



Our ref: ASCL-2018009

AECOM Asia Company Limited
8/F., Grand Central Plaza, Tower 2
138 Shatin Rural Committee Road
Shatin, New Territories, Hong Kong

Attention: Mr. Conrad NG

12 November 2018

Dear Sir,

Contract No. NE/2017/07
Cross Bay Link, Tseung Kwan O – Main Bridge and Associated Works
Waste Management Plan

I refer to your email dated 9 November 2018 concerning the captioned. We have no further comment on the Waste Management Plan (Revision 3) with Document No: CSF/WMP/03 and verify this plan according to section 1.9 of Environmental Permit with No.EP-459-2013.

Yours faithfully,



Li Wai Ming Kevin
Independent Environmental Checker

cc. Mr. Tam (ETL)
Brian Li (RE)
Simon Wong (CEDD)

Our Ref: TCS00975/18/300/L0056

AECOM Asia Company Limited
8/F, Grand Central Plaza, Tower 2
138 Shatin Rural Committee Road
Shatin, New Territories, Hong Kong

Attn: Mr. Conrad Ng

12 November 2018
By e-mail

Dear Sir,

Re: CEDD Contract NE/2017/07
Cross Bay Link, Tseng Kwan O, Main Bridge and Associated Works
Waste Management Plan (Revision 3)

With reference to the Waste Management Plan (Revision 3) (CSF/WMP/03) submitted on 6 November 2018, please note that we have no adverse comment on the captioned submission. We herewith certify the captioned submission pursuant to General Condition 1.9 of the Environmental Permit no. EP-459/2013.

Should you have any queries, please feel free to contact the undersigned at Tel: 2959-6059 or Fax: 2959-6079 or Email: twtam@fordbusiness.com.

Yours sincerely,
For and on Behalf of
Action-United Environmental Services & Consulting (AUES)



T. W. Tam
Environmental Team Leader
TW/ml

cc AECOM (Supervisor)
Acuity (IEC)

Mr. Jackie Chan
Mr. Kelvin Li

By-email
By-email



Contract No:
NE/2017/07

Project Title:

**Cross Bay Link, Tseung Kwan O,
Main Bridge and Associated Works**

Waste Management Plan

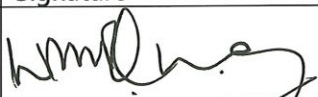
Document No: CSF/WMP/03
Revision: 3
Date: 6 November 2018



Revision History and Amendment Summary

Revision No.	Description for Amendment	By	Date
0	1 st Draft Revision	Pan Fong	03 Aug 18
1	Response to PM/Supervisor' s comments in letter dated 20 Aug 2018 (ref. CBL/(NE/2017/07)/C15/310/(0002) and update O-chart.	Pan Fong	29 Aug 18
2	Section 1.2, 1.4, 4.1.1 & 4.6.4, Figure 1 and Appendix H are amended	Kanny Cho	3 Oct 2018
3	Section 1.6 and Figure 1 amended	Kanny Cho	6 Nov 2018

Endorsed By:

Position	Signature	Name	Date
Site Agent		Raymond Cheng	6 Nov 2018

Prepared by:


Position	Signature	Name	Date
Environmental Officer		Kanny Cho	6 Nov 2018



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- I Summary Table of Approved Alternative Disposal Grounds
- J Implementation Schedule for WMP



Abbreviations List

C&D	Construction & Demolition
CEDD	Civil Engineering and Development Department
CRBC	China Road and Bridge Corporation
DRS	Daily Record Summary
EIA	Environmental Impact Assessment
EM&A	Environmental Monitoring & Audit
EO	Environmental Officer
EPD	Environmental Protection Department
EP	Environmental Permit
ES	Environmental Supervisor
ET	Environmental Team
ETL	Environmental Team Leader
IEC	Independent Environmental Checker
NENT	North East New Territories Landfill
PFRF	Public Fill Reception Facility
PM	Project Manager
TKO137FB	Tseung Kwan O Area 137 Fill Bank
TTS	Trip Ticket System
WAC	Waste Acceptance Criteria
WFT	Waste Flow Table
WMP	Waste Management Plan



1. INTRODUCTION

The Waste Management Plan (WMP) has been developed in accordance with clause 2.6 of EP-458/2013/C for Entrustment Works and 2.5 of EP-459/2013 for Cross Bay Link (Main Bridge) of Environmental Permits for the Civil Engineering and Development Department Contract namely Contract No. NE/2017/07, Cross Bay Link, Tseung Kwan O – Main Bridge, Associated Works (hereinafter the Contract).

1.1 Project Description

The Works to be executed under this Contract No. NE/2017/07 include, but not exclusively, the following items:

- A. Access to any Part of the Site;
- B. Provision of the Project Manager' s Site Accommodation referred to in PS Clause 1.49 a wheel washing system according to PS Appendix 1.33;
- C. Application of Marine Department Notice (MDN) for marine works from the authorities;
- D. Requirements of various submissions on environmental aspects before commencement of and during construction of the works as stated in the Particular Specification, including but not limited to, the Environmental Management Plan referred to in PS Clause 1.130
- E. Requirements to provide, maintain and remove environmental mitigation and monitoring measures under the Environmental Monitoring and Audit programme;
- F. Design and submission of Contractor' s Designs including alternative design (if any), and the process of review and acceptance by the Project Manager and the authorities;
- G. Setting up of prefabrication yard of elements of steel arch bridge, bridge segments and bridge girder;
- H. Prefabrication of bridge segments and bridge girder and its transportation to site;
- I. Prefabrication of elements of steel arch bridge;
- J. Setting up of construction plant and temporary works for construction of each bridge required under this contract including piles, pile caps, piers, erection / assembly of bridge superstructure;
- K. Removal of temporary works and accesses;



- L. Erection of isolation panels and steel parapets;
- M. Installation of road lightings and functional lighting;
- N. Construction of E&M Plant Room;
- O. Procurement, factory acceptance test, delivery, temporary storage, safety measures in the installation of E&M works, testing and commissioning of E&M works;
- P. FSD' s agreement and confirmation on the arrangement and schedules of fire service inspection to the E&M works;
- Q. Roadworks and signage installation;
- R. Landscaping works and its establishment;
- S. Interfacing works with CEDD' s contracts of the Tseung Kwan O – Lam Tin Tunnel project and CEDD' s other contract of Cross Bay Link, Tseung Kwan O including the requirements to share Working Areas to other contractors to enter and/or work as stated in GS and PS Clauses 1.27, 1.31A and 1.45; and
- T. Liaison and coordination with the stakeholders.

1.2 Purpose of the Plan

This Waste Management Plan (WMP) aims to describe the arrangements for avoidance, minimization, handling, reuse, recovery and recycling, storage, transportation, collection, treatment and disposal of different categories of waste to be generated from the construction activities of this project. This WMP includes the recommended mitigations measures on waste management as contained as stipulated in EIA report and EM&A Manual.

The main objectives of the WMP include:

- (a) Providing reference to the waste management requirements, both statutory and non-statutory;
- (b) Clarifying the responsibilities of each party on waste management and the personnel within the Contractor' s management;
- (c) Establishing the waste management procedures for avoidance, minimization, material reuse/recovery/recycling, collection, transportation, storage, disposal and disposal routes of the wastes which generated from the site activities;
- (d) Setting up a method statement for stockpiling and transportation of the excavated materials and other construction wastes.



1.3 Environmental Management Policy

An Environmental Management Policy is established to demonstrate the Company' s commitment in improving environmental performance. It aims to communicate China Road & Bridge Corporation(CRBC)' s mission, vision and beliefs towards the environment to the staff and provides a framework for guiding CRBCs ongoing environmental improvement efforts.

The policy will be reviewed by relevant parties periodically and will be displayed on notice boards in languages suitable for the nationality for the workforce.

The Environmental Policy Statement, is listed below:



CRBC

Environmental Policy

Document Number : CP-01
Revision Number : 4
Date : 17-5-2018

China Road And Bridge Corporation

China Road And Bridge Corporation (CRBC) 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 everyone in the organization. CRBC is committed to sustainable construction, climate change mitigation 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: -

- ★ Develop and implement an effective environmental management system fully complied with the requirements of ISO14001:2015 with achievable environmental objectives and targets.
- ★ Focus on protection of the environment, including prevention of pollution, waste minimization and resource conservation as critical considerations within our core management processes.
- ★ Fulfilment with applicable compliance obligation to which the Company subscribes which relate to its environmental aspects.
- ★ Regular performance reviews to ensure that environmental objectives and the requirements of Interested Parties are met.
- ★ Provide sufficient resources and facilities for the implementation of environmental nuisance abatement and waste management.
- ★ Provision of staff training to ensure understanding, implementation and development of these principles throughout our business.
- ★ Enhance communication of the policy to all employees, package contractors and suppliers and any interested parties and ensure that it is available to the public.
- ★ Seek continual improvement to enhance environmental performance than before through regular review of our EMS against the results of our efforts and the latest developments in the industry

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.

Signed :

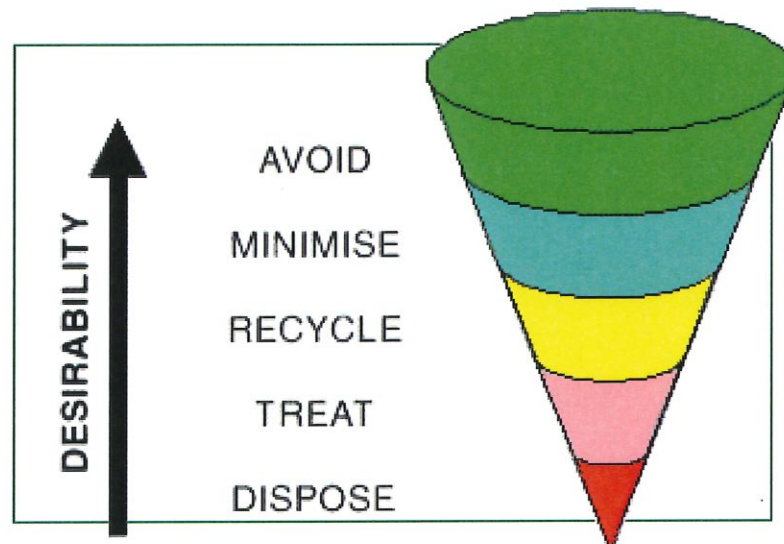

Kan Jun
General Manager

Date: 17-5-2018

1.4 The Waste Management Policy

To demonstrate the Project Team's commitment on the continual improvement of our waste management performance, an Environmental Management Policy includes the waste management has been established. It aims to communicate CRBC waste management mission, vision and beliefs to the staff and public, it also provides a framework in guiding the project team the basic requirements to be achieved in waste management.

The hierarchy is illustrated below. It attempts to evaluate waste management practices and selects the best practical option since conceptually it makes sense to avoid producing a waste rather than developing extensive treatment schemes. Good planning and site management practices also help minimizing over ordering or misuse of construction materials. The overall objective is to reduce and minimize the amount of wastes generated, hence reducing the costs of waste handling and disposal.



http://www.epd.gov.hk/epd/misc/cdm/management_intro.htm

The six major waste management principles are listed below:

Avoidance

CRBC will take following actions as to avoid and minimize waste generation. Construction works are planned discreetly so as to avoid unnecessary activities. Low waste technology will be applied whenever possible. Pre-cast/pre-fabricated construction components will be used. Bulk purchasing of materials will be avoided and just-in-time ordering will be adopted. Electronic communication and filing will be applied so as to minimize paper usage, printing and photocopying. Plants and devices will be maintained regularly so as to minimize repurchasing. Site promotion



and training will be conducted so that waste avoidance awareness of site personnel can be enhanced.

Reuse

CRBC will endeavor to reuse inert waste within own project or in other construction projects (alternative disposal ground) and please refer to Section 4.4 for detailed procedures.

Single-side-printed paper will be reused. Site office fabrications will be reused in constructing installations of other projects. Containers will be reused as temporary site office or materials storage chamber. CRBC will reuse as much reusable materials as possible so as to minimize amount of disposal.

Recovery and Recycling

Used paper will be recycled and collection bags will be provided at different area of site. Felled trees will be collected and some will be recovered into furniture. Plastic bottles will be recycled. Expired or damaged safety helmet will be recycled. CRBC will identify potential recoverable and recyclable wastes from waste generated in site and carry out corresponding recovering or recycling procedures.

Storage

C&D waste will be sorted and stored separately at different storage areas. Non-inert C&D waste will be stored in storage tanks and will be covered with tarpaulin sheet in temporary holding area. Inert waste will be stored on the hard standing and covered with tarpaulin sheet in temporary holding area. Please refer to Section 4.1 – 4.4 for detailed procedures.

Chemical waste will be stored in chemical waste chamber. Please refer to Section 4.5 for detailed procedures.

Collection

Waste materials will be sorted at production source. CRBC will provide sufficient waste disposal points and regular collection of waste. Sorted waste materials will be centralized and collected by corresponding contractors. Please refer to Section 4 for detailed procedures regarding to waste collection.



Disposal

All waste removed from site requiring disposal will be transported to approved facilities. Inert waste will be transported to TKO Area 137 Fill Bank. Non-inert waste will be transported to NENT. Slurry will be transported to TKO137 Fill Bank. If there is any bentonite slurry and it is intended to be disposed to public fill reception facilities, it will be mixed with dry soil on site before disposal. Otherwise, upon instruction from the Project Manager, CRBC will divert the inert construction waste to other public fill reception facilities as directed by the Project Manager.



1.5 Regulations and Guidelines

1.5.1 General

Various types of wastes would be generated during the course of the Project and each waste types requires different approach for management and disposal as stipulated in the waste legislation and guidelines. The relevant statutory and non-statutory requirements regarding waste management are summarized in the sections below.

1.5.2 Statutory Requirements

The following legislation relates to the handling, treatment and disposal of wastes in Hong Kong, and would be observed with regard to all wastes generated and requiring disposal, where applicable:

- Environmental Impact Assessment Ordinance (Cap 499)
- The Waste Disposal Ordinance (Cap 354)
- The Waste Disposal (Chemical Waste) (General) Regulation (Cap 354)
- The Waste Disposal (Charges for Disposal of Construction Waste) Regulation (Cap 354)
- The Land (Miscellaneous Provisions) Ordinance (Cap 28)
- The Dumping at Sea Ordinance (Cap 466)
- The Public Health and Municipal Services Ordinance (Cap 132) - Public Cleansing and Prevention of Nuisances (Urban Council) and (Regional Council) By-Laws
- Summary Offences Ordinance (Cap 228)
- Other relevant regulations

1.5.2.1 The Waste Disposal Ordinance (WDO)

The Waste Disposal Ordinance (WDO) prohibits the unauthorized disposal of waste. Construction waste is not defined in the WDO, but is considered to fall within the category of "trade waste." Under the WDO, wastes can only be disposed of at sites licensed by EPD.

1.5.2.2 The Waste Disposal (Chemical Waste) (General) Regulation

Under the Waste Disposal (Chemical Waste) (General) Regulation all producers of chemical wastes (including asbestos) must register with EPD and treat their wastes either utilizing on-site plant licensed by EPD, or arranging for a licensed collector to take the wastes to a licensed facility. The regulation also prescribes the storage facilities to be provided on site, including labeling and warning signs, and requires the preparation of written procedures and training to deal with emergencies such as spillages, leakages, or accidents arising from the storage of chemical wastes.



1.5.2.3 The Waste Disposal (Charges for Disposal of Construction Waste) Regulation

The current policy related to the dumping of C&D material is documented in the Works Branch Technical Circular No. 2/93, 'Public Dumps'. Construction and demolition materials that are wholly inert, namely public fill, should not be disposed of to landfill, but taken to public filling areas, which usually form part of reclamation schemes.

Under the WDO and the Charging Regulation, wastes can only be disposed of at designated waste disposal facilities licensed by EPD. For construction work with a value of more than HK\$1M, the main contractor is required to establish a billing account at EPD before transporting the construction waste to the designated waste disposal facilities (e.g. landfill, public fill etc.). The vessels for delivering construction waste to public fill reception facility would need prior approval from EPD. Breach of these regulations can lead to a fine and/or imprisonment.

1.5.2.4 The Land (Miscellaneous Provisions) Ordinance

The Land (Miscellaneous Provisions) Ordinance requires that dumping licences be obtained by individuals or companies who deliver public fill to public filling areas. The Civil Engineering & Development Department (CEDD) issues the licences under delegated powers from the Director of Lands.

1.5.2.5 The Public Health and Municipal Services Ordinance (Cap 132) - Public Cleansing and Prevention of Nuisances (Urban Council) and (Regional Council) By-Laws

The Public Cleansing and Prevention of Nuisances By-Laws provide further controls on the illegal tipping of wastes on unauthorized (unlicensed) sites.

1.5.2.6 Related Licences and Permits

The Contractor would obtain all necessary permits and licenses under these ordinances including, but not limited to:

- Registration as a Chemical Waste Producer under the Waste Disposal Ordinance (Cap 354);



- Public Dumping License under the Land (Miscellaneous Provisions) Ordinance (Cap 28);
- Registration as a Waste Producer under the Waste Disposal (Charges for Disposal of Construction Waste) Regulation (Cap 354).

1.6 Non-statutory Regulations

The following guidelines related to waste management and disposal would be adhered to during construction of the Project:

- Waste Disposal Plan for Hong Kong (1989), Planning, Environmental and Lands Branch Government Secretariat;
- Chapter 9 (Environment) of Hong Kong Planning Standards and Guidelines;
- New Disposal Arrangements for Construction Waste, EPD and CEDD (1992);
- Code of Practice on the Packaging, Labelling and storage of Chemical Wastes EPD (1992);
- Code of Practice on the Handling, Transportation and Disposal of Asbestos Waste, EPD;
- Works Branch Technical Circular No. 12/2000, Fill Management, Works Bureau, HKSAR Government;
- Environment, Transport and Works Bureau Technical Circular (Works) No. 34/2002, Management of Dredged/Excavated Sediment, Environment, Transport and Works Bureau, HKSAR Government;
- Works Branch Technical Circular, 32/92, the Use of Tropical Hard Wood on Construction Site, Works Branch, Hong Kong Government;
- Works Branch Technical Circular No. 2/93, Public Dumps, Works Branch, Hong Kong Government;
- Works Branch Technical Circular No. 16/96, Wet Soil in Public Dumps, Works Branch, Hong Kong Government;
- Works Bureau Technical Circular NO. 4/98 and No.4/98A, Use of Public Fill in Reclamation and Earth Filling Projects, Works Bureau, HKSAR Government;
- Works Bureau Technical Circular No. 5/98, On-site sorting of Construction Waste on Demolition Site, Works Bureau, HKSAR Government;
- Waste Reduction Framework Plan, 1998 to 2007, Planning, Environment and Lands Bureau, Government Secretariat, 5 November 1998;
- Works Bureau Technical Circular No. 6/2002 and 6/2002A, Enhanced



Specification for Site Cleanliness and Tidiness, Works Bureau, HKSAR Government;

- A Guide to the Registration of Chemical Waste Producers;
- A Guide to the Chemical Waste Control Scheme;
- Works Bureau Technical Circular NO. 6/2010, Trip Ticket System for Disposal of Construction & Demolition Materials; and
- Environment, Transport and Works Bureau Technical Circular (Works) No. 19/2005 Environmental Management on Construction Site.
- Project Administration Handbook for Civil Engineering Works, 2018 Edition, Civil Engineering and Development Department



2. SITE ORGANIZATION AND STAFF DUTIES

2.1 Organization Structure

The organization structure for waste management is outlined in **Figure 1**. This chart outlines the overall site management in relation to waste management and environmental issues. Details on the roles and responsibilities of staffs responsible for implementation of the waste management plan are outlined below.

2.2 Roles and Responsibilities

CRBC have appointed the Environmental Officer as the senior staff member fully responsible for implementing and overseeing the operation of the WMP. And the Site Agent, Work Manager, Construction Supervisor are appointed a worker at each exit from the Site for the purpose of ensuring that every truck carrying C&D materials leaving the Site bears a duly completed, signed CHIT/DDF.

2.2.1 Project Director (PD)

The Project Director has responsibility for coordinating all environmental matters and reporting on these to the CRBC. Supervisory Board is responsible for all aspects of environmental issues within the project.

2.2.2 Site Agent (SA)

The Site Agent is also responsible for ensuring commitment and assigning resources to provide an effective environmental management program in the workplace. The Site Agent will also attend the Site Safety and Environmental Management Committee Meeting and the Site Safety and Environmental Committee Meeting if required.



2.2.3 *Work Managers (WM)

The Work Manager is a senior staff on site report to the Project Director has the responsibility to coordinate all instruct environmental matters on site with all relative authorities. Work Manager is also responsible for all site operations, management of environmental issues, staff supervision, control, coordination & planning, external liaison as well as implementing and monitoring necessary corrective actions. Works Manager is working full-time on the site.

The Work Manager will also carry out immediate action to rectify any non-compliance of environmental requirements as well as handle any complaints received from the public.

Work Manager has the responsibility to coordinate all environmental matters on site areas and to report these to the Site Safety and Environmental Committee, CEDD, EPD and Project Managers. The Work Manager is also responsible for ensuring commitment to environmental performance is fulfilled and assigning adequate resources and facilities. With the assistance of the Environmental Officer, he would also oversee the implementation and performance of the WMP. Works Manager reports to the Site Agent. He would assume environmental duties on site and ensure that works are executed in accordance with the WMP. He will arrange regular site inspections with the Environmental Officer.

**Work Managers: Foundation/Substructure, Plant Room, Concrete Bridge, Steel Bridge & E&M & Marine Work Manager*



2.2.4 Environmental Officer (EO)

The Environmental Officer (EO) will be appointed on site for the overall coordination, monitoring and overseeing the performance and implementation of the WMP for the Contract. The Environmental Officer reports to the Site Agent.

The responsibilities of the Environmental Officer are also included as follows:

- Review the Site Management Plan for Implementation of TTS and ensure works to be executed in accordance with the plan;
- Monitor and control the works including those of subcontractors to ensure compliance with specified requirements;
- Assist in handling any complaints received; and
- Ensure regular environmental monitoring is carried out, and that all environmental monitoring results are recorded.

2.2.5 Environmental Supervisor (ES)

Environmental Supervisor (ES) is responsible for the implementation of this WMP with the assistance of the site supervisor. They are also responsible for:

- Co-operate with the Environmental Officer to rectify any Non-conformances being identified;
- Attend environmental meetings whenever necessary;
- Carry out ad hoc environmental site inspections when deficiencies are being found; and
- Assist with Environmental Officer on any environmental accidents like chemical spillage.

2.2.6 Construction Supervisor

The Construction supervisors are responsible for Construction supervision and coordination of the works as well as implementation of any remedial actions or



environmental protection measures as directed by the WM/ EO.

The Construction supervisors are also responsible for:

- Assist in the daily implementation of the WMP including to ensure all waste is sorted, segregated, recycled or reused when applicable;
- Ensure the trip-ticket system is followed and all appropriate paperwork to be collected and signed off; and
- Ensure waste is avoided and/ or minimised as much as practically possible.

2.2.7 Workers

The workers are responsible to carry out the waste management practice. They are obligated to carry out the works like:

- Sorting of different types of wastes;
- Collection of wastes from each working sites to the temporary storage area/ designated fill banks/ landfills;
- General site cleaning; and
- Attend waste management training organized by the Environmental Officer following this site management plan.



3. SITE SPECIFIC WASTE MANAGEMENT

3.1 Waste Policy Principles

Refer to hierarchy abovementioned in Section 1, a further explanation of the hierarchy of waste management on site is detailed below.

3.1.1 Hierarchy of Waste Management

Key to waste management is to reduce the amount of waste generated from the work site. Waste management options would be exercised in accordance with the hierarchy stipulated in the following table:

Avoidance and Minimization	Avoid and minimize waste through careful planning and design works.
Reuse	Reuse construction waste such as excavated material, used wooden plants and ferric materials.
Recovery and Recycle	Undertake on-site or off-site waste recycling.
Treatment and Disposal	Properly treat and dispose of waste in accordance with legislative requirements, guidelines and good practices.

Table 2: Hierarchy of Waste Management

In the context of waste reduction, environmentally responsible purchasing would involve the introduction of practices that discourage unnecessary purchases and encourage the purchase of products with reduced packaging, increased durability and materials with high recycled content, such as, recycled paper, steel and other raw construction materials.

Waste minimization is best achieved through careful planning, design and supervision. Good management practices would reduce and prevent large amount of waste generated. Raw materials would be managed from the first instance before they are ordered and delivered to the site. Good estimation and planning would



minimize the amount of raw materials wasted. The generation of waste would be controlled at source.

3.2 Waste Reduction

Specific measures will be implemented to reduce the generation of waste materials, and thus minimize the amount of waste disposal to landfills. The measures will include:

- Sorting on site to recover the inert portion of C&D materials;
- Recover all metallic waste for recycling;
- Recover all cardboard and paper packaging, and properly stockpile them in dry and covered condition to prevent cross contamination;
- Use of the materials (such as formworks and hoardings) in the construction would be calculated before purchasing in order to minimize waste generation.
- Use of metal formworks and hoardings, and they would be recycled after demolition on site as far as it can before disposal.



4. WASTE MANAGEMENT PROCEDURES

The quantities of disposal C&D materials will be recorded under the barcode trip ticket system by using the "CHIT/DDF", see Appendix C. In addition, the filled "CHIT/DDF" will also be presented to the landfill site as part of the system for the disposal charging scheme which had already been officially effective in January 2006. Waste transaction records could be obtained either in the waste disposal facilities right after the transaction or retrieved from the EPD bill statement each month.

According to PS Appendix 6.1 & 25.5, the government disposal facilities assigned and designated for this project are North East New Territories landfill (NENT) for non-inert and Tseung Kwan O Area 137 Fill Bank (TKO137FB) for inert respectively.

Regarding disposal of marine sediment, according to PS 21.54D and PS 21.54E, Type 1 of marine sediment is allocated by Marine Fill Committee to be disposed of at South Cheung Chau Open Sea while Type 2 to be disposed of at East of Sha Chau Confined and strictly follow the procedures stipulated in PS 21.54D & E, Dumping at Sea Ordinance and Technical Circular (Works) No. 34/2002.

4.1 Acceptance Criteria for the Government Disposal Facilities

According to the Gazette Notice G.N.4278 dated 9 July 2010, the new WAC (as Tabulated below) became effective from 29 December 2010.

Vehicle Type	Waste Depth	Weight Ratio ^(note)	Designated Facility
Non-demountable Vehicle	Over 1.5m	No restriction	Landfill
	1.5m or below	0.20 or below	
		Over 0.20	Sorting Facility
Demountable Vehicle	Over 1m	No restriction	Landfill
	1m or below	0.25 or below	
		Over 0.25	Sorting Facility

Table 3: New Waste Acceptance Criteria



CRBC will comply with the acceptance criteria laid down by the operators of the corresponding fill bank(s) and landfill(s), as outlined below:

4.1.1 Acceptance Criteria for Fill Banks (Tseung Kwan O Area 137 Fill Bank)

- The Truck Driver should bear a duly completed and signed CHIT/DDF;
- The dump truck should also have a valid Dumping Licence issued by CEDD, dump trucks without Dumping Licences will be rejected;
- The inert C&D materials to be delivered to the fill bank(s) should be in accordance with the conditions stipulated in the Dumping Licence;
- Any over-sized inert C&D materials should be broken down to less than 250mm in size so as to facilitate its reuse by other reclamation or earth-filling projects;
- The C&D materials to be disposed should consist entirely of inert construction waste (i.e. 100% inert construction waste).

4.1.2 Acceptance Criteria for NENT Landfill (Northeast New Territories

Landfill)

- The Truck Driver should bear a duly completed and signed CHIT/DDF;
- The dump truck should also have a valid Dumping License issued by CEDD, dump trucks without Dumping Licenses will be rejected;
- The non-inert C&D waste to be delivered to the landfills should be in accordance with the conditions stipulated in the Dumping License;
- Construction waste containing not more than 50% by weight of inert C&D waste (Gazette Notice G.N. 4278 published on 9 July 2010);
- For a load of C&D waste not consisting entirely of bamboo, plywood or timber delivered by a vehicle, the weight of the waste divided by the permitted gross vehicle weight of the vehicle must not greater than 0.25 for goods vehicle with demountable skip and 0.2 for other types of vehicle (Gazette Notice G.N. 4278 published on 9 July 2010);
- Mixed C&D materials should be sorted at source to reduce the inert content as far as practicable to meet the above criteria before they are delivered to landfills;



- C&D waste delivered for landfill disposal should contain no free water and the liquid content will not exceed 70% by weight; and
- At least one week' s notice, including contractors name and contact details etc, will be submitted to the EPD before starting to deliver the C&D waste to the landfills. EPD will be informed of any subsequent change to the disposal programme.

4.2 Procedures of the Trip Ticket System

CRBC will implement a Trip Ticket System (TTS) to track the disposal of C&D materials. Under the TTS, each truck carrying C&D materials leaving the Site for a disposal ground will bear a duly completed CHIT/DDF.

The Trip Ticket System will be executed according to the following procedures:

- The Construction Supervisor will arrange the C&D waste to be sorted on site. He will also check the total actual amount of cumulated C&D waste after the completion of the particular works in the working area;
- If the sorted C&D waste is less than 1/3 of truckload, then the C&D waste will be transferred to the temporary holding area in CRBC Works Area for temporary stockpiling. The C&D waste will be sorted and stored separately into different storage areas;
- Non-inert C&D waste will be stored in storage tanks properly covered with tarpaulin sheeting in the temporary holding area. Inert C&D materials will be stored on the ground properly covered with tarpaulin sheeting in the temporary holding area. Larvicidal oil or larvicide will be applied onto the stored C&D waste, if necessary;
- For every 7 days or one truckload collected, the stored non-inert C&D waste in the temporary holding area will be transferred to the designated landfills;
- For every 14 days or one truckload collected, the stored inert C&D waste in the temporary holding area will be transferred to the designated fill banks.
- If the sorted C&D waste is more than 1/3 of truckload, then the Site supervisor will arrange disposal of the C&D waste to designated fill banks/ landfills;
- For each truckload of C&D materials leaving the working area/ temporary holding area to the designated fill banks/ landfills, the truck driver must bear a



- duly completed, signed CHIT/DDF;
- The truck will proceed to the disposal ground as stipulated in the CHIT/DDF. The truck driver will present the CHIT/DDF to the reception facility operator. If the C&D waste accords with the acceptance criteria, disposal of the C&D waste will be permitted and the facility operator will give the truck driver a transaction receipt and stamped CHIT/DDF;
 - The truck driver will present the CHIT/DDF at the in-weighbridge officially. If the vehicle load is accepted, the CHIT/DDF is deemed to be used and the in-weight would be recorded on the "Transaction Record Slip" ;
 - If the truck driver is instructed by the reception facility operator to go to the sorting facility. The driver will need return back to the site and report to the Site supervisor. Site supervisor shall also report to the EO and WM for this case. Load of the truck shall be unloaded back to the site and be delivered to reception facility only after sorted well into inert and non-inert;
 - The truck driver will then return the transaction record slip and the stamped CHIT/DDF to CRBC as soon as possible. All CHIT/DDF and the transcription are to be return to the EO;
 - CRBC will maintain a daily record disposal of C&D materials from the Site including details of the C&D waste, the truck number, departure time, etc, and should check against the Project Manager records as soon as possible and notify the Project Manager in case any discrepancy is noted;
 - A daily record of disposal of C&D materials from the Site will be maintained, the record includes the details of the C&D materials, the truck number, departure time, etc., using the Daily Record Summary (DRS);
 - The duly completed Part 1 of the DRS would be submitted promptly to the Project Manager;
 - For disposal at government disposal facilities, CRBC will check the information recorded in the DRS against the disposal records in CEDD' s website ([http://www.cedd.gov.hk/eng/services/trip ticket/index.html](http://www.cedd.gov.hk/eng/services/trip%20ticket/index.html)) or EPD' s website (<http://www.epd.gov.hk/epd/misc/cdm/trip.htm>) and complete Part 2 of the DRS for submission to the Project Manager within 1 working day after the records are posted at the EPD website; and
 - Where an irregularity is observed or where requested by the Project Manager under special circumstances, CRBC will submit to the Project Manager within 5 working days after the recorded date of disposal the supporting evidence such



as duly stamped CHIT/DDF and/or the transaction record slip (where relevant) to confirm proper completion of the delivery trips in question, or within 2 working days after the Project Manager has requested for such evidence, whichever is later. A fax copy of the CHIT/DDF and transaction record slip is acceptable, unless otherwise directed by the Project Manager. CRBC will maintain all records on the CHIT/DDF for at least one year or other period as may be directed by the Project Manager.

- For disposal at non-government facilities, CRBC will check the information recorded in the DRS against the disposal records within reasonable time.

4.3 Measures to Avoid Leakage in Waste Transportation

- All of the dump trucks used would be equipped with mechanical covers in which maintained in a good condition.
- In order to minimize the leaking of material from the dump trucks, no material should be stored higher than the trail board.
- Deposited silt and wastes on all dump trucks' wheels and bodies should be properly washed off by wheel washing facilities before leaving the constructions sites.
- CRBC will provide wheel washing facilities on site at the site entrance.
- According to 3.2 (d) of EP no. AEP-459/2013, barges and hopper excavators shall have tight fitting seals to their bottom openings to prevent leakage of material.

4.4 Disposal of C&D Materials to Alternative Disposal Ground(s)

Where CRBC have identified a project that can be an alternative disposal ground, CRBC will provide a detailed description of the alternative disposal ground, including location, lot number (where appropriate) and location plan(s) to the Project Manager to request for his written approval.

Where the alternative disposal ground is a private construction project, CRBC will



submit a letter from the Authorized Person of the development (as defined under the Building Ordinance) to confirm that:

- The C&D materials for use in the development is acceptable;
- The use of land so formed by the C&D materials is in conformity with the statutory town plan/ lease conditions;
- The Project Manager are allowed to enter the alternative ground to conduct inspection where necessary; and
- The estimated quantity and type of C&D materials to be used in the construction works and the approximate delivery programme, together with the name, post and specimen signature of the competent person to sign the DDF (see Appendix C)/ internal trip ticket stipulated in G.S. Clause 25.25(6)(a)(ii).

Where the alternative disposal ground is a private land but not a construction site, CRBC will submit a letter from the relevant authorities, such as the Lands Department and the Planning Department, to confirm that the suitability of the alternative disposal ground in receiving the proposed amount of C&D materials for use, and a written consent from the landowner.

Where the alternative disposal ground is a government project, CRBC will submit written consent from the project office of the alternative disposal ground to use the C&D materials generated from the Site, and to confirm the estimated quantity and type of C&D materials required and the approximate delivery programme.

A system for transmitting disposal records from the alternative disposal ground will be submitted to the Project Manager for approval before disposal to the alternative ground starts.

A summary table of approved alternative disposal ground will be updated and submitted thru "Site Management Plan for Trip Ticket System" for the record. The summary table will be attached in appendix I.



4.5 Chemical Waste/ Hazardous Waste Handling and Disposal

4.5.1 Chemical Waste Handling and Disposal

Chemical waste that is produced, as defined by Schedule 1 of the Waste Disposal (Chemical Waste) (General) Regulation, will be handled in accordance with the Code of Practice on the Training, Packaging, Labelling and Storage of Chemical Wastes as follows:

Training

Waste and chemical handling training will be given to workers. Only competent and trained workers will be assigned to handle chemical waste. Only Registered Asbestos Contractor will be appointed to handle Asbestos Containing Materials.

Packaging

Chemical waste will be packed and held in containers of suitable design and construction so as to prevent leakage, spillage or escape of the contents under normal conditions of handling, storage and transport.

Containers used for the storage of chemical wastes will:

- Be suitable for the substance they are holding, resistant to corrosion, maintained in a good condition, and securely closed;
- Have a capacity of less than 450 litres unless the specifications have been approved by the EPD; and
- Display a label in English and Chinese in accordance with instructions prescribed in Schedule 2 of the Regulations.

Labelling

Every container of chemical waste will bear an appropriate label which will contain the particulars details. The waste producer will ensure that the information contained on the label is accurate and sufficient so as to enable proper and safe handling, storage and transport of the chemical waste.

Storage

The storage area will be specially constructed and banded, and located close to the



source of waste generation. Only compatible containers will be used for chemical wastes storage.

The storage area for chemical wastes will:

- Be clearly labelled and used solely for the storage of chemical waste;
- Be enclosed on at least 3 sides;
- Have an impermeable floor and bunding of sufficient capacity to accommodate 110% of the volume of the largest container or 20% of the total volume of waste stored in that area, whichever is the greatest;
- Have adequate ventilation;
- Be covered to prevent rainfall entering (water collected with the bund must be tested and disposed of as chemical waste); and
- Be arranged so that incompatible chemicals are stored separately.

Before reaching 80% capacity of the storage container, licensed waste collectors will be employed to remove the chemical waste.

Transportation and Disposal

After the chemical wastes have been packed, labelled, and stored, the chemical wastes will be transported by licensed waste collectors and disposed of at Chemical Waste Treatment Facility in Tsing Yi or other approved facilities.

4.6 General Refuse

4.6.1 Handling the General Refuse

Measures to be implemented to encourage waste avoidance/ minimization include:

- Reducing the number of photos copies to a minimum and by copying on both sides of paper for internal documents and external documents where appropriate;
- Preventing over-ordering of office equipment and consumables;
- Procuring green office equipment and consumables in terms of energy efficiency, recycled content and durability, etc;
- Deploying sufficient recycle bins in site offices to facilitate collection of recyclables including wasted aluminum cans, plastics bottles and papers;
- Deploying sufficient collection bins with cover at convenient locations at site to



facilitate collection of non-recyclable for disposal at landfills; and

- General refuses will be removed frequently for disposal so as to reduce odour generation.

4.6.2 Handling of Construction Runoff and Sewage

During the construction stage, peripheral temporary surface channels will be constructed to collect surface runoff in the construction area for desilting before discharging into the adjacent waters.

The temporary drainage system during the construction phase will be formulated by the CRBC to match works and construction programme.

For office area, storm water is collected by surface channel and catchpit and further treated by settlement tank before discharge into existing drainage system nearby. For sewage collection will be by holding tank to be pumped out at regular interval for disposal.

Handling of sewage in terms sewage generated by human, adequate chemical toilets would be provided for collection.

Sufficient numbers of chemical toilets for workers and frontier workforces were placed on works area other than site offices.

4.6.3 Handling and Disposal of Sediment

CRBC control marine disposal of any dredged/excavated sediment under the Dumping at Sea Ordinance. Dredged/excavated sediment destined for marine disposal is classified based on its contaminant levels with reference to the Environment, Transport and Works Bureau Technical Circular (Works) No. 34/2002 - Management of Dredged/Excavated Sediment (ETWB TC(W) No. 34/2002).

CRBC keep the excavated sediment wet during excavation/boring and should be properly covered when placed on barges/trucks to minimise the potential odour /



dust emissions during boring, excavation and transportation of the sediment. Loading of the excavated sediment to the barge should be controlled to avoid splashing and overflowing of the sediment slurry to the surrounding water.

CRBC avoid stockpiling of contaminated sediments, if temporary stockpiling of contaminated sediments is necessary:

Excavated sediment will be covered by tarpaulin and the area should be placed within earth bunds or sand bags to prevent leachate from entering the ground, nearby drains and surrounding water bodies;

Stockpiling areas will be completely paved or covered by linings in order to avoid contamination to underlying soil or groundwater. Separate and clearly defined areas should be provided for stockpiling of contaminated and uncontaminated materials. Leachate, if any, should be collected and discharged according to the WPCO.

Construction activities will not cause foam oil, grease, scum, little or other objectionable matter to be present on the water within the site or dumping grounds.

All bottom-dumping vessels / hopper barges / dredgers shall be fitted with tight fitting seals to their bottom openings to prevent leakage of material.

4.6.4 Estimate Quantities of C&D Material/ Waste

The following types of waste would be generated from the works areas and the workforce on site.

- C&D Waste/ materials from site clearance;
- Marine sediment & excavated materials from marine works
- Chemical waste from maintenance of plant and equipment; and
- General refuse from the workforce on site.



	Forecast of Total Quantities of C&D Materials to be Generated from the Contract	Latest Estimate Disposal C&D Quantities
A	Total Quantity Generated (A=B+C+F+L-(D+E))	18700 m ³
B	Marine Sediment*	4,709 m ³
	- Category L (Type 1 open sea disposal)	4,120.5 m ³
	- Category Mp (Type 1 open sea disposal at dedicated sites)	67.9 m ³
	- Category Mf (Type 2 confined marine disposal)	43.4 m ³
	- Category H (Type 2 confined marine disposal)	28.3 m ³
C	Hard Rock & Large Broken Concrete	0 m ³
D	Reused in the Contract	100 m ³
E	Reused in other Projects	0 m ³
F	Disposed as Public Fill	11,300 m ³
G	Imported Fill	0 m ³
H	Metals	5000 kg
I	Paper/ Cardboard packaging	1000 kg
J	Plastics	200 kg
K	Chemical Waste	500 kg
L	Others e.g. general waste	3000 m ³

**Quantity of each category of marine sediment is based on the approved EIA Report. The estimated total amount (4,709 m³) is based on the sediment disposal space which allocated by CEDD.*

4.6.5 Use of Timber

CRBC aims to avoid, reduce or minimize the use of timber in temporary construction activities. Where the use of timber is unavoidable for temporary works construction processes or activities with an estimated quantity of greater than 5m³, CRBC will submit a method statement to the ER for agreement before starting the relevant temporary works. The method statement will include the justifications for the use and the measures taken to minimize the use of timber.

The summary table of timber usage will be updated and submitted to the Project Manager for monitoring and review by not later than the 15th day of each month or,



if it is a general holiday, the day following the general holiday, or a day agreed upon with the PM.

The Summary Table for Work Processes or Activities requiring timber for temporary work is attached in **Appendix F** respectively.

4.7 Handling of Recyclables

Before starting the transportation of recyclable materials off site to recycling facilities,

CRBC will meet with recycling contractors to establish a suitable system for collecting recyclable materials with care.



5. DISPOSAL PROGRAMME

The relevant licensing legislation and licensing/ control requirement is listed in **Section 1** above.

There will be inert C&D materials (comprising soil, broken rock and concrete, etc), non-inert C&D materials and slurry and bentonite generated under Contract No.: NE/2017/07. With reference to the clause 25.25(1) of PS, the designated disposal grounds for mentioned are listed as follows:-

- Inert C&D Materials:
 - Tseung Kwan O Area 137 Fill Bank or other disposal grounds as directed by the Project Manager
- Slurry and Bentonite
 - Tseung Kwan O Area 137 Fill Bank
- Non-inert C&D Materials:
 - North East New Territories Landfill (NENT)

Monthly Summary for C&D material disposal off the Site will be provided to indicate the actual quantities, types of C&D materials and corresponding disposal ground in Waste Flow Table (WFT).

Disposal locations for inert C&D materials would be Tseung Kwan O Area 137 Fill Bank. The non-inert C&D materials would be disposed to NENT landfill. Tseung Kwan O Area 137 Fill Bank is designated for slurry and bentonite disposal.

Wheel washing facilities would be installed at works areas. These facilities would be cleaned at least twice daily.



6. NOTIFICATION TO TRUCK DRIVERS

CRBC will write to all truck drivers whom he or his sub-contractor(s) has engaged for removal of C&D materials from the Site and draw their attention to the following particular points:

- Each truck carrying C&D materials leaving the Site for a disposal ground must bear a duly completed CHIT/DDF, irrespective of the location and nature of the disposal ground;
- The C&D materials must be disposed of at the disposal ground as stipulated in the CHIT/DDF;
- What constitute and improper disposal and that the Public Fill Committee (PFC) will consider revoking the Dumping Licence from the holder of the offending trucks; and
- Truck drivers must bear a valid Dumping Licence that he can apply from the Civil Engineering and Development Department (CEDD).

The Flow Chart of the Trip Ticket System and the notification to truck drivers and the receipt form is attached in **Appendix A** and **B** respectively.



7. WASTE MANAGEMENT RECORDS

The CHIT/DDF will be used for each and every vehicular trip transporting construction and demolition (C&D) material off site.

Prior to the vehicle leaving the site, the Project Manager will insert the date, time of departure, vehicle licence plate number, designated public filling facility/ landfill, and other information as required. The form will be carried on board the vehicle at all times throughout the vehicular trip.

A comprehensive register of the CHIT/DDF issued will be maintained and available for inspection by the Project Manager upon request. The following records will be kept for monitoring of the CHIT/DDF issued:-

Daily Record Summary (DRS) and the Waste Flow Table (WFT) should be completed and submitted to the Project Manager for record. A sample of DRS and WFT, please refer to **Appendix C** and **D** respectively.

CHIT/DDF, the DRS and WFT issued will be made available for inspection by ET and IEC upon request.

Waste Flow Table – Monthly

Record of the quantities of C&D materials generated each month will be maintained using the monthly summary Waste flow Table (WFT). CRBC will complete and submit the monthly summary WFT to the Project Manager by not later than the 15th day of each month follows the reporting month, or if it is a General Holiday, the day following the General Holiday, or a later date as agreed by the Project Manager.



Waste Flow Table – Yearly

The estimated quantities of C&D materials to be generated each year from the site will be summarised using the yearly summary WFT. The WFT will be updated on a half-yearly basis and submit to the Project Proponent by not later than 1st of June and December of each year, or if it is a General Holiday, the day following the General Holiday, throughout the construction period in order to account for the revised works programme and latest outturn on the quantities of C&D materials generated from the site.

These summaries shall also be made available to ETL and IEC.

Specific trip ticket and records for internal transfer of C&D materials and imported fill materials will also be kept for monitoring whatever necessary.

For recyclable materials, CRBC' s Representative will record the quantities of all the recyclable materials before removal off the Site by the recycling contractors, and include the details in the WFT for submission to the Project Manager.

Video Monitoring System

In order to ensure proper disposal of C&D materials, enhancement measures to further improve the TTS recording system, a video recording system shall be installed and disposal shall be checked against survey record. Pursuant to PS Clause 25.25(6) (g), video recording system is required to be installed, operated and maintained at each vehicular exit/entrance to record all truck leaving the Site. CRBC will also check the disposal records against the video records to ensure the proper disposal of C&D materials. Following essential features are needed to fulfill:

- The video cameras used in the system shall be high resolution, lowlight and colour type;
- Power back up shall be provided to cater for accidental breakdown of the power supply to the system;
- Video captured by the system shall be recorded continuously without break except with the agreement of the Project Manager or in the month during which there is no disposal of C&D materials off the Site for the entire month;
- Video shall be captured in a format acceptable to the Project Manager;



- The registration mark of each vehicle leaving the site shall be recorded; and
- The loading conditions of dump trucks including empty trucks shall be captured.
- Post sufficient notices at conspicuous positions to notify the workers, drivers and staff about the purpose of the video recording system in accordance with data protection principles set out in the Personal Data (Privacy) Ordinance. The sample of notification of video recording system for dump trucks is shown in Appendix G.



8. WASTE MONITORING AND AUDIT

The aims and objectives of waste management audit are:

- To ensure that the waste arising from works are handled, stored, collected, transported and disposed of in an environmentally acceptable manner;
- To ensure that the handling, storage, collection and disposal of waste arising from the demolition works comply with the relevant requirements under the Waste Disposal Ordinance and its regulations, and this WMP;
- To ensure recommended mitigation measures in the Implementation Schedule of Mitigation Measures of the EM&A Manual and Appendix J is properly implemented; and
- To encourage the reuse and recycling of materials.

The ET, with assistance from the Site Agent would audit the waste management practices during the weekly environmental site inspection to evaluate the overall performance of the implementation of the WMP and ensure the appropriate control measures are properly implemented. Observations and findings identified by the ET during weekly inspection shall be rectified by the CRBC. Sample weekly environmental site inspection report is shown in Appendix H.

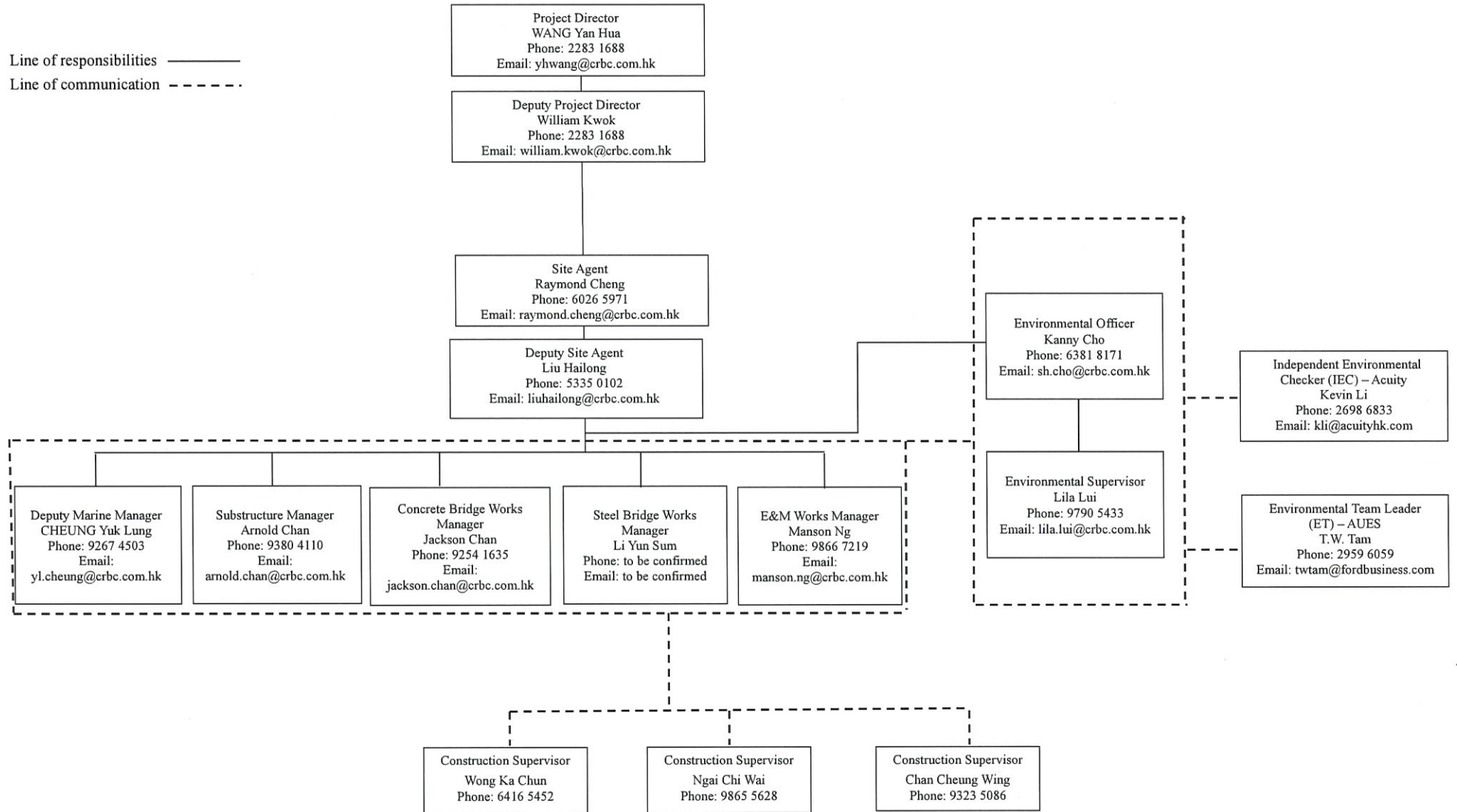


Figure 1
The Organization Structure



Environmental Management Organization of the Main Contractor

Line of responsibilities ————
Line of communication - - - - -





Appendix A
Flow Chart of the Trip Ticket System



Appendix B
Notification to Truck Drivers

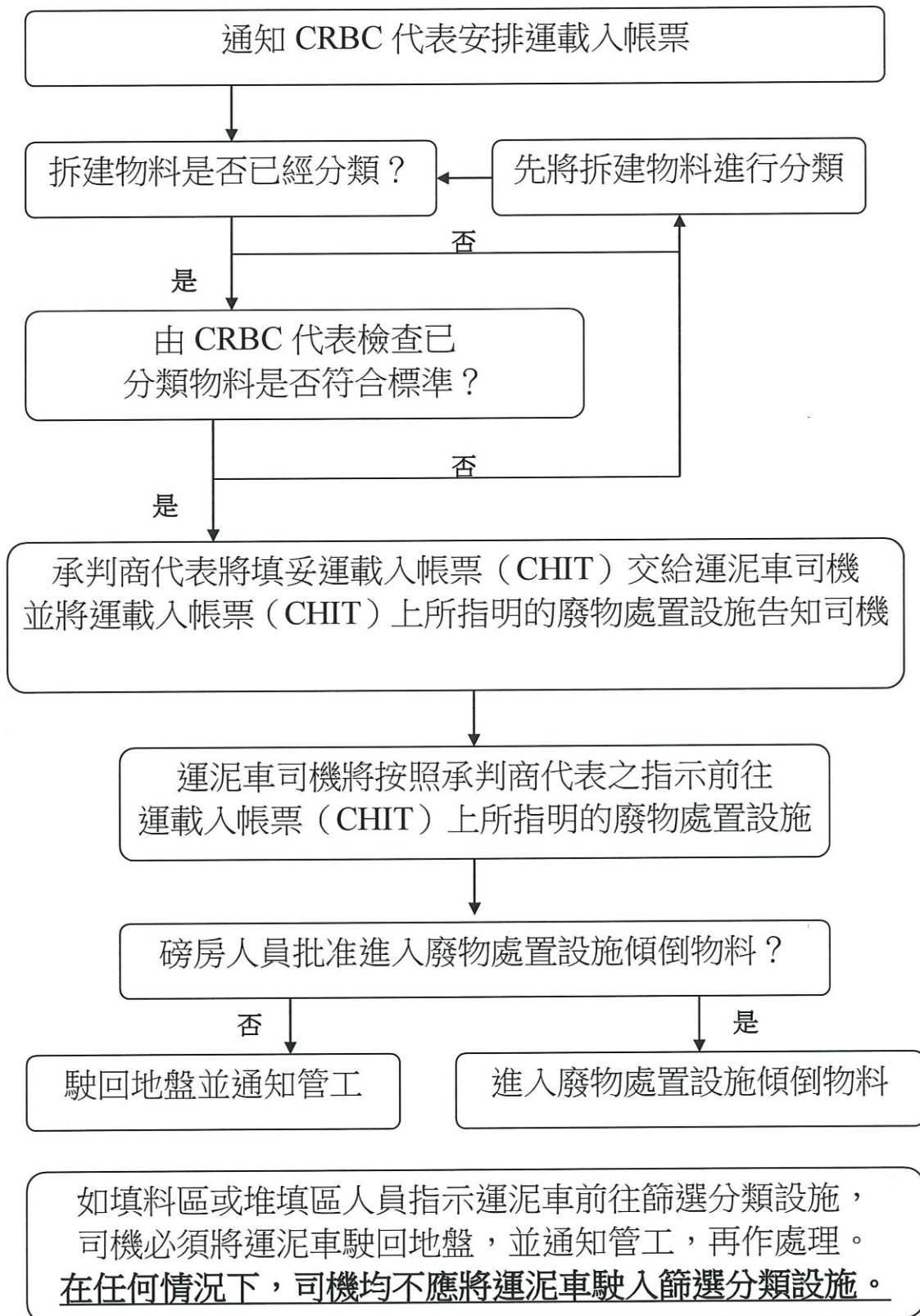
合約 NE/2017/07

運載物料及傾倒時需注意及檢查事項

運泥車司機於運載物料及離開地盤前，司機必須注意並檢查以下事項：

1. 運泥車上的物料已經篩選分類為：
 - a. 惰性（如泥土、石屎頭、石頭、碎石等）；
 - b. 非惰性（如樹枝、鐵枝、一般垃圾等）。
 2. 運泥車沒有超載。
 3. 車軌及車身已經徹底清洗及泥斗上物料已經完全蓋好。
 4. 運載記錄票上的第一截已交給駐地盆監工人員。
 5. 司機已持有有效的傾倒執照。
 6. 司機已持有運載入帳票（綠色）並票上的所有資料已經填妥。
 7. 必須依照運載入帳票（綠色）所指明的地點進行傾倒。
 8. 如司機沒有持有已填妥資料的運載入帳票（綠色）而離開地盤進行傾倒；或運泥車駛往非運載入帳票（綠色）所指明的地點進行傾倒；或司機於傾倒後未能提供已蓋印的運載入帳票（綠色）及傾倒記錄，則會構成不當傾倒。
 9. 如運泥車駛往非指明的地點進行傾倒，並該地點為私人土地；或運泥車非法傾倒，則會構成嚴重不當傾倒。
- ※ 運泥車不當傾倒或嚴重不當傾倒可被吊銷傾倒執照。

合約 NE/2017/07
運載物料及傾倒流程表





Appendix C

A Sample of Daily Record Summary

PS Appendix 25.6
(PS Clause 25.25(6)(a)(ii))

“Daily Record Summary” to record daily disposal of construction & demolition (C&D) materials from the *Site

“每日運載記錄摘要” 記錄每日由*地盤所傾卸的拆建物料

- (1) Contract no. & title 合約編號及名稱 : _____
- (2) Date of disposal 傾卸日期: _____
- (3) Disposal ground (s) designated in the Contract or directed by the Architect/Engineer 合約指定或建築師/工程師指示接收設施: (a) _____
(b) Others 其它 _____
- (4) Approved alternative disposal grounds 另可接受的接收設施 _____

CHIT/DDF no. 載運入板 票/ 拆建 物料運載 記錄票編 號	Vehicle registration mark 車輛登記號 碼	Approx. vol (e.g. Full/Three Quarter/Half/One quarter) 大約承載量 (例如全、 3/4、半、1/4)	C&D materials type (e.g. inert or non-inert) 建築廢料種類 (例如惰性 或非惰性)	Disposal ground 接收設施	Signature & Name of the Contractor's Designated person before departure 於離開地盤 前, 承建商指 定人仕姓名及 簽名	Departure time from *Site 離開地盤時 間	Signature & name of the Architect/Engineer's supervisory staff before departure or other time as agreed between the Architect/Engineer's Representative and the Contractor ¹ 於離開地盤前或其它經承建商與建 築師/工程師代表同意的時間, 建築師 /工程師監管人員姓名及簽名	Actual disposal ground 真正接收設 施	Arrival time at disposal ground 抵達接收設 施 時間	Remarks 備註:

← Part 1² 甲部

Part 2³ 乙部 →

Submitted by 呈交 :

[Name of Contractor's Designated Person
承建商的指定人仕姓名

Signature 簽名 : _____

Date 日期: _____

Received by 接收 :

[Name and signature of the
Architect/Engineer's staff]
建築師/工程師監管人員姓名及簽名

Post 職位 : _____

Date & Time 日期及時間 : _____

¹ For term contract, if there are no full time site supervisory staff, the Architect/Engineer's supervisory staff should spot check and then sign as appropriate in accordance with paragraph 25 of DEVB TC(W) 6/2010 定期合約, 如沒有全職地盤監管人員, 應根據 DEVB TC(W) 6/2010 的第 25 段進行定點檢查及簽署

² Part 1 甲部- The Contractor shall complete Part 1 in duplicate and a copy should be kept by the Architect's/ Engineer's Representative. 承建商填寫甲部兩份, 副本由建築師/工程師代表持有

³ Part 2 乙部- The Contractor shall complete Part 2 and submit the whole Summary to the Architect/Engineer's Representative within 1 working day after the records are posted at the EPD web-site. 承建商填寫乙部及將整份運載記錄摘要於記錄上載在環境保護署網頁後 1 個工作天內呈交給建築師/工程師代表

*Delete “Site” and substitute “Sites” for term contracts. 定期合約將“Site” 刪去及以“Sites”代替



Appendix D

A Sample of Waste Flow Table

Name of Department: Civil Engineering and Development Department

Contract No.: NE/2017/07

Monthly Summary Waste Flow Table for ____ (year)

Month	Actual Quantities of Inert C&D Materials Generated Monthly						Actual Quantities of C&D Wastes Generated Monthly				
	Total Quantity Generated	Hard Rock and Large Broken Concrete	Reused in the Contract	Reused in other Projects	Disposed as Public Fill	Imported Fill	Metals	Paper/ cardboard packaging	Plastics (see Note 3)	Chemical Waste	Others, e.g. general refuse
	(in '000m ³)	(in '000m ³)	(in '000m ³)	(in '000m ³)	(in '000m ³)	(in '000m ³)	(in '000 kg)	(in '000kg)	(in '000kg)	(in '000kg)	(in '000m ³)
Jan											
Feb											
Mar											
Apr											
May											
June											
Sub-total											
July											
Aug											
Sept											
Oct											
Nov											
Dec											
Total											

Forecast of Total Quantities of C&D Materials to be Generated from this contract*										
Total Quantity Generated	Hard Rock and Large Broken Concrete	Reused in the Contract	Reused in other Projects	Disposed as Public Fill	Imported Fill	Metals	Paper/ cardboard packaging	Plastics (see Note 3)	Chemical Waste	Others, e.g. general refuse
(in '000m ³)	(in '000m ³)	(in '000m ³)	(in '000m ³)	(in '000m ³)	(in '000m ³)	(in '000 kg)	(in '000kg)	(in '000kg)	(in '000kg)	(in '000m ³)

- Notes:
- (1) The performance targets are given in PS Clause 6.14.
 - (2) The waste flow table shall also include C&D materials that are specified in this contract to be imported for use at the Site.
 - (3) Plastics refer to plastic bottles / containers, plastic sheets/foam from packaging material
 - (4) The *Contractor* shall also submit the latest forecast of the total amount of C&D materials expected to be generated from the *works*, together with a breakdown of the nature where the total amount of C&D materials expected to be generated from the *works* is equal to or exceeding 50,000 m³.



Appendix E
Site Location Plan

Project Management In-charge: Designer: VNN
 Approved: HKT
 Contract: RPCM
 Scale: 1:500
 Date: 17/12/2017
 Drawing No: 60329339/C1/ENT/5007

NOTES:

1. ALL LEVELS ARE IN METRES ABOVE HONG KONG PRINCIPAL DATUM.
2. FOR BRIDGE S200-3 LAYOUT AND CROSS SECTION, REFER TO DRAWING NO. 60329339/C1/ENT/5007 AND 5162 TO 5163.
3. FOR BRIDGE S400 LAYOUT AND CROSS SECTION, REFER TO DRAWING NO. 60329339/C1/ENT/5007 AND 5251 TO 5252.
4. FOR BRIDGE ML-3-2 LAYOUT AND CROSS SECTION, REFER TO DRAWING NO. 60329339/C1/ENT/5007 AND 5302 TO 5303.
5. FOR BRIDGE CT LAYOUT AND CROSS SECTION, REFER TO DRAWING NO. 60329339/C1/ENT/5007 AND 5551 TO 5552.

LEGEND:

- LIMIT OF SITE BOUNDARY
- [Pattern] FOOTPATH
- [Pattern] CYCLE TRACK
- [Pattern] PLANTER
- [Symbol] SLOPING SEAWALL
- [Arrow] TRAFFIC FLOW DIRECTION
- [Symbol] ROAD CHAINAGE
- [Symbol] ROAD LEVEL

AECOM

PROJECT
CROSS BAY LINK,
TSEUNG KWAN O

CONTRACT TITLE
 CROSS BAY LINK, TSEUNG KWAN O
 MAIN BRIDGE AND ASSOCIATED WORKS

CLIENT
 土木工程拓展署
 Civil Engineering and
 Development Department

CONSULTANT
 AECOM Asia Company Ltd.
 www.aecom.com

SUB-CONSULTANTS

ISSUE/REVISION

NO.	DATE	DESCRIPTION	CHK
1	DEC.17	TENDER DRAWING	RPCM

STATUS

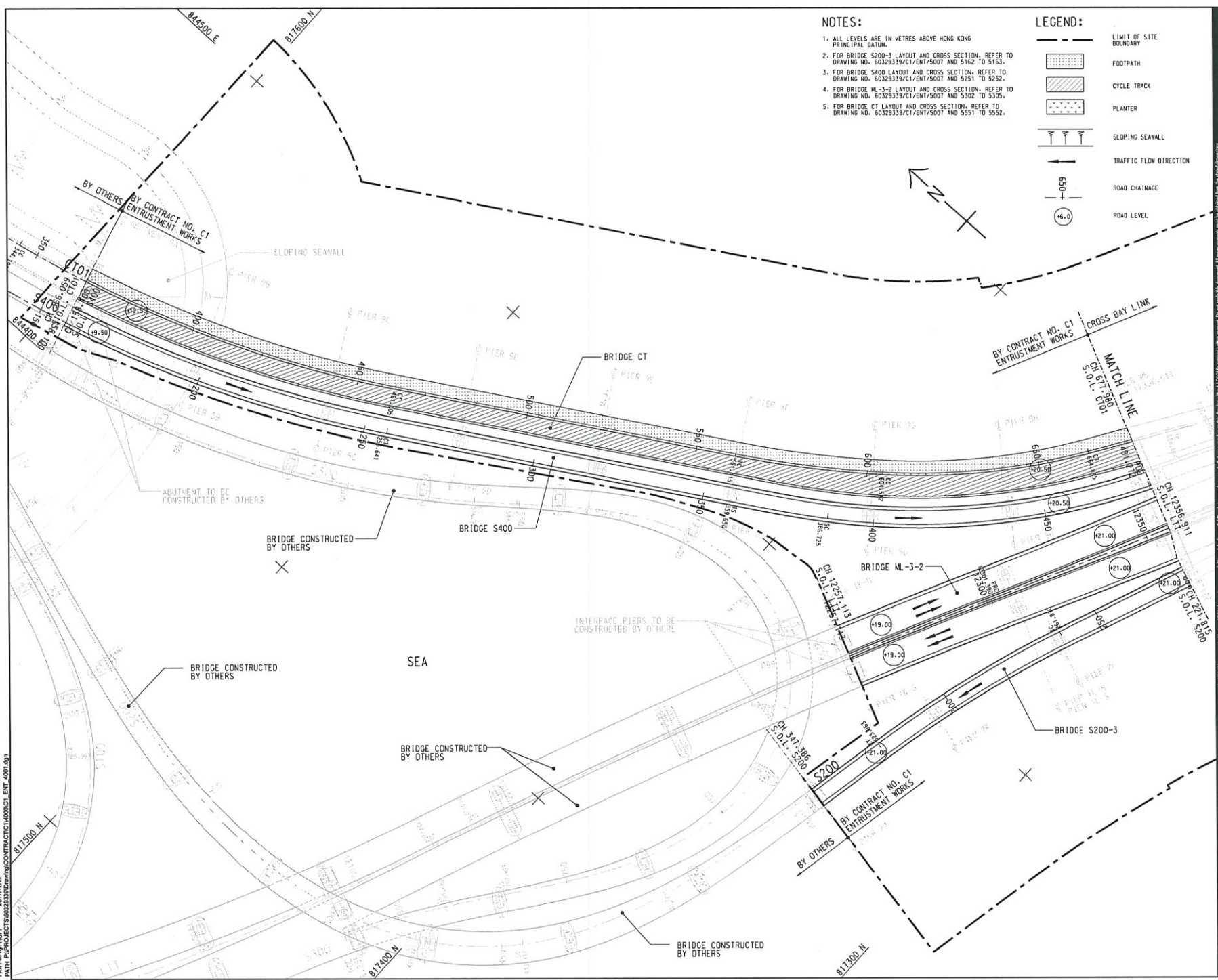
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KEY PLAN

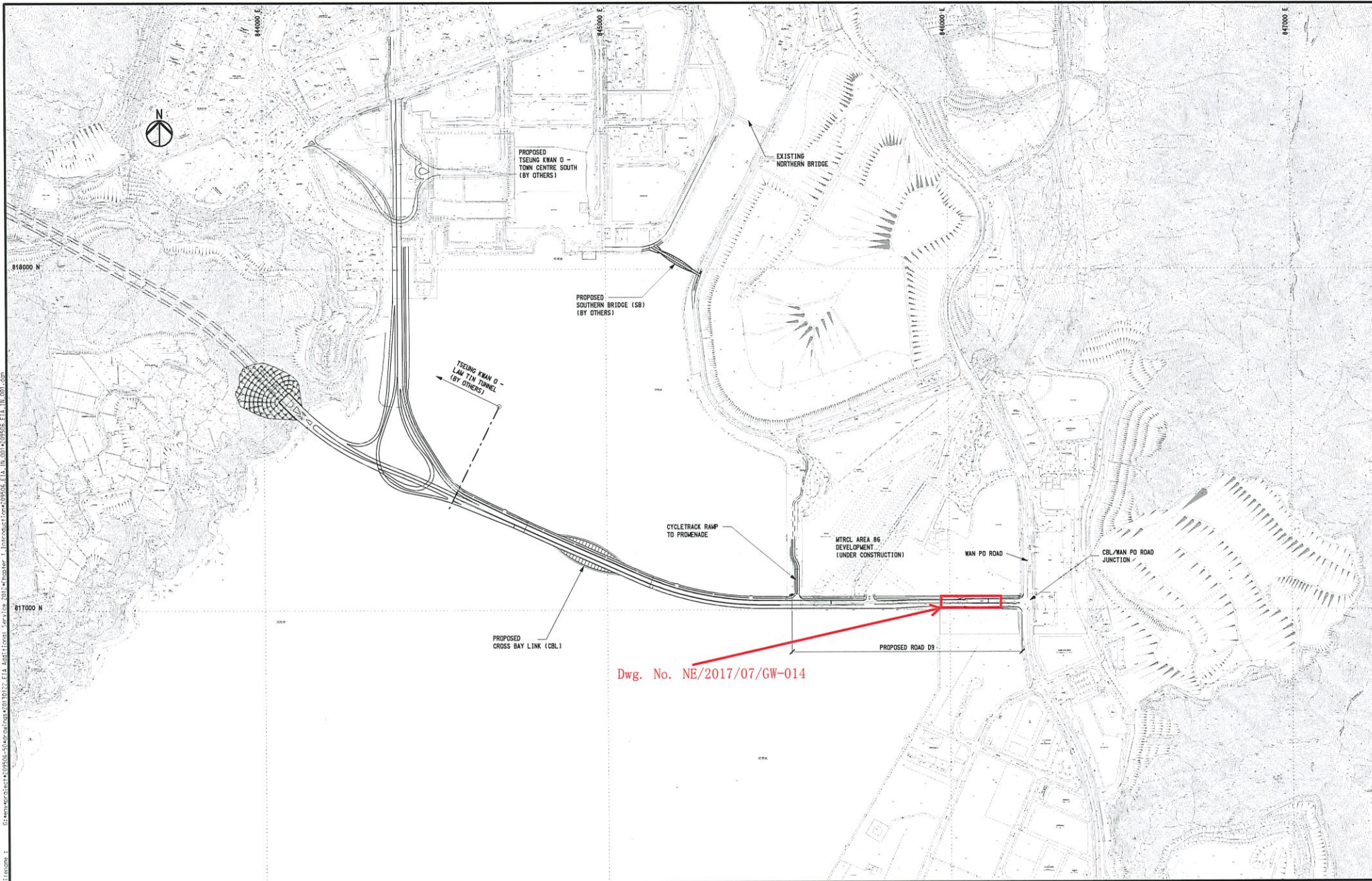
PROJECT NO.
 60329339
 CONTRACT NO.
 NE/2017/07

SHEET TITLE
 GENERAL LAYOUT



SHEET NUMBER
 60329339/C1/ENT/4001



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		Agreement No. CE 43/2008(HY) Cross Bay Link, Tseung Kwan O – Investigation	GENERAL LAYOUT PLAN	Checked	JP	Approved	ST	209506/EIA/IN/001		
				Scale	1:5000 on A1 & 1:10000 on A3		Status	FINAL	Rev.	B
				Rev.	Description	Date				



Appendix F
Summary Table for Work Processes or Activities requiring
timber for temporary work

Appendix 1.36

SUMMARY TABLE FOR USE OF TIMBER IN TEMPORARY WORKS

(PS CLAUSE 1.129)

Contract No.: NE/2017/07

Contract Title: Cross Bay Link, Tseung Kwan O – Main Bridge and Associated Works

Item No.	Description of Works Process or Activity [see note (a) below]	Justifications for Using Timber in Temporary Construction Works	Est. Quantities of Timber Used (m ³)	Actual Quantities used (m ³)	Remarks
1.					
2.					
3.					
4.					
5.					
6.					
7.					
8.					
Total Estimated Quantity of Timber Used					

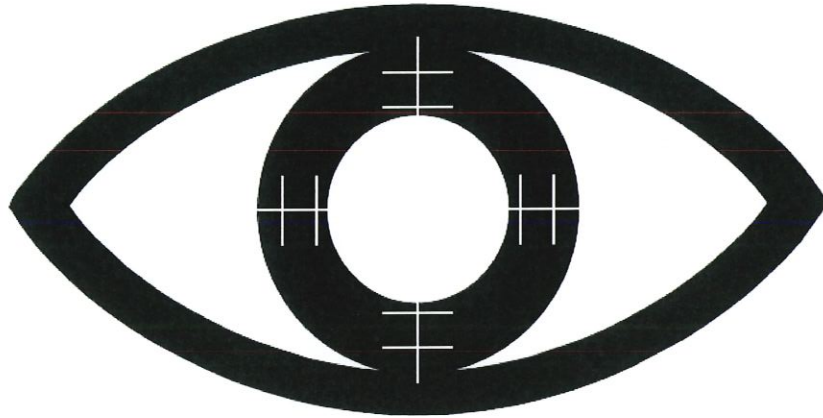
- Notes: (a) The *Contractor* shall list out all the work items requiring timber for use in temporary construction works. Several minor work items may be grouped into one for ease of updating.
- (b) The summary table shall be submitted to the *Supervisor* monthly together with the Waste Flow Table for review and monitoring in accordance with PS clause 25.24(11).



Appendix G
Notification of Video Recording System for Dump Trucks

注意

ATTENTION



此處有錄影監視系統

Surveillance Recording System in use

在本地盤設置的閉路電視系統會收錄影像作保安及管理用途，所收錄的資料將會依照個人資料(私隱)條例的規定處理。

The CCTV system installed in this Site will record video images for security and site management purposes. The recorded data will be processed in accordance with Personal Data (Privacy) Ordinance.



Appendix H

Sample of Weekly Environmental Walk Inspection Report

Weekly Environmental Walk Inspection Report
Summary of Follow-up Actions

Part I:

Contract No.: NE/2017/07

Contract Title: Cross Bay Link, Tseung Kwan O, Main Bridge and Associated Work

Date of Inspection: _____

Time: _____

Person(s) making the inspection: _____

Name in Block Letters	Designation	Organization
1. _____	_____	_____
2. _____	_____	_____
3. _____	_____	_____
4. _____	_____	_____
5. _____	_____	_____

Item no.	Location	Situation Requiring Follow-up Action	Agreed Due Date for Completion	Date Completed	Remarks

To be signed at the end of inspection:

The Contractor's performance on nuisance abatement and waste management *is/is not to the satisfaction of Project Manager/Supervisor or his representative at the time of inspection.

(* delete as appropriate)

The Supervisor's nominated site representative: _____ The Contractor's Agent (or his representative) _____

Part II: (To be countersigned after **ALL** actions are completed)

The Contractor's Environmental Officer: _____

The Supervisor's nominated site representative: _____

Date: _____

Date: _____

(Note: No payment will be made for the item of "Weekly Environmental Walk" under the PFSES if the Contractor's site environmental and waste management performance is not satisfactory, or any one of the follow up actions is not completed on or before the "Agreed Due Date for Completion")



Appendix I
Summary Table of Alternative Disposal Grounds

Contract No. NE/2017/07
 Cross Bay Link, TKO- Main Bridge, Associated Works

Summary Table of Approved Alternative Disposal Ground (update to MM/YY)

Item No.	Date of Approval	PM's Approval Letter ref. (xxxxxxxxxxxxxxxx)	Detail of Alternative Disposal Ground		
			Contract No.	Project Title	Contractor
1					
2					
3					
4					
5					
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					



Appendix J
Implementation Schedule for WMP

APPENDIX B

Environmental Mitigation Implementation Schedule

Table 1 Implementation Schedule of Mitigation Measures

EIA Ref	Environmental Protection Measures/ Mitigation Measures	Objectives of the Recommended Measures & Main Concerns to Address	Location/ Timing	Implementation Agent	Implementation Stage	Requirements and/or Standards to be Achieved
S5.5.5.1	Regular watering under good site practice shall be adopted. In accordance with the “Control of Open Fugitive Dust Sources” (USEPA AP-42), watering once per hour on exposed worksites and haul road is recommended to achieve dust removal efficiency of 91.7%.	Good construction site practices to control the dust impact on the nearby sensitive receivers to within the relevant criteria	All construction sites	Contractor	Construction stage	<ul style="list-style-type: none"> • APCO (Cap. 311); and • Air Pollution Control (Construction Dust) Regulation
S5.5.5.3	<p>The following dust suppression measures shall also be incorporated by the Contractor to control the dust nuisance throughout the construction phase:</p> <ul style="list-style-type: none"> • Any excavated or stockpiled dusty material shall be covered entirely by impervious sheeting or sprayed with water to maintain the entire surface wet and then removed or backfilled or reinstated where practicable within 24 hours of the excavation or unloading; • Any dusty materials remaining after a stockpile is removed shall be wetted with water and cleared from the surface of roads; • A stockpile of dusty material shall not extend beyond the pedestrian barriers, 	Good construction site practices to control the dust impact on the nearby sensitive receivers to within the relevant criteria	All construction sites	Contractor	Construction stage	<ul style="list-style-type: none"> • APCO (Cap. 311); and • Air Pollution Control (Construction Dust) Regulation

	<p>fencing or traffic cones;</p> <ul style="list-style-type: none">• The load of dusty materials on a vehicle leaving a construction site shall be covered entirely by impervious sheeting to ensure that the dusty materials do not leak from the vehicle;• Where practicable, vehicle washing facilities with high pressure water jet shall be provided at every discernible or designated vehicle exit point. The area where vehicle washing takes place and the road section between the washing facilities and the exit point shall be paved with concrete, bituminous materials or hardcores;• When there are open excavation and reinstatement works, hoarding of not less than 2.4m high shall be provided as far as practicable along the site boundary with provision for public crossing. Good site practice shall also be adopted by the Contractor to ensure the conditions of the hoardings are properly maintained throughout the construction period;• The portion of any road leading to the construction site that is within 30m of a vehicle entrance or exit shall be kept clear of dusty materials;• Surfaces where any pneumatic or power-driven drilling, cutting, polishing or other mechanical breaking operation					
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	<p>takes place shall be sprayed with water or a dust suppression chemical continuously;</p> <ul style="list-style-type: none">• Any area that involves demolition activities shall be sprayed with water or a dust suppression chemical immediately prior to, during and immediately after the activities so as to maintain the entire surface wet;• Where a scaffolding is erected around the perimeter of a building under construction, effective dust screens, sheeting or netting shall be provided to enclose the scaffolding from the ground floor level of the building, or a canopy should be provided from the first floor level up to the highest level of the scaffolding;• Any skip hoist for material transport shall be totally enclosed by impervious sheeting;• Exposed earth shall be properly treated by compaction, turfing, hydroseeding, vegetation planting or sealing with latex, vinyl, bitumen, shortcrete or other suitable surface stabiliser within six months after the last construction activity on the construction site or part of the construction site where the exposed earth lies.					
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S5.5.4	<p>For the barging facilities at the site compound, the following good site practice is required:</p> <ul style="list-style-type: none"> • All road surfaces within the barging facilities shall be paved. • Vehicles should pass through designated wheel wash facilities. • Continuous water spray shall be installed at the loading point. 	Good construction site practices to control the dust impact on the nearby sensitive receivers to within the relevant criteria	Site compound	Contractor	Construction stage	<ul style="list-style-type: none"> • APCO (Cap. 311); and • Air Pollution Control (Construction Dust) Regulation
S5.5.4.5	The mitigation measures should be incorporated into the Contract Specification for the civil work.	Control construction dust	All construction site	Engineer	Design stage	<ul style="list-style-type: none"> • APCO (Cap. 311); and • Air Pollution Control (Construction Dust) Regulation
S5.5.5	An audit and monitoring programme during the construction phase should be implemented by the Contractor to ensure that the construction dust impacts are controlled to within the HKAQO. Detailed requirements for the audit and monitoring programme are given separately in the EM&A manual.	Monitor the 1hr and 24hr TSP levels at the representative dust monitoring stations to ensure compliance with relevant criteria throughout the construction period	Selected representative dust monitoring station (Drawing no. 209506/EMA/AIR/001)	Contractor	Construction stage	<ul style="list-style-type: none"> • APCO (Cap. 311); and • Air Pollution Control (Construction Dust) Regulation
S6.6.4.3	<p>Good site practice and noise management techniques:</p> <ul style="list-style-type: none"> • Only well-maintained plant shall be operated on-site and the plant shall be 	To minimise construction noise impact arising from the Project on the affected NSRs	All construction sites	Contractor	Construction stage	<ul style="list-style-type: none"> • Annex 5, TM-EIAO

	<p>serviced regularly during the construction programme;</p> <ul style="list-style-type: none"> • Machines and plant (such as trucks, cranes) that are in intermittent use shall be shut down between work periods or throttled down to a minimum; • Plant known to emit noise strongly in one direction, where possible, shall be orientated so that the noise is directed away from nearby NSRs; • Silencers or mufflers on construction equipment shall be properly fitted and maintained during the construction works; • Mobile plant shall be sited as far away from NSRs as possible and practicable; and • Material stockpiles, site office and other structures shall be effectively utilised, where practicable, to screen noise from on-site construction activities. 					
S6.6.4.5-6	Use of quiet powered mechanical equipment and working methods	Reduce noise levels of plant items	All construction sites	Contractor	Construction stage	<ul style="list-style-type: none"> • Annex 5, TM-EIAO
S6.6.4.7	Install site hoarding at the site boundaries between noisy construction activities and NSRs	Reduce the construction noise levels at low-level	All construction sites	Contractor	Construction stage	<ul style="list-style-type: none"> • Annex 5, TM-EIAO

		zone of NSRs through partial screening				
S6.6.4.8-11	Use of temporary or movable noise barriers and full enclosure for relatively fixed plant source	Screen the noisy plant items to be used at all construction sites	For plant items listed in Table 6.7 and Appendix 6.1 of the EIA report at all construction sites	Contractor	Construction stage	<ul style="list-style-type: none"> Annex 5, TM-EIAO
-	Implement a noise monitoring programme under the EM&A manual	Monitor the construction noise levels at the selected representative locations	Selected representative noise monitoring stations (Drawing no. 209506/EMA/NS/001 & 209506/EMA/NS/002)	Contractor	Construction stage	<ul style="list-style-type: none"> Annex 5, TM-EIAO
S6.7.3.1	Partial enclosures along Road D9 and application of low noise surfacing material along CBL and Road D9	To minimise road traffic noise impact arising from the CBL and Road D9 on the affected NSRs	CBL and Road D9 (Drawing no. 209506/EMA/NS/003)	CEDD/ Contractor	During operational stage	<ul style="list-style-type: none"> Annex 5, TM-EIAO
S8.6.4.3	<u>Marine Piling and Pile Excavation Works</u> Marine piling and pile excavation works shall be undertaken in such a manner as to	To control potential impacts from marine piling and pile excavation works	During marine piling and pile excavation works	Contractor	Construction stage	<ul style="list-style-type: none"> TM-EIAO; WPCO

<p>minimise re-suspension of sediments. Standard good practice measures shall be implemented, including the following requirements:</p> <ul style="list-style-type: none">• All marine piling and pile excavation works shall be conducted within a floating single silt curtain.• Mechanical closed grabs (with a size of 5m³) shall be designed and maintained to avoid spillage and should seal tightly while being lifted.• Barges shall have tight fitting seals to their bottom openings to prevent leakage of material.• Any pipe leakages shall be repaired quickly. Plant should not be operated with leaking pipes.• Loading of barges shall be controlled to prevent splashing of dredged material to the surrounding water. Barges shall not be filled to a level which will cause overflow of materials or pollution of water during loading or transportation.• Excess material shall be cleaned from the decks and exposed fittings of barges before the vessel is moved.• Adequate freeboard shall be maintained on barges to reduce the likelihood of					
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	<p>decks being washed by wave action.</p> <ul style="list-style-type: none"> • All vessels shall be sized such that adequate clearance is maintained between vessels and the sea bed at all states of the tide to ensure that undue turbidity is not generated by turbulence from vessel movement or propeller wash. • The works shall not cause foam, oil, grease, litter or other objectionable matter to be present in the water within and adjacent to the works site. 					
S8.6.4.4	<p><u>Construction Site Runoff</u> In accordance with the Practice Note for Professional Persons on Construction Site Drainage, Environmental Protection Department, 1994 (ProPECC PN 1/94), construction phase mitigation measures, where appropriate, shall include the following:</p> <ul style="list-style-type: none"> • The design of efficient silt removal facilities shall be based on the guidelines in Appendix A1 of ProPECC PN 1/94. The detailed design of the sand/silt traps shall be undertaken by the contractor prior to the commencement of construction; • Open stockpiles of construction materials (for example, aggregates, sand and fill material) of more than 50m³ shall be covered with tarpaulin or similar fabric 	Control potential water quality impacts from construction site run-off	All construction sites	Contractor	Construction stage	<ul style="list-style-type: none"> • TM-EIAO; • WPCO

	<p>during rainstorms. Measures shall be taken to prevent the washing away of construction materials, soil, silt or debris into any marine water bodies;</p> <ul style="list-style-type: none">• All vehicles and plant shall be cleaned before leaving a construction site to ensure no earth, mud, debris and the like is deposited by them on roads. An adequately designed and sited wheel washing facilities shall be provided at every construction site exit where practicable. Wash-water shall have sand and silt settled out and removed at least on a weekly basis to ensure the continued efficiency of the process. The section of access road leading to, and exiting from, the wheel-wash bay to the public road shall be paved with sufficient backfall toward the wheel-wash bay to prevent vehicle tracking of soil and silty water to public roads and drains;• Construction solid waste, debris and rubbish on site shall be collected, handled and disposed of properly to avoid water quality impacts;• All fuel tanks and storage areas shall be provided with locks and sited on sealed areas, within bunds of a capacity equal to 110% of the storage capacity of the largest tank to prevent spilled fuel oils					
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	<p>from reaching water sensitive receivers nearby; and</p> <ul style="list-style-type: none"> Regular environmental audit on the construction site shall be carried out in order to prevent any malpractices. Notices shall be posted at conspicuous locations to remind the workers not to discharge any sewage or wastewater into the meander, wetlands and fish ponds. 					
S8.6.4.6	<p><u>Sewage from workforce</u></p> <ul style="list-style-type: none"> Portable chemical toilets and sewage holding tanks shall be provided for handling the construction sewage generated by the workforce; A licensed contractor shall be employed to provide appropriate and adequate portable toilets and be responsible for appropriate disposal and maintenance. 	Control potential water quality impacts from sewage	All construction sites	Contractor	Contraction stage	<ul style="list-style-type: none"> TM-EIAO; WPCO
-	<p><u>Monitoring</u></p> <p>Implement a marine water quality monitoring programme under the EM&A on level of suspended solids (SS) / turbidity and dissolved oxygen (DO) shall be carried out.</p>	Control potential water quality impacts from marine piling and pile excavation works	Selected monitoring stations (Drawing no. 209506/EMA/WQ/001)	Contractor	Construction station	<ul style="list-style-type: none"> TM-EIAO; WPCO
S8.7.3.2	<p><u>Operational phase – Runoff from road surface</u></p> <p>Proper drainage systems with silt traps and oil interceptors shall be installed, maintained and cleaned at regular intervals.</p>	Control potential water quality impacts from road surface runoff	CBL and Road D9	Contractor	Construction and operational stage	<ul style="list-style-type: none"> TM-EIAO; WPCO

S9.5.2	<p><u>Waste Management Plan</u> A Waste Management Plan should be prepared and submitted to the Engineer for approval.</p>	To ensure proper management of C&D material	All construction sites	Contractor	Construction stage, prior to the commencement of the construction works	<ul style="list-style-type: none"> ETWB TCW No. 19/2005
S9.5.3	<p><u>Good Site Practices</u> Recommendations for good site practices:</p> <ul style="list-style-type: none"> nomination of an approved personnel to be responsible for the implementation of good site practices, arrangements for collection and effective disposal to an appropriate facility of all wastes generated at the site; training of site personnel in proper waste management and chemical handling procedures; provision of sufficient waste disposal points and regular collection for disposal; separation of chemical wastes for special handling and appropriate treatment at the Chemical Waste Treatment Centre; regular cleaning and maintenance programme for drainage systems, sumps and oil interceptors; and implementation of a recording system for the amount of wastes generated/recycled 	Good site practices which ensure waste generated during construction phase is properly managed	All construction sites	Contractor	Construction stage	<ul style="list-style-type: none"> Waste Disposal Ordinance (Cap. 54); ETWB TCW No. 19/2005

	and disposal sites.					
S9.5.4	<p><u>Waste Reduction Measures</u></p> <p>Recommendations for achieving waste reduction include:</p> <ul style="list-style-type: none"> • on-site reuse of any material excavated as far as practicable; • segregation and storage of different types of waste in different containers, skips or stockpiles to enhance reuse or recycling of material and their proper disposal; • collection of aluminium cans and waste paper by individual collectors during construction should be encouraged. Separately labelled recycling bins should also be provided to segregate these wastes from other general refuse by the workforce; • recycling of any unused chemicals and those with remaining functional capacity as far as possible; • prevention of the potential damage or contamination to the construction materials through proper storage and good site practices; • planning and stocking of construction materials should be made carefully to minimise amount of waste generated avoid unnecessary generation of waste; 	To reduce amount of waste generated during construction phase	All construction sites	Contractor	Construction stage	<ul style="list-style-type: none"> • Waste Disposal Ordinance (Cap. 54); • ETWB TCW No. 19/2005

	<p>and</p> <ul style="list-style-type: none"> • training on the importance of appropriate waste management procedures, including waste reduction, reuse and recycling should be provided to workers. 					
S9.5.5-6	<p><u>Storage, Collection and Transportation of Waste</u></p> <p>Recommendations for proper storage include:</p> <ul style="list-style-type: none"> • waste such as soil should be handled and stored well to ensure secure containment; • stockpiling area should be provided with covers and water spraying system to prevent materials from being washed away and to reduce wind-blown litter; and • different locations should be designated to stockpile each material to enhance reuse. <p>With respect to the collection and transportation of waste from the construction works, the following is recommended:</p> <ul style="list-style-type: none"> • remove waste in a timely manner • employ trucks with cover or enclosed containers for waste transportations; 	To reduce the environmental implications of improper storage	All construction sites	Contractor	Construction stage	<ul style="list-style-type: none"> • Waste Disposal Ordinance (Cap. 54); • ETWB TCW No. 19/2005

	<ul style="list-style-type: none"> obtain relevant waste disposal permits from the appropriate authorities; and disposal of waste should be done at licensed waste disposal facilities. 					
S9.5.8-11	<p><u>C&D Materials</u> The following mitigation measures shall be implemented in handling the waste:</p> <ul style="list-style-type: none"> maintain temporary stockpiles and reuse excavated fill material for backfilling and reinstatement; carry out on-site sorting; make provisions in the Contract documents to allow and promote the use of recycled aggregates where appropriate; and implement a trip-ticket system for each works contract to ensure that the disposal of C&D materials are properly documented and verified; disposal of the C&D materials onto any sensitive locations such as agricultural lands, etc. should be avoided. The Contractor shall propose the final disposal sites to the Project Proponent and get its approval before implementation; Standard formwork or pre-fabrication should be used as far as practicable in 	Good site practice to minimise the waste generation and recycle the C&D materials as far as practicable so as to reduce the amount for final disposal	All construction sites	Contractor	Construction stage	<ul style="list-style-type: none"> Waste Disposal Ordinance (Cap.54); ETWB TCW No. 19/2005; ETWB TCW No. 06/2010

	<p>order to minimise the arising of C&D materials. The use of more durable formwork or plastic facing for the construction works should be considered. Metal hoarding should be used to enhance the possibility of recycling. The purchasing of construction materials will be carefully planned in order to avoid over ordering and wastage; and</p> <ul style="list-style-type: none"> • The Contractor should recycle as much of the C&D materials as possible on-site. Public fill and C&D waste should be segregated and stored in different containers or skips to enhance reuse or recycling of materials and their proper disposal. Where practicable, concrete and masonry can be crushed and used as fill. Steel reinforcement bar can be used by scrap steel mills. Different areas of the sites should be considered for such segregation and storage. 					
S9.5.13	<p><u>Excavated Marine Sediments</u> During transportation and disposal of the excavated marine sediments, the following measures shall be taken to minimise potential environmental impacts:</p> <ul style="list-style-type: none"> • bottom opening of barges should be fitted with tight fitting seals to prevent leakage of material. Excess material should be cleaned from the decks and 	To minimise potential impacts on water quality	All construction sites where applicable	Contractor	Construction stage	<ul style="list-style-type: none"> • ETWBTC (Works) No. 34/2002

	<p>exposed fittings of barges and hopper dredgers before the vessel is moved;</p> <ul style="list-style-type: none"> • monitoring of the barge loading should be conducted to ensure that loss of material does not take place during transportation; • transport barges or vessels should be equipped with automatic self-monitoring devices as specified by the DEP; and • barges should not be filled to a level that would cause the overflow of materials or sediment-laden water during loading or transportation. 					
S9.5.14-17	<p><u>Chemical Waste</u> For those processes which generate chemical waste, the Contractor shall identify any alternatives that generate reduced quantities or even no chemical waste, or less dangerous types of chemical waste.</p> <p>If chemical waste is produced at the construction site, the Contractor is required to register with EPD as chemical waste producers. Chemical waste shall be handled in accordance with the Code of Practice on the Packaging, Handling and Storage of Chemical Wastes as follows. Containers used for storage of chemical wastes shall:</p> <ul style="list-style-type: none"> • be suitable for the substance they are 	To ensure proper management of chemical waste	All construction sites	Contractor	Construction stage	<ul style="list-style-type: none"> • Waste Disposal (Chemical Waste) (General) Regulation; • Code of Practice on the Packaging, Labelling and Storage of Chemical Waste

	<p>holding, resistant to corrosion, maintained in a good condition, and securely closed;</p> <ul style="list-style-type: none"> • have a capacity of less than 450 L unless the specification have been approved by EPD; and • display a label in English and Chinese in accordance with instructions prescribed in Schedule 2 of the Regulations. <p>The storage area for chemical wastes shall:</p> <ul style="list-style-type: none"> • be clearly labelled and used solely for the storage of chemical wastes; • be enclosed on at least 3 sides; • have an impermeable floor and bunding, of capacity to accommodate 110% of the volume of the largest container or 20% by volume of the chemical waste stored in the area, whichever is greatest; • have adequate ventilation; • be covered to prevent rainfall entering (water collected within the bund must be tested and disposed as chemical waste, if necessary); and • be arranged so that incompatible materials are adequately separated. <p>Disposal of chemical waste shall:</p>					
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						<ul style="list-style-type: none"> • be via a licensed waste collector; and • be to a facility licensed to receive chemical waste, such as the CWTC which also offers a chemical waste collection service and can supply the necessary storage containers; or • be to a re-user of the waste, under approval from EPD.
S9.5.18	<p><u>Sewage</u></p> <p>An adequate number of portable toilets shall be provided for the on-site construction workers. Any waste shall be transferred to a sewage treatment works by a licensed collector.</p>		All construction sites	Contractor	Construction Stage	<ul style="list-style-type: none"> • Waste Disposal Ordinance (Cap. 54)
S9.5.19	<p><u>General Refuse</u></p> <p>General refuse generated on-site shall be stored in enclosed bins or compaction units separately from construction and chemical wastes. Recycling bins shall also be provided to encourage recycling. A reputable waste collector shall be employed by the Contractor to remove general refuse from the site on a daily basis separately from the construction and chemical wastes. Burning of refuse on construction sites is prohibited by law.</p>		All construction sites	Contractor	Construction Stage	<ul style="list-style-type: none"> • Waste Disposal Ordinance (Cap. 54)
S10.7.2. 4	<p>Good Site Practices – The integrity and effectiveness of all silt curtains shall be regularly inspected. Effluent monitoring</p>		All construction sites	Contractor	Construction stage	<ul style="list-style-type: none"> • TM-EIAO; • WPCO

	should be incorporated to make sure that the discharged effluent from construction sites meets the relevant effluent discharge guidelines.	protect marine communities within Junk Bay				
S10.7.2.5	Site runoff control – For works on land, standard site runoff control measures will be established and strictly enforced to ensure that discharge of contaminated or silt-laden runoff into marine waters is minimised.	To minimise potential impacts on water quality and protect marine communities within Junk Bay	All construction sites	Contractor	Construction stage	<ul style="list-style-type: none"> • TM-EIAO; • WPCO
S10.9.1.1	The marine water quality monitoring programme recommended in Chapter 8 of this EIA report and this EMIS would also serve to protect the marine communities inside Junk Bay.	To minimise potential impacts on water quality and protect marine communities within Junk Bay	Selected monitoring stations (Drawing no. 209506/EMA/WQ/001)	Contractor	Construction stage	<ul style="list-style-type: none"> • TM-EIAO; • WPCO
S11.6.2.2	Good Site Practices: – The integrity and effectiveness of all silt curtains should be regularly inspected. Effluent monitoring shall be incorporated to make sure that the discharged effluent from construction sites meets the relevant effluent discharge guidelines.	To minimise potential impacts on water quality and protect fishery resources	All construction sites	Contractor	Construction stage	<ul style="list-style-type: none"> • TM-EIAO; • WPCO
S11.6.2.3	Site runoff control - For works on land, standard site runoff control measures will be established and strictly enforced to ensure that discharge of contaminated or silt-laden runoff is minimised.	To minimise potential impacts on water quality and protect fishery resources	All construction sites	Contractor	Construction stage	<ul style="list-style-type: none"> • TM-EIAO; • WPCO

S11.8.1.1	The marine water quality monitoring programme recommended in Chapter 8 of this EIA report and this EMIS would also serve to protect the fishery resources.	To minimise potential impacts on water quality and protect fishery resources	Selected monitoring stations (Drawing no. 209506/EMA/WQ/001)	Contractor	Construction stage	<ul style="list-style-type: none"> • TM-EIAO; • WPCO
S13.8.1.2	<p>The following mitigation measures should be implemented in the construction stage</p> <ul style="list-style-type: none"> • CM1 – The construction area and contractor’s temporary works areas should be minimised to avoid impacts on adjacent landscape. • CM2 – Reduction of construction period to practical minimum. • CM3 – Topsoil, where identified, should be stripped and stored for re-use in the construction of the soft landscape works, where the soil material meets acceptable criteria and where practical. The Contract Specification shall include storage and reuse of topsoil as appropriate. • CM4 – Existing trees on boundary of the Project Area shall be carefully protected during construction. Detailed Tree Protection Specification shall be provided in the Contract Specification. Under this specification, the Contractor shall be required to submit, for approval, a detailed working method statement for the protection of trees prior to 	Minimise effects of landscape and visual impacts	Work site/during construction	Funded and implemented by CEDD	Construction stage	

	<p>undertaking any works adjacent to all retained trees, including trees in contractor's works areas. (Tree protection measures will be detailed at Tree Removal Application stage).</p> <ul style="list-style-type: none"> • CM5 – Trees unavoidably affected by the works shall be transplanted where practical. Trees should be transplanted straight to their final receptor site and not held in a temporary nursery. A detailed Tree Transplanting Specification shall be provided in the Contract Specification, if applicable. Sufficient time for necessary tree root and crown preparation periods shall be allowed in the project programme. • CM6 – Advance screen planting to proposed roads and associated structures. • CM7 – hydroseeding or sheeting of soil stockpiles with visually unobtrusive material (in earth tone). • CM8 – Screening of construction works by hoardings/noise barriers around works area in visually unobtrusive colours, to screen Works. • CM9 – Control night-time lighting and glare by hooding all lights. • CM10 – Ensure no run-off into water body adjacent to the Project Area. • CM11 – Avoidance of excessive height and bulk of buildings and structures 					
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S13.8.1.2	<p>OM1 – Compensatory tree planting for all felled trees shall be provided to the satisfaction of relevant Government departments. Required numbers and locations of compensatory trees shall be determined and agreed separately with Government during the Tree Felling Application process under ETWBTC 3/2006.</p>	Minimise effects of landscape and visual impacts	Within the site boundary of the proposed works	Funded and implemented by CEDD. Maintained by CEDD and LCSD.	Design, construction and operational stage	
S13.8.1.2	<p>The following mitigation measures should be implemented in the operational stage:</p> <ul style="list-style-type: none"> • OM2 – A continuous belt of screen planting along the roads. Planting of the belt of trees shall be carried out as advance works ahead of other site formation and building works. • OM3 – Maximise soft landscape of the site, Where space permits, roadside berms /slope treatment works should be created. • OM4 – During detailed design, refine structure layout to create a planting strips along the roads to enhance greenery. • OM5 – Use appropriate (visually unobtrusive and non-reflective) building materials and colours, and aesthetic design in built structures. • OM6 – Streetscape elements (e.g. paving, signage, street furniture, lighting etc.) shall be sensitively designed in a manner that responds to the local context, 	Minimise effects of landscape and visual impacts	CBL and Road D9/during construction and operation	Funded and implemented by CEDD. Maintained by CEDD and LCSD.	Design, construction and operational stage	

	<p>and minimises potential negative landscape and visual impacts. Lighting units should be directional and minimise unnecessary light spill.</p> <ul style="list-style-type: none"> • OM7 – Avoidance of excessive height and bulk of buildings and structures 					
S14.7.5	<p><u>Precautionary measures</u> The following guidance has been extracted from the EPD's Landfill Gas Hazard Assessment Guidance Note Guidance to ensure a robust and comprehensive set of measures to protect workers are provided.</p> <ul style="list-style-type: none"> • During all works, safety procedures shall be implemented to minimise the risks of fires and explosions, asphyxiation of workers (especially in confined space) and toxicity effects resulting from contact with contaminated soils and groundwater. • Safety officers who are specifically trained with regard to LFG and leachate related hazards and the appropriate actions to take in adverse circumstances shall be present on all worksites throughout the works. • All personnel who work on site and all visitors to the site shall be made aware of the possibility of ignition of gas in the vicinity of the works, the possible presence of contaminated water and the need to avoid physical contact with it. 	Health and safety of the workers	Construction sites within 250m Consultation Zone (Drawing no. 209506/EMA/LFG/001)	Contractor	Construction stage	<ul style="list-style-type: none"> • Landfill Gas Hazard Assessment Guidance Note (EPD/TR8/97)

	<ul style="list-style-type: none"> • Those staff who work in, or have responsibility for “at risk” areas, including all excavation workers, supervisors and engineers working within the consultation zone, shall receive appropriate training on working in areas susceptible to LFG hazards. • Enhanced personal hygiene practices including washing thoroughly after working and eating only in “clean” areas shall be adopted where contact may have been made with any groundwater which is thought to be contaminated with leachate. • Ground level construction plant shall be fitted with vertical exhausts at least 0.6m above ground level and with spark arrestors. • During piping assembly or conduiting construction, all valves/seals shall be closed immediately after installation. As construction progresses, all valves/seals should be closed as installed to prevent the migration of gases through the pipeline/conduit. All piping / conduiting shall be capped at the end of each working day. • Mobile offices, equipment stores, mess rooms etc. shall be located on an area which has been proven to be gas free (by survey with portable gas detectors) and 					
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	<p>ongoing monitoring shall be carried out to ensure that these areas remain gas free. Alternatively, such buildings shall be raised clear of the ground. If buildings are raised clear of the ground, the minimum, clear separation distance (as measured from the highest point on the ground surface to the underside of the lowest floor joist) shall be 500mm. However, in this case, it is highly recommended that all the site offices, equipment stores and mess rooms should be located outside the 250m Consultation Zone.</p> <ul style="list-style-type: none">• Smoking and naked flames shall be prohibited within confined spaces. “No Smoking” and “No Naked Flame” notices in Chinese and English shall be posted prominently around the construction site. Safety notices shall be posted warning of the potential hazards.• Welding, flame-cutting or other hot works may only be carried out in confined spaces when controlled by a “permit to work” procedure, properly authorized by the Safety Office. The permit to work procedure shall set down clearly the requirements for continuous monitoring of methane, carbon dioxide and oxygen throughout the period during which the hot works are in progress. The					
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	<p>procedure shall also require the presence of an appropriately qualified person who shall be responsible for reviewing the gas measurements as they are made, and who shall have executive responsibility for suspending the work in the event of unacceptable or hazardous conditions. Only those workers who are appropriately trained and fully aware of the potentially hazardous conditions which may arise shall be permitted to carry out hot works in confined areas.</p> <ul style="list-style-type: none"> • During the construction works, adequate fire extinguishers and breathing apparatus sets shall be made available on site and appropriate training given in their use. 					
S14.7.6	<p><u>Landfill gas monitoring</u></p> <p>The following monitoring shall be undertaken when construction works are carried out in confined space within the 250m Consultation Zone:</p> <ul style="list-style-type: none"> • The works area shall be monitored for methane, carbon dioxide and oxygen using appropriately calibrated portable gas detection equipment. The monitoring requirements and procedures specified in Paragraphs 8.23 to 8.28 of EPD's Guidance Note shall be followed. The 	Health and safety of the workers	Confined space of construction sites within 250m Consultation Zone	Contractor	Construction stage	<ul style="list-style-type: none"> • Landfill Gas Hazard Assessment Guidance Note (EPD/TR8/97)

	<p>monitoring frequency and areas to be monitored shall be set down prior to commencement of the works. Depending on the results of the measurements, actions required will vary. As a minimum these shall encompass the actions specified in Table 14.6 of the EIA report.</p> <ul style="list-style-type: none"> • When portable monitoring equipment is used, the frequency and areas to be monitored should be set down prior to commencement of the works either by the Safety Officer or by an appropriately qualified person. • All measurements shall be made with the monitoring tube located not more than 10mm from the surface. • A standard form, detailing the location, time of monitoring and equipment used together with the gas concentrations measured, shall be used when undertaking manual monitoring to ensure that all relevant data are recorded. • If methane (flammable gas) or carbon dioxide concentrations are in excess of the trigger levels or that of oxygen is below the level specified in the Emergency Management in the following section, then evacuation shall be initiated. 					
S14.7.8-9	<p><u>Emergency management</u> In the event of the trigger levels specified in</p>	Health and safety of the workers	Confined space of	Contractor	Construction stage	<ul style="list-style-type: none"> • Landfill Gas Hazard

	<p>Table 14.6 of the EIA report being exceeded, a person, such as the Safety Officer, shall be nominated, with deputies, to be responsible for dealing with any emergency which may occur due to LFG.</p> <p>In an emergency situation the nominated person, or his deputies, shall have the necessary authority and shall ensure that the confined space is evacuated and the necessary works implemented for reducing the concentrations of gas.</p>		<p>construction sites within 250m Consultation Zone</p>			<p>Assessment Guidance Note (EPD/TR8/97)</p>
S14.7.1 2-13	<p><u>General recommended precautionary & protection measures – Design phase</u> The project proponent is required to undertake a detailed Qualitative LFG Hazards Assessment (QLFGHA) during the detailed design phase. The project proponent shall make the utility companies aware of the location and the features of the site within the 250m Consultation Zone during the respective detailed design stage as part of the QLFGHA.</p>	<p>Health and safety of the workers</p>	<p>During detailed design stage</p>	<p>Project proponent</p>	<p>Detailed design stage</p>	<ul style="list-style-type: none"> Landfill Gas Hazard Assessment Guidance Note (EPD/TR8/97)
S14.7.1 6	<p><u>General recommended precautionary & protection measures – Operational phase</u></p> <ul style="list-style-type: none"> An assumed presence of landfill gas shall be adopted at all times by maintenance workers; 	<p>Health and safety of the workers</p>	<p>Utility maintenance areas within 250m Consultation Zone/during</p>	<p>Utility companies</p>	<p>Operational stage</p>	<ul style="list-style-type: none"> Landfill Gas Hazard Assessment Guidance Note (EPD/TR8/97) and

	<ul style="list-style-type: none"> • all maintenance workers inspecting any manhole shall be fully trained in the issue of LFG hazard; • any manhole which is large enough to permit to access to personnel shall be subject to entry safety procedure; • Code of Practice on Safety and Health at Work in Confined Spaces shall be followed to ensures compliance with the Factories and Industrial Undertakings (Confined Spaces) Regulations of the Factories and Industrial Undertakings Ordinance; • a strictly regulated “work permit procedure” shall be implemented and the relevant safety procedures must be rigidly followed; and • adequate communication with maintenance staff shall be maintained with respect to LFG. 		operational period			<ul style="list-style-type: none"> • Code of Practice on Safety and Health at Work in Confined Space
S14.7.1 7	<p><u>General recommended precautionary & protection measures – Operational phase</u></p> <p>LGF surveillance exercise shall be undertaken by the utility companies at the utility manholes/inspection chambers. The surveillance exercise shall be undertaken for the duration of the site occupancy, or until such time that EPD agree that surveillance is no longer required and this shall be based on all the available monitoring data for methane,</p>	Health and safety of the workers	Utility maintenance areas within 250m Consultation Zone/during operational period	Utility companies	Operational stage	<ul style="list-style-type: none"> • Landfill Gas Hazard Assessment Guidance Note (EPD/TR8/97) and • Code of Practice on Safety and Health at Work in Confined

	carbon dioxide and oxygen.					Space
S14.7.1 9	<p><u>Monitoring requirement</u></p> <p>The requirements of operational monitoring by future site developers shall be determined in the detailed QLFCHA during the detailed design stage when the risk potential and mitigation measures, if required, are confirmed.</p>	Health and safety of the workers	Area within 250m Consultation Zone	Project proponent	Detailed design stage	<ul style="list-style-type: none"> Landfill Gas Hazard Assessment Guidance Note (EPD/TR8/97)