# 土木工程署

# 青山灣挖泥工程

## 工程項目簡介

**2001** 年 **9** 月

## 1. 簡介

青山灣位於屯門青山公路 19 咪、毗　三聖　。

廣稱爲容龍灣的青山灣，早年是一個迷人的泳灘，有　美麗的海景。無奈因屯門區急促發展引致水質轉壞；自 1981 年起，當局祇好將它關閉。

1994 年 11 月，屯門地區委員會委員及屯門區議會議員動議將青山灣發展爲適合康樂及水上活動睽所。在 1997 年 4 月的區域市政局建設工程委員會會議中，因應水質的逐漸轉好，議員同意將青山灣重新發展爲適合划艇及游泳的睽所。

爲確保青山灣切實適宜游泳，土木工程署曾於 1999 年在灘內海底作出潛水視察，發覺有 0.3 至 0.5 米厚的淤泥存在，被（泳者）攪動時將會令致海水渾濁。因此我們認爲，若要重開泳灘，這些淤泥必須先被清除。

## 2. 基本資料

**2.1** 工程項目名稱

青山灣挖泥工程，以下簡稱爲「此工程」

**2.2** 工程項目的目的及性質

「此工程」旨在爲改善環境而清除積聚在海底表面約 0.3 至 0.5 米厚的淤泥；清除工作將利用閉口式泥夾進行。

**2.3** 工程項目倡議人

土木工程署工程技術部

**2.4** 工程項目的地點及規摸

工地位於青山灣如附錄 A 所示。挖泥面積約爲 25,000 平方米，深度約爲 0.3-0.5 米，體積約爲 11,000 立方米。

**2.5** 此工程項目簡介所包含的指定項目（其數量及種類）

此工程項目簡介僅包含一個指定項目，該項目爲在離現有泳灘（即青山灣）不遠於 500 米的地區上進行挖泥工程；按照環境影　評估條例附表 2.12 項的規定，這是一個指定項目。

**2.6** 聯絡人的姓名及電話

## 3. 策劃及施工時間表

**3.1** 策劃及施工

倡議部門 ： 康樂文化事務署

施工部門 ： 土木工程署（兼負責策劃）

承建商 ： 中國港灣工程公司

**3.2** 工程時間表

挖泥工程計劃在 2001 年 12 月展開，爲期 10 週。

在挖泥工程展開前後的三星期中，承建商會進行一系列的事前基　及事後復原的水質監測。在挖泥期間亦會不停地進行水質監測。

挖泥工程必須編排在冬季進行，這是因爲期間不是泳季，兼且附近的海水泵房亦不需全面運作。時間表載於附錄 B。

## 4. 可能對環境帶來的影

**4.1** 施工過程簡介

挖泥工程會將海底表面 0.3-0.5 米厚的淤泥清除；詳情如下：

挖泥方法 ： 利用閉口式泥夾

挖泥機械 ： 1-2 隻挖泥船

最大挖泥速度 ： 每船每日 300 立方米

**4.2** 環境影

**4.2.1** 水質影

要清除的淤泥包括約 8,300 立方米 染泥和 2,700 立方米非 染泥。 染主要源自較高的銅和鋅含量。挖泥期間，有可能造成懸浮粒子由工地向外擴散。祇因挖泥速度不高，預測所增加的懸浮粒子量不會太高。

**4.2.2** 噪音影

挖泥會限制在日間進行，兼且挖泥船屬小型類，所以預計得到、工程所帶來的噪音影 ，就算存在也不會過大。

**4.2.3** 其他殘餘影

預計其他因工程完成後所帶來的影 並不存在。

## 5. 週遭環境的主要元素

**5.1** 現有感應強的受體

**5.1.1** 海鮮檔/酒家

在工地附近海旁現有一些海鮮檔/酒家，他們在附錄 A 圖所示的位置放置了水管，用以抽取海水養活海鮮。工程中可能帶來的較高懸浮粒子成份和淤泥中的重金屬成份如銅及鋅等將或會對他們造成影 。

**5.1.2** 附近泳灘

附近泳灘如加多利灣和舊咖啡灣或會受工程所引致的懸浮粒子所影 。

**5.1.3** 海水泵房

在屯門避風塘口現存有一海水泵房，位置如附錄 A 所示，該泵房離工地約 500 米。工程所引致的較高懸浮粒子量將或造成水泵阻塞。

## 6. 環境影 緩解措施及其他考慮

### 6.1 緩解環境影 的措施

#### 6.1.1 在水質影 方面

**6.1.1.1** 將挖泥工程策劃至冬季進行

如前第 3 段所述，將挖泥工程策劃至冬季進行，將會有效地減低對附近泳灘及泵房的影 。

**6.1.1.2** 在泥夾前安裝隔泥網

爲減低淤泥擴散，建議在泥夾前安裝隔泥網。隔泥網是用滲透性強又堅 的網膜造成，懸浮在一固定支架上，而支架則置於泥夾前，將夾泥位置全然包圍 ；詳情見附錄 C。

**6.1.1.3** 實行良好工地管理措施

承建商要設計及執行一系列良好工地管理措施，如下：

- 泥夾必須是閉口式，以減低泥夾舉高時泥水滲漏出的機會；
- 施工船隻必須保持適當排水深度，以防止船隻移動時將海泥攪起；
- 確保工程不會在挖泥區或卸泥區的水中引發泡沫、浮游物、垃圾或其他不潔物體的產生；
- 躉船及挖泥船必須有緊密裝置，防止淤泥從底部洩出。躉船及挖泥船在未離開挖泥區前其甲板及泥夾等部位必須先行清洗潔淨；
- 小心裝卸，以防淤泥濺入水中；運泥躉船亦不得超載，無論在裝卸或運送途中都不容許溢流發生。
- 爲顧及波濤海浪的影 ，運泥躉船不得滿載。

**6.1.1.4** 間歇性挖泥及另外安排水源

爲確保海鮮檔/酒家的供水水質不受影 ，我們會限制挖泥不會在晚上 11 時至早上 7 時這段期間進行。相信此舉會供懸浮粒子足夠時間沉澱（詳情見附錄 E 的第 4.2 段），以致在早上 6 時至 7 時所抽得的海水會不含懸浮粒子。

若前述方法仍不足夠，我們亦會考慮另外安排其他水源，例如在現有泵房處吸水或利用水車由他處運來。

**6.1.1.5** 在海水泵房安裝隔泥網

我們將在泵房入水處安裝隔泥網以保護它；詳情見附錄 D。

**6.1.1.6** 水質模擬預測/水質監測

爲預測擬議工程會帶來什麼影　，我們作出了一個有關水質的電腦 模擬試驗。結果是、在附近泳灘中的懸浮粒子濃度不會大大增加，對水質的影　將會至爲輕微。模擬預測的詳情及結果載於附錄 E。

另外在挖泥進行中，我們亦會進行一系列水質監測，其中包括爲確保環境不受過份滋擾的應變行動計劃，詳情見附錄 F。

**6.1.2** 在噪音影　方面

在工地附近我們沒有察覺有任何環境感應強的受體。我們祇會申請有限度的建築噪音許可証，以便工程祇在上午 7 時至下午 11 時期間進行。

**6.2** 環境影　的可能嚴重程度、分佈及影　期

鑑於細小的挖泥量和短暫的施工期（祇不過約十週），相信「此工程」所帶來的環境影　祇會是短暫的，局部的和輕微的。

**6.3** 計劃中其他諮詢過程

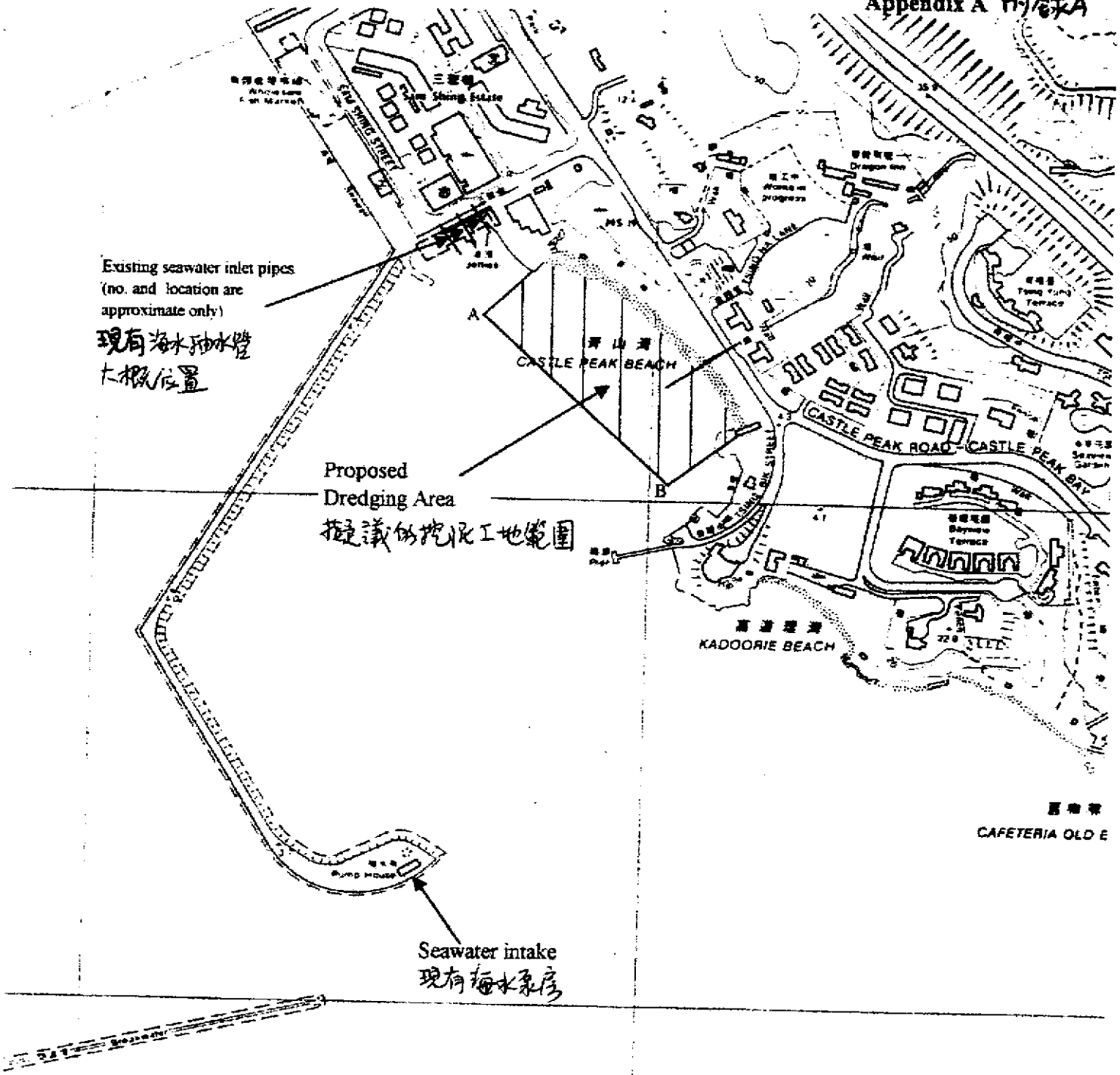
我們曾就此工程諮詢屯門地區委員會，並獲得他們支持。在 2001 年 4 月至 6 月間，我們亦與海鮮檔檔主/酒家並其他有關的社會人士磋商，向他們提及以上所述各種安排，基本上都能顧及各方的關注。

## 7. 使用過往通過的環境影　評估報告

由於沒有過往通過的環境影　評估報告，故此項並不適用。

土木工程署
工程技術部
2001 年 9 月

Appendix A 附錄A




青 山 灣
CASTLE PEAK BAY
(TSING SHAN WAN)

(表) (座標)

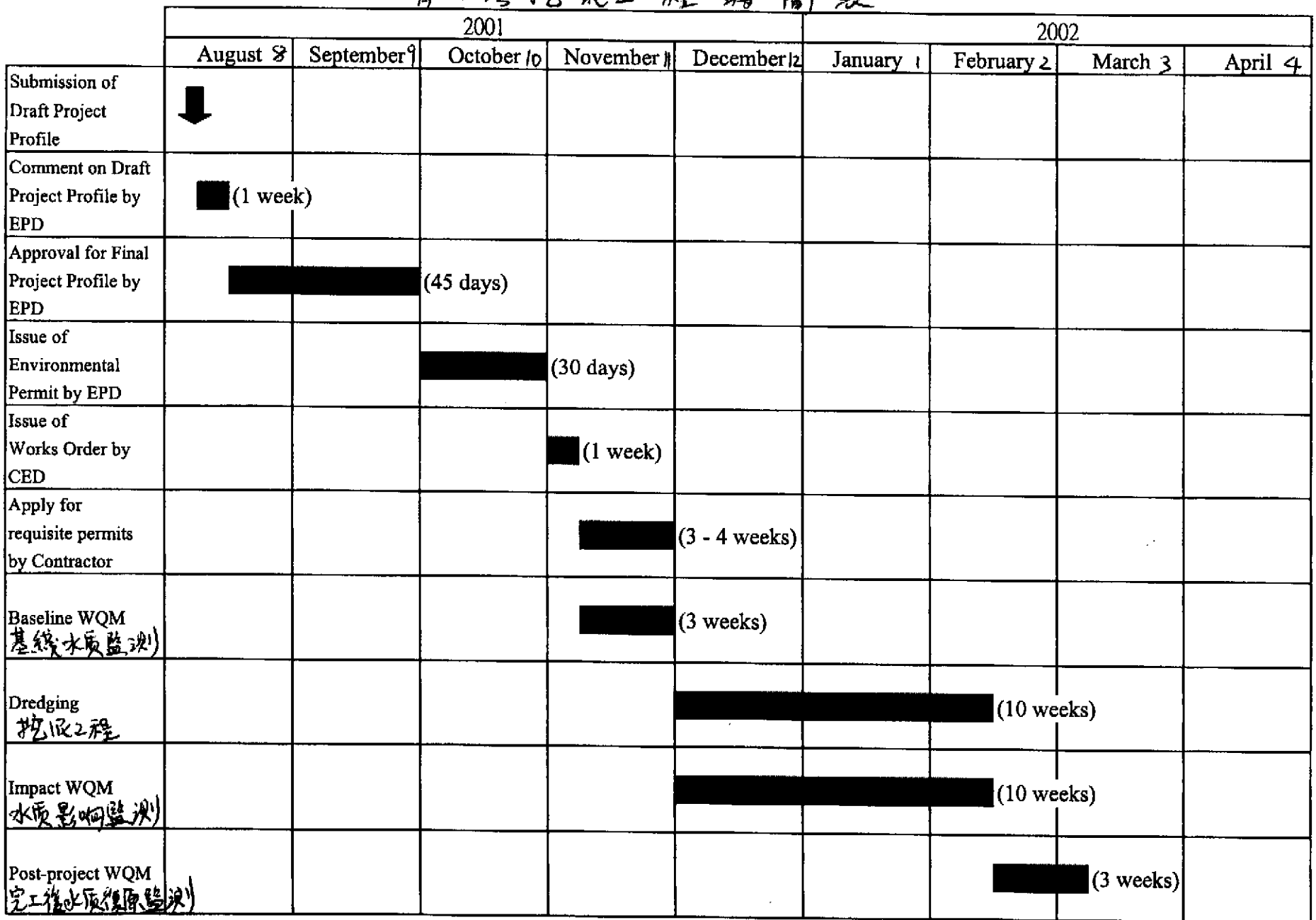
| Points | Co-ordinates | |
|---|---|---|
| | Northing | Easting |
| A | 826 675 | 815 835 |
| B | 826 510 | 816 030 |

# Proposed Dredging at Castle Peak Beach

擬議的青山灣挖泥工程位置圖

# Programme of Dredging at Castle Peak Beach Project

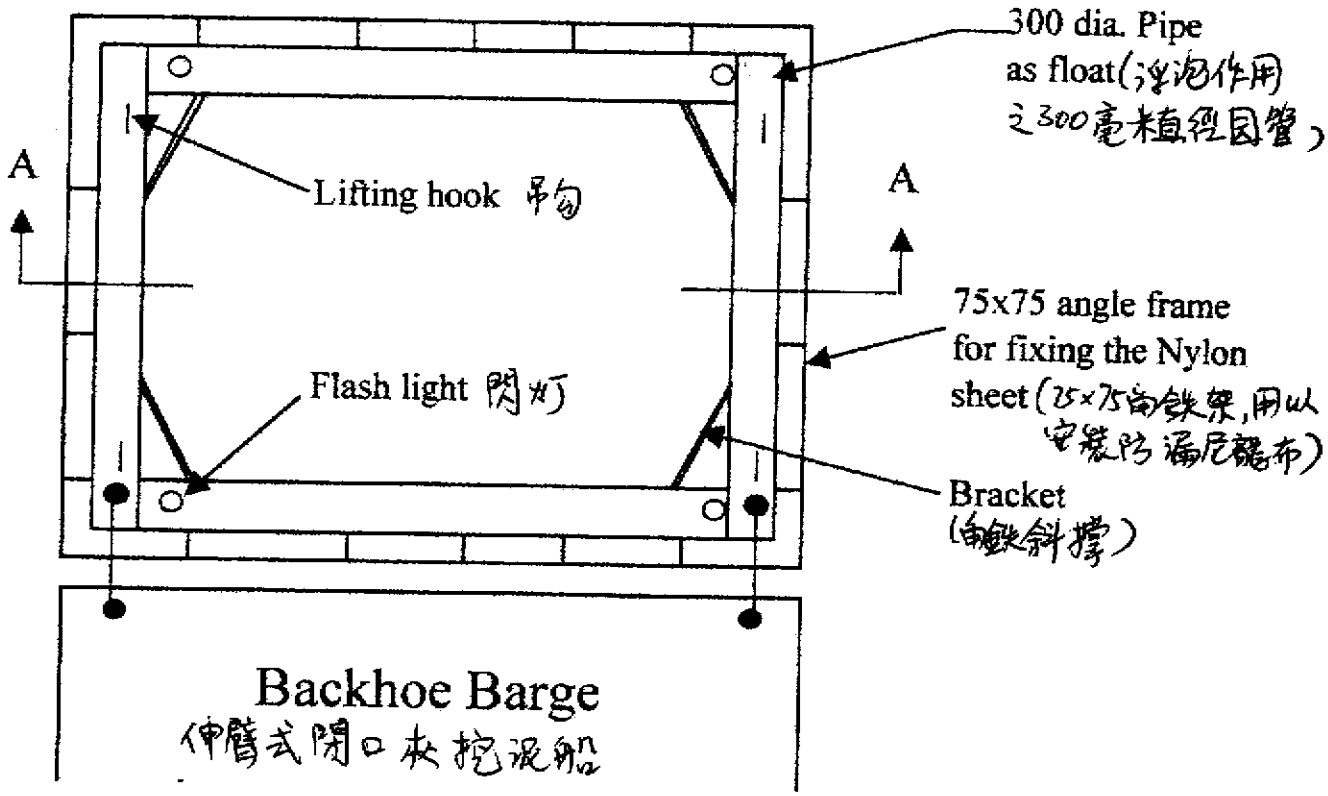
青山灣挖泥工程時間表



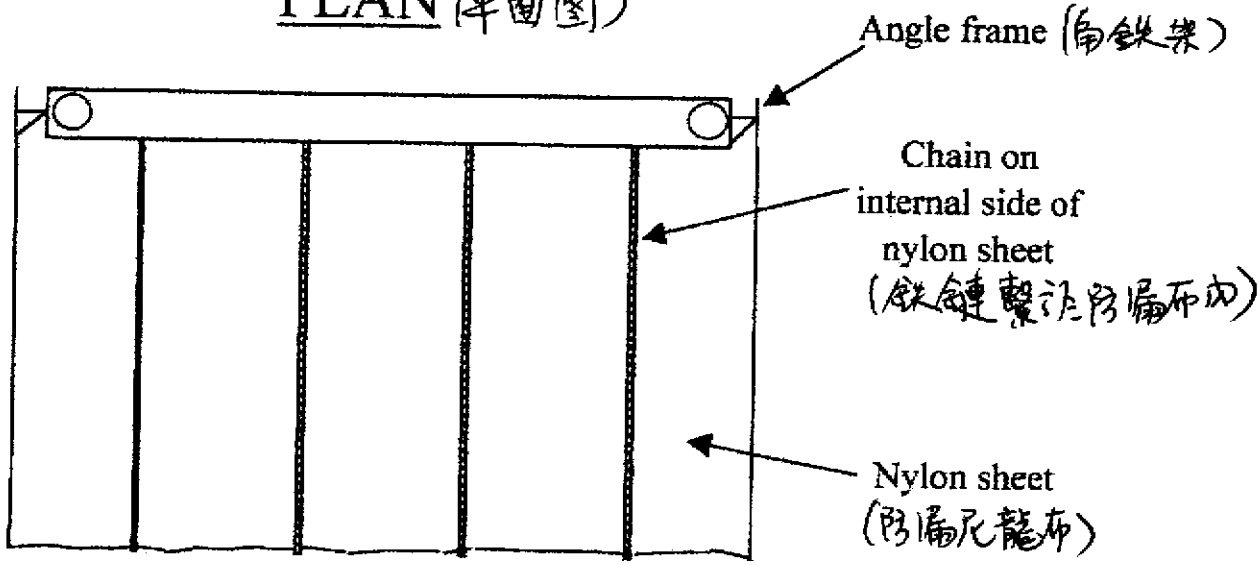

Note: The programme is tentative only and will be subject to minor modifcations. 以上時間表或會按實際情況稍作修改。

APPENDIX B
附錄 B

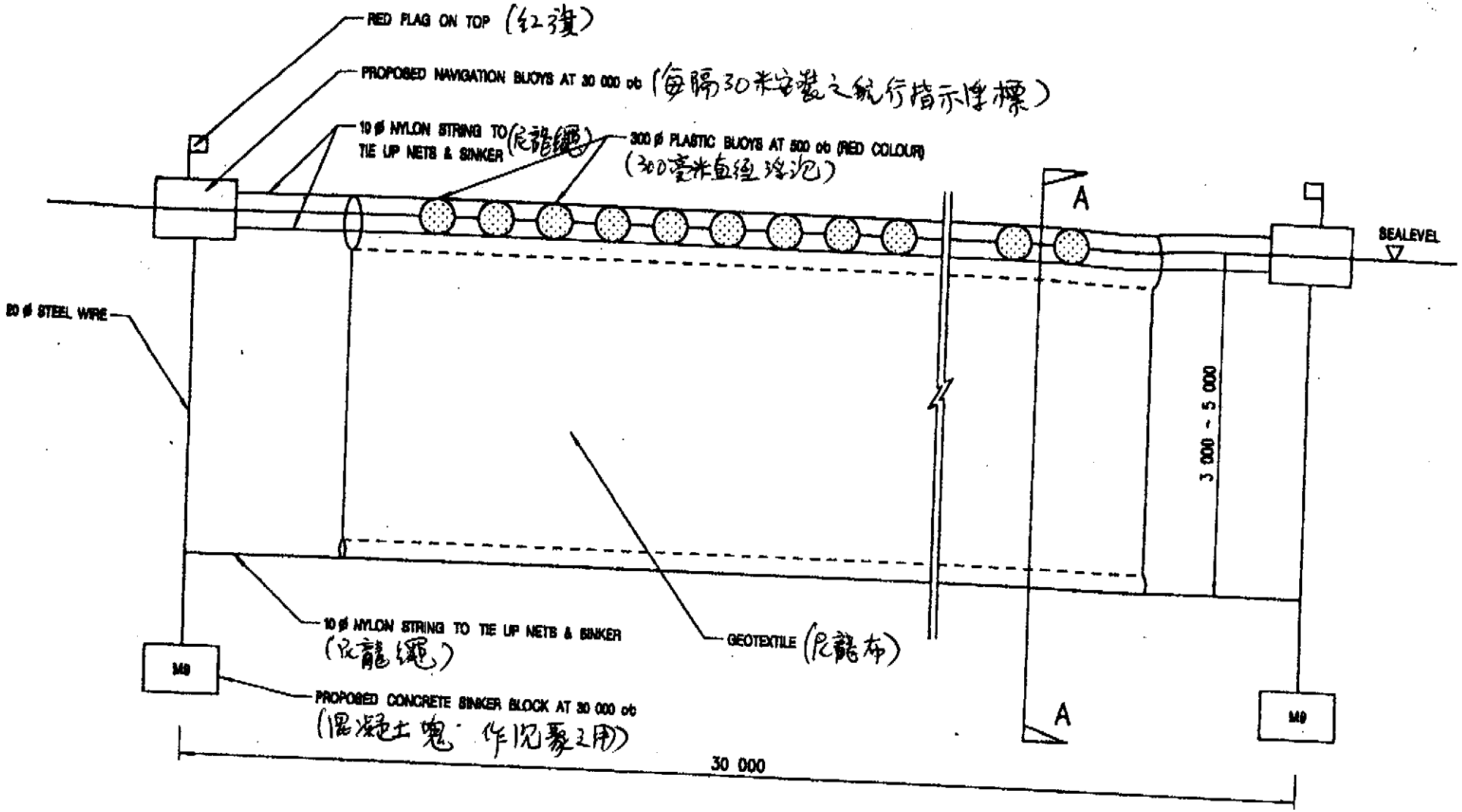
擬議的挖泥船防泥網裝置圖
Proposed sketch of silt curtain frame at dredger's frontage while dredging at Castle Peak Beach




PLAN (平面圖)



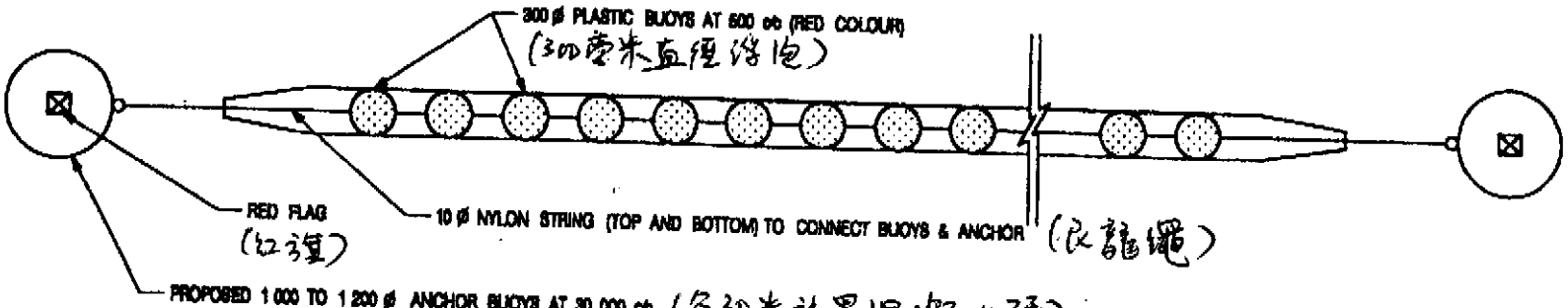

SECTION A-A (橫切面 A-A)



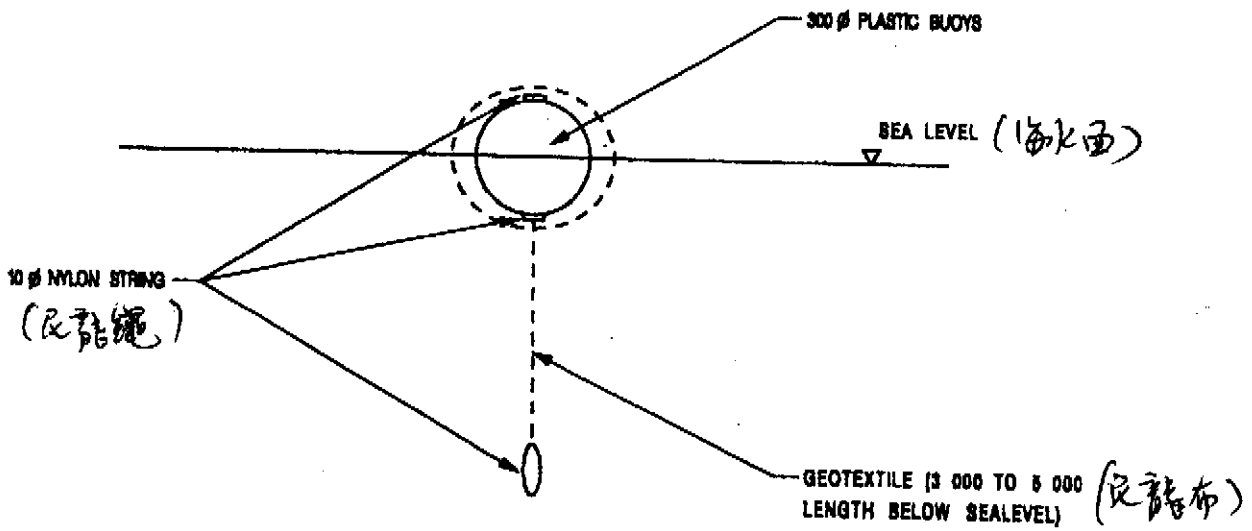

ELEVATION (側面圖)

Appendix D (附錄D)

# FLOATING SILT CURTAIN (裝在承座的浮泡式防泥網)




PLAN




Section A-A 橫剖面A-A
SCALE 1 : 20

# FLOATING SILT CURTAIN

Appendix D
附錄D

青山灣挖泥工程－細微泥沙物扩散之电腦数学模擬試驗

**DREDGING AT CASTLE PEAK BEACH**
**Sediment Plume Modelling**

## 1. INTRODUCTION 簡介

1.1. DLCS has requested the Technical Services Division to remove by dredging the existing top layer of loose mud on the seabed of Castle Peak Beach. The muddy layer (when stirred up by swimmers) will seriously affect the clarity and quality of the seawater, which will become unsuitable for swimming. Thus the mud removal is essential for the re-opening of the beach to public for swimming scheduled in the summer season of 2002.

1.2. As the above dredging works will be carried out in proximity to a bathing beach, it will be a designated Project under Environmental Impact Assessment Ordinance. An Environmental Permit (EP) is needed for the works. However, in view of the nature and the scale of the works, direct application of the EP is very likely, subject to DEP's approval. In this connection, DEP has indicated that they would be agreeable to the direct EP application if the effect of the sediment plume as a result of the dredging has been briefly assessed.

1.3. Mathematical models were set up to simulate the extent and assess the nature of the sediment plume that would be formed as a result of the above dredging works.

1.4. The objective of this paper is to outline the methodology with which the above sediment plume assessment was conducted and the modelling results are also summarized herein.

## 2. MODELLING METHODOLOGY 模擬的製作方法

### General

2.1 The objective of the above sediment plume assessment was to determine the movement of sediment as a result of the above dredging activity. The net increase in suspended solids (SS) in the adjacent waters was estimated by way of hydraulic modelling. To achieve this objective, two hydraulic models, a hydrodynamic model and a particle-tracking model were set up for the proposed dredging works.

2.2 The particle-tracking model simulated the convection and deposition of sediment, which was based on the output from the hydrodynamic model. Details of the particle-tracking model and the hydrodynamic model are described in the following sections.

## Hydrodynamic Model 水流动力模擬

2.3. The hydrodynamic conditions of the particle-tracking model are based on the Upgrade Model, which was set up, calibrated and validated under Agreement No. CE 48/96 by Delft Hydraulics. The Upgrade model covered Hong Kong waters, the Pearl Estuary and a coastal stretch of approximately 200 x 80 $km^2$. The Upgrade Model had 10 hydrodynamic layers.

2.4. In the Upgrade Model, the grid sizes for the Castle Peak Beach area were too coarse (approximately 300m by 300m) for this modelling assignment. Hence, a detailed model was set up to improve the grid resolution. Figure 1 shows the coverage and grid schematization of the detailed model.

2.5. As curvilinear grids were adopted for the hydrodynamic model, the grid resolution varied from location to location. To enhance the accuracy of the sedimentation simulation, the grid sizes were reduced to about 50m by 50m in the Castle Peak Beach and surrounding areas.

2.6. The hydrodynamic model was used to generate typical spring/neap flow conditions for the dry season in 2002 (dredging is proposed to be carried out between December to February 2002). The open boundary conditions for the detailed model were generated using the Upgrade Model.

## Particle-tracking model 追踪粒子扩散迁徙的模擬

2.7. The sedimentation, deposition and resuspension of suspended substances were simulated by the particle-tracking module (Delft-PART) of Delft3D. The sediment released in the dredging activity was simulated as a conservative substance loaded at the dredging site.

2.8. The base grid for the particle-tracking model was the same one adopted for the hydrodynamics detailed model. To speed up the computation, however, the 10 hydrodynamic layers were aggregated to five sedimentation layers.

2.9. Sedimentation simulations were carried out for both the spring and neap tidal conditions to assess the spread of the sediment plume and the increase in SS in the nearby marine waters as a result of the proposed dredging works.

2.10. The sediment release rate which was used as an input for the particle-tracking model were derived from the expected daily dredging rate and an estimation of the sediment that would be released when grab dredging plant was deployed at Castle Peak Beach. Details of the sediment release calculations and the associated input adopted for the particle-tracking simulations are discussed in Appendix I.

細微沉积物扩散模拟的结果

## 3. RESULTS OF SEDIMENT PLUME SIMULATIONS

3.1. Because of the small dredging area involved, sensitivity tests indicated that the resultant sediment plume was not very sensitive to the actual position at which dredging was being carried out. Modelling Plot 1 – 4 summarized the results of the sediment plume simulation that were based on a dredging plant operating at the eastern end of the proposed dredging site under spring tide condition. The above four plots show the extent of the sediment plume as well as the maximum increase in SS within the region of marine waters that would be affected by the sediment plume at various timings during the dredging process.

3.2. As expected, the simulation results indicated that the extent of the sediment plume as well as the net increase in SS in the vicinity of the dredging site increased with the cumulative duration of the dredging process. However, due to the slow dredging rate and the sheltered hydrodynamic condition, the simulated results confirmed that the resultant sediment plume would be confined to the region within the existing breakwater. The simulation results shown that the maximum increase in SS dropped quite quickly from the point of dredging to less than 2.5g/m$^3$ further seawards. It was also noted that the fine sediment settled out slowly during the night and the increase in SS within the affected area would gradually drop to less than 2.5g/m$^3$ in the morning before the commencement of dredging the next day.

3.3. Modelling Plot 5 shown that the extent of the sediment plume would be smaller when dredging was being carried out under neap tide condition. This was reasonably as the slower tidal current during a neap tide would tend less to carry the sediment released further from the dredging site.

## 4. CONCLUSIONS 结论

4.1. Based on the hydrodynamics conditions during the December 2001/ February 2002 period and the dredging rates anticipated, hydraulic model simulations indicated that the sediment plume associated with the proposed mud dredging works at Castle Peak Bay would generally be confined to the region within the existing breakwater. 模拟试验显示：根据在2001年12月至2002年2月之水流情况推测及预算之挖泥速度，在青山湾挖泥工程中的产生的泥积物将不会扩散至防波堤以外。

4.2. The suspended solid (SS) within the affected waters would drop quite quickly from the point of dredging to the background level further seawards when dredging works was underway in the day time. The fine sediment would also settled out slowly during the night and the increase in SS within the entire affected area would gradually drop to less than 2.5g/m$^3$ in the morning before the commencement of dredging the next day.

当挖泥工程在日间进行时，受影响水域范围之悬浮粒子量会由挖泥处向外迅速降低。当挖泥在晚间停止时，该等泥积物自会慢慢沉降，以致另一天早上挖泥工程再展开时，录得的每立方米水中的含量将不超过2.5克。

# APPENDIX 1

計算細微沉積物擴散之輸入參數
## Sediment Input Parameters for Delft-PART

沉積物釋出量之計算:
**Calculation of Sediment Release Rate:**

| | |
|---|---|
| Total volume of mud to be dredged = | 11000 $m^3$ |
| Stipulating a daily dredging rate of | 300 $m^3$/day |
| => total no. of working days required to complete the dredging works = | 36.7 days |
| Assuming conservatively that the dredger operates continuous for | 8 hr/day |
| => an hourly dredging rate of | 37.5 m3/hr |

This production rate was adopted to estimate the sediment release rate during the dredging process.

The Contaminated Spoil Management Study (Mott MacDonald, 1991; Table 6.12) which reviewed relevant literature, concluded that open-grab dredgers would release sediment at a rate of 12 - 25 $kg/m^3$ as a result of mud dredging. Taking the upper figure of 25 $kg/m^3$ (conservative) for this dredging exercise :

| | | |
|---|---|---|
| => the sediment release rate during the dredging operation = | | 937.5 kg/hr |
| | or | 15625 g/min |

Hence, a constant loading rate of **15,625 g/min** was used as the sediment release rate during the 8-hour dredging operation.

模擬試驗所使用之精準度
**No. of Particles Used for Simulation**

According to the Delft-PART manual, 100,000 particles were recommended to simulate a continuous sediment release. The dredging process was simulated as three continuous sediment sources during a 3-day simulation period under both the spring & neap conditions.

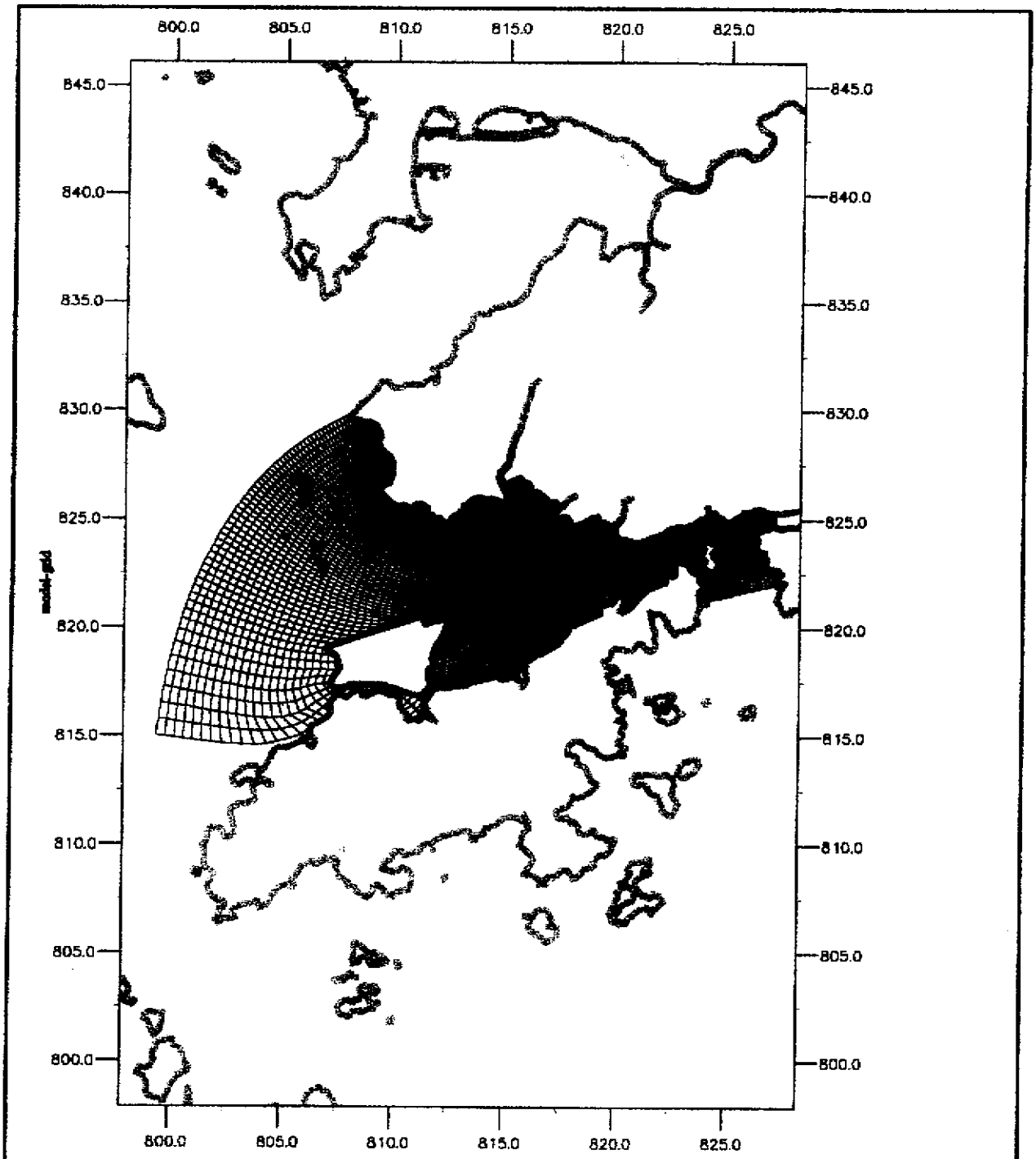
To assess the number of particles to use for the 3-day simulation (for the release rate of 15,625 g/min), consider the mass of sediment which would be released (in 3 days) = 22500 kg

Adopting a minimum resolution of 100g /particle for the simulation,
=> for Delft-PART simulation, a minimum of 225,000 particles

To ensure accuracy, **400,000** particles were used for the 3-day simulation.

細微沉積物之沉降速度
**Settling Velocity for Fine Sediment**

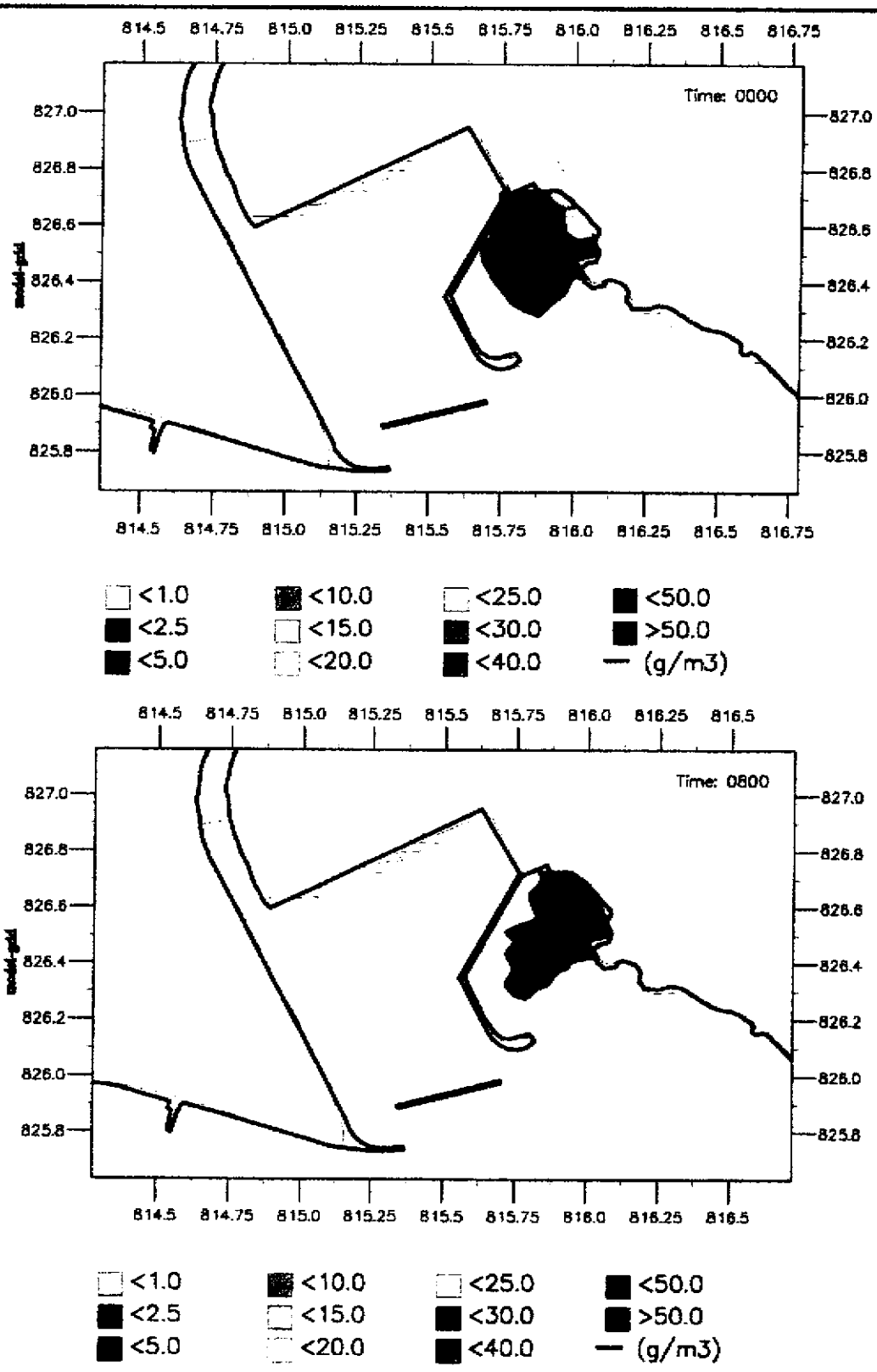
It should be pointed out that this modelling exercise was aimed to simulate the sedimentation phenomena of fine particles which were released as a result of mud dredging. In accordance with the findings of the Comprehensive Water Quality Survey in the Western Harbour conducted recently by EPD, the settling velocity for fine sediment released by mud disposal was in the order of **0.1mm/sec**. This settling velocity was adopted for this modelling job.



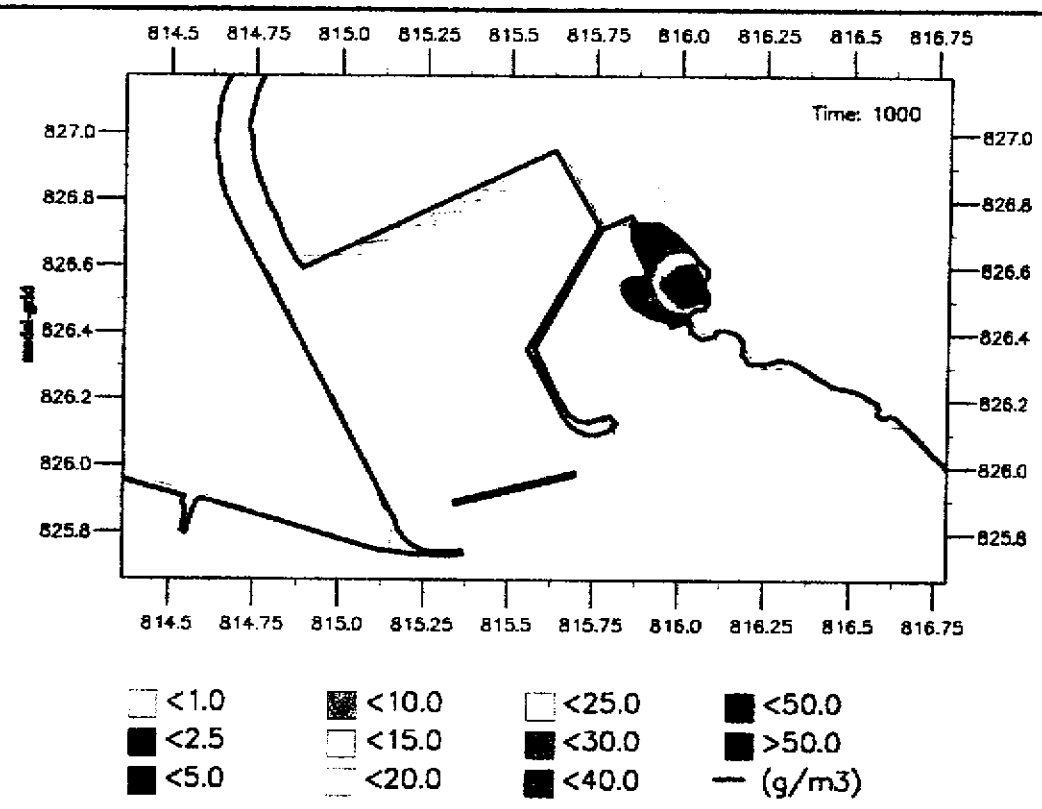

Coverage & Grid Schematization of Detailed Model Set up for the Determination of Flow Conditions for Running Particle-tracking Model

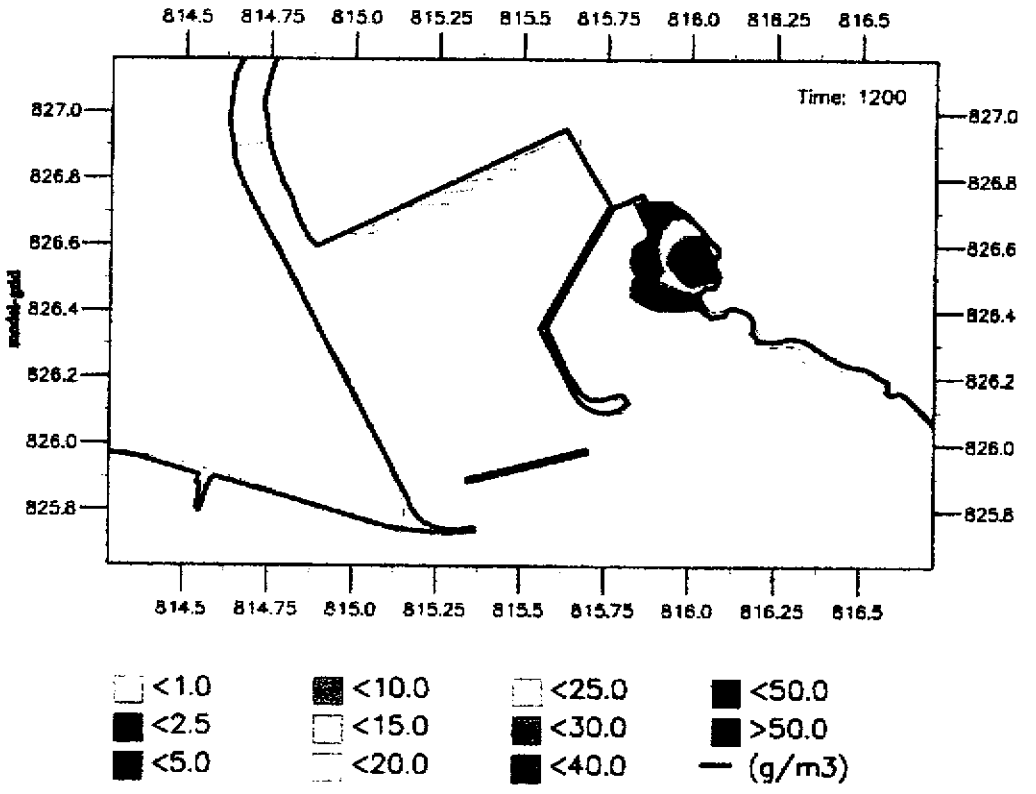
Figure 1

**TECHNICAL SERVICES DIVISION, CEO, CED**

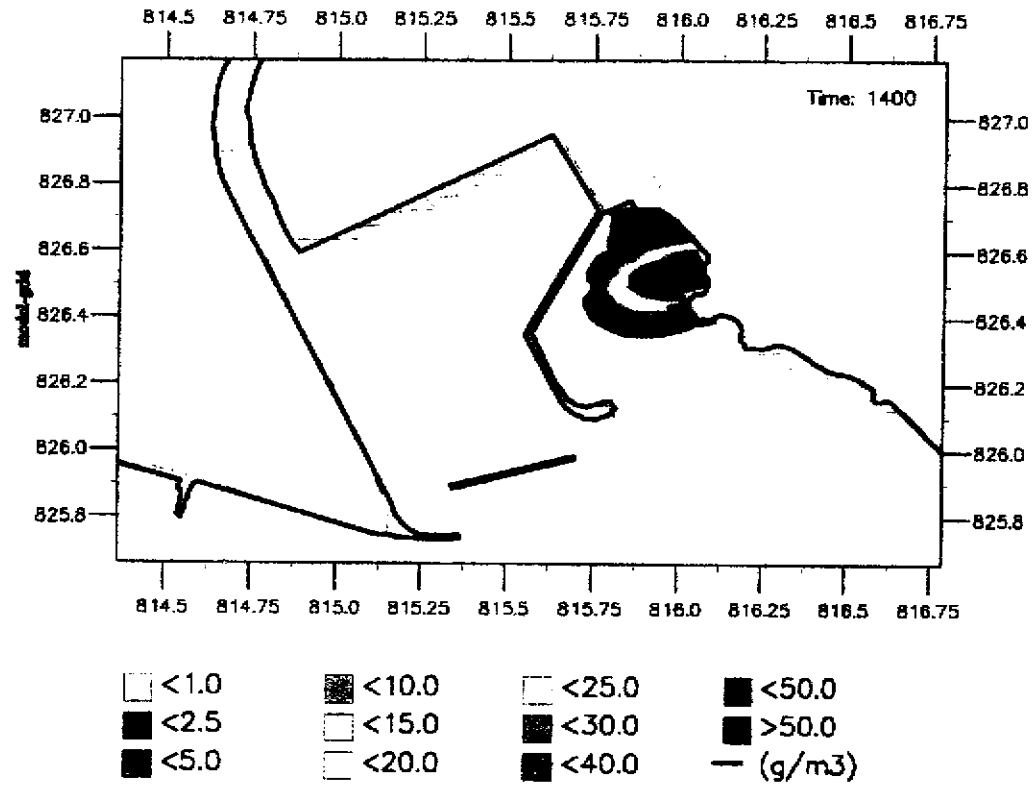


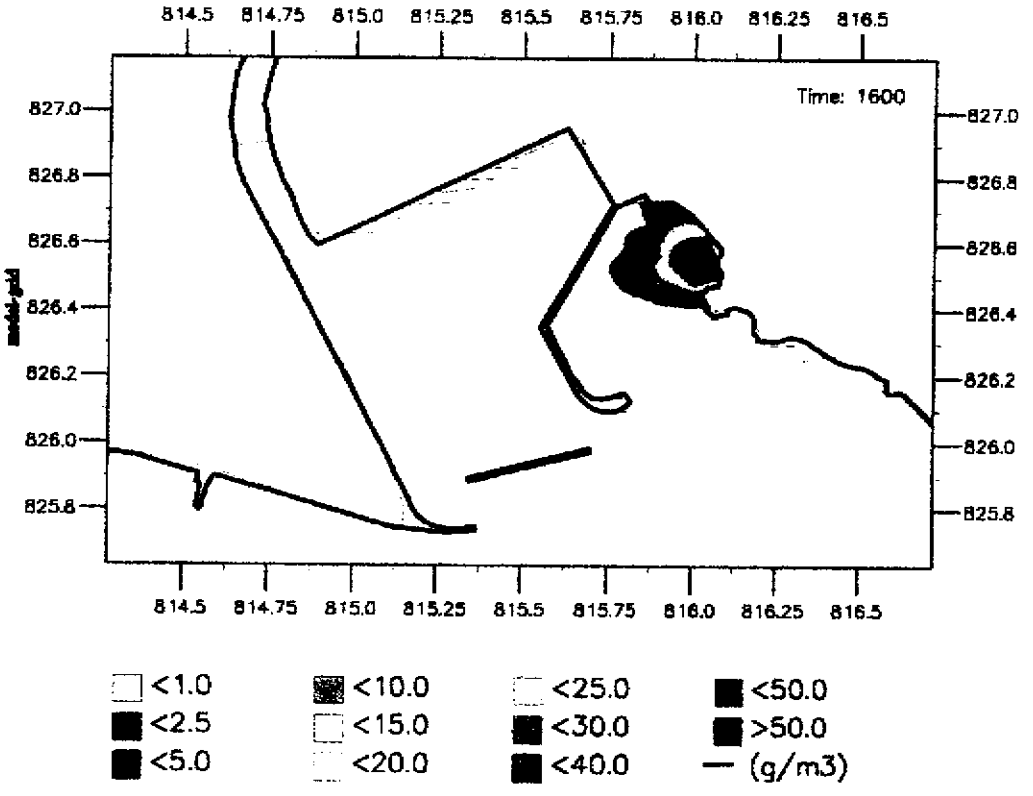

| | | |
|---|---|---|
| Maximum Increase in Suspended Soilds Concentration Between Midnight and Morning Period (Spring Tide) After Continuous Dredging the Day Before | | |
| | Modelling Plot – 1 | |
| **TECHNICAL SERVICES DIVISION, CEO, CED** | | |



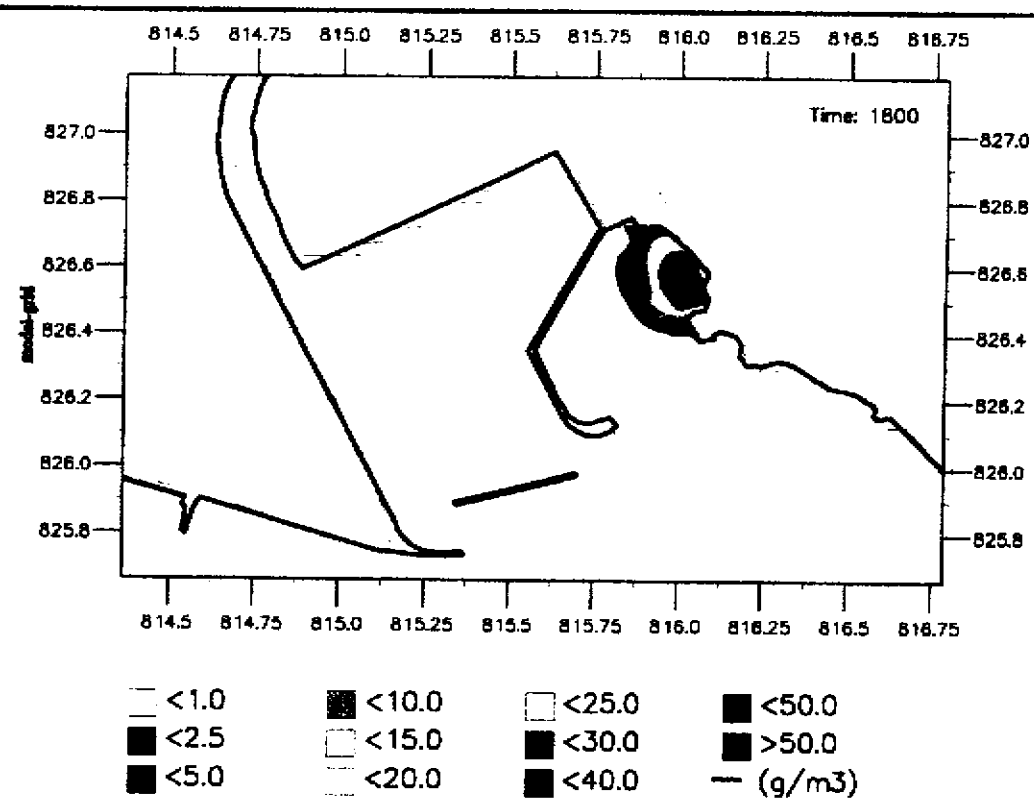



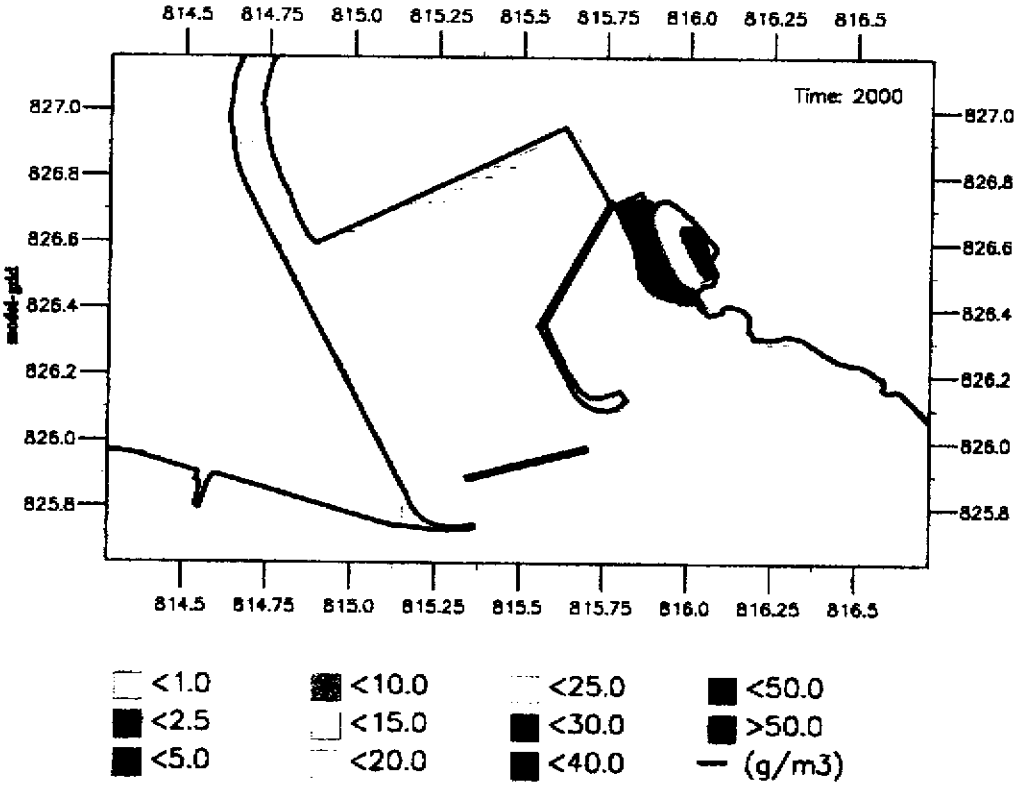

| | | |
|---|---|---|
| Maximum Increase in Suspended Soilds Concentration<br>At 10am & 12 noon (Spring Tide)<br>After Continuous Dredging since Morning | | |
| | Modelling Plot – 2 | |
| **TECHNICAL SERVICES DIVISION, CEO, CED** | | |



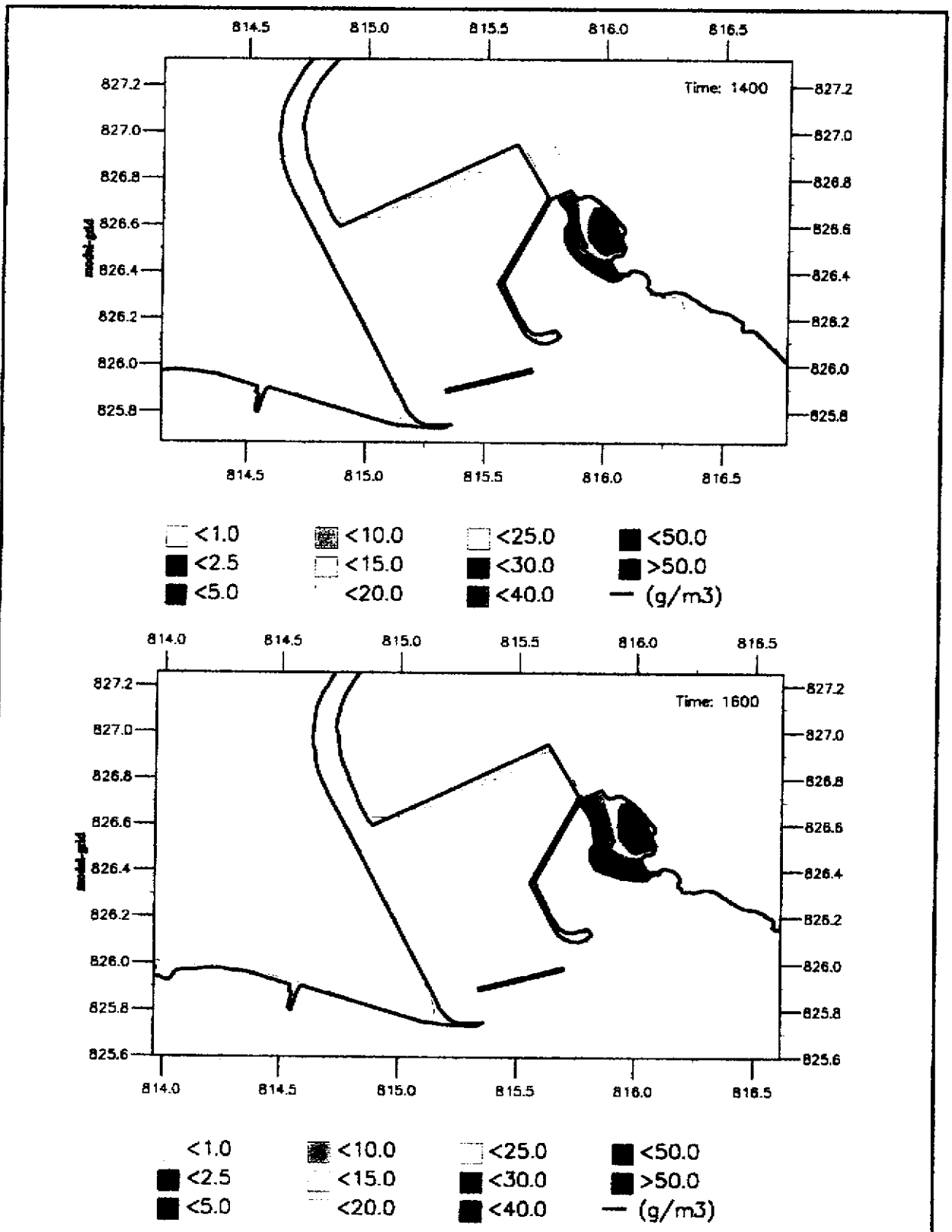




| | | |
|---|---|---|
| Maximum Increase in Suspended Soilds Concentration<br>At 2pm & 4pm (Spring Tide)<br>After Continuous Dredging since Morning | | |
| | Modelling Plot – 3 | |
| **TECHNICAL SERVICES DIVISION, CEO, CED** | | |




| | | |
|---|---|---|
| Maximum Increase in Suspended Soilds Concentration<br>At 6pm & 8pm (Spring Tide)<br>After Continuous Dredging during the Day Time | | |
| | Modelling Plot – 4 | |
| **TECHNICAL SERVICES DIVISION, CEO, CED** | | |




| | |
|---|---|
| Maximum Increase in Suspended Solids Concentration<br>At 2pm & 4pm (Neap Tide)<br>After Continuous Dredging since Morning | Modelling Plot – 5 |
| **TECHNICAL SERVICES DIVISION, CEO, CED** | |

環境影響監測及審核手冊之大綱

**Outlines of Environmental Monitoring & Audit (EM&A) Programme**

(1) An Environmental Team (HOKLAS accredited) will be set up which comprise WQM field staff, an environmental auditor and laboratory staff. They will work under CED close supervision. 环境影响监测小组将被成立及土木工程署会紧密监控小组的工作。

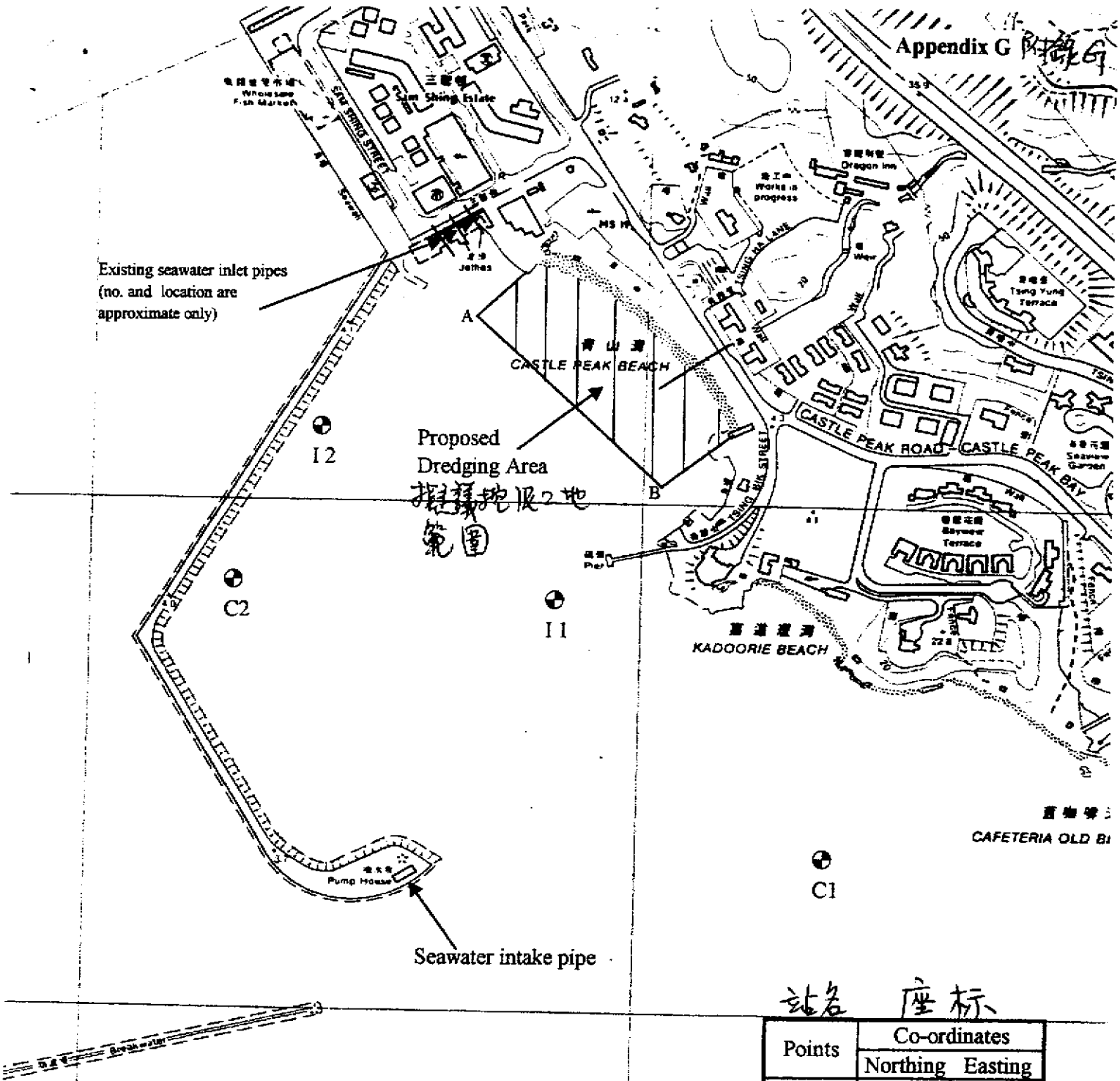
(2) A baseline, impact and post-project water quality monitoring (WQM) will be performed. The baseline & post-project WQM will each take at least 3 weeks. 会展开一系列事前的基线及事後的復原水质监测，各为期至少3星期。

(3) All WQM will be performed in accordance with EPD's generic EM&A Programme. 所有水质监测会按照环保署一般规定进行。

(4) The locations of control & impact WQM stations are shown in Appendix G. 水质基準站及测量影响的水质监测站之位置载於附錄G。

(5) WQM parameters are turbidity, dissolved oxygen, dissolved oxygen saturation, water temperature, suspended solids, salinity water depth, and dissolved Copper & Zinc. Measurements for Copper and Zinc will be at least once weekly. 水质监测参数包括溶解氧，悬浮粒子等等。

(6) Action and Limit Levels for WQM, together with Action/Event Plan are shown in Appendix H. 超标时之应变及最高容忍标準，以至相关之应变行动计划皆载於附錄H。




站名 座标

| Points | Co-ordinates | |
|---|---|---|
| | Northing | Easting |
| A | 826 675 | 815 835 |
| B | 826 510 | 816 030 |

| Points | Co-ordinates | |
|---|---|---|
| | Northing | Easting |
| C1 | 826 100 | 816 090 |
| C2 | 826 450 | 815 655 |
| I1 | 826 405 | 815 895 |
| I2 | 826 575 | 815 705 |

基準站 {* *
影响監測站 {

* Control Station

# Proposed WQM Stations

擬議水质監測站位置图

**Appendix H**
附錄 H

## 水质监测的应变行动及最高容忍之标準
## Action and Limit Levels for Water Quality Monitoring

The AL Levels are to be formulated based on the baseline monitoring data. A framework of AL levels is illustrated in the following table: 根据事前的基线测量，我们制定如下的应变及最高容忍之标準，更訂定[illegible]之相应行动計劃。

| Parameters (參數) | Action (行动标準) | Limit (最高容忍标準) |
|---|---|---|
| Dissolved oxygen, DO mg/L (Depth-average of surface and Middle) 溶解氧 (水面及中) | DO < 5%-ile of baseline data for surface and middle layers. | DO < 4mg/L or DO < 1%-ile of baseline data for surface and middle layers. |
| Dissolved oxygen, DO mg/L (Bottom) 溶解氧 (水底) | DO < 5%-ile of baseline data for bottom layer. | DO < 2mg/L or DO < 1%-ile of baseline data for bottom layer. |
| Suspended solids, SS mg/L (Depth-averaged) 懸浮粒子量 | SS > 95%-ile of baseline data OR SS > 120% of upstream control station's SS at the same tide of the same day. (whichever the value is higher) | SS > 99%-ile of baseline data OR SS > 130% of upstream control station's SS at the same tide of the same day. (whichever the value is higher) |
| Turbidity, Tby NTU (Depth-averaged) 渾濁度 | Tby > 95%-ile of baseline data OR Tby > 120% of upstream control station's Tby at the same tide of the same day. (whichever the value is higher) | Tby > 99%-ile of baseline data OR Tby > 130% of upstream control station's Tby at the same tide of the same day. (whichever the value is higher) |

**Appendix H**
附錄H

**Action/Event Plan** 超标时应变计划书

若水质监测显示有超标情况，则以下相应行动将被執行。
Should the monitoring results of the water quality parameters at any designated monitoring stations indicate that the water quality criteria are not complied with, the actions in accordance with the Action Plan in the following table are to be carried out.

超标情况 环保小组之行动 承建商之行动 地盘工程师之行动

| Exceedances | Environmental Team (ET) | Contractor | Engineer (ER) |
|---|---|---|---|
| Action level being exceeded by one sampling day 当应变行动标準在首天被超出时 | • Repeat in-situ measurement to confirm findings;<br>• Identify source(s) of impact;<br>• Inform Contractor and EPD;<br>• Check monitoring data, all plant, equipment and contractor's working methods;<br>• Discuss mitigation measures with the ER and Contractor;<br>• Repeat measurement on the next day of exceedance. | • Inform the Engineer and confirm notification of exceedance in writing;<br>• Rectify unacceptable practice;<br>• Check all plant and equipment;<br>• Consider changes of working methods;<br>• Propose mitigation measures to ER and discuss with ET and ER;<br>• Implement the agreed mitigation measures. | • Discuss with ET and the Contractor on the proposed mitigation measures;<br>• Make agreement on the mitigation measures to be implemented;<br>• Assess the effectiveness of the implemented mitigation measures. |
| Action level being exceeded by more than two consecutive sampling days 当应变行动标準連續兩天被超出时 | • Repeat in-situ measurement to confirm findings;<br>• Identify source(s) of impact;<br>• Inform Contractor and EPD;<br>• Check monitoring data, all plant, equipment and contractor's working methods;<br>• Discuss mitigation measures with the ER and Contractor;<br>• Ensure mitigation measures are implemented;<br>• Prepare to increase the monitoring frequency to daily;<br>• Repeat measurement on the next day of exceedance. | • Inform the Engineer and confirm notification of exceedance in writing;<br>• Rectify unacceptable practice;<br>• Check all plant and equipment;<br>• Consider changes of working methods;<br>• Propose mitigation measures to ER within 3 working days and discuss with ET and ER;<br>• Implement the agreed mitigation measures. | • Discuss with ET and the Contractor on the proposed mitigation measures;<br>• Make agreement on the mitigation measures to be implemented;<br>• Assess the effectiveness of the implemented mitigation measures. |
| Limit level being exceeded by one sampling day 当最高容忍标準在首天被超出时 | • Repeat in-situ measurement to confirm findings;<br>• Identify source(s) of impact;<br>• Inform Contractor and EPD;<br>• Check monitoring data, all plant, equipment and Contractor's working methods;<br>• Discuss mitigation measures with the ER and Contractor;<br>• Ensure mitigation measures are implemented;<br>• Increase the monitoring frequency to daily until no exceedance of Limit level. | • Inform the Engineer and confirm notification of exceedance in writing;<br>• Rectify unacceptable practice;<br>• Check all plant and equipment;<br>• Consider changes of working methods;<br>• Propose mitigation measures to ER within 3 working days and discuss with ET and ER;<br>• Implement the agreed mitigation measures. | • Discuss with ET and the Contractor on the proposed mitigation measures;<br>• Request Contractor to critically review the working methods;<br>• Make agreement on the mitigation measures to be implemented;<br>• Assess the effectiveness of the implemented mitigation measures. |