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## 1.0 Background

### 1.1 Project Description

*One of the Government Departments of the Hong Kong Special Administrative Region (hereafter referred as 'the Client') intends to construct a Green Park in Stanley Bay of South Hong Kong Island and its essential associated infrastructure (hereafter referred as the Project). Proposed facilities will include the Green Park, entertainment, retail and dining outlets, resort hotel with 100 rooms, and essential supporting services. New roads, public transport interchange, vehicle parking areas, and associated stations will provide direct transport links to the proposed park.*

*Wan Bao Construction Limited (WBC) has been awarded the Contract CV/2006/EMP-01 for Stanley Bay's Development Contract by Client. The construction work is scheduled to commence in Jan 2006 and will be completed tentatively by Dec 2008. The contract include the following designated projects:*

*Western Storm water Drainage Channel at Stanley Bay;*

- *Construction and operation of drainage channel which discharges into an area, where is 800 m away from the St. Stephen's Beach;*

*Chung Hom Kok Link Road;*

- *Construction of the site formation for about 1.5 km of a road, which is an expressway.*

*A site-map showing the site boundary is shown in Appendix A.*

### 1.2 Requirements for an Environmental Management Plan (EMP)

*This Environmental Management Plan (EMP) sets out in detail the approach of WBC to be adopted in managing and controlling potential environmental impacts from our work activities at the Project, for meeting all relevant legal and contractual environmental requirements. Where necessary, this EMP will be revised to include recommended changes made by the Environmental Consultant appointed by the Project Proponent. Any amendment to the approved EMP shall require subsequent approval by the Client.*

*ABC Environmental Services and Consulting (ABC) has been commissioned by WBC to undertake environmental management and monitoring works in compliance with the legal and contractual requirements for the Contract CV/2006/EMP-01 of Infrastructure for Stanley Bay's development*

### 1.3 Objectives of the EMP

This EMP sets out in detail the approach, which WBC will adopt in dealing with the potential environmental impacts from various different construction activities throughout the construction of the Contracts. It provides systematic procedures for minimising environmental impacts from that may arise from the construction work.

The main objectives of the EMP are to:

1. Make reference to statutory environmental requirements and obligations;
2. Clarify responsibilities of various parties involved;
3. Address all potential significant environmental impacts;
4. Set out environmental management approach;
5. Initiate and implement mitigation measures;
6. Set out housekeeping practices; and
7. Set out emergency procedures.

## 2.0 Policy Statement

*The commitment from top management is important to drive the staff for implementing the environmental management system, thus an environmental management policy is communicated to all staff and given as below:*

### *Environmental Management Policy for Contract No. CV/2006/EMP-01*

*Wan Bao Construction Limited (WBC) undertakes the design, construction, operation, maintenance and project management of building and civil engineering works in both public and private sectors.*

*Protecting the environment is the responsibility of every staff in the organization. WBC is committed to sustainable construction and minimise any adverse impact on the environment resulting from our business activities.*

*We are committed to delivering services with minimal impact to the environment through the following principles: -*

- ★ *Focus on prevention of pollution, waste minimization and resource conservation as critical considerations within our core management processes.*
- ★ *Compliance with all applicable local legislation and other relevant requirements.*
- ★ *Regular performance reviews to ensure that environmental objectives and the requirements of Interested Parties are met.*
- ★ *Provision of staff training to ensure understanding, implementation and development of these principles throughout our business.*
- ★ *Continual improvement*

*All staff will follow the requirements of the Environmental Management System in the performance of their tasks and will ensure this policy is supported and maintained. This policy will be communicated to our customers, suppliers, and subcontractors. It will also be made available to the public whenever requested.*

*Endorsed by*



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*K. T. Wong*

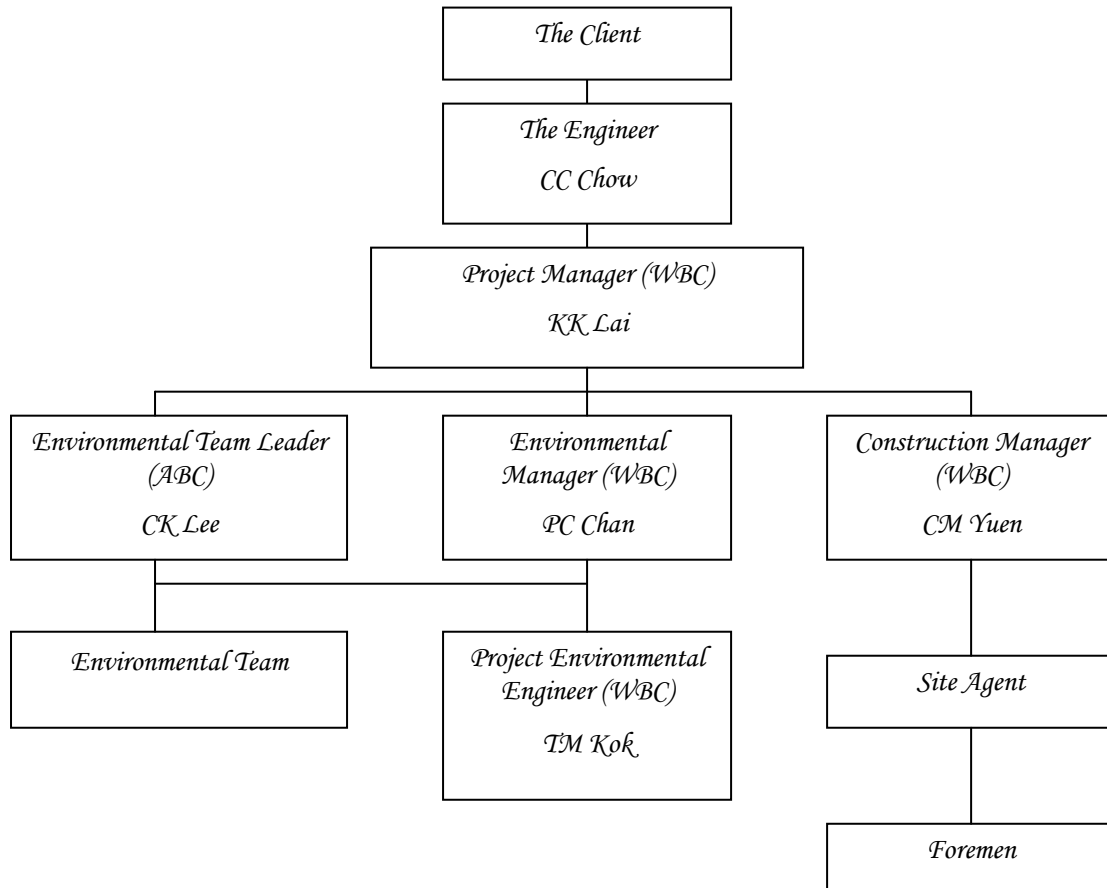
*General Manager of*

*Wan Bao Construction Limited*

*1/1/2006*

### 3.0 Organisation Structure and Responsibilities

#### 3.1 Site Organisation Diagram



#### 3.2 Environmental Team Structure

Refer to EMS Manual (EM – 01) and Waste Management Plan (WMP – CV/2006/EMP-01) for details on roles and environmental responsibilities of project key staff.

#### 4.0 Promoting Environmental Awareness

Briefing and instruction will be given to site staff as well as subcontractors to increase awareness and draw attention to environmental management issues. Table 1 shows the outline of training requirements for all relevant staff. An outline of the training requirements will also be distributed to relevant site staff and subcontractors etc. (EMS procedure EP-03 – EMS Training). Details of training procedure are given in:

Table 1 – An Outline of Training Requirement for all Relevant Staff

<b>Staff</b>	<b>Training Needs</b>	<b>Schedule / Frequency</b>
Project Manager / Environmental Manager	Distribution of Environmental Management Plan	Beginning of Work
Relevant site supervisors / foremen identified by Environmental Manager	Mitigation and management measures specific to their scope of work	Before the staff commences the particular work
All site worker (including sub-contractor site staff)	General environmental management instructions / procedures, including site house keeping, waste reduction, noise control, dust control, environmental management policy, targets, measures for subcontractor performance etc	Induction for the workers

In general, the training sessions will be conducted by the EM / Project Environmental Engineer (PEE) on a regular basis or where it is deemed necessary. In order to establish a better community relationship, EM / PEE is responsible to organise meetings and establish communicate channels to convey WBC's environmental commitment and performance to the nearby community.

#### 4.1 Reporting and Communication Procedures

Effective 2-way communications will be developed to initiate the flow of environmental information among different parties. The communication is mainly achieved through the site environmental logbook, site meeting, environmental briefing, site inspection, etc. and environmental awareness promotion activities between WBC and site works and sub-contractors. The major channels of communications are summarised in the following Table 2.

Table 2 – Summary of Communication Means &amp; Actions

<b>Means</b>	<b>Frequency</b>	<b>Purpose/Action</b>	<b>Responsible Party</b>
Site Environmental Log Book	Continually	Written record of what has been observed and done related to environmental issues, including implementation status of mitigation measures.	PEE
Site meeting	Monthly	Face-to-face communications between construction and client.	PEE
Environmental briefing / training session	Monthly	Briefing or Training on environmental issues to key site staff and staff of subcontractors.	PEE
Environmental Complaint Log	When necessary	To handle and respond environmental complaints.	PEE
Site Inspection	Continually	Promote awareness of environmental procedures among workers and sub-contractors via continual and casual conversations.	PEE

Refer to EP-07 Enquiry / Complaint / Nonconformity Handling

## 5.0 List of Legal and Other Requirements

*Refer to Legal Register and Other Requirements (LR-01)*

## 6.0 List of Significant Environmental Aspects

*PM and EM shall ensure that all environmental aspects that may pose significant impacts to the environment are under control. A list of environmental aspects of this project can be referred to EAR-01. A list of Sensitive Receivers is shown in Appendix B.*

## 7.0 Environmental Control Procedures and Mitigation Measures

*All operations and activities associated with the significant aspects will be properly controlled, through the adoption of operational control procedures, which include Environmental Procedures (EPs) and Environmental Instructions (EIs). These procedures and instructions will be communicated to personnel whose tasks may result in significant environmental aspects.*

*A list of environmental procedures and instructions for site staff and subcontractors' staff is shown in Table 1.*

*Table 3 – A list of environmental procedure(s) / instruction(s) for site staff and subcontractors' staff.*

<b>Document No.</b>	<b>Title of document</b>
EM-01	Environmental Management System Manual
EP-01	Identification of Environmental Aspects and Significance Evaluation
EP-02	Review of Legal and Other Requirements
EP-03	Training
EP-04	Control of Documents
EP-05	Environmental Emergency Preparedness and Response
EP-06	Environmental Monitoring and Evaluation of Compliance
EP-07	Enquiry / Complaints / Nonconformity Handling
EP-08	Control of Records
EP-09	Internal Audit
EI-01	Environmental Management Plan
EI-02	Waste Management Plan
EI-03	Environmental Instruction for Building and Civil Engineering Design
EI-04	Best Practices for Construction Activities
EI-05	Selection and Control of Contractors Regarding Environmental Performance
EI-06	Green Purchasing for Office
EI-07	Environmental Office Practices
EI-08	Environmental Practices for Using Company's Car

## 8.0 Environmental Emergency Procedures

*Refer to EI-04 Section H, which sets out instructions for Potential Accidents and Emergency Situations*

## 9.0 Environmental Inspection, Monitoring, Auditing and Corrective Actions

*Environmental audit will be carried out on a monthly basis with the attendance of the PEE, Environmental Team (ET) and the Agent. The areas of audit will cover difference aspects, such as air, noise, water and waste, and their pollution controls and mitigation measures for both within and outside the site area.*

*Detail of auditing requirements can refer to EP-09; if found any nonconformity items, refer to EP-07 for more details of corrective action procedure.*

## 10.0 Environmental Records

*Apart from the regular reviews / audits or inspections, there are some typical environmental records are shown in the following Table 4 which they should be necessary to maintain during the construction periods.*

*Table 4 – Example of Environmental Records*

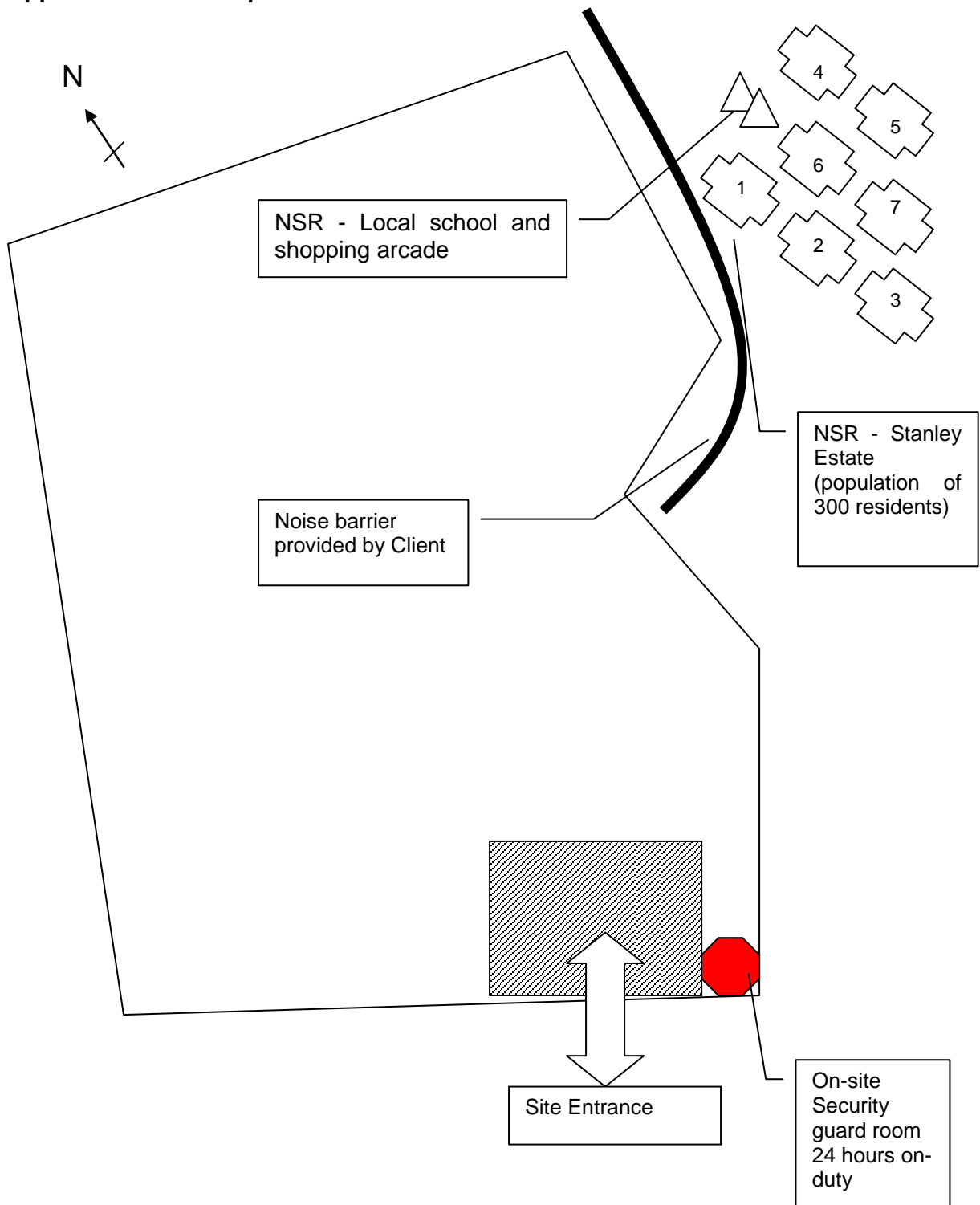
<b>Category</b>	<b>Environmental Record</b>	<b>Responsible Personnel</b>	<b>Retention</b>
<i>General</i>	<ul style="list-style-type: none"> <li>• Environmental training records</li> <li>• Monthly environmental audit results and/or reports (i.e. completed environmental checklist)</li> <li>• Equipment maintenance/repair records</li> <li>• Monitoring of noise, air quality or effluent discharge as required by the EPD</li> <li>• Copies of all plans, reports, applications, etc. submitted to the project Proponent and the EPD</li> <li>• Correspondence with EPD, Project Proponent and other parties in relation to environmental matters</li> <li>• Minutes of monthly environmental review meeting</li> </ul>	<i>Project Manager</i>	<i>1 year after project completion</i>
<i>Air Pollution Control</i>	<ul style="list-style-type: none"> <li>• Notification to EPD in accordance with the Air Pollution Control (Construction Dust) Regulation</li> <li>• Records on maintenance/cleaning of wheel washing facility</li> <li>• Specific Process Licence</li> </ul>	<i>Project Manager</i>	<i>1 year after project completion</i>
<i>Noise Control</i>	<ul style="list-style-type: none"> <li>• Construction Noise Permits</li> <li>• Noise Emission Labels for hand-held percussive breakers and air compressors</li> </ul>	<i>Project Manager</i>	<i>1 year after project completion</i>
<i>Water Pollution Control</i>	<ul style="list-style-type: none"> <li>• Effluent Discharge Licences</li> <li>• Construction site drainage plans</li> </ul>	<i>Project Manager</i>	<i>1 year after project</i>



<i>Category</i>	<i>Environmental Record</i>	<i>Responsible Personnel</i>	<i>Retention</i>
	<ul style="list-style-type: none"> <li>• <i>Records on maintenance/cleaning of wastewater treatment plant</i></li> <li>• <i>Records on toilet sewage disposal</i></li> </ul>		<i>completion</i>
<i>Waste Management</i>	<ul style="list-style-type: none"> <li>• <i>Chemical Waste Producer Registration</i></li> <li>• <i>Chemical waste collection and disposal records</i></li> <li>• <i>Trip tickets and documentation for collection and tipping of waste and waste removal</i></li> <li>• <i>Dumping licences</i></li> <li>• <i>Copies of relevant licenses of the waste haulers and waste collectors</i></li> <li>• <i>Records on quantities of waste reused/recycled</i></li> <li>• <i>Records on quantities of excavated material transferred to other construction sites for use</i></li> <li>• <i>Records on quantities of excavated material transferred to public filling areas</i></li> <li>• <i>Waste disposal records</i></li> </ul>	<i>Project Manager</i>	<i>1 year after project completion</i>
<i>Chemical Storage</i>	<ul style="list-style-type: none"> <li>• <i>Material Safety Data Sheets</i></li> <li>• <i>A log of chemicals inventories</i></li> </ul>	<i>Project Manager</i>	<i>1 year after project completion</i>
<i>Complaints</i>	<ul style="list-style-type: none"> <li>• <i>Environmental complaint records</i></li> <li>• <i>Correspondence with relevant parties</i></li> </ul>	<i>Project Manager</i>	<i>1 year after project completion</i>
<i>Environmental Emergency</i>	<i>Emergency Incident Reports</i>	<i>Project Manager</i>	<i>1 year after project completion</i>
<i>Non-compliance</i>	<ul style="list-style-type: none"> <li>• <i>Non-compliance Reports</i></li> <li>• <i>Non-compliance Reports Logbook</i></li> </ul>	<i>Project Manager</i>	<i>1 year after project completion</i>
<i>Environmental Costs and Savings</i>	<i>Table of Environmental Costs and Savings</i>	<i>Project Manager</i>	<i>1 year after project completion</i>

*Refer to EI-04 Best Practices for Construction for list of environmental records.*

**Appendix A – Site Map**



**Appendix B – List of Sensitive Receivers(s)**

<i>Air Sensitive Receivers No.</i>	<i>Fig. No.</i>	<i>Description</i>	<i>Air Sensitive Receivers</i>	<i>Horizontal Distance to Worksite (m)</i>
1	Appendix A	Stanley Bay Estate – Block 1	x	60
2	As above	Stanley Bay Estate – Block 2	x	70
3	As above	Stanley Bay Estate – Block 3	x	80
4	As above	Stanley Bay Estate – Block 4	x	120
5	As above	Stanley Bay Estate – Block 5	x	130
6	As above	Stanley Bay Estate – Block 6	x	85
7	As above	Stanley Bay Estate – Block 7	x	90
5	As above	Local school	x	65
6	As above	Local shopping arcade	x	65

<i>Noise Sensitive Receivers No.</i>	<i>Fig. No.</i>	<i>Description</i>	<i>Noise Sensitive Receivers</i>	<i>Horizontal Distance to Worksite (m)</i>
1	Appendix A	Stanley Bay Estate – Block 1	x	60
2	As above	Stanley Bay Estate – Block 2	x	70
3	As above	Stanley Bay Estate – Block 3	x	80
4	As above	Stanley Bay Estate – Block 4	x	120
5	As above	Stanley Bay Estate – Block 5	x	130
6	As above	Stanley Bay Estate – Block 6	x	85
7	As above	Stanley Bay Estate – Block 7	x	90
5	As above	Local school	x	65
6	As above	Local shopping arcade	x	65

<i>Water Sensitive Receivers No.</i>	<i>Fig. No.</i>	<i>Description</i>	<i>Water Sensitive Receivers (Stream, River and Sea)</i>	<i>Horizontal Distance to Worksite (m)</i>
N/A	N/A	N/A	N/A	N/A