

MASS TRANSIT RAILWAY CORPORATION LIMITED

PENNY'S BAY RAIL LINK

BI-ANNUAL ENVIRONMENTAL MONITORING AND  
AUDIT REPORT

**August 2002 – February 2003**



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Date: 28 Feb. 2003

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## ***EXECUTIVE SUMMARY***

Following agreement between Walt Disney and the HKSAR Government, MTR Corporation Limited has been invited by the HKSAR Government to build and operate a new rail link from Yam O to the Disney Theme Park.

This is the first Bi-annual EM&A Report prepared to document the environmental monitoring and audit works conducted and the review on the environmental performance of the PBL Contractors for the construction of the Penny's Bay Rail Link carried out during the reporting period from 9th August 2002 to 8th February 2003.

During this reporting period, the major civil construction activities carried out within the Yam O work sites concerned in the Environmental Permit No. EP-120/2002 involved construction of southern platform of Yam O Station adjacent to the railway track, drainage construction, utilities installation, soldier piles and sheetpiles installation and excavation underneath temporary traffic deck for the northern tunnel portal. The major civil construction activities carried out within the Penny's Bay work sites involved excavation to formation level for the construction of trackwork and Disneyland Station.

### ***Environmental Monitoring and Audit Progress***

The EM&A programme was undertaken based on the EM&A Manual. In this reporting period, 26 nos. site inspection and audits and 6 nos. waste management audits were carried out.

### ***Environmental Complaints***

Two environmental complaints on dust problem were received in this reporting period. The complaints were investigated and responded together with appropriate action taken.

### ***Environmental Summons or Prosecutions***

No summon or prosecution was received in this reporting period.

### ***Conclusions***

In general, the PBL Contractors have followed the recommended environmental mitigation measures and complied with the relevant environmental regulations, permits and licenses. With reference to the regular site inspections and audits, the environmental conditions of the work sites were satisfactory. In addition, no prosecution was received and two environmental complaints were received in this reporting period and settled satisfactorily.

## **1 INTRODUCTION**

### **1.1 Scope of the Bi-annual EM&A Report**

The MTRCL Environmental Team lead by the ET leader Dr. Kam Chan is responsible to carry out environmental monitoring and audit works for the construction of Penny's Bay Rail Link and review the performance of the Contractors on site environmental matters in order to comply with the requirements of the EIA, EM&A Manual and Environmental Permit approved by the Environmental Protection Department of HKSAR Government. A map showing the Project site layout is shown in Appendix A.

This is the first Bi-annual EM&A Report prepared to document the environmental monitoring and audit works conducted and the review on the environmental performance of the PBL Contractors for the construction of the Penny's Bay Rail Link carried out during the reporting period from 9th August 2002 to 8th February 2003.

### **1.2 Structure of the Bi-annual EM&A Report**

The structure of this Bi-annual EM&A Report is organized as follows:

- Section 1: Introduction – details the scope and structure of the report;
- Section 2: Project Information – summarizes the project background and construction programme together with the scope of the construction activities carried out during the reporting period;
- Section 3: Construction Noise Monitoring;
- Section 4: Air Quality Monitoring;
- Section 5: Water Quality Monitoring;
- Section 6: Waste Management;
- Section 7: Landscape and Visual;
- Section 8: Site Inspections and Audits;
- Section 9: Implementation Status of Environmental Protection & Pollution Control;
- Section 10: Environmental Non-Compliance;

- Section 11: Status of Licences obtained by Contractors;
- Section 12: Environmental Performance of Contractors;
- Section 13: Conclusions and Recommendations.



## **2 PROJECT INFORMATION**

### **2.1 Project Background**

Following agreement between Walt Disney and the HKSAR Government, MTR Corporation Limited has been invited by the HKSAR Government to build and operate a new rail link from Yam O to the Disney Theme Park.

The new rail link, the "Penny's Bay Rail Link (PBRL)", will be integrated with the existing MTR Tung Chung Line at a new station to be constructed at Yam O. From Yam O, the train will travel to Disneyland Station in Penny's Bay as the basis of the direct rail service to the Disney Theme Park.

The PBRL will be a shuttle service between the Tung Chung Line at the new Yam O Station and the new Disneyland Station at Penny's Bay. The link will be operated by MTRCL and will form an integral part of the MTR network.

An Environmental Impact Assessment for the PBRL Project was conducted in accordance with the requirements of the Environmental Impact Assessment Study Brief No. ESB-043/1999 for the Construction of An International Theme Park in Penny's Bay of North Lantau and Its Essential Associated Infrastructures. An EM&A Manual provided guidelines for the preparation of this Bi-annual EM&A Report.

### **2.2 Project Organization and Management Structure**

The key parties in the EM&A programme include the PBL Contractors, the Project Engineer and the Engineer's Representative (ER), the Independent Environmental Checker (IEC), the Environmental Team Leader and the Environmental Team together with the Environmental Protection Department (EPD). The organization structure is such that the contractors are encouraged to perform with respect to the implementation of the required environmental protection and mitigation measures in order to comply with the requirements specified in the Environmental Permit. In addition, the IEC is responsible to check, review, verify and validate the overall environmental performance of the PBRL Project.

The organization chart and lines of communication with respect to the on-site environmental management and monitoring and audit programme are shown in Appendix B.

### **2.3 Construction Programme**

The construction of the Penny's Bay Rail Link is scheduled to commence in August 2002 and to be completed by July 2005. MTRCL is responsible for the overall contract administration of the construction works. It is recommended that the programming is such that environmental impacts are reduced as far as possible.

## ***2.4 Construction Activities***

The Penny's Bay Rail Link Project consists of the following civil construction contracts:-

Contract 580 - The construction of Yam O Station, construction contract was awarded in July 2002.

Contract 581 - The construction of Tai Yam Teng Tunnel connecting Yam O and Penny's Bay, construction contract was awarded in July 2002.

Contract 582 - The construction of trackwork and overhead line system, construction contract was awarded in October 2002.

Contract 583 - The construction of Disneyland Station, construction contract was awarded in December 2002.

Contract 584 - Landscaping work for PBRL, construction contract was awarded in January 2003.

Major site activities carried out under the PBRL civil construction contracts during this reporting period were as follows:-

### **C580 - Yam O Station**

- Construction of underground drainage for the northern platform;
- Construction of prebore H-piles and pile testing which is a Government entrusted work;
- Construction of platform edge structure including strap footing, under platform wall, platform slab and the underground drainage for the southern platform.

### **C581 - Tai Yam Teng Tunnel**

- Temporary traffic decks installation and excavation underneath traffic decks;
- Construction of retaining walls for EVA;
- Drainage works near existing Yam O Traction Substation.

### **C582 - Trackwork and Overhead Line System**

- Site office erection;
- Excavation to track formation level;

C583 - Disneyland Station

- Site office erection;
- Excavation to station formation level;

C584 - Landscaping

- No site work was carried out during the reporting period.

### **3 CONSTRUCTION NOISE MONITORING**

The Penny's Bay Rail Link EIA concluded that it was not necessary to conduct construction noise monitoring during the construction of the Project. However in order to ensure that the effective management and implementation of noise control mitigation measures developed and defined in the EIA, the ET conducted regular site inspections of the construction work sites.

### **4 AIR QUALITY MONITORING**

The Penny's Bay Rail Link EIA concluded that it was not necessary to conduct air quality monitoring during the construction of the Project. However in order to ensure that the effective management and implementation of air quality mitigation measures developed and defined in the EIA, the ET conducted regular site inspections of the construction work sites.

### **5 WATER QUALITY MONITORING**

The Penny's Bay Rail Link EIA concluded that it was not necessary to conduct water quality monitoring during the construction of the Project. However in order to ensure that the effective management and implementation of water pollution control mitigation measures developed and defined in the EIA, the ET conducted regular site inspections of the construction work sites.

### **6 WASTE MANAGEMENT**

In order to ensure that the effective management and implementation of waste mitigation measures developed and defined in the EIA, waste management audit was carried out by the ET on a monthly basis. In addition, the weekly site inspections covered the waste management issues on site. The audit findings were recorded and some observations were noted as follows:

Waste Management Audit Findings:

1. Some of the oil drums were not put in drip trays and might lead to spillage of diesel oil during handling;
2. The area for plant maintenance was not covered with tarpaulin and dripping of machine oil might lead to ground contamination;
2. Licensed waste collectors were used for chemical waste collection;
3. General refuse was disposed of at designated landfills;
4. Recycling of C&D materials was encouraged.

Site Inspections Findings:

1. Some of the oil drums were not put in drip trays and might lead to spillage of diesel oil during handling;
2. Storage area for general refuse should be covered to avoid hygiene problem;
3. Storage bins to collect general refuse should be provided at works area which were at a distance from the site offices.

Records of Quantities of Wastes

Wastes arising from the construction work were classified into the following types:

- Excavated material;
- Construction & demolition material;
- Chemical waste;
- General refuse.

The quantities of wastes for disposal during this reporting period are summarized in the following table:

Type of Waste	Cumulative Quantity	Location of Disposal
<b>C580 - Yam O Station</b>		
1. Excavated Material (m <sup>3</sup> )	3832	Public fill at Tuen Mun Area 38
2. Excavated Material (m <sup>3</sup> )	24213	Contractor's own outlets
2. Excavated Material - unsuitable (m <sup>3</sup> )	203	WENT/NENT Landfills
2. Construction & Demolition Material (m <sup>3</sup> )	Nil	N/A
3. Chemical Waste (Litres)	Nil	N/A
4. General Refuse (m <sup>3</sup> )	418	WENT/NENT Landfills
<b>C581 - Tai Yam Teng Tunnel</b>		
1. Excavated Material (m <sup>3</sup> )	N/A*	No Off-site Disposal
2. Construction & Demolition Material (m <sup>3</sup> )	Nil	N/A
3. Chemical Waste (Litres)	800	Chemical Waste Treatment Facility
4. General Refuse (m <sup>3</sup> )	70	WENT/NENT Landfills
<b>C582 - Trackwork</b>		
1. Excavated Material (m <sup>3</sup> )	N/A*	No Off-site Disposal
2. Construction & Demolition Material (m <sup>3</sup> )	Nil	N/A
3. Chemical Waste (Litres)	Nil	N/A
4. General Refuse (m <sup>3</sup> )	Nil	N/A
<b>C583 - Disneyland Station</b>		
1. Excavated Material (m <sup>3</sup> )	N/A*	No Off-site Disposal
2. Construction & Demolition Material (m <sup>3</sup> )	Nil	N/A
3. Chemical Waste (Litres)	Nil	N/A
4. General Refuse (m <sup>3</sup> )	Nil	N/A

\* Excavated material was reused on site.

## **7 LANDSCAPE AND VISUAL**

The Penny's Bay Rail Link EIA concluded that the landscape and visual impacts associated with the construction of the rail link are anticipated to be acceptable with mitigation. However in order to ensure that the effective management and implementation of landscape mitigation measures developed and defined in the EIA, the ET conducted regular site inspections of the construction work sites.

No deficiency was identified during this reporting period.

## **8 SITE INSPECTION AND AUDITS**

Weekly site inspections and audits were carried out by the ET, 26 nos. site inspections were undertaken in this reporting period.

Based on the findings from the site inspection and audits, the following recommendations are pertinent:

1. Regular check to ensure effectiveness of the wheel washing facility and carry out desilting at the settlement tank;
2. Provide sufficient drip trays and remove used oil drums and other chemical containers to minimize potential land contamination;
3. Used engine/lubricating oil should be stored properly and collected by a licensed chemical waste collector. All the disposal record should be kept properly;
4. No discharge of muddy site water directly into the drainage channels is allowed and preventive measures should be adopted;
5. Apply water spray frequently on haul roads to avoid fugitive dust emission by site vehicles during dry weather and proper record of water spray should be maintained;
6. The travelling speed of site vehicles should be limited;
7. Provide sufficient dust suppression measures to reduce dust emission and proper record should be maintained;
8. Stockpile of excavated materials at the barging point should be set back from the edge and sand bags to be placed at the edge to avoid soil from being washed into the sea during wet weather;
9. Stockpile of excavated materials at the temporary storage area should have sand bags at the toe to avoid soil from being washed into drainage channel during wet weather;
10. Relevant CNP should be displayed at the prominent location of the works areas where the specified construction works were carried out;
11. Storage area for general refuse should be covered to avoid hygiene problem;
12. Rubbish bins/ buckets should be provided at works areas for storage of general refuse/construction wastes;
13. Loaded trucks should be covered with tarpaulin sheets before leaving the work sites and use the wheel washing bay to avoid soil deposited on public roads;
14. Water ponding should be cleared to avoid mosquitoes breeding;
15. All drainage within work sites should be checked regularly to ensure they are in good condition during wet season.

## **9 IMPLEMENTATION STATUS OF ENVIRONMENTAL PROTECTION AND POLLUTION CONTROL**

### **9.1 Mitigation Measures Implemented**

The mitigation measures implemented during the reporting period is summarized as follows:

- Regular site inspections were conducted by the Contractors to control the site environmental matters including the required mitigation measures specified in the Environmental Permit;
- Employed quiet powered mechanical equipment and processes wherever possible;
- Turned off idle equipment and operated powered mechanical equipment properly and only when necessary;
- Provided regular maintenance to ensure that powered mechanical equipment are in good condition;
- C&D wastes and general refuse were properly stored and disposed off site frequently to avoid accumulation;
- Trucks for excavated materials transportation were covered with tarpaulin sheets and without overloading;
- Water spray was carried out during excavation work to limit the dust problem;
- Controlled drop height of excavated materials to be not greater than 2m;
- Waste management was implemented in accordance with the Waste Management Plan with proper control measures;
- Drip trays were provided to collect any possible oil drips from oil drums;
- Chemicals and chemical wastes were stored at designated area and chemical wastes were collected by licensed collector and disposed to the Chemical Waste Treatment Facility.

## **9.2      *Review of Solid and Liquid Waste Management***

By field observation, it was found that the Contractors had reasonably undertaken the preventative measures to minimize the solid and liquid wastes generated from the construction work. The Contractors had implemented the 3-R (Reduce, Reuse and Recycle) principles in handling the solid and liquid wastes generated from the construction work.

Excavated materials were handled with care, they were either delivered offsite for reuse under a trip ticket delivery system or temporarily stored at the storage area for reuse in the contract work.



## 10 ENVIRONMENTAL NON-COMPLIANCE

### 10.1 Environmental Complaints

Two environmental complaints were received during this reporting period. A summary of environmental complaints since commencement of construction of the PBL Project is shown below:

Reporting Period	Frequency	Cumulative	Nature of Complaint
Aug 2002 - Oct 2002	0	0	N/A
Nov 2002 - Jan 2003	2	2	Dust

The first environmental complaint was lodged by CED's ENPO on 12th November 2002 regarding dust problem for the section of the access road on the north side of the Airport Rail Line leading to the barging point where excavated material is temporarily stored. Upon investigation, it was found that the southern portion of the barging point was being occupied by Gammon Skanska Limited, the Contractor of CED Contract No. CV/2001/11 - Watermains and Sewerage Works from SHW to Yam O. Their excavated materials were being transported and stored at the captioned location. Notwithstanding this, MTRCL's C580 Contractor for the Yam O Station Construction was instructed to construct a wheel wash facility at the entrance to the access road in order to rectify the dust problem. The complainant was responded on 18th November 2002 and no further action was required.

The second environmental complaint was referred by CED's ENPO on 24th January 2003 regarding dust problem from Penny's Bay Construction Site. Upon investigation, there was not dusty construction work carried out in open area at the current stage of construction work for C582 - Trackwork and C583 - Disneyland Station at Penny's Bay area. However, the Contractors were reminded to: a) water the work sites and haul roads frequently; b) use designated haul roads as far as possible; c) ensure all trucks pass through the wheel washing facility before leaving site areas; d) avoid splashing of material from trucks during transport on the haul roads and cover trucks properly with tarpaulin and e) strictly observe speed limits on any roads within and outside their site areas. ENPO was responded on 6th February 2003 and no further action was required.

## 10.2 Environmental Summons or Prosecutions

No environmental summons or prosecution was received during this reporting period. A summary of environmental summons or prosecutions since commencement of construction of the PBRL Project is shown below:

Reporting Period	Frequency	Cumulative	Nature of Prosecution
Aug 2002 - Oct 2002	0	0	N/A
Nov 2002 - Jan 2003	0	0	N/A

## 11 STATUS OF LICENSES OBTAINED BY CONTRACTORS

A summary of all the relevant permits, licenses on environmental protection for the PBL Project as of 8th February 2003 is shown below:

Item	Item Description	Permit Status
	<b>PBL Project</b>	
1.	Environmental Permit No. EP-120/2002	Issued to MTRCL on 28/02/02
	<b>C580 - Yam O Station</b>	
1.	Registration as a Chemical Waste Producer No. WPN5213-974-M1039-03	Issued on 09/09/02
2.	Discharge License No. EP760/974/0043 I	Valid (18/11/02 - 30/11/07)
3.	CNP for construction works, GW-UW0254-02	Valid (13/09/02 - 08/03/03)
4.	CNP for construction works, GW-UW0294-02	Valid (21/10/02 - 31/03/03)
3.	CNP for piling works, PP-UW0028-02	Valid (02/10/02 - 30/06/03)
	<b>C581 - Tai Yam Teng Tunnel</b>	
1.	Registration as a Chemical Waste Producer No. WPN5213-974-G2040-69	Issued on 03/09/02
2.	Discharge License No. EP742/974/0042 I	Valid (17/09/02 - 30/09/07)
3.	CNP for construction works, GW-UW0310-02	Valid (22/10/02 - 14/04/03)
4.	CNP for piling works, PP-UW0023-02	Valid (01/09/02 - 28/02/03)
	<b>C582 - Trackwork</b>	
1.	Registration as a Chemical Waste Producer	Application submitted on 07/01/03
	<b>C583 - Disneyland Station</b>	
1.	Registration as a Chemical Waste Producer	Application submitted on 02/01/03
2.	Discharge License	Application submitted on 17/01/03

## ***12 ENVIRONMENTAL PERFORMANCE OF CONTRACTORS***

This section provides an overview of the environmental performance of each construction contract encompassed in the PBRL Project, which are based on the various factors including:

- the number of non-compliance/irregularities identified during the reporting period, taking into account their potential seriousness and the attempts made to rectify the problems;
- time taken and usefulness of responses on the proposed mitigation measures to be taken;
- demonstrated proactivity and perceived enthusiasm of the contractor and the site staff;
- ease of uptake and implementation of advice provided;
- overall perceived environmental awareness of the contractor and the site staff.

### **C580 - Yam O Station**

No significant environmental problem was recorded for the construction of Yam O Station. Site staff showed responsibility in environmental matters and were generally respectful of the EM&A procedures. The Contractor had allocated resources on the waste management. In addition, proactivity and responsibility have been adopted by both parties towards the environmental issues raised in the regular site audits and inspections. The environmental performance is considered to be acceptable.

### **C581 - Tai Yam Teng Tunnel**

No significant environmental problem was recorded for the construction of Tai Yam Teng tunnel. The Contractor was found to be willing and efficient to use their initiative to provide information to identify potential sources of environmental problems and action to produce solutions. They were responsive in the response to the environmental issues raised in the regular site audits and inspections. Site staff were generally respectful of the EM&A procedures. The environmental performance is considered to be acceptable.

### **C582 - Trackwork and Overhead Line System**

No significant environmental problem was recorded for the construction of trackwork. The Contractor was found to be willing and efficient to use their initiative to provide information to identify potential sources of environmental problems and action to produce solutions. They were responsive in the response to the environmental issues raised in the regular site audits and inspections. Site staff were generally respectful of the EM&A procedures. The environmental performance is considered to be acceptable.

**C583 - Disneyland Station**

No significant environmental problem was recorded for the construction of Disneyland Station. The Contractor was responsive in the response to the environmental issues raised in the regular site audits and inspections. In addition, site staff were generally respectful of the EM&A procedures. The environmental performance is considered to be acceptable.

**C584 - Landscaping**

As no site work was carried out during the reporting period, the environmental performance is not reviewed at this stage of the contract.

## ***13 CONCLUSIONS AND RECOMMENDATIONS***

### ***13.1 Conclusions***

The Bi-annual Environmental Monitoring and Audit (EM&A) Report presents the environmental monitoring and audit works for the construction of the Penny's Bay Rail Link carried out during the reporting period from 9th November 2002 to 8th February 2003 which was undertaken based on the EM&A Manual and the Environmental Permit requirements. In addition, it provides an overview of the environmental performance of each construction contract encompassed in the PBRL Project.

During the site inspections and audits on the PBRL Project work sites, it was found that the environmental pollution control measures provided by the Contractors were generally acceptable apart from some minor irregularities which had been rectified by the respective Contractors. Two environmental complaints on dust problem were received in this reporting period and settled satisfactorily. No environmental summons or prosecution were received in this reporting period.

Based on the EM&A works conducted in the reporting period, the following can be concluded:

1. The overall objectives and aims of the EM&A programme were achieved, and in general a high level of environmental proficiency was demonstrated;
2. EM&A works for the PBRL Project complies with the conditions of the Environmental Permit;
3. Environmental management of the PBRL Project appears generally adequate;
4. The incorporation of environmental guidelines into the Contract Specifications was successful with clauses being applicable to the majority of problems. The principal area of concern is to maintain the current standard at site level in the awareness, interpretation, application and particularly serious enforcement of these conditions by the contractors;
5. Training for site supervisory and working level staff focussed on the efficient management and resolution of environmental issues, particularly to statutory regulations and government procedures. Responsibilities of staff is being reviewed with regard to enhancement;
6. The steps currently taken to place the onus of environmental management onto the PBL Contractors is relieving the burden of work for the construction staff. The construction staff have understood the process and have taken ownership and responsibility for enforcing the procedures to an acceptable extent.

The ET will continue to conduct the EM&A programme in accordance with the EM&A Manual and to carry out site inspections and audits on the implementation of the environmental mitigation measures as specified in the Implementaion Schedule of the PBRL EIA.

### **13.2 Recommendations**

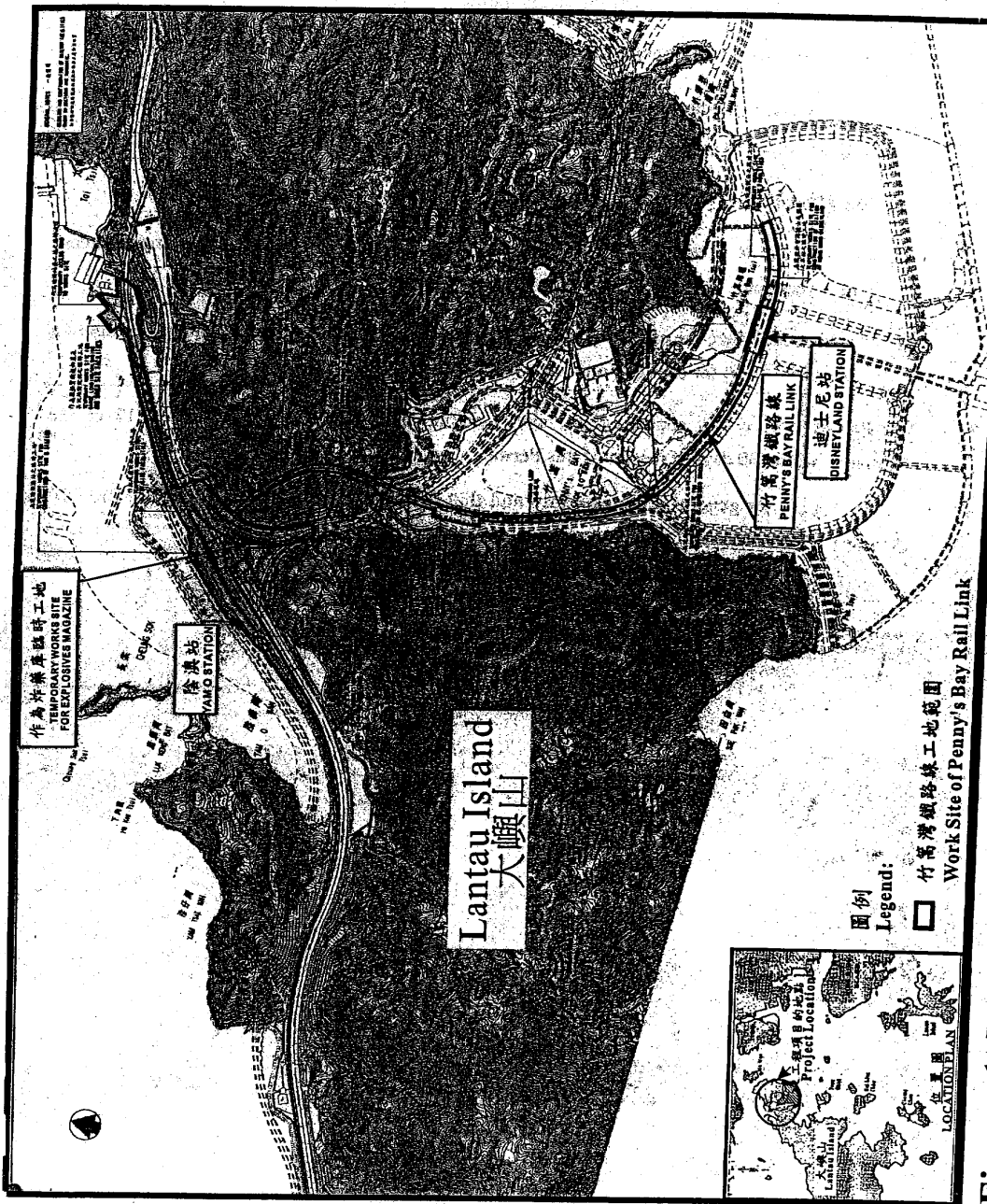
In accordance with the environmental site inspections and audits undertaken during the reporting period, the following recommendations are made:

- Water spray should be carried out frequently at the main haul roads including the section in front of the site entrances and exposed area for dust suppression;
- Stockpile of excavated materials stored at the storage area should be covered with tarpaulin sheets as much as possible;
- The frequency of water spray should be increased during period of dust generating site activities for efficient dust suppression;
- All equipment maintenance should be carried out on a plastic sheet or paved area in order to avoid ground contamination;
- Sufficient skips should be provided for temporary storage of general refuse and construction wastes and the wastes should be disposed off site regularly to avoid accumulation;
- Fuel drums and engine oil containers should be stored in a designated area with clear labelling;
- Trucks loaded with excavated materials should be fully covered with tarpaulin sheets and should not be overloaded;
- All types of wastes generated from the construction work should be collected by licensed waste collectors and good housekeeping should be maintained;
- Drip trays should be provided for storing fuel drums and should be cleaned up regularly to prevent overflow during wet weather.

The ET will carry out the EM&A works to ensure compliance with the environmental requirements and the proper implementation of all necessary mitigation measures.

# **Appendix A**

## **Project Site Layout**



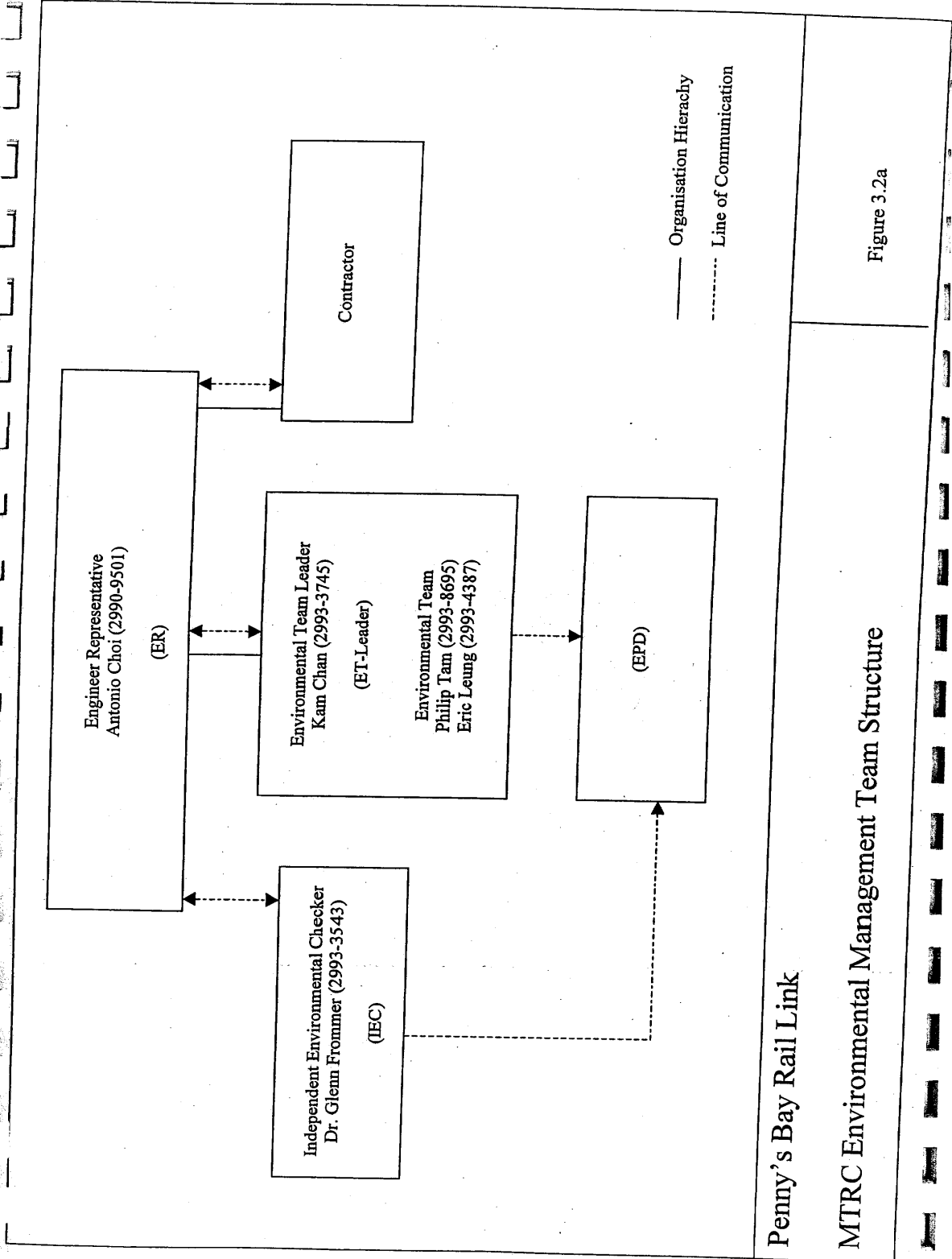
Environmental Permit No.: EP-120/2002  
 環境許可證編號: EP-120/2002

Figure 1 Project Location  
 圖 1 工程項目的地點



## **Appendix B**

### **MTRC Environmental Management Team Structure**



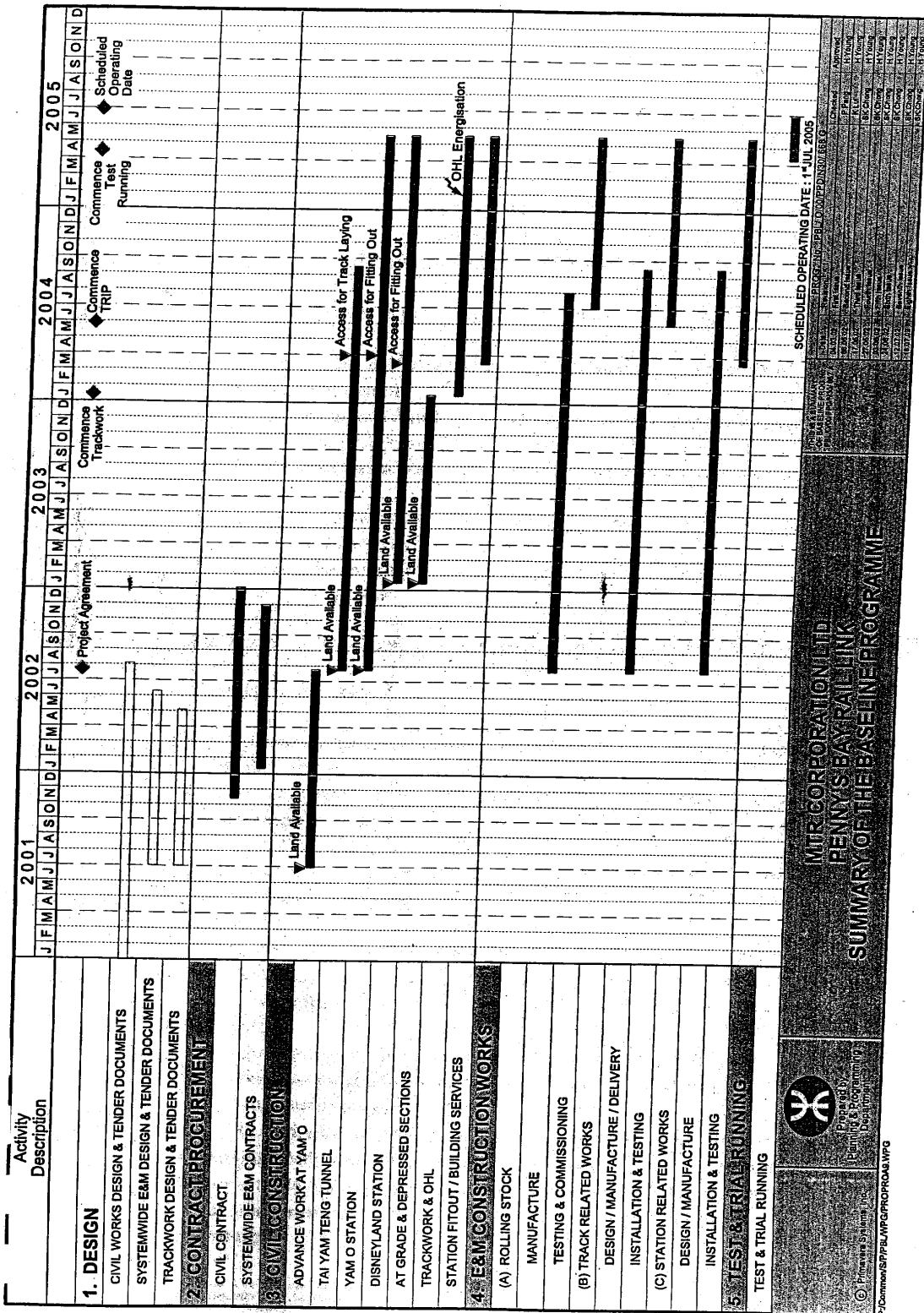
Penny's Bay Rail Link

MTRC Environmental Management Team Structure

Figure 3.2a

## **Appendix C**

### **Construction Programme**



**MTR CORPORATION LTD  
PENNSYLVANIA RAIL LINK  
SUMMARY OF THE BASELINE PROGRAMME**

Project Management Department

SCHEDULED OPERATING DATE: 1 JUL 2005

Activity	Start	End	Remarks
Project Agreement	2002-01-01	2002-01-31	
Commence Trackwork	2003-01-01	2003-01-31	
Commence TRIP	2004-01-01	2004-01-31	
Commence Test Running	2005-01-01	2005-01-31	
Scheduled Operating Date	2005-07-01	2005-07-01	

Figure 1.2b