10	0.41	395	40	1.64	6	31	0.80%
Hole 9	Green	708	60	68	87	12	0.38	218	70	5.78	28	31	0.70%
	Fairway	616	70	107	40	10	0.64	399	78	0.99	4	36	0.40%
	Tee	461	116	299	88	10	0.65	529	72	0.95	4	36	0.70%
Hole 10	Green	1115	73	76	92	15	0.50	231	71	4.55	26	33	0.70%
	Fairway	1918	72	53	36	9	0.77	301	62	0.68	3	40	0.60%
	Tee	1683	91	168	57	7	0.42	151	72	0.77	4	26	0.80%
Hole 11	Green	462	72	148	71	12	0.54	368	65	2.96	16	31	0.60%
	Fairway	633	109	93	47	8	0.81	380	70	0.86	4	41	0.70%
	Tee	419	95	249	66	16	0.78	389	49	0.79	4	43	0.90%
Hole 12	Green	785	63	98	77	17	0.48	212	64	5.55	28	34	0.60%
	Fairway	818	81	107	40	12	0.47	248	61	0.67	3	37	0.60%
	Tee	1520	103	317	73	10	0.51	183	71	0.91	7	34	0.90%
Hole 13	Green	482	69	181	88	27	0.52	361	72	6.53	36	36	0.60%
	Fairway	531	103	102	23	9	0.73	353	49	0.74	3	42	0.60%
	Tee	1783	116	226	67	11	0.59	137	80	1.14	6	40	0.80%
Hole 14	Green	460	55	133	64	39	0.46	321	59	3.41	19	25	0.60%
	Fairway	442	88	116	50	8	0.49	429	35	0.65	3	37	0.60%
	Tee	1160	120	343	120	11	0.79	276	63	1.21	11	44	0.90%
Hole 15	Green	393	58	128	64	16	0.41	330	65	4.48	21	27	0.50%
	Fairway	488	92	131	40	13	0.45	386	46	0.62	4	30	0.70%
	Tee	445	113	309	88	13	0.77	403	54	0.94	5	40	0.80%
Hole 16	Green	567	70	135	60	19	0.43	330	67	6.68	36	33	0.70%
	Fairway	530	85	110	56	8	0.41	379	49	0.76	3	29	0.60%
	Tee	416	110	331	57	10	0.69	369	50	1.17	6	44	0.90%
Hole 17	Green	511	60	93	78	18	0.40	238	52	2.40	12	34	0.60%
	Fairway	898	94	146	67	8	0.51	339	72	1.75	7	38	0.50%
	Tee	1729	103	230	44	10	0.49	175	67	1.66	15	27	0.70%
Hole 18	Green	656	64	116	99	14	0.48	270	63	7.99	50	27	0.50%
	Fairway	845	81	57	33	7	0.62	271	56	0.72	3	46	0.60%
	Tee	305	74	180	47	10	0.48	249	34	1.91	9	30	0.80%
PG 2	Green	-	-	-	-	-	-	-	-	-	-	-	-

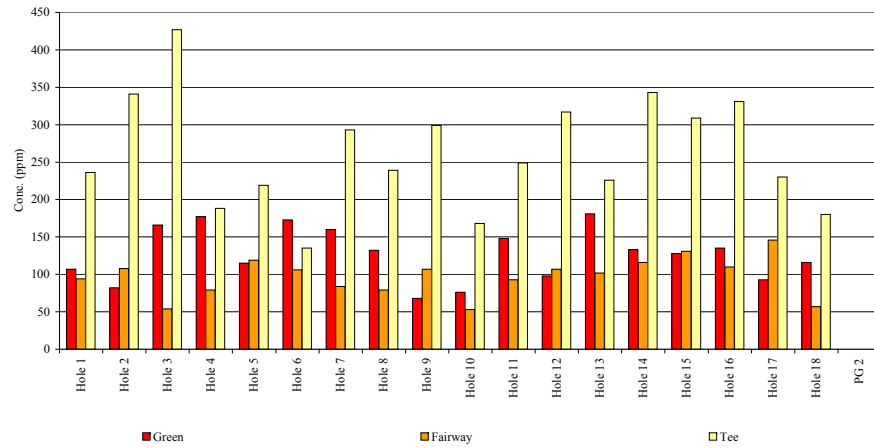
Calcium (March 2009)



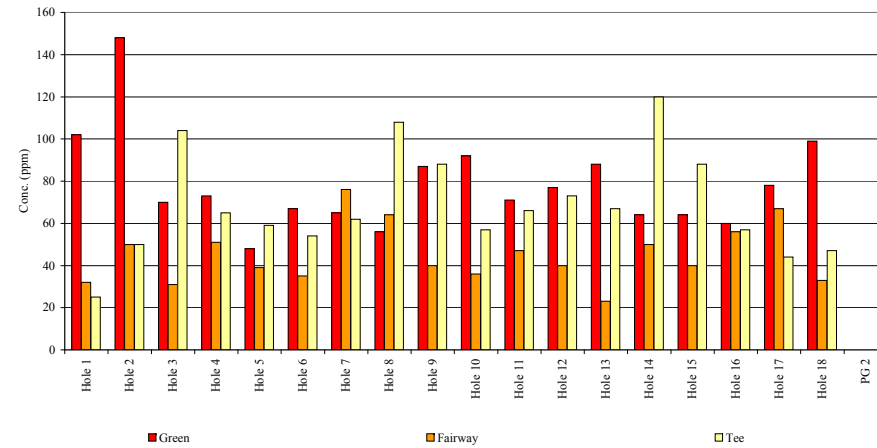
Magnesium (March 2009)



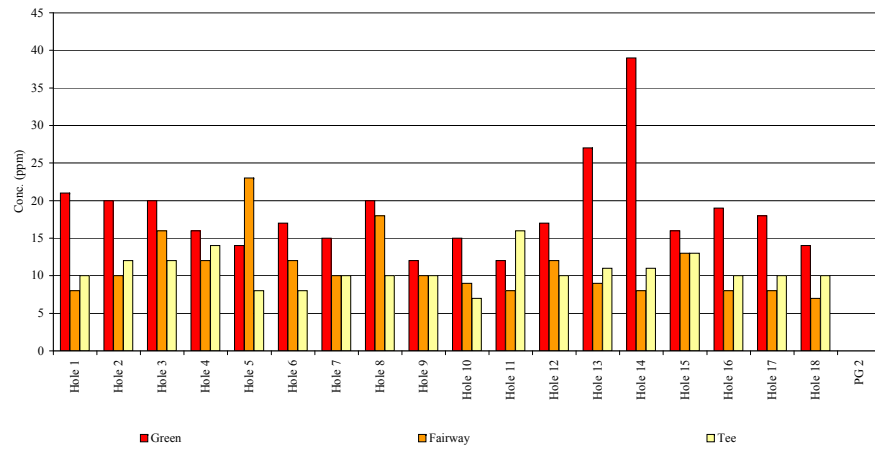
Potassium (March 2009)



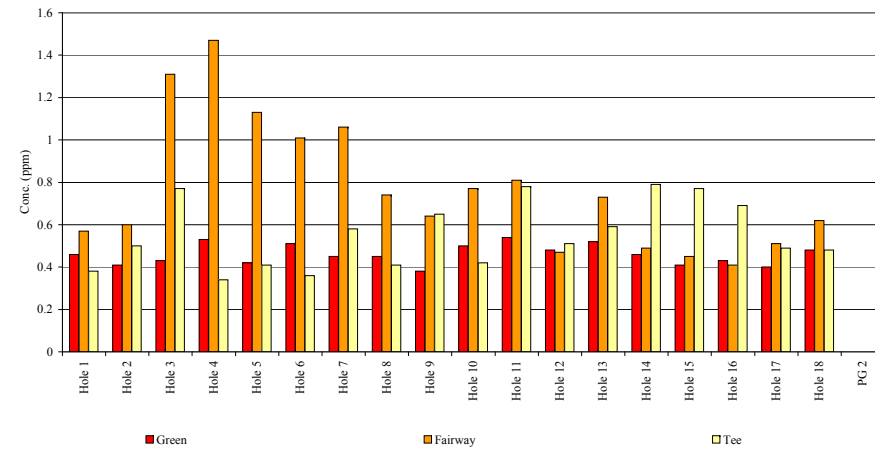
Phosphorus (March 2009)



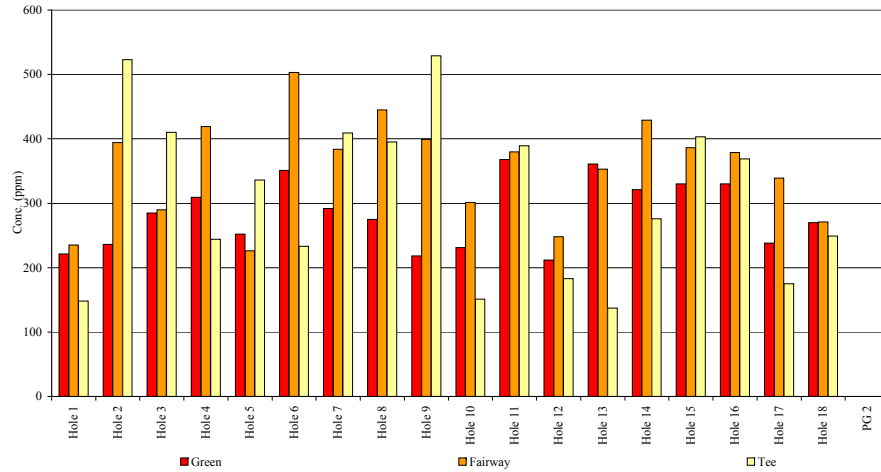
Sulfur (March 2009)



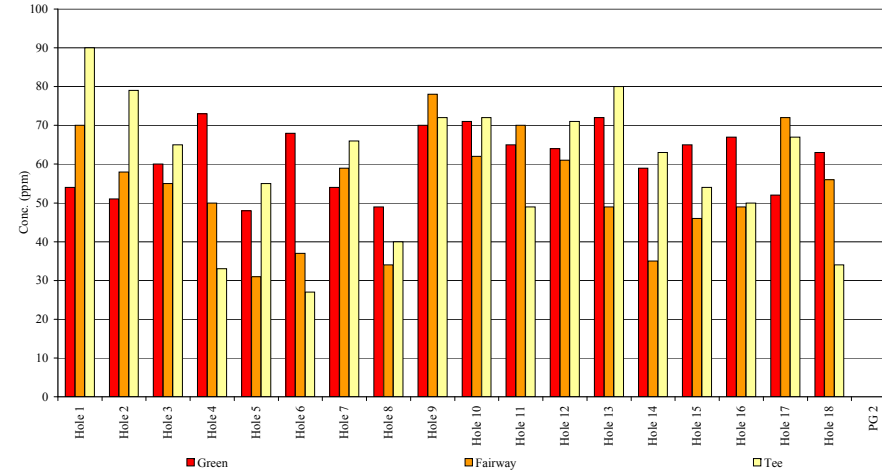
Boron (March 2009)



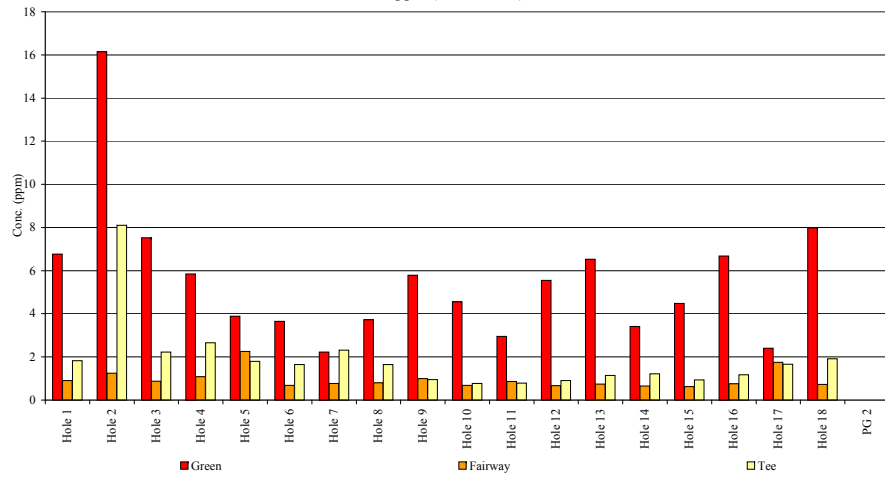
Iron (March 2009)



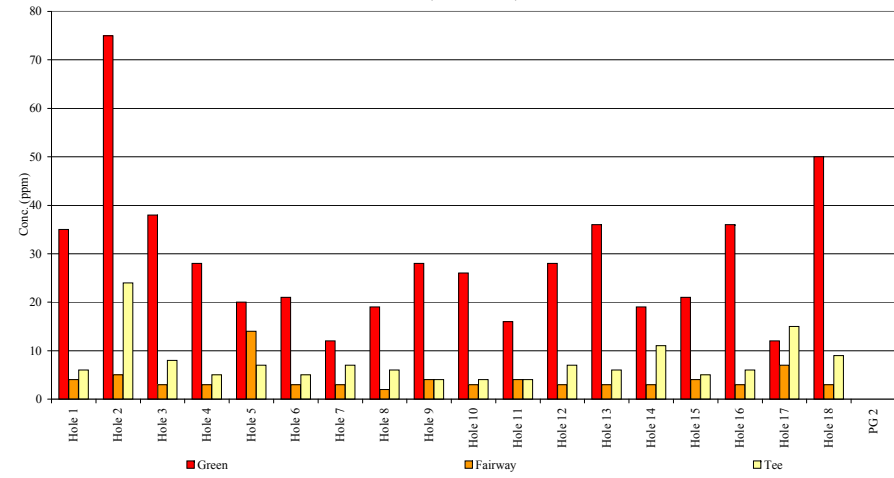
Manganese (March 2009)



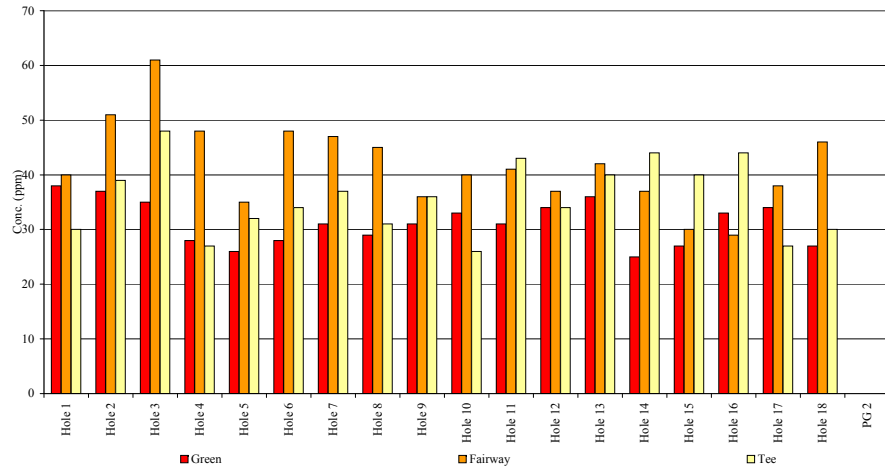
Copper (March 2009)



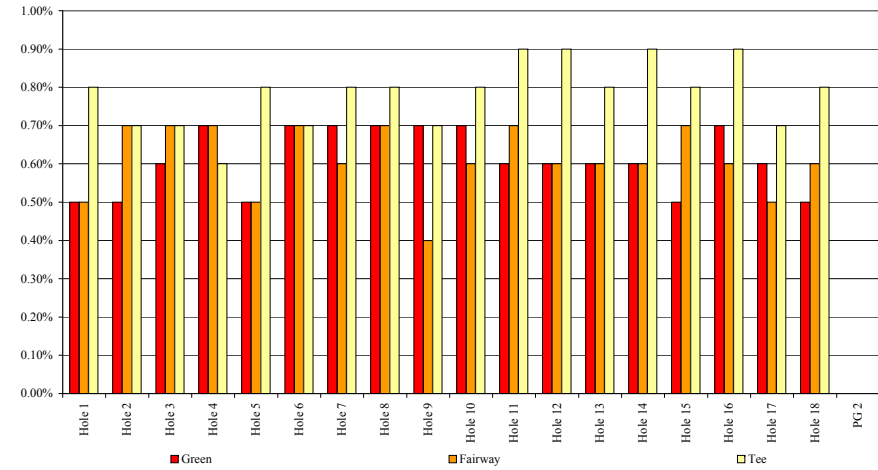
Zinc (March 2009)



Sodium (March 2009)



Organic Matter (Humus) (March 2009)



# **Annex D**

## **Calibration Certificates**



# 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: HK133880  
Sub Batch: 0  
LABORATORY: HONG KONG  
DATE RECEIVED: 25/04/2009  
DATE OF ISSUE: 30/04/2009  
SAMPLE TYPE: EQUIPMENT  
No. of SAMPLES: 1

### COMMENTS

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

### NOTES

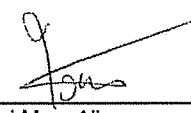
This is the Final Report and supersedes any preliminary report with this batch number.  
Results apply to sample(s) as submitted. All pages of this report have been checked and approved for release.

### ISSUING LABORATORY: HONG KONG

#### Address

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

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

  
Ms Wong Wai Man, Alice  
Laboratory Manager - Hong Kong

#### Other ALS Environmental Laboratories

<b>AUSTRALIA</b>	<b>AMERICAS</b>
Brisbane	Hong Kong
Melbourne	Singapore
Sydney	Kuala Lumpur
Newcastle	Bogor

ALS Technichem (HK) Pty Ltd  
Part of the ALS Laboratory Group

11/F, Chung Shun Knitting Centre, 1-3 Wing Yip Street, Kwai Chung, N.T., H.K.

Phone: 852-2610 1044 Fax: 852-2610 2021 www.alsenviro.com

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# CERTIFICATE OF ANALYSIS




Batch: HK133880  
Sub Batch : 0  
Date of Issue: 30/04/2009  
Client: ENOVATIVE ENV TECHNOLOGY CO  
Client Reference:

## Calibration of Turbidimeter

Item : YSI SONDE Environmental Monitoring System  
Model No. : 6920  
Serial No. : 000109DF  
Calibration Method : This meter was calibrated in accordance with standard method APHA (19th Ed.) 2130B  
Date of Calibration : 25 April, 2009

### Testing Results :

Expected Reading	Recording Reading
0.00 NTU	0.0 NTU
4.00 NTU	4.01 NTU
16.0 NTU	15.8 NTU
80.0 NTU	80.1 NTU
160 NTU	160 NTU
Allowing Deviation	±10%

  
Ms Wong Wai Man, Alice  
Laboratory Manager - Hong Kong

# CERTIFICATE OF ANALYSIS




Batch: HK133880  
Sub Batch : 0  
Date of Issue: 30/04/2009  
Client: ENOVATIVE ENV TECHNOLOGY CO  
Client Reference:

## Calibration of Conductivity System

Item : YSI SONDE Environmental Monitoring System  
Model No. : 6920  
Serial No. : 000109DF  
Calibration Method : This meter was calibrated in accordance with standard method APHA (19th Ed.) 2510B  
Date of Calibration : 25 April, 2009

### Testing Results :

Expected Reading	Recording Reading
1412 uS/cm	1399 uS/cm
6667 uS/cm	6646 uS/cm
58670 uS/cm	58570 uS/cm
Allowing Deviation	±10%

  
Ms Wong Wai Man, Alice  
Laboratory Manager - Hong Kong

# CERTIFICATE OF ANALYSIS



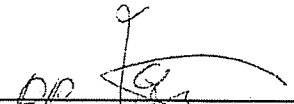
**Batch:** HK133880  
**Sub Batch :** 0  
**Date of Issue:** 30/04/2009  
**Client:** ENOVATIVE ENV TECHNOLOGY CO  
**Client Reference:**

**Calibration of Salinity System**

**Item :** YSI SONDE Environmental Monitoring System  
**Model No. :** 6920  
**Serial No. :** 000109DF  
**Calibration Method :** This meter was calibrated in accordance with standard method APHA (19th Ed.) 2520 A and B  
**Date of Calibration :** 25 April, 2009

**Testing Results :**

Expected Reading	Recording Reading
10.0 g/L	10.0 g/L
20.0 g/L	20.1 g/L
30.0 g/L	30.0 g/L
Allowing Deviation	±10%

  
 \_\_\_\_\_  
 Ms Wong Wai Man, Alice  
 Laboratory Manager - Hong Kong

# CERTIFICATE OF ANALYSIS




Batch: HK133880  
Sub Batch : 0  
Date of Issue: 30/04/2009  
Client: ENOVATIVE ENV TECHNOLOGY CO  
Client Reference:

## Calibration of Thermometer

Item : YSI SONDE Environmental Monitoring System  
Model No. : 6920  
Serial No. : 000109DF  
Calibration Method : In-house Method  
Date of Calibration : 25 April, 2009

### Testing Results :

Reference Temperature (°C)	Recorded Temperature (°C)
3.5 °C	3.5 °C
19.7 °C	19.7 °C
Allowing Deviation	±2.0 °C

  
Ms Wong Wai Man, Alice  
Laboratory Manager - Hong Kong

# CERTIFICATE OF ANALYSIS



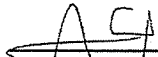
Batch: HK133880  
Sub Batch : 0  
Date of Issue: 30/04/2009  
Client: ENOVATIVE ENV TECHNOLOGY CO  
Client Reference:

## Calibration of DO System

Item : YSI SONDE Environmental Monitoring System  
Model No. : 6920  
Serial No. : 000109DF  
Calibration Method : This meter was calibrated in accordance with standard method APHA (18th Ed.) 4500-OC & G  
Date of Calibration : 25 April, 2009

### Testing Results :

Expected Reading	Recording Reading
0.00 mg/L	0.10 mg/L
2.26 mg/L	2.27 mg/L
4.77 mg/L	4.69 mg/L
8.13 mg/L	8.10 mg/L
Allowing Deviation	±0.2 mg/L

  
\_\_\_\_\_  
Alice W M Wong  
Laboratory Manager - Hong Kong

# CERTIFICATE OF ANALYSIS



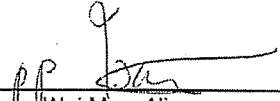
Batch: HK133880  
Sub Batch : 0  
Date of Issue: 30/04/2009  
Client: ENOVATIVE ENV TECHNOLOGY CO  
Client Reference:

## Calibration of pH System

Item : YSI SONDE Environmental Monitoring System  
Model No. : 6920  
Serial No. : 000109DF  
Calibration Method : This meter was calibrated in accordance with standard method APHA (19th Ed.) 4500 H:B  
Date of Calibration : 25 April, 2009













### Testing Results :

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

  
Ms Wong Wai Man, Alice  
Laboratory Manager - Hong Kong





April 2009						
Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
19 	20 	21  F (1-9, 11, 18)	22 	23  F (1-18, PG2)	24  C (1-18, PG2)	25 {AR}  F (1-18) WQ
26 	27 	28 	29  F (1-18, PG2)	30  F (1-18) WQ		

May 2009						
Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
					1 	2 
3 	4 	5 	6  F (1-18, PG2)	7 	8 	9 
10 	11  C (1-18) WQ	12 	13 	14 	15 	16  C (1-18, PG2)
17 	18 	19 	20 	21 {AR}  WQ	22  F (1-18)	23 {AR} 
24 {AR}  WQ	25 	26 	27 	28 	29 	30 
31 						

Remarks:

1. Dosage Application by JCKSC

F (follow with numbers) – fertilizers were applied at those holes of East Golf Course.

C (follow with numbers) – non-biological chemicals (eg. pesticides, fungicides, etc.) were applied at those holes of East Golf Course.

2. Weather Information (from Hong Kong Observatory)



daily duration of sunshine > 4 hours and without raining



daily duration of sunshine < 4 hours and without raining



daily rainfall > 0.5 mm at Kau Sai Chau Island



daily rainfall > 30 mm at Kau Sai Chau Island

{R} Rainstorm signal was hoisted; “A” stands for Amber, “R” stands for Red and “B” stands for Black rainstorm signals were hoisted.

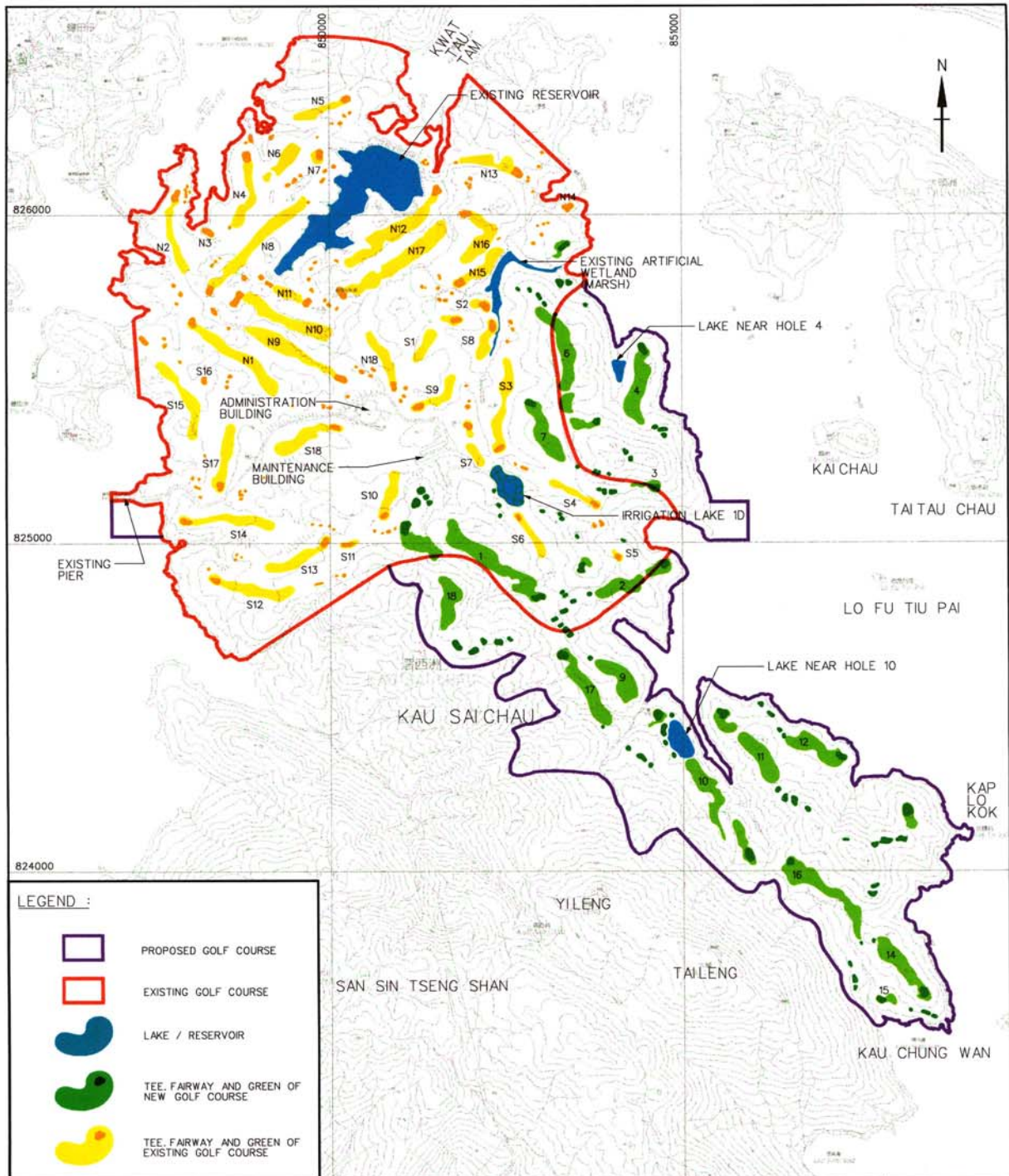
3. Environmental Monitoring

WQ – fresh and marine water quality monitoring were implemented.

# **Annex E**

## **Fertilizer and Pesticides Application**

# FIGURES



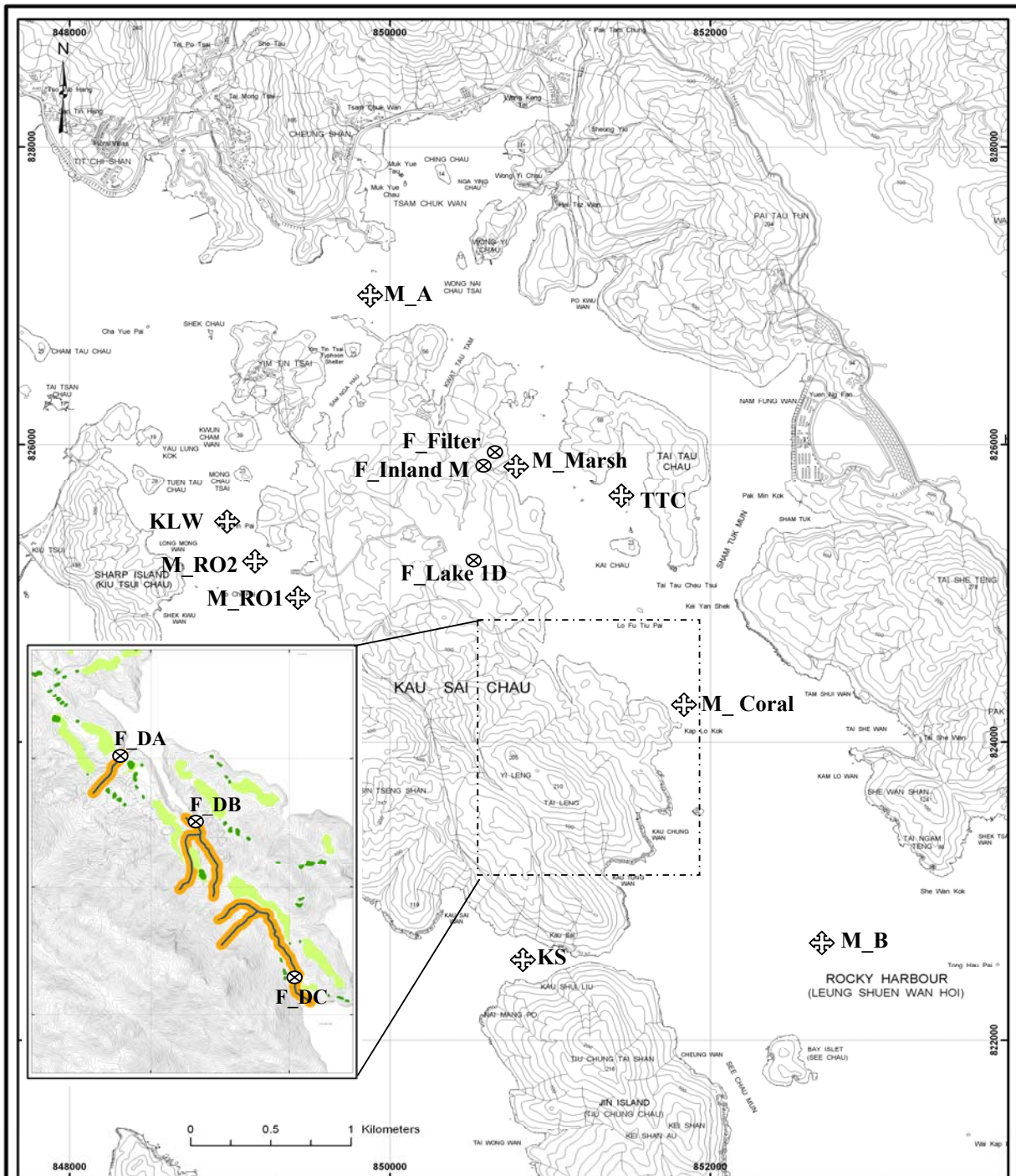

 The Hong Kong Jockey Club

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**BLACK & VEATCH HONG KONG LIMITED**  
 博威工程顧問有限公司

**PROPOSED EXTENSION OF PUBLIC GOLF**  
**Public Golf Course at Kau Sai Chau Island,**  
**Sai Kung**  
  
**Master Layer Plan**

<b>Fig 1.1</b>	Revision
Reference	File Name
Prepared	Checked
Date	Scale
Apr 08	1 : 15000 (A4)



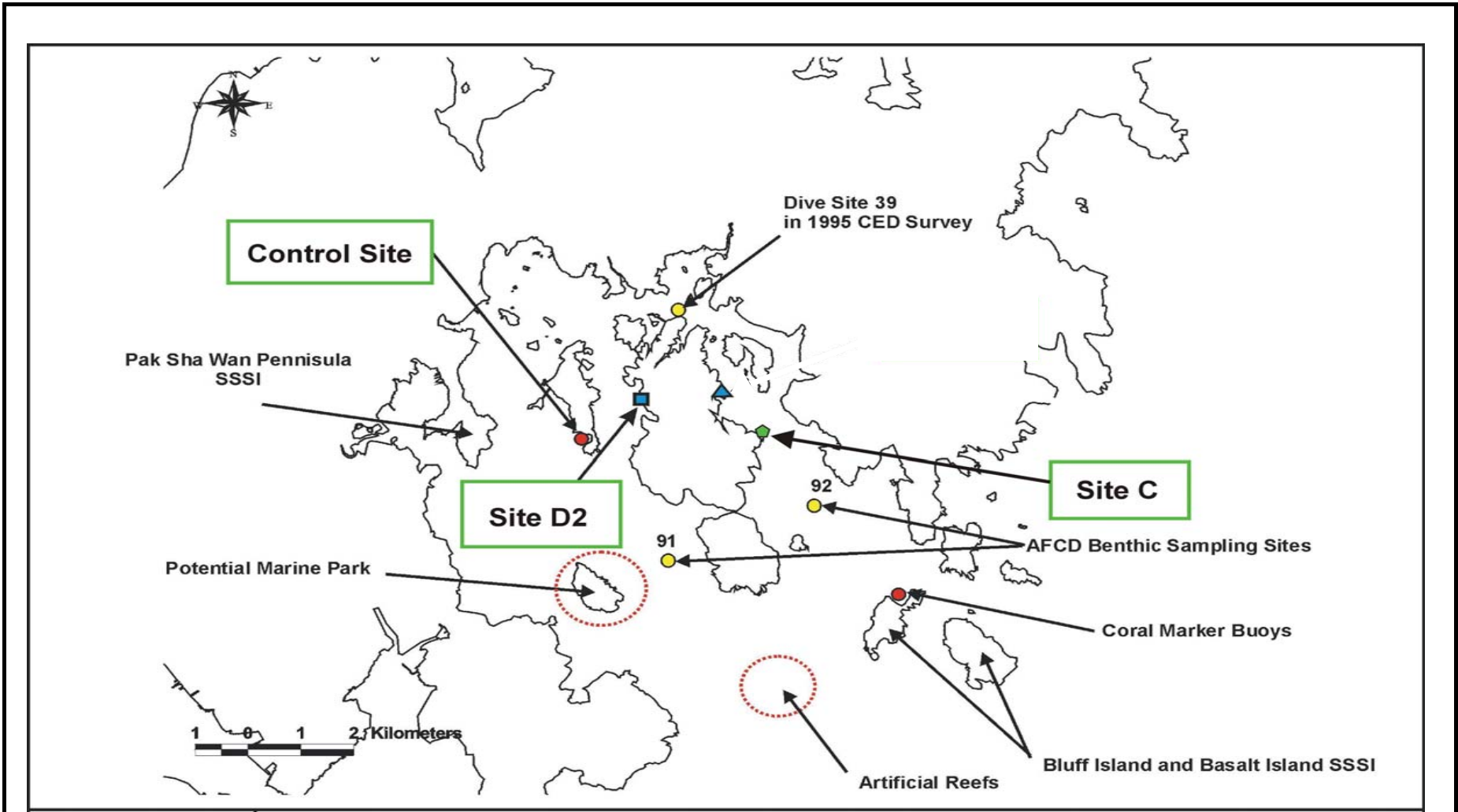

 香港賽馬會  
 The Hong Kong Jockey Club


 BLACK & VEATCH HONG KONG LIMITED  
 博威工程顧問有限公司

Public Golf Course at Kau Sai Chau Island, Sai Kung  
 Water Quality Monitoring Locations -  
 Operation Phase

Fig 3.1	
ET	PKL
Apr 08	

MKD No CP555 D:\Project\032219\_022\location.mxd  
 Plot No CP555 D:\Project\032219\_022\location.pdf



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The Hong Kong Jockey Club



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博威工程顧問有限公司

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

Coral Survey Monitoring Location

Fig 3.2

Prepared	Checked
ET	PKL
Date	Apr-08