Waste Management Plan

for Tung Chung New Town Extension (West)

(EP No. EP-519/2016)

January 2026

土木工程拓展署
Civil Engineering and Development Department

MOTT MACDONALD

Environmental Permit No. EP- 519/2016

Tung Chung New Town Extension (West)

Environmental Team Leader Certification

Reference Document /Plan

Document to be Certified:	Waste Management Plan
Date of Document:	January 2026
Date received by ETL:	30 January 2026

Reference EP Condition

Environmental Permit Condition:	2.24
The Permit Holder shall, no later than three months before the commencement of construction of the Project, deposit 3 hard copies and 1 electronic copy of a Waste Management Plan (The Plan) for the construction of the Project with the Director.	

ETL Certification

I hereby certify that the above reference document complies with the above referenced condition of EP-519/2016.

Daniel Sum
Environmental Team Leader Date: 30 January 2026

Your Ref.

Our Ref. 198377-1133

Date 30 January 2026

South Development and Sustainable Lantau Office
Civil Engineering and Development Department
13/F, North Point Government Offices
333 Java Road, North Point
Hong Kong

For the attention of Mr. Ryan CHAK / Ms. Carol LAM

Dear Sir / Madam,

Agreement No. CE 59/2017 (EP)
Independent Environmental Checker for Tung Chung New Town Extension – Investigation
Waste Management Plan (EP condition 2.24)

We refer to the Waste Management Plan for Tung Chung New Town Extension (West) (TCW) dated January 2026 and certified by the Environmental Team Leader of TCE on 30 January 2026. Please note we have no adverse comments on the captioned submission. The captioned submission is hereby verified in accordance with the requirement stipulated in Condition 2.24 of EP-519/2016.

Should you have any query, please feel free to contact the undersigned at 2608-7314 (chuawo@binnies.com).

Yours faithfully,
for and on behalf of
BINNIES HONG KONG LIMITED

MANUEL CHUA
INDEPENDENT ENVIRONMENTAL CHECKER

cc: ET Leader / TCW – Mott (Attn: Mr. Daniel SUM) [by Email: daniel.sum@mottmac.com]
PM / TCW – Arup (Attn: Mr. Jackson WONG) [by Email: jackson.wong@tcw.c5c6.hk]

Binnies Hong Kong Limited
43/F, AIA Kowloon Tower, 100 How Ming Street, Kwun Tong, Hong Kong
賓尼斯工程顧問有限公司
香港九龍觀塘巧明街 100 號友邦九龍大樓 43 樓
+852 2601 1000 +852 2601 3988 binnieshk@binnies.com

1. Project Description

The development of Tung Chung New Town Extension (TCNTE), comprising Tung Chung East (TCE) and Tung Chung West (TCW), is a mega-scale and complex project aiming to provide land to meet the future housing economic and social development needs of Hong Kong. Due to the fact that the proposed works are geographically separated, the implementation of mega-scale Project is divided into two packages, namely TCE and TCW respectively. In accordance with the tight delivery programme, the Project will be implemented in phases under separate contracts for the developments of TCE and TCW. This Plan only covers the works in TCW. Waste Management Plan for TCE can be found at dedicated project website: http://env.tcnte.hk/ep-submissions.html.

2. Scope of Works for Tung Chung New Town Extension

The Tung Chung New Town Extension project (the Project) comprises the following elements:

(i) reclamation of the seabed by a non-dredged method at TCE to form a total of about 130 hectares of land;
(ii) construction of about 4.9 kilometers of seawalls, with an eco-shoreline, three drainage box culvert outfalls, three circulation drains and a seawater intake at TCE;
(iii) provision of infrastructure for Tung Chung Area 58, including construction of a single two-lane road with a footpath and the associated utility works;
(iv) site formation works at TCW;
(v) construction of the River Park including a visitor centre at TCW;
(vi) construction of proposed open space;
(vii) construction of sustainable urban drainage systems at TCW;
(viii) construction of roads, footpaths, cycle tracks and the associated junction / road improvement works;
(ix) engineering infrastructure works covering drainage, sewerage, waterworks (including a fresh water service reservoir, a salt water service reservoir and a salt water pumping station), common utility tunnels and landscaping works; and
(x) implementation of environmental mitigation measures and environmental monitoring and audit programme for the works.

3. Implementation Programme

The Contract No NL/2020/05 – Tung Chung New Town Extension – Site Formation and Infrastructure Works at Ma Wan Chung (i.e. Contract 5) at TCW has been awarded in May 2021 and the major construction work is scheduled for completion in mid of 2026. The main contractor for Contract No. NL/2020/05 is Build King – Richwell Civil Joint Venture (BKRCJV).

The Contract No NL/2020/06 – Tung Chung New Town Extension – Site Formation and Infrastructure Works at Tung Chung Valley, Phase 1 (i.e. Contract 6) at TCW has been awarded in May 2021 and the major construction work is scheduled for completion in 2026. The main contractor for Contract No. NL/2020/06 is China Railway Group Limited (CREC).

The Contract No NL/2023/10 – Tung Chung New Town Extension – Infrastructure Works at Tung Chung Valley, Yu Tung Road and Ma Wan Cheung (i.e. Contract 10) at TCW has been awarded in October 2025 and is scheduled for completion in 2029. The main contractor for Contract No. NL/2023/10 is CREC Joint Venture (CRECJV).

The Entrustment Agreement No. ENT/TUE/001 – Construction of Infrastructure Works in the Tung Chung New Town Extension Area (i.e. Entrusted Works) has been awarded in June 2025 and is scheduled for completion in 2028. The main contractor for Entrusted Works is Bouygues Dragages (1201) Joint Venture (BDJV).

4. Submission under EP

In view that only the site formation and infrastructure works at Ma Wan Chung (i.e. Contract 5) and Tung Chung Valley, Phase 1 (Contract 6), Area 33, (Entrusted Works) and Infrastructure Works at Tung Chung Valley, Yu Tung Road and Ma Wan Chung (Contract 10) at TCW have commenced, this submission is prepared based on the latest information of Contract 5, Contract 6, Entrusted Works and Contractor 10. The submission shall be updated before commencement of construction of the respective contracts for the site formation and infrastructure works at TCW according to the relevant requirements contained in the EM&A Manual, EIA Report and EP.

The Waste Management Plan for Contract 5 is provided in **Attachment I** below.

The Waste Management Plan for Contract 6 is provided in **Attachment II** below.

The Waste Management Plan for Contract 10 is provided in **Attachment III** below.

The Waste Management Plan for Entrusted Works is provided in **Attachment IV** below.

Attachment I

Waste Management Plan for

Contract No. NL/2020/05

Tung Chung New Town Extension –

Site Formation and Infrastructure Works at Ma Wan Chung

Build King – Richwell Civil Joint Venture

Waste Management Plan

For

Contract No. NL/2020/05

Tung Chung New Town Extension –

Site Formation and Infrastructure Works

at Ma Wan Chung

Rev. 07

Prepared by:

Calvin Chan
Environmental Officer

Approved by:

Ricky Hon
Site Agent

Date: 23rd February 2022

REVISION HISTORY

Revision	Revised Date	Section	Description of Change
00	17/05/2021	NA	First Submission
01	10/06/2021		Addressed ET & IEC comments
02	30/06/2021		Addressed ET & IEC comments
03	01/09/2021		- 1.2 "The Works do not involve any land formation nor surcharge operation." Is added - 1.18 "…. on a regular basis…." - 4.3 bullet points r. & s. are added - Appendix 6 "Implementation Schedule of Major Waste Management Measures" was updated - Appendix 7 "Method Statement for stockpiling and transportation of excavated materials and other construction wastes" was added
04	10/11/2021	5.3	GPS
		Table 3.2	"Alternative Disposal Ground (Other Project)" added
05	20/12/2021	5.3	GPS
		5.4	Illegal Dumping and Landfilling of C&D Materials
		Appendix 6	"WM4" of Appendix 6 (Implementation Schedule) was updated and revised
06	25/01/2022		- 5.1 Revised - 5.3 Revised - Appendix 1 cover and org. chart updated - Appendix 5 Revised - Appendix 6 Revised - 4.3 Updated
07	23/02/2022		- 5.3 Revised - Appendix 1 of the Appendix List - Appendix 1 Covering Title - Appendix 6

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1. INTRODUCTION

1.1. Background

This Waste Management Plan ("WMP") details the C&D material disposal arrangement and procedures to be employed by **Build King – Richwell Civil Joint Venture (BKRCJV)** to control and manage C&D waste disposal activity arise during the construction of the Contract No. NL/2020/05 Tung Chung New Town Extension – Site Formation and Infrastructure Works at Ma Wan Chung**.**

1.2 Scope of Works

The works mainly comprise:

(i) Site clearance (including, but not limited to, the demolition of the existing building structures);
(ii) Site formation works for Area 23 with associated geotechnical works;
(iii) Widening of Tung Chung Road North with associated geotechnical works;
(iv) Construction of carpark at Ma Wan Chung, and associated road works and geotechnical works;
(v) Carry out road improvement works and drainage works at Chung Yan Road;
(vi) Construction of open space at Tung Chung Area 29A and the coastal pedestrian access;
(vii) Renovation works of existing site offices and promenade improvement works;
(viii) Yard Waste Disposal and Treatment;
(ix) Ground investigation, geotechnical and building instrumentation monitoring works;
(x) Associated civil, geotechnical, structural, building services systems, electrical and mechanical engineering and landscaping works; and
(xi) Implementation of environmental mitigation measures, environmental monitoring and audit programme for the works mentioned above.

The Works do not involve any land formation nor surcharge operation.

1.3 Purpose of the Waste Management Plan

This WMP provides necessary technical information guidance and instructions to designated personnel who are responsible for the management of Construction and Demolition Materials (C&DM).

The aims of this Waste Management Plan are: -

- To ensure that all construction site personnel will avoid and / or minimise the on-site generation of Construction and Demolition (C&D) material;
- To identify various types of wastes;
- To reuse and recycle the C&D and excavated materials, and to keep the construction site clean and tidy, and
- To propose proper methods of collecting, transportation and disposal of C&D wastes generated from the Project.

1.4 Waste Management Requirements and Guidelines

BKRC JV will comply with the following legislations, code of practices, guidelines, practical notes and technical circulars during construction period.

Statutory requirements

- Waste Disposal Ordinance (Cap. 354) and its subsidiary regulations;
- Waste Disposal (Chemical Waste) (General) Regulation (Cap. 354C);
- Public Health and Municipal Services Ordinance – Public Cleansing and Prevention of Nuisances Regulation (Cap. 132BK);
- Land (Miscellaneous Provisions) Ordinance) (Cap. 28);
- Dumping at Sea Ordinance (Cap. 466); and
- Dangerous Goods Ordinance (Cap.295)

Codes of Practice, Circulars and Guidelines

BKRCJV will meet all relevant requirements by consulting the following codes of practice, technical circulars and guidelines:

a. Environment, Transport and Works Bureau Technical Circular (Works) No. 19/2005 – Environmental Management on Construction Sites;
b. Project Administration Handbook for Civil Engineering Works", 2020 Edition, CEDD, Chapter 4 Section 4.1.3 – Management of Construction and demolition Material Including Rock;
c. Development Bureau Technical Circular (Works) No. 6/2010 – Trip Ticket System for Disposal of Construction and Demolition Material;
d. Environment, Transport and Works Bureau Technical Circular (Works) No. 24/2004 – Specifications Facilitating the Use of Concrete Paving Units Made of Recycled Aggregates;
e. Works Bureau Technical Circular No. 12/2002 – Specifications Facilitating the Use of Recycled Aggregates;
f. Development Bureau Technical Circular (Works) No. 8/2010 – Enhanced Specification for Site Cleanliness and Tidiness;
g. Works Bureau Technical Circular No. 19/2001 – Metallic Site Hoardings and Signboards;
h. Works Bureau Technical Circular No. 12/2000 – Fill Management;
i. Works Bureau Technical Circular No. 04/1998A – Use of Public Fill in Reclamation and Earth Filling Projects;
j. Works Bureau Technical Circular No. 04/1998 – Use of Public Fill in Reclamation and Earth Filling Projects;
k. Works Bureau Technical Circular No. 16/1996 – Wet Soil in Public Dumps;
l. Works Bureau Technical Circular No. 02/1993B – Public Filling Facilities;
m. Works Bureau Technical Circular No. 02/1993 – Public Dumps;
n. Project Administration Handbook for Civil Engineering Works", 2020 Edition, CEDD, Chapter 4 Section 4.13 & Appendix 4.14 – The Use of Tropical Hardwood on Construction Sites;
o. A Guide to the Registration of Chemical Waste Producers;
p. A Guide to the Chemical Waste Control Scheme;
q. Code of Practice on the Packaging, Labeling and Storage of Chemical Wastes;
r. Code of Practice on the Handling, Transportation and Disposal of Asbestos Waste – (Cap 354, Section 35) and,

s. Chapter 9 "Environment" of Hong Kong Planning and Standards Guidelines, Hong Kong Government.
t. Guidelines on Yard Waste Reduction and Treatment

BKRCJV will observe all applicable statutory requirements, legislation and associated regulations, and/or code of practices with regard to the waste to be generated in the construction activities. BKRCJV will also apply for all necessary permits and licenses under these ordinances / regulations.

1.5 License Requirements

Where appropriate, BKRCJV will apply for all permits and licenses required under the following legislation for the handling and disposal of waste arising from the Project:

a. Chemical Waste Producer Registration under the Waste Disposal (Chemical Waste) (General) Regulation; and,
b. License to Collect and Transport Chemical Waste under Waste Disposal Ordinance
c. Public Dumping License under the Land (Miscellaneous Provisions) Ordinance.

A licensed chemical waste collector will be appointed for the disposal of chemical waste. Upon classification of any types of chemical waste as dangerous goods under the Dangerous Goods Ordinance, the handling of these wastes will comply with all the requirements of the ordinance and its regulations.

2. Organization for Site Management

This Section provides an outline of the roles and responsibilities of the major site staff involved with the management of C&DM arising from the Project.

2.1 Site Organization and Responsibility

The Project Manager / Deputy Project Manager will have the overall responsibility to ensure that the requirements of the WMP are properly implemented. The Site Agent will act as the Waste Manager for the Contract. The Construction Team Leader acts as Deputy Waste Manager and Team Leader of the Environmental Team for overall control of waste management practices to ensure compliance with the contract requirements. The Environmental Officer and Environmental Supervisor will communicate and coordinate with ET on waste management for environmental monitoring and audit. The responsibilities of key site staff for the WMP are listed as follows: (see Appendix 1 of Project Environmental Organization Chart).

Project Manager PM / Construction Manager CM (Chairman)

The PM / CM will maintain overall control of all aspects of the construction activities and will oversee the implementation of the WMP. He is also responsible for ensuring that there are adequate resources available for the implementation of the WMP. He will also chair the ad hoc meeting(s) with the Supervising Officer's Representatives to discuss the WMP.

Site Agent, SA (Deputy Chairman)

The Site Agent will be responsible for management and control of the construction activities in relation to waste management and mitigation measures. He will be responsible for assigning other team members to assist him for supervision and enforcement of the on-site waste management practices. The Site Agent will be responsible for:

- Identification and classification of all possible wastes arising from the construction activities
- Analysis of effectiveness, efficiency and reliability of waste reduction programme
- Obtaining all necessary licenses and permits for the handling and disposal of wastes
- Planning for on-site segregation, sorting and storage of wastes
- Ensure that the on-site waste management practices are in compliance with all legislations and requirements of the Contract
- Carry out quarterly internal auditing for the implementation of WMP
- Provide resources to the implementation and control of the WMP

Environmental Officer, EO

- Overview in relation to waste management and Report to the SA
- Direct ES and GF as appropriate in supervising and enforcing the on-site mitigation measures
- Ensure all disposal records be promptly available for record or/and action as necessary
- Prepare, implement and update the WMP
- Update the Waste Flow Table and Use of Timber Record
- Verify waste management activities and related results to comply with planned arrangements
- Arrange and provide the environmental training including the site specific induction training and toolbox talks

- Organize environmental promotional activities
- Liaise on all matters relating to complaint, enquiry and non-compliance
- Carry out environmental system audits

Environmental Supervisor, ES; Safety Officer, SO and Safety Supervisor, SS (Team Member)

- Identify statutory requirements, contract requirements and corporation requirements
- Identify material that can be recycled, re-use and returned
- Arrange re-use, recycle and return work
- Monitor sub-contractors and workers to implement according to WMP
- Conduct waste management briefing to all site staff and workers
- Carry out quarterly internal auditing for the implementation of WMP

General Foreman, GF (Team Member)

- Prepare location plans for storage of building materials to avoid or minimize construction materials damage on site
- Ensure WMP is implemented and maintained
- Instruct relevant parties to solve management problems
- Instruct and monitor sub-contractors and workers to implement according to WMP
- Carry out monthly review for the implementation of WMP

Foremen, FN (Team Member)

- Assist General Foreman to prepare location plans for storage of building materials to avoid or minimize relevant materials damage on site
- Arrange sorting facilities for waste materials re-use and recycling
- Arrange waste materials storage areas and disposal of waste materials according to trip-ticket System
- Ensure that daily site cleanliness and tidiness are implemented
- Instruct and monitor sub-contractors and workers to implement according to WMP
- Carry out weekly review for site cleanliness and tidiness

Subcontractor Representatives, SR (Team Member)

- Ensure that construction waste are properly sorted out and disposed
- Ensure that construction waste are properly reused and recycled
- Coordinate with foremen to rectify and take follow-up actions for identified waste management issues
- Provide adequate resources for the implementation of WMP
- Direct and supervise workers to implement according to WMP

Workers, WR

- Follow the instructions given by General Foreman, Foremen or Subcontractor Representatives to carry out waste management issue on site
- Reduce construction waste generation on site if possible
- Ensure that construction waste are properly sorted, re-used, recycled or returned on site
- Maintain good housekeeping of the workplaces after daily work activities

3.0 Identification and Classification of Waste Generated from the Construction Activities

3.1 Waste Arising from the Construction Activities

Major activities that will generate waste from this Project include site clearance, excavation, formwork construction for concreting, etc.; which can be divided into distinct categories based on their composition as follows:

- Excavated materials from foundation work and underground services works;
- C&DM from demolition, structural, architectural and external works;
- Chemical waste from maintenance of plant and equipment; and
- General refuse from construction works.
- Chemical waste from construction works

A summary of the estimated quantities of C&DM to be generated from the construction and demolition work under the Project and the tentative C&DM disposal programme is attached in Appendix 2.

3.1.1 Excavated Material

The excavated material generated from excavation will consist of soil and rock materials which will, as far as practicable, be reused on-site for the backfilling works. Excavated material will also be generated from foundation work, underground services works and even any temporary works for excavation.

3.1.2 Construction & Demolition Materials (C&DM)

C&DMs include inert public fill materials such as bricks, rubble, concrete and non-inert C&DM such as wood, steel, vegetation, floating refuse, office and work force waste etc.

The majority of C&DM will arise during site clearance, demolition and excavation works.

3.1.3 General Refuse

The workforce will likely generate general refuse comprising food scraps, waste paper, empty containers, etc.

3.1.4 Chemical Waste

The maintenance and servicing of construction plant and equipment generates chemical waste, for instance, cleaning fluids, solvents, and lubrication oil and used batteries. The maintenance of vehicles also uses common chemicals, oil, lubricants and paints for this purpose. A licensed chemical waste collector would be employed for collection of chemical waste.

The handling / management of each waste type are detailed in Section 4.

3.1.5 Yard Waste

Yard Waste including (a) Grass clippings, leaves, bushes, shrubs and twigs; (b) Tree trunks and branches; (c) Tree stumps shall be sorted on site for the purpose of recycling and should not be considered as waste for disposal except for the parts of plant carrying contaminants, chemical residues, diseases or pests. Yard waste without contaminants, chemical residues, diseases or pests shall be disposed of at site for reuse or recycling, accepted local recycled wood/wood-plastic-composite manufacturer(s) / EPD's Organic Resource Recovery Facility (ORRC).

A Temporary Yard Waste Disposal Workshop will be set up to cut and shredded into wood chips in order to meet the collection requirement of recycling outlets. A 3-Bin Composting System will also be set up to collect, sort and chip yard waste appropriate for composting.

Yard Waste Handling and Disposal Plan will be submitted separately.

3.2 Designated Waste Disposal Facilities and Disposal Criteria

The designation of disposal facilities as stipulated in the Waste Disposal (Designated Waste Disposal Facility) Regulation (Cap 354L) and Particular Specification clause 25.25S(1) are listed below:

C&DM	Inert	Non-Inert	Chemical Waste	Yard Waste
Disposal Facilities	Alternative Disposal Ground (Other Project)/ Tuen Mun Area 38 Fill Bank	North East New Territories (NENT) Landfill	Chemical Waste Treatment Facility located at Tsing Yi	accepted local recycled wood / wood-plastic-composite manufacturers(s) / EPD's Organic Resource Recovery Facility (ORRC) / depots / EPD's Animal Waste Composting Plant (AWCP) /facilities

BKRCJV will also comply with the following requirement when delivery of construction waste to the Public Filling Facility or Landfills:

(1) Any over-sized inert C&DMs will be broken down to less than 250mm in size so as to facilities its re-use by reclamation or earth-filling.
(2) BKRCJV will implement proper measures to ensure that the dump trucks delivering C&DMs are not overloaded. The measures include the checking of load cell before leaving of construction site.
(3) Mixed C&DM should be sorted at source to reduce the inert content to less than 30% by weight as far as practicable before they are delivery to landfills.
(4) The C&DM delivered for landfill disposal shall contain no free water and the liquid content shall not exceed 70% by weight.

4. PROPOSAL FOR WASTE MANAGEMENT

4.1 Waste Management Hierarchy

BKRCJV will implement appropriate waste management practices according to the nature and category of wastes arising. Waste management options will be selected according to the widely accepted hierarchy shown by Table 4.1 below.

Table 4.1 Waste Management Hierarchy

Avoidance and minimization	Avoid and minimize waste through changing or improving practices and designs.	↑ Highest priority
Reuse of materials (with limited reprocessing)	Reuse construction waste with only limited reprocessing such as uncontaminated soil, wooden planks, metals and other materials in other construction works or process.	
Recovery and Recycling (may require reprocessing)	Undertaking on site or off site recycling.	Lowest priority ↓
Treatment	Offsite destruction and detoxification etc, of wastes into less harmful substances.	
Disposal	Release of wastes to designated areas properly so as to render them harmless.	

The hierarchy will be used to evaluate waste management options for the minimization of waste generation. By the implementation of this hierarchy, the overall construction cost will be reduced by avoiding the over-ordering of construction materials and the handling and disposing of unnecessary waste.

4.2 Design and Planning of Construction Works

Prior to commencement of works, BKRCJV will carefully consider the construction methodology, demolition procedures and programme to assess the waste generation during works and study the available opportunity to reduce waste arising. Good work planning will, not only result in a better estimation of materials required for the works, but also contribute to the performance of the works in the first instance so as to avoid abortive activity.

Prior to the commencement of works, the location and necessary facilities for construction material storage, sorting and temporary waste collection will be planned and implemented. The opportunity for the reuse and recycling of the waste material on site and off site will be carefully studied.

4.3 Waste Minimization Measures and Good Site Practice

Good management and site practice can prevent the over generation of waste. Waste reduction is best achieved at the planning and design stage as well as by ensuring the implementation of good site practice. The good site management to be adopted will include: -

a. Nomination of an approved personnel, such as a site manager, 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;
b. Training of site personnel in site cleanliness, appropriate waste management procedures and concepts of waste reduction, reuse and recycling;
c. Using the correct amount of raw materials at the correct time and the recording of materials flow to minimize over ordering. The construction materials will be stocked carefully to prevent damage or contamination. During the works, only exact quantity of materials will be collected and if necessary, any surplus will be returned to stock after consideration of its use;
d. Maximizing the utilization of materials and the avoidance of unnecessary cutting such that off-cuts will be used when short lengths or a small quantity of materials are required;
e. A preference for reusable non-timber formwork such as steel formwork or plastic facing;
f. Sorting of all excavated / demolition materials to recover the inert portion (e.g. soil and broken rock) for reuse on site whenever possible or disposal to designed outlets (e.g. public filling areas). Recover all metal, cardboard and paper on site and properly stored in dry and clean conditions temporarily for later collection by recycling contractors;
g. Segregation and storage of constituents of C&DM in appropriate containers, skips or stockpiles to enhance the opportunity for reuse and recycling of materials or their proper disposal. Sufficient protective measures provided in the storage area for sorting to avoid damage or contamination;
h. Collection of aluminum cans, paper waste and plastic bottles by site staff, and provision of separately labelled bins to segregate these wastes from other general refuse arising from the work force;
i. Provision of a designated waste working team to collect the refuse on site regularly;
j. Removal of all other un-reusable C&DM off site as soon as practicable in order to optimize the use of the on-site storage space;
k. Implementation of the trip-ticket system to ensure that the dumping / filling location is used so as to prevent fly tipping. The security guard will ensure only dump trucks with properly completed trip-tickets can leave the site. Wherever practicable, weighing equipment will be provided at the site entrance to accurately record the amount of C&DM transported off site. The trip-tickets, with valid stamp from an agreed dumping / filling location, will be collected upon return and appropriately filed in the site records;
l. During the storage and transportation of waste, a tarpaulin covering or enclosed containers will be used to minimize fugitive dust emission;
m. Unused chemicals or those with remaining functional capacity will be retained for reuse. The chemicals will be separated for special handling and appropriate treatment at the Chemical Waste Treatment Facilities (CWTF);
n. The setting up of special control measures to regulate storage, labelling, transport and the disposal of classified chemical waste such as paint residues, lubricants or other oil waste including the registration as a chemical waste producer and the disposal of such wastes by a licensed collector to CWTF;
o. Imposition of penalty system on Contractors' improper behaviours when illegal dumping and landfilling outside their respective construction sites, i.e. on nearby farmlands and riverbanks, are reported;
p. Regular cleaning and maintenance programme for drainage systems, sumps and oil interceptors;
q. The amount of waste reused, recycled or disposed will be recorded regularly.
r. Maximizing the use of excavated material for backfilling within site including but not limited to pile caps, formation, retaining wall, slope, etc, as far as practicable.
s. Maximizing the use of excavated material to other sites and will be transported to alternative disposal ground for reuse.

Mitigation measures according to the EIA will be implemented on site. The details are summarized in Appendix 5. The implementation schedule of major waste management measures is shown in Appendix 6. Method Statement for stockpiling and transportation of excavated materials and other construction wastes is shown in Appendix 7

4.4 Handling of C&DM

Storage, collection and transportation of the C&DM will be carefully planned and implemented to minimize any adverse impact upon the environment. The generated C&DM will be sorted on site and C&DM for recycling as appropriate in accordance with ETWB TCW No. 19/2005, or subsequent disposal at approved strategic landfills. Wherever practicable, SA will arrange the segregation of these wastes on site in order to maximize the recovery of reusable and recyclable materials. Separate areas will be designated for segregation and storage where site-specific conditions allow.

The segregated types of C&DM will be stored in separate covered storage areas to avoid possible cross contamination and loss due to windblown and fugitive dust. If the C&DM are to be temporarily stored in piles on site, they will either be covered with a tarpaulin or watered regularly to prevent the emission of fugitive dust. SA will ensure that C&DM are removed from their origin and processed at designated points in a timely manner.

Recyclable materials such as steel mesh, reinforcement bars, window frames, railing, banisters, and wooden planks will be separated from other C&DM. These materials will be either reused on site or collected by an external licensed waste recycling agent. If an external recycling agent is required, details of the nominated company will be submitted to the *Project Manager/ Supervisor*.

4.4.1 Waste Sorting

Sufficient space will be provided to accommodate the separation of inert and non-inert materials and a unique access checkpoint with security control. The SA will manage the waste sorting facilities and promptly remove all the sorted and processed materials arising from or in connection with the works from the site to minimize the extent of temporary stockpiling on the site. The categories of C&DM to be sorted within the waste sorting facilities include:

- Inert materials consisting of earth, building debris, rock fragments, concrete bricks, tiles, masonry and mortar etc;
- Metals;
- Paper/Cardboards; and,
- Timber.
- Waste from Landscaping Works

Following the sorting of these wastes, they will be sent separately for reuse and recycling, processing or disposed of as described in the following sections.

Other than large waste sorting facilities, BKRCJV will provide refuse and recycling bins respectively to collect different types of refuse generated by the site office and the workforce. These will include bins to collect general refuse such as food waste and recycling bins to collect waste paper separately, plastic bottles and aluminium cans. These bins will be provided in common areas where the wastes are commonly generated such as site offices, workshops, canteen and other site accommodation areas for the workers.

(I) Inert C&DMs

Excavated Material

Following waste sorting, the remaining inert C&DM will be managed as follows:
In order to minimize the amount of excess excavated material, the priority for the management options of excess excavated material will be as followings: -

a. Suitable excavated material will be stored for backfilling purposes;
b. Excessive excavated material will be transported to other sites for reuse as approved by the *Project Manager/ Supervisor*; whilst the ET, IEC and EPD would be informed.

Concrete Waste

The surplus concrete after each concrete pour will be used for some minor pre-cast elements where practicable. Dry concrete waste, including broken concrete from demolition works, will be sorted out from the other wastes for reuse in site temporary road construction.

(II) Non-Inert C&DMs

Timber Waste

As far as possible, BKRCJV will avoid, reduce and minimize the use of timber in temporary works construction. Where the timber is used for this purpose or for one process / activity with an estimated quantity exceeding 5m3, BKRCJV will submit a method statement to the *Project Manager/ Supervisor* for agreement prior to the commencement of the works.

A description, justification and the estimated quantity for every work process / activity requiring the use of timber for temporary works construction.

Metal Wastes

BKRCJV will avoid and reduce metal waste during the design, planning and construction process. Cut metal or steel bar will be considered for re-use in temporary or minor works on site. When metal waste has arisen on site, it will be sorted and collected daily by an assigned work team and stored in a designated storage area for subsequent use or collection by recycling contractors.

General Refuse and C&DM

Un-recyclable, non-inert C&DM, i.e. C&DM, floating refuse and general refuse, which mainly consists of food waste, aluminium cans and waste paper, will be generated from construction activities, workers and the site office.

The C&DM will be temporarily stored and containers or skips will be provided for temporary waste storage to prevent odour, pest and windblown litter.

Office waste will be reduced through the recycling of paper. Sacks for waste paper and baskets for reusable papers will be provided in the Site office. General refuse including food and domestic waste will be stored in enclosed bins or compaction units separate from the construction and chemical wastes. Lunch boxes, plastic bottles, containers, plastic sheets and foam will be sorted and stored in separately labelled bins for subsequent recycling. Reputable recycle contractors will be employed to collect recyclable materials. The amount of waste to be recycled will be recorded, controlled and monitored through the maintenance of WFT.

The general refuse and the un-recyclable C&DM will be collected and disposed of on a regular basis to minimize the likelihood of odour, pests and litter. They will be transported and disposed of by a licensed waste hauler. A trip-ticket system to trace the transportation and destination of the waste will be implemented and the burning of refuse on the site will be strictly prohibited.

Yard Waste

Yard Waste including (a) Grass clippings, leaves, bushes, shrubs and twigs; (b) Tree trunks and branches; (c) Tree stumps shall be sorted on site for the purpose of recycling and should not be considered as waste for disposal except for the parts of plant carrying contaminants, chemical residues, diseases or pests.

4.4.2 Chemical Waste

For chemical waste produced by a process, as defined by Schedule 1 of the Waste Disposal (Chemical Waste) (General) Regulation, a 'Chemical Waste Producer' registration will be made with EPD.

Chemical wastes are likely to be generated during maintenance of plant and equipment and these may include spent filter cartridges containing heavy metals, asbestos waste, spent batteries, used mechanical oil, cleaning fluid, spent solvents, lubricating oil and paints and paint containers.

All chemical wastes generated on site will be stored and labelled in accordance with the Code of Practice on the Packaging, Labelling and Storage of Chemical Waste published by EPD. All workers involved in the handling of chemical waste will be trained properly and will be provided with appropriate protective clothing.

The sorting and segregation of chemical waste will be carried out on site to ensure the waste is appropriately handled, labelled and treated prior to disposal off-site. The recoverable chemical wastes such as oil, paint and solvent, will be separated from other chemical wastes and an EPD licensed chemical waste collector will be employed to collect the chemical waste.

<u>Storage of Chemical Waste</u>

Chemical waste will be stored at designated storage areas in accordance with the Code of Practice on the Packaging, Labelling and Storage of Chemical Waste. The containers to be used for the storage of chemical waste will:

a. be suitable for the substance they are holding, resistant to corrosion and be maintained in a good condition and kept securely closed;
b. have a capacity of less than 450L unless the specifications have been approved by the EPD; and,
c. display a label in English and Chinese in accordance with instructions prescribed in Schedule 2 of the Regulations.

The storage area for chemical waste will:
a. be clearly labelled and used solely for the storage of chemical waste;
b. be enclosed on at least three sides;
c. have an impermeable floor and be bunded to accommodate 110% of the volume of the largest container or 20% by volume of the chemical waste stored in that area, whichever is greater;
d. have adequate ventilation;
e. be covered to prevent rainfall entering (water collected within the bund must be tested and disposed as chemical waste if necessary); and
f. be arranged so that incompatible materials are adequately separated.

Disposal of Chemical Waste

A licensed waste collector will be employed to deliver the chemical waste to legal treatment facilities. Waste dry battery (road flash light) and Waste Oil will be transported to Approved Facility for handling purpose. The trip-ticket system will be strictly implemented to ensure the chemical waste is transported by and to proper agents. Trip tickets issued for every chemical waste collection will be retained and filed for future reference and inspection.

Please refer to Section 5.2 for the recording system of C&DM and waste. A sample of the Monthly Waste Flow Table and Record of Timber Usage is given at Appendix 3.

4.4.3 Hazardous Material

All hazardous materials generated from the demolition works shall be sorted and handled properly. For the grits and any other depositions collected from the existing facilities, Admission Ticket shall be applied to deliver such special waste to designated landfill site.

BKRCJV will conduct a risk analysis and produce a method statement specifying the safe method of use and all associated precautions to be implemented.

BKRCJV will ensure that material safety data sheets are available and hazard identification labels will be properly affixed to all storage containers.

Should workers be involved in the use, handling of, or exposure to hazardous substances, then the relevant information, training and proper personal protective equipment shall be provided accordingly.

The quantities of hazardous substances on the Site shall be kept to a minimum as far as is possible and practicable.

Strictly follow the guidelines provided by the material suppliers or the relevant Material Safety Data Sheet for use and storage of the hazardous material.

4.5 Promotion and Training on Waste Management

4.5.1 Environmental Training

The EO and ES are responsible for carrying out the environmental training on waste management. They will analyse the problem and the detailed need of waste management training for the employees, consult with their departmental managers, and seek advice from the senior management.

The environmental training plan shall be reviewed quarterly by the EO in consultation with the Site Agent to identify and review training needs of the construction activities and to introduce new training program.

Site Specific Induction Training

The site Specific Environmental Induction Training provided by the EO covering but not limited to environmental and waste management including the implementation of waste management plan, handling of special waste and trip ticket system will be conducted for all site staff and workers employed for the Works or in connection with the Contract. Refresher training for the aforesaid area will be provided by the EO in every six months.

The training content should also cover the subjects such as organization structure, duties and responsibilities, measures, targets, in-house rules and regulations.

Tool box talk

Workers will receive environmental toolbox talks conducted by the respective front line Foreman, EO/ES. The toolbox talks will focus on different trade and activities and enhance environmental awareness amongst operatives.

4.5.2 Environmental Promotion

Environmental information

- Display and update appropriate Environmental Signs/Posters at the site entrances and relative works area.
- Environmental news, agenda and minutes of Site Safety Environmental Committee Meeting, emergency, environmental promotion activities will display on site safety bulletin board
- Daily Morning Briefing is an individual workforce gathering in the morning assembly prior to work start to be conducted by the General Foreman/ Foreman or gangers. Daily morning briefing will deliver environmental messages, environmental hazards identified and environmental pollution precaution measures to workforce.

Environmental Award

The “Safety and Environmental Star – Worker Award” would be held to promote safety and environmental awareness of individual worker. The performance of the worker on waste management would also be reviewed. The assessment criteria will be based on observation by EO/ES, area foremen report and recommendation from their direct employer and written assessment of safety and environmental knowledge.

5. TRIP TICKET SYSTEM AND RECORDING

5.1 Trip Ticket System (TTS)

For the transportation of public fill and C&DM, BKRCJV will implement and comply with the requirements of the Trip-Ticket System (TTS) stipulated in Development Bureau Technical Circular (Works) No. 6/2010. A standalone Site Management Plan for implementation of TTS will be established which should be reviewed and updated on monthly basis.

The manpower resources for TTS

(1) A senior staff member (with at least two-year experience in site management) / EO fully responsible for implementing and overseeing the operation of the TTS; and

(2) Experienced person(s) to man each exit from the Site for the purpose of checking every truck carrying C&DM leaving the Site so as to ensure that the truck driver bears a duly completed signed Trip Ticket (CHIT).

General Procedure of the TTS

The procedures for implementation of the TTS are as follows:-

(1) BKRCJV will establish site procedures to ensure that each truckload of C&DM leaving the Site will bear a duly completed CHIT / Disposal Delivery Form (DDF). BKRCJV will also establish a mechanism to ensure timely retrieval of the CHIT / DDF and/or receipt from the disposal grounds. The person(s) who man the exit(s) shall record the CHIT/ DDF no., the vehicle registration mark and the departure time of every truck carrying C&DMs leaving the Site.

(2) The CHIT shall be used for disposal of C&DM at a prescribed facility as defined under the Waste Disposal (Charges for Disposal of Construction Waste) Regulation (Cap. 354N) (hereinafter referred to as "prescribed facility") and the Particular Specification, Sample of the CHIT is given in Appendix 4.

(3) Where the inert C&DM is delivered to other sites for reuse as approved by the Project Manager, a special designed ticket (i.e. similar to the Chit) will be deployed and the mechanism and procedure is also similar to the Chit system.

The procedures of the TTS (for prescribed facility – NENT Landfill)

a) For each truckload of C&DMs leaving the Site, all truck drivers must bear a duly completed CHIT.

b) A daily record of disposal of C&DMs shall be maintained from the Site including CHIT numbers, vehicle registration marks, drivers' particulars, approximate volume, C&DMs type, designated disposal ground, departure time from the Site, actual disposal ground and arrival time at disposal ground. The appointed designated person(s) shall complete Part I of the Daily Record Summary (DRS) in duplicate and inform the Engineer's staff before departure of the vehicle.

c) The JV's staff shall sign Part I of the DRS before departure of the trucks, or to suit site operations at other time to be agreed between the Project Manager and BKRCJV.

d) The truck shall proceed to the disposal ground as stipulated in the Contract. If the C&DM accord with the acceptance criteria, disposal of the materials will be permitted and the facility operator will give the Contractor's truck driver a Transaction Record Slip and stamp the CHIT. When the disposal of waste is not permitted (rejected by facility operator due to overloading or non-compliance with relevant acceptance criteria, closure of facility etc.), the truck will go back to the construction site and the Contractor will sort out an appropriate mitigation measure.

e) The information recorded in the DRS shall be checked against available information including site records/register and data from EPD's website [https://www.epd.gov.hk/epd/misc/cdm/scheme.htm#j].

f) EO/ES shall complete Part 2 of the DRS form for submission to the *Project Manager / Supervisor* within 1 working day after the records are posted at the EPD web-site.

g) Where an irregularity is observed or where requested by the *Project Manager / Supervisor* under special circumstances (e.g. a CHIT has been issued but there is no disposal record at the disposal ground), BKRCJV shall submit to the *Project Manager / Supervisor* within 5 working days after the recorded date of disposal the supporting evidence such as duly stamped CHIT 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 / Supervisor* has requested for such evidence, whichever is later. A fax copy of the CHIT or Transaction Record Slip is acceptable, unless otherwise directed by the *Project Manager / Supervisor*.

Informing the Truck Drivers

BKRCJV will write to all truck drivers whom he has engaged for removal of C&DMs from the Site and draw their attention to the following particular points:

(a) Each truck carrying C&DM leaving the Site for a disposal ground must bear a duly completed and stamped DDF, irrespective of the location and nature of the disposal ground.

(b) The C&DM must be disposed of at the disposal grounds as stipulated in the CHIT.

(c) What constitutes an improper disposal and that the Public Fill Committee (PFC) will consider revoking the Dumping License from the holder of the offending trucks.

(d) Truck drivers must bear a valid Dumping License which he can apply from the Civil Engineering and Development Department (CEDD).

(e) The Contractor will inform the truck drivers that all dump trucks engaged on site shall be equipped with GPS or equivalent automatic system for real time tracking and monitoring of their travel routings and parking locations to prohibit illegal dumping and landfilling of C&D materials.

A agreed sample of the “CHIT” and Daily Summary Table (DRS) is given at Appendix 4.

5.2 Waste Recording System

BKRCJV will record the quantities of C&DM generated each month, using the monthly summary "Waste Flow Table" (WFT) BKRCJV shall complete the monthly summary WFT.

The following records will be kept by BKRCJV for inspection and reporting as necessary by the Environmental Team or the *Project Manager / Supervisor*:

- Waste disposal permits or licenses
- Record of trip tickets for C&DM disposed off-site
- Record of trip tickets for chemical waste disposed off-site
- Record of non-compliance of the WMP
- Record of corrective action taken to rectify any non-compliance
- Record of the admission tickets usage.

BKRCJV will provide, operate and maintain a video recording system at each vehicular exit/entrance with gate(s) installed with the following essential features to record all trucks leaving the Site:

- The video cameras used in the system will be of high resolution, lowlight and colour type
- Power back up shall be provided to cater for accidental breakdown of the power supply to the system
- Videos captured by the system will be recorded continuously without break except with the agreement of the SA, or in month during which where is no disposal of C&DM off the Site for the entire month
- Videos will be captured in a format acceptable to the *Project Manager / Supervisor*
- The registration mark of each vehicle leaving the site will be recorded
- The loading condition of dump trucks including empty trucks will be captured
- Securely protect the videos cameras from being damaged
- Provide the software and hardware for capturing the vehicle registration mark, and the time and date for the SA's immediate taking and viewing of photograph of every truck leaving the Site and viewing the recorded videos
- Keep the videos record for at least 60 days and the photographs until such time as instructed by the Engineer Representative
- 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 (Cap. 486).

5.3 GPS

According to the Environmental Permit EP-519/2016 Conditions 2.24 (vi-vii), all dump trucks engaged on site will be equipped with Global Positioning System (GPS) or equivalent automatic system for real time tracking and monitoring (RTTM) of their travel routings and parking locations to prohibit illegal dumping and landfilling of C&D materials.

The GPS installed on dump trucks will transmit self-monitoring data direct from the truck to the control center through GPRS mobile communication network.

The RTTM system allows the Contractor and the users to carry out round-the-clock monitoring of the movement of dump trucks by accessing to the designated website. This will ensure that any irregularities can be immediately identified and rectified without delay.

The RTTM system employs hot standby configuration. Two identical servers are used to handle and store data reported from GPS. Application software, such as web user interface, is provided by a standalone web server. The web user interface enables users to view the data record and analyze the data records.

The system is connected to the internet via two separate broadband networks. Each network is protected by network firewall. The firewall prevents unauthorized access to the system and route connection requests to the appropriate servers.

Real-time Vehicle Location with Cluster, signal refresh in every 30 second, time, license plate number, Electronic scale for every trip of trucks carrying C&D materials for disposal from site will be recorded. It enables relevant parties (PM, ET, IEC and the Contractor) to view the exact location of the fleet from the Website/ Application at any time, and monitor driver activity and routing. Track Reply with Graph and detail track report history for the routing of every delivery will be downloaded and recorded, and retrievable for inspection.

Geofences will be set for the designated disposal locations, i.e. NENT Landfill and TM38 Fill Bank, and other locations approved by the Project Manager / Supervisor. Geofences are designated areas that can be defined on a map. They can either be a certain radius around a single point or any shape that create from several points. When trucks enter/ trigger the Geo-fencing Zone, GPS data such as travelling routes, travelling time for every delivery, etc. via the Automatic Notification System will be recorded. An alert email will be sent to ET, IEC, the Project Manager / Supervisor, the contractor and surveillance team at the end of each working day if the dump truck does not reach designated disposal locations after leaving the project site. Environmental Officer (EO) / Environmental Supervisor (ES) will analyze the GPS data such as travel routings, parking locations, etc. on a daily basis. The corresponding historical GPS vehicle location data will be maintained for at least 6 months after any C&D material disposal trips for retrieval if needed. EO/ ES will also consolidate the GPS data with the Trip Ticket System by merging the corresponding chit number/ DDF number, vehicle number, truck build-in weight record, recorded weight of the transaction (Government Facility) or other accepted/ designated disposal ground, etc. for the purpose of cross-checking and analyzing the time used for the delivery, traffic routing, weight different for any irregularities and suspected illegal dumping situation. It ensures that the trucks are disposing of the C&D material to the designated disposal locations after leaving the site. Also, ET, IEC, the Project Manager / Supervisor, the contractor and surveillance team can track the real-time position of the trucks on the web-based application.

To ensure that all C&D materials are disposed of at the designated disposal locations, at the end of each working day, in case that any dump truck does NOT reach the designated disposal locations after leaving the project site, the GPS monitoring system will automatically generate alert through email to the relevant parties (e.g. ET, IEC, Project Manager, contractor, surveillance team, etc.) for follow up on any suspected irregularity and illegal dumping situation. The information of automatic notification includes relevant details, such as vehicle licence plate, event time, vehicle location, etc. Prohibited Zone on Tung Chung Road (section of Tung Chung Road south of Shek Mun Kap Road and all roads in south Lantau) or other areas designated as prohibited zones in Tung Chung can be set by the real time tracking and monitoring (RTTM) system, and signal (by email) will be sent to the ET, IEC, Project Manager, contractor, surveillance team or other default users immediately once any irregularities / non-compliance are triggered. The notification emails records of the C&D materials disposal by trucks are to be checked by EO/ ES to confirm whether all the dump trucks travel to the designated disposal locations after leaving the construction site.

5.4 Illegal Dumping and Landfilling of C&D Materials

Surveillance Team, appointed under EP Condition 2.6, will conduct regular site inspections to identify and report immediately to IEC, the *Project Manager / Supervisor* and the Director of Environmental Protection through email on suspected illegal dumping and landfilling of C&D materials within the Project site throughout the construction phase.

6.0 EVENT CONTINGENCY PLAN FOR NON-COMPLIANCE AND COMPLAINT

6.1 Handling Procedure for Non-compliance and Complaint

A Contingency Group will be set up to respond to non-compliance and complaints on waste management and other environmental issues.

In the Event of Non-Compliance:

1. If any non-compliance is observed during site inspection by the *Project Manager / Supervisor* or CEDD, the EO/ES will raise a Corrective & Preventive Action Report (CPAR) to SA;
2. The PM will notify and liaise with the SA of non-compliance to obtain proposals and a response to the CPAR;
3. The EO will notify SA if the non-compliance is an exceedance of the stipulated requirements. In such cases, a copy of the CPAR will be issued to the *Project Manager / Supervisor* as a Notification of Non- compliance (NNC);
4. After receipt of the NNC, the SA will propose corrective actions for the non-compliance in line with the JV's CPAR and implement the proposed corrective actions once they have been agreed by the *Project Manager / Supervisor*;
5. If the implementation of the corrective actions is satisfactory, the non-compliance record (CPAR) will be closed accordingly;
6. The SA/EO will propose preventive actions within 3 working days if it has not been already included within the JV's response after the closure of the non-compliance records; and
7. The SA/EO will record CPARs accordingly in the CPAR log sheet.
8. Environmental Team (ET), Independent Environmental Checker (IEC) and *Project Manager / Supervisor* should be notified immediately in case of the event of non-compliance.

In the Event of Complaint

1. Complaint related to environmental management will be collected by the EO/ES. The complaint will be referred to the SA for carrying out complaint investigation procedures;
2. The SA will log complaint and date of receipt onto the complaint database and inform the SM and the *Project Manager / Supervisor* immediately within 2 working day;
3. Within 2 working day after receipt of the notification of compliant, the EO/ES will identify the source of the problem and provide the *Project Manager / Supervisor* relevant works site information, e.g. types and locations of construction works;
4. If the complaint is valid and due to project works, the EO/ES will liaise with SA to propose corrective actions/mitigation measures to the *Project Manager / Supervisor*. The SA will implement the mitigation measures once they have been agreed;
5. The EO/ES will report the investigation results and subsequent actions taken, to the *Project Manager / Supervisor* after the implementation of mitigation measures; and

6. If no further comments or complaints are received from the complainant within 20 days after responding to the complainant, close the complaint record.
7. Environmental Team (ET), Independent Environmental Checker (IEC) and *Project Manager / Supervisor* should be notified immediately in case of the event of complaint.

Follow-up actions to be taken by the Contractor and Dump Truck Drivers for Committing Suspected Offences relating to Illegal Dumping and Landfilling of C&D materials

1. The dump truck drivers will be asked to explain for the suspected offences relating to illegal dumping and landfilling of C&D materials. An investigation report will then be prepared by the EO and submit to the *Project Manager / Supervisor* within 2 working days.
2. The Contractor will discuss with the *Project Manager / Supervisor* for the follow up actions (e.g. warning letter, cease operation, etc.) if required.

7.0 AUDITING PROPOSAL

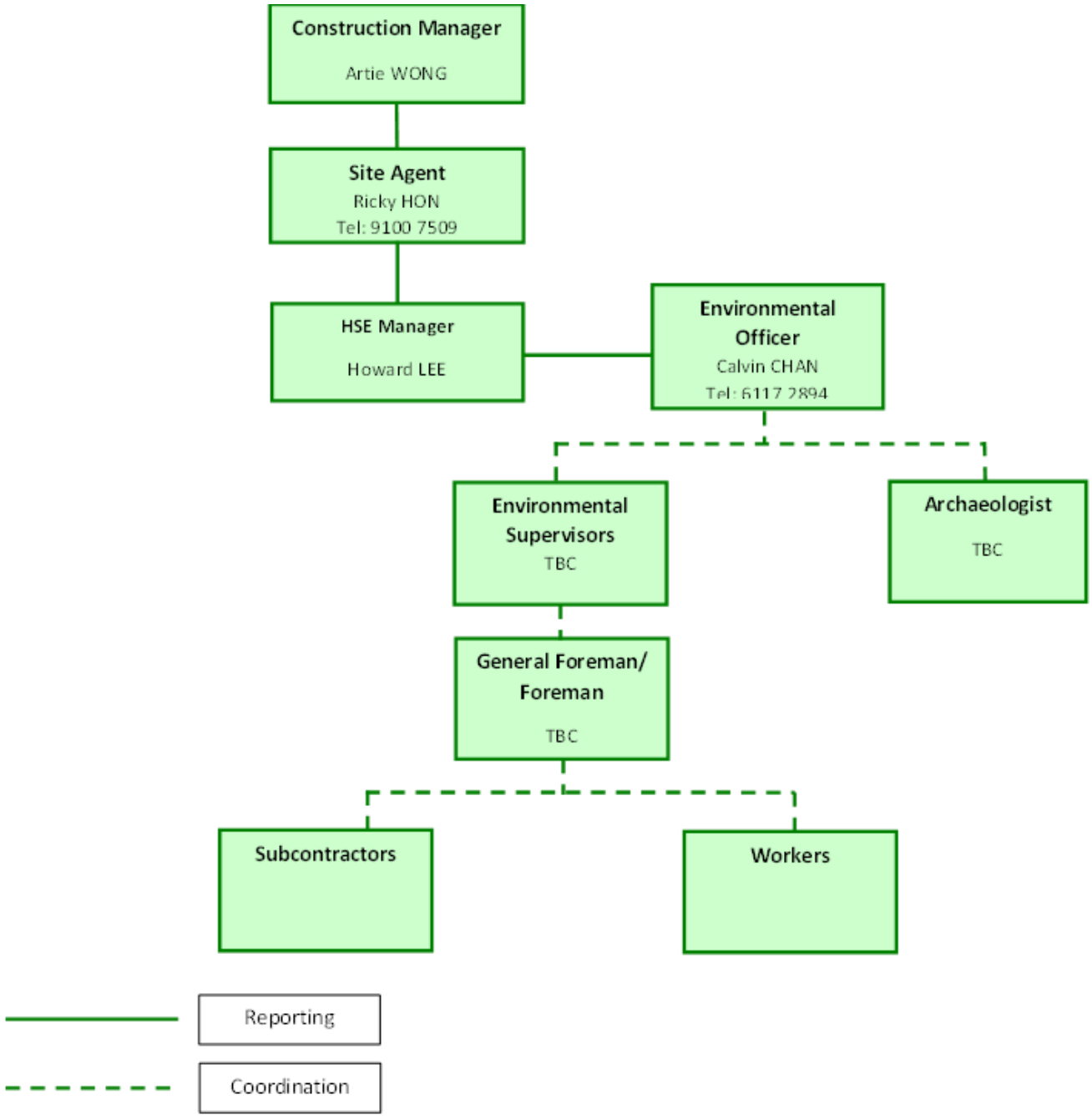
General Foreman and EO/ES will conduct weekly site inspections to ensure this WMP is properly followed. In addition to internal audit will be performed to review the effectiveness on the implementation of this WMP:-

- Internal audits will be performed in line with the WMP by an experienced senior staff.
- Audits will be planned to by Environmental Officer determine when and where to audits which are scheduled on the basis of the status and importance of the activity
- Audit comprises of document review, site inspection and discussion with responsible person, so as to address all key elements of the WMP and implementation of procedures and maintenance of records
- Environmental Officer will monitor the status of completion of the follow-up action programme after internal auditing
- Result of audits will be taken into account for management review for reviewing the implementation status and the effectiveness of the audit system

The waste (generated from construction activities) handling procedures documented in this stand-alone WMP will be incorporated into the Environmental Management Plan and the effectiveness of waste management and implementation of trip ticket system will be discussed and reviewed during the SSEMC and SSEC meetings on monthly basis.

APPENDIX 1

PROJECT ENVIRONMENTAL ORGANISATION CHART OF BUILD KING – RICHWELL CIVIL JOINT VENTURE (BKRJV) FOR WASTE MANAGEMENT



Noted: to be update when necessary

APPENDIX 2

C&DM DISPOSAL PROGRAMME (ESTIMATION FOR THE WHOLE PROJECT PERIOD)

Forecast of Total Quantities of C&D Materials to be Generated from the 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	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 '000kg)	(in '000kg)	(in '000kg)	(in '000kg)	(in '000m^3)
87.257	3.000	24.275	11.000	31.400	17.582	0.000	0.000	0.000	0.000	10.000

Notes:
(1) The performance targets are given in PS clause 25.24
(2) The waste flow table shall also include C&D materials that are specified in the Contract to be imported for use at the Sites
(3) Plastics refer to plastic bottles/ containers, plastic sheets/ foam from packaging materials
(4) The summary table shall be submitted to the *Project Manager*/ *Supervisor* monthly together with the Waste Flow Table for review and monitoring in accordance with the PS Clause 25.24

APPENDIX 3

MONTHLY SUMMARY OF WASTE FLOW TABLE AND SUMMARY TABLE FOR USE OF TIMBER IN TEMPORARY WORKS

Name of Department: ArchSD/CEDD/DSD/EMSD/HyD/WSD Contract No.: _____

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											

Summary Table for Work Processes or Activities Requiring Timber for Temporary Works

Contract No.: _____

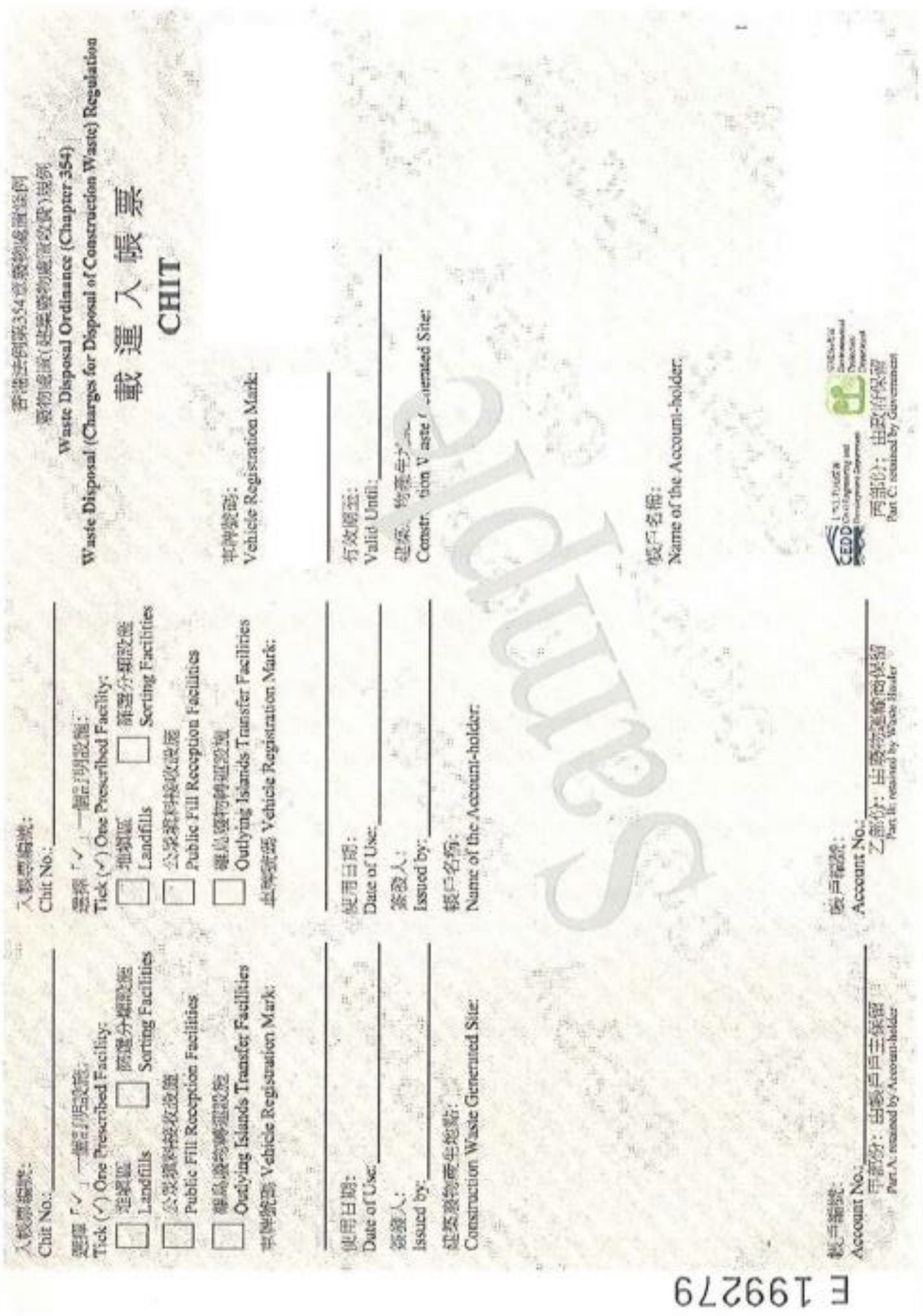
Contract Title: _____

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:
(1) 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.
(2) The summary table shall be submitted to the Engineer's Representative monthly together with the Waste Flow Table for review and monitoring in accordance with the PS Clause 25.24.

APPENDIX 4

SAMPLE OF CHIT AND DAILY SUMMARY RECORD



入帳票編號:
Chit No.:

選擇「✓」一個訂明設施:
Tick (✓) One Prescribed Facility:
☐ 堆填區 Landfills ☐ 篩選分類設施 Sorting Facilities
☐ 公眾填料接收設施 Public Fill Reception Facilities
☐ 離島廢物轉運設施 Outlying Islands Transfer Facilities
車牌號碼 Vehicle Registration Mark:

使用日期:
Date of Use:
簽發人:
Issued by:
建築廢物產生地點:
Construction Waste Generated Site:

帳戶編號:
Account No.:
甲部份：由帳戶戶主保留
Part A: retained by Account-holder

入帳票編號:
Chit No.:

選擇「✓」一個訂明設施:
Tick (✓) One Prescribed Facility:
☐ 堆填區 Landfills ☐ 篩選分類設施 Sorting Facilities
☐ 公眾填料接收設施 Public Fill Reception Facilities
☐ 離島廢物轉運設施 Outlying Islands Transfer Facilities
車牌號碼 Vehicle Registration Mark:

使用日期:
Date of Use:
簽發人:
Issued by:
帳戶名稱:
Name of the Account-holder:

帳戶編號:
Account No.:
乙部份：由廢物運輸商保留
Part B: retained by Waste Hauler

香港法例第354章廢物處置條例
廢物處置(建築廢物處置收費)規例
Waste Disposal Ordinance (Chapter 354)
Waste Disposal (Charges for Disposal of Construction Waste) Regulation

載運入帳票
CHIT

車牌號碼:
Vehicle Registration Mark:

有效期至:
Valid Until:
建築廢物產生地點:
Construction Waste Generated Site:

帳戶名稱:
Name of the Account-holder:

丙部份：由政府保留
Part C: retained by Government

Sample

E 199279

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"Daily Record Summary" to record daily disposal of construction & demolition (C&D) materials from the Site
[With reference from PS Appendix H6 , Clause 25.25s (6) (A) (ii)]
"每日運載記錄撮要" 記錄每日由地盤所傾卸的拆建物料

Build King – Richwell Civil Joint Venture

(1) Contract no. & Title: 合約編號及名稱 : NL/2020/05 Tung Chung New Town Extension - Site Formation and Infrastructure Works at Ma Wan Chung

(2) Date of disposal 傾卸日期: _____

(3) Disposal ground(s) designated in the Contract or directed by the *Project Manager/ Supervisor* 合約指定項目經理 / 監管人員指示接收設施:

(a) Tuen Mun Area 38 Fill Bank
(b) North East New Territories Landfill
Other 其它 _____

(4) Approved alternative disposal grounds 另可接受的接收設施: _____

CHIT/ DDF no. 載運人帳票/拆建物料運載記錄單編號	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的指定人仕姓名及簽名	Departure time from Site 離開地盤時間	Signature & name of the *Project Manager/ Supervisor*'s supervisory staff before departure or other time as agreed between the *Project Manager/ Supervisor*'s delegate and the Contractor[1] 於離開地盤前或其它經承建商與項目經理 / 監管人員代表同意的時間, 項目經理 / 監管人員代表姓名及簽名		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:
							Name 姓名	To sign as to indicate spot checked dump trucks at exit 經已在出口抽查泥頭車，項目經理 / 監管人員代表簽名			

Part 1[甲部] Part 2[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 *Project Manager / Supervisor*'s delegate] 項目經理 / 監管人員代表姓名及簽名

Post 職位: _____

Date & Time 日期及時間: _____

[1] Part 1 甲部– The Contractor shall complete Part 1 in duplicate and a copy should be kept by the *Project Manager/ Supervisor*'s Representative承建商填寫甲部兩份, 副本由項目經理 / 監管人員代表持有

[2] Part 2 乙部 – The Contractor shall complete Part 2 and submit the whole Summary to the *Project Manager/ Supervisor*'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撮要於記錄上載在環境保護署網頁後1個工作天內呈交給項目經理 / 監管人員代表

Rev.: 07

Title: **Waste Management Plan**
Contract No. NL/2020/05 Tung Chung New Town Extension – Site Formation and Infrastructure Works at Ma Wan Chung

Build King – Richwell Civil Joint Venture

Build King – Richwell Civil Joint Venture

APPENDIX 5

MITIGATION MEASURES

Mitigation Measures in Construction Phase

1.1 The mitigation measures for construction phase are recommended based on the waste management hierarchy principles. Recommendations of good site practices, waste reduction measures as well as the waste transportation, storage and collection are described below.

Good Site Practices

1.2 Adverse waste management implications are not expected, provided that good site practices are strictly implemented. The following good site practices are recommended throughout the construction activities:

- nomination of an approved personnel, such as a site manager, 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 site cleanliness, appropriate waste management procedures and concepts of waste reduction, reuse and recycling;
- provision of sufficient waste disposal points and regular collection for disposal;
- imposition of penalty system on Contractors' improper behaviours when illegal dumping and landfilling outside their respective construction sites, i.e. on nearby farmlands and riverbanks, are reported;
- appropriate measures to minimize windblown litter and dust during transportation of waste by either covering trucks or by transporting wastes in enclosed containers;
- regular cleaning and maintenance programme for drainage systems, sumps and oil interceptors; and
- the contractor should prepare a Waste Management Plan (WMP) as part of the Environmental Management Plan (EMP) in accordance with the ETWB TC(W) No. 19/2005 for construction phase. The EMP should be submitted to the Engineer for approval. Mitigation measures proposed in the EIA Report and the EM&A Manual should be adopted.

Waste Reduction Measures

1.3 Amount of waste generation can be significant reduced through good management and control. Waste reduction is best achieved at the planning and design phase, as well as by ensuring the implementation of good site practices. The following recommendations are proposed to achieve reduction:

- segregate and store different types of waste in different containers, skip or stockpiles to enhance reuse or recycling of materials and their proper disposal;
- proper storage and site practices to minimize the potential for damage and contamination of construction materials;
- plan and stock construction materials carefully to minimize amount of waste generated and avoid unnecessary generation of waste;
- sort out demolition debris and excavated materials from demolition works to recover reusable/recyclable portions (i.e. soil, broken concrete, metal etc.);
- provide training to workers on the importance of appropriate waste management procedures, including waste reduction, reuse and recycling.

1.4 In addition to the above measures, specific mitigation measures are recommended for the specific waste types so as to minimize environmental impacts during handling, transportation and disposal of waste.

Storage, Collection and Transportation of Waste

1.5 Storage of waste on site may induce adverse environmental implications if not properly managed. The following recommendation should be implemented to minimize the impacts:

- waste such as soil should be handled and stored well to ensure secure containment; and
- depends on actual site activities, certain locations within the site area would be used for storage of waste to enhance reuse. However, there would not be any designated location for storage of waste, and the storage locations would need to be adjusted to suite actual site conditions.

1.6 The collection and transportation of waste from works area to respective disposal sites may also induce adverse environmental impacts if not properly managed. The following recommendation should be implemented to minimize the impacts:

- remove waste in timely manner;
- employ the trucks with cover or enclosed containers for waste transportation;
- obtain relevant waste disposal permits from the appropriate authorities; and
- disposal of waste should be done at licensed waste disposal facilities.

1.7 In addition to the above measures, other specific mitigation measures on handling the excavated and C&D materials, chemical waste and materials generated from construction phase are recommended in the following subsections.

C&D Materials

1.8 Wherever practicable, C&D materials should be segregated from other wastes to avoid contamination and ensure acceptability at Public Fill Reception Facilities areas or reclamation sites. The following mitigation measures should be implemented in handling the excavated and C&D materials:

- maintain temporary stockpiles and reuse excavated fill material for backfilling;
- 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, so as to avoid the illegal dumping and landfilling of C&D materials on farmlands/ riverbanks at TCW.

1.9 Details of the recommended on-site sorting and reuse of C&D materials is given below:

On-site Sorting of C&D Materials

1.10 All C&D materials arising from the construction would be sorted on-site to recover the inert C&D materials and reusable and recyclable materials prior to disposal off-site. Non-inert portion of C&D materials should also be reused whenever possible and be disposed of at landfills as a last resort.

1.11 The Contractor would be responsible for devising a system to work for on-site sorting of C&D materials and promptly remove all sorted and processed material arising from the construction activities to minimize temporary stocking on-site. It is recommended that the system should include the identification of the source of generation, estimated quantity, arrangement for on-site sorting and/ or collection, temporary storage areas, and frequency of collection by recycling Contractors or frequency of removal off-site.

Reuse of C&D Materials

1.12 Based on the construction programme, all inert C&D materials would be best reused on-site during the whole construction phase to minimize offsite disposal of inert C&D materials. Should there be any surpluses C&D material necessary for off-site disposal, it is recommended to be disposed at public fill reception facilities.

Use of Standard Formwork and Planning of Construction Materials Purchasing

1.13 Standard formwork should also be used as far as practicable in order to minimize the arising of C&D waste. The use of more durable formwork (e.g. metal hoarding) or plastic facing should be encouraged in order to enhance the possibility of recycling. The purchasing of construction materials should be carefully planned in order to avoid over ordering and wastage.

Provision of Wheel Wash Facilities

1.14 Wheel wash facilities have to be provided at the site entrance before the trucks leaving the works area. Dust disturbance due to the trucks transportation to the public road network could be minimized by such arrangement.

Excavated Contaminated Soil

1.15 Land Contamination issue is subject to site investigation conducted prior to construction. Guidelines/ Recommendations stipulated in land contamination guidelines/manual and other land contamination plans/ reports are required to be implemented prior to the construction phase to minimize any potential exposure to contaminated soils or groundwater.

Chemical Waste

1.16 For those processes which generated chemical waste, it may be possible to find alternatives to eliminate the use of chemicals, to reduce the generation quantities or to select a chemical type of less impact on environment, health and safety as far as possible.

1.17 If chemical wastes are produced at the construction site, the Contractors should register with EPD as chemical waste producers. Chemical wastes should be stored in appropriate containers and collected by a licensed chemical waste collector. Chemical wastes (e.g. spent lubricant oil) should be recycled at an appropriate facility as far as possible, while the chemical waste that cannot be recycled should be disposed of at either the CWTC, or another licensed facility, in accordance with the Waste Disposal (Chemical Waste) (General) Regulation.

General Refuse

1.18 General refuse should be stored in enclosed bins separately from construction and chemical wastes. Recycling bins should also be placed to encourage recycling. Preferably enclosed and covered areas should be provided for general refuse collection and routine cleaning for these areas should also be implemented to keep areas clean. A reputable waste collector should be employed to remove general refuse on a regular basis. It is expected that such arrangements would minimize potential environmental impacts.

APPENDIX 6

IMPLEMENTATION SCHEDULE OF MAJOR WASTE MANAGEMENT MEASURES

Environmental Mitigation Implementation Schedule - Tung Chung New Town Extension

EIA Ref.	EM&A Log Ref	WMP Section/ Clause Ref.	Recommended Mitigation Measures	Objectives of the Recommended Measures & Main Concerns to address	Implementation Agent	Location / Timing	Implementation Stage	Requirements and / or standards to be achieved
Waste Management (Construction Waste)								
S7.4.1	WM1		Good Site Practices The following good site practices are recommended throughout the construction activities: • nomination of an approved personnel, such as a site manager, 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 site cleanliness, appropriate waste management procedures and concepts of waste reduction, reuse and recycling; • provision of sufficient waste disposal points and regular collection for disposal; • imposition of penalty system on Contractors' improper behaviours when illegal dumping and landfilling outside their respective construction sites, i.e. on nearby farmlands and riverbanks, are reported; • appropriate measures to minimise windblown litter and dust during transportation of waste by either covering trucks or by transporting wastes in enclosed containers; • regular cleaning and maintenance programme for drainage systems, sumps and oil interceptors; and • the contractor should prepare a Waste Management Plan (WMP) as part of the Environmental Management Plan (EMP) in accordance with the ETWB TC(W) No. 19/2005 for construction phase. The EMP should be submitted to the Engineer for approval. Mitigation measures proposed in the EIA Report and the EM&A Manual should be adopted. • Recyclable materials such as steel mesh, reinforcement bars, window frames, railing, banisters, and wooden planks will be separated from other C&DM and either be reused on site or re-sale for recycle. • Dry concrete waste, including broken concrete from demolition works, will be sorted out from the other wastes for reuse in site temporary road construction, as far as practicable.	Minimize waste generation during construction	Contractor	All construction sites	Construction stage	• Waste Disposal Ordinance
		2.1 4.5.1 App. 5 - 1.5 & 1.6 4.3 App. 5 - 1.6 App. 5 - 1.2 App. 5 - 1.2 4.4 4.4.1						

Environmental Mitigation Implementation Schedule - Tung Chung New Town Extension

EIA Ref.	EM&A Log Ref	WMP Section/ Clause Ref.	Recommended Mitigation Measures	Objectives of the Recommended Measures & Main Concerns to address	Implementation Agent	Location / Timing	Implementation Stage	Requirements and / or standards to be achieved
Waste Management (Construction Waste)								
S7.4.1	WM2	4.4 4.4 App. 5 - 1.11 4.4.1 4.5.1	Waste Reduction Measures Waste reduction is best achieved at the planning and design phase, as well as by ensuring the implementation of good site practices. The following recommendations are proposed to achieve reduction: • segregate and store different types of waste in different containers, skip or stockpiles to enhance reuse or recycling of materials and their proper disposal; • proper storage and site practices to minimize the potential for damage and contamination of construction materials; • plan and stock construction materials carefully to minimize amount of waste generated and avoid unnecessary generation of waste; • sort out demolition debris and excavated materials from demolition works to recover reusable/recyclable portions (i.e. soil, broken concrete, metal etc.); • provide training to workers on the importance of appropriate waste management procedures, including waste reduction, reuse and recycling.	Reduce waste generation	Contractor	All construction sites	Construction stage	• Waste Disposal Ordinance
S7.4.1	WM3	4.4 App. 5 - 1.5, 1.17 & 1.18	Storage of Waste The following recommendation should be implemented to minimize the impacts: • waste such as soil should be handled and stored well to ensure secure containment; and • Depends on actual site activities, certain locations within the site area would be used for storage of waste to enhance reuse. However, there would not be any designated location for storage of waste, and the storage locations would need to be adjusted to suite actual site conditions;	Good site practice to minimize the waste generation and recycle the C&D materials as far as practicable so as to reduce the amount for final disposal	Contractor	All construction sites	Construction stage	• Land (Miscellaneous Provisions) Ordinance • Waste Disposal Ordinance • ETWB TCW No. 19/2005

EIA Ref.	EM&A Log Ref	WMP Section/ Clause Ref.	Recommended Mitigation Measures	Objectives of the Recommended Measures & Main Concerns to address	Implementation Agent	Location / Timing	Implementation Stage	Requirements and / or standards to be achieved
Waste Management (Construction Waste)								
S7.4.1	WM4	4.4 App. 5 - 1.6 1.5 3.2 5.3	Collection and Transportation of Waste The following recommendation should be implemented to minimize the impacts: • remove waste in timely manner; • employ the trucks with cover or enclosed containers for waste transportation; • obtain relevant waste disposal permits from the appropriate authorities; and • disposal of waste should be done at licensed waste disposal facilities. • all dump trucks engaged on site will be equipped with Global Positioning System (GPS) for monitoring of travel routings and parking locations to prohibit illegal dumping and landfilling of C&D materials • Geo-fencing Zone, GPS data such as Travelling routes, Travelling time for every delivery via the Automatic Notification System will be recorded. • GPS data with the Trip Ticket System of corresponding chit number/ DDF number, vehicle number, truck build-in weight record, recorded weight of the transaction (Government Facility) or other accepted/ designated disposal ground will be consolidated. • real-time position of the trucks can be tracked on the web-based application • The GPS monitoring system will automatically generate alert through email to the relevant parties (e.g. ET, IEC, Project Manager, contractor, surveillance team, etc.) if dump truck does not reach designated disposal locations after leaving the project site at the end of each working day for follow up on any suspected irregularity and illegal dumping situation.	Minimize waste impacts from storage	Contractor	All construction sites	Construction stage	• Waste Disposal Ordinance

Environmental Mitigation Implementation Schedule - Tung Chung New Town Extension

EIA Ref.	EM&A Log Ref	WMP Section/ Clause Ref.	Recommended Mitigation Measures	Objectives of the Recommended Measures & Main Concerns to address	Implementation Agent	Location / Timing	Implementation Stage	Requirements and / or standards to be achieved
Waste Management (Construction Waste)								
S7.4.1	WM5	App. 5 - 1.8 App. 5 - 1.10 & 1.11 App. 5 - 1.8 5.1 4.3	Excavated and C&D Materials Wherever practicable, C&D materials should be segregated from other wastes to avoid contamination and ensure acceptability at public fill reception facilities or reclamation sites. The following mitigation measures should be implemented in handling the excavated and C&D materials: • maintain temporary stockpiles and reuse excavated fill material for backfilling; • 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, so as to avoid the illegal dumping and landfilling of C&D materials on farmlands/ riverbanks at TCW; The recommended C&D materials handling should include: • On-site sorting of C&D materials • Reuse of C&D materials • Use of Standard Formwork and Planning of Construction Materials purchasing • Maximizing the use of excavated material to other sites and will be transported to alternative disposal ground for reuse.	Minimize waste impacts from excavated and C&D materials	Contractor	All construction sites	Construction Stage	• Land (Miscellaneous Provisions) Ordinance • Waste Disposal Ordinance • ETWB TCW No. 19/2005 • Project Administrative Handbook for Civil Engineering Works, 2012 Edition
S7.4.1	WM6	App. 5 - 1.14	Provision of Wheel Wash Facilities Wheel wash facilities have to be provided at the site entrance before the trucks leaving the works area. Dust disturbance due to the trucks transportation to the public road network could be minimized by such arrangement.	Minimize waste impacts from trucks transportation	Contractor	All construction sites	Construction Stage	N/A

EIA Ref.	EM&A Log Ref	WMP Section/ Clause Ref.	Recommended Mitigation Measures	Objectives of the Recommended Measures & Main Concerns to address	Implementation Agent	Location / Timing	Implementation Stage	Requirements and / or standards to be achieved
Waste Management (Construction Waste)								
S7.4.1	WM7	4.4 & App. 5 - 1.15	Excavated Contaminated Soil Guidelines/ Recommendations in land contamination assessment guidelines/ manual and land contamination plans/ reports are required to be implemented prior to the construction phase to minimise any potential explosure to contaminated soils or groundwater.	Remediate contaminated soil	Contractor	All construction sites where applicable	Prior to the Construction stage	Guidance Note for Contaminated Land Assessment and Remediation, Practice Guide for Investigation and Remediation of Contaminated Land, Guidance Manual for Use of Risk-based Remediation Goals for Contaminated Land Management
S7.4.1	WM10	3.1.4, 4.4.2, App. 5 - 1.16 & 1.17	Chemical Waste If chemical wastes are produced at the construction site, the Contractors should register with EPD as chemical waste producer. Chemical wastes should be stored in appropriate containers and collected by a licensed chemical waste collector. Chemical wastes (e.g. spent lubricant oil) should be recycled at an appropriate facility as far as possible, while the chemical waste that cannot be recycled should be disposed of at either the Chemical Waste Treatment Centre, or another licensed facility, in accordance with the Waste Disposal (Chemical Waste) (General) Regulation.	Control the chemical waste and ensure proper storage, handling and disposal.	Contractor	All construction sites	Construction stage	Waste Disposal (Chemical Waste) (General) Regulation Code of Practice on the Packaging, Labelling and Storage of Chemical Waste
S7.4.1	WM11	4.4.1 & App. 5 - 1.18 App. 5 - 1.18 4.4.1 & App. 5 - 1.18	General Refuse • General refuse should be stored in enclosed bins separately from construction and chemical wastes. Recycling bins should also be placed to encourage recycling. • Preferably enclosed and covered areas should be provided for general refuse collection and routine cleaning for these areas should also be implemented to keep areas clean. • A reputable waste collector should be employed to remove general refuse on a daily basis.	Minimize production of the general refuse and avoid odour, pest and litter impacts	Contractor	All construction sites	Construction stage	• Waste Disposal Ordinance

APPENDIX 7

METHOD STATEMENT FOR STOCKPILING AND TRANSPORTATION OF EXCAVATED MATERIALS AND OTHER CONSTRUCTION WASTES

Method Statement for Stockpiling and Transportation of Excavated Materials and Other Construction Waste

1. Scope of Work

In accordance with Section 4.3 of the EM&A Manual, a method statement for stockpiling and transportation of excavated materials and other construction wastes should be included in the Waste Management Plan (WMP) and shall be approved before the commencement of construction work. This method statement describes the followings:

- Stockpiling
- Transportation of Excavated Materials
- Transportation of Other Construction Waste

2. Construction Sequence of Works

2.1 Stockpiling

- The excavated material generated from excavation will consist of soil, rock and concrete debris materials which will , as far as practicable, be reused on-site for the backfilling works.
- Excavated material will be generated from site formation work, slope excavation work, foundation work, underground services works and any temporary works for excavation. Any surplus excavated material will be temporarily stored in a designated area and would be engaged for backfilling.
- The spoil will be stored in 2 m high maximum and the slope surface will be kept in 1:2 as far as possible.
- When amber rainstorm signal or higher is hoisted, protective measures would be provided on slope surface against rainwater such as covered with tarpaulin or plastic sheet, erecting the temporary shelter, additional of pumps to drain out rainwater, etc.

2.2 Transportation of Excavated Materials

- Excessive excavated material will be transported to other sites (alternative disposal ground) for reuse as approved by the *Project Manager/ Supervisor*; whilst the ET, IEC and EPD would be informed.
- The excavated material will be wet or covered by tarpaulin sheeting when it is dry in order to control dust suppression in work area.
- Truck(s) loaded with excavated materials would be covered with mechanical cover before leaving the site in order to prevent dust emission.
- For the transportation of excavated materials, BKRCJV will implement and comply with the

requirements of the Trip-Ticket System (TTS) stipulated in Development Bureau Technical Circular (Works) No. 6/2010. A standalone Site Management Plan for implementation of Trip-Ticket System (SMPTTS) will be established which should be reviewed and updated on monthly basis.

2.3 Transportation of Other Construction Waste

General refuse and C&DM

- Non-recyclable, non-inert C&DM and general refuse, which mainly consists of food waste , aluminum cans, waste paper, and demolition waste will be generated from construction activities , workers and the site office.
- The C&DM will be temporarily stored, and containers or skips will be provided for temporary waste storage to prevent odour, pest and windblown litter.
- Office waste will be reduced through the recycling of paper. Sacks for waste paper and baskets for reusable papers will be provided in the Site office. General refuse including food and domestic waste will be stored in enclosed bins or compaction units separate from the construction and chemical wastes. Lunch boxes, plastic bottles, containers, plastic sheets and foam will be sorted and stored in separately labeled bins, as far as possible, for subsequent recycling as far as practicable. Reputable recycle contractors will be employed to collect recyclable materials. The amount of waste recycled will be recorded, controlled and monitored through the maintenance of WFT.
- The general refuse and the non-recyclable C&DM will be collected and disposed of on a regular basis to minimize the likelihood of odour, pests and litter. They will be transported and disposed of by a licensed waste hauler. A trip-ticket system to trace the transportation and destination of the waste will be implemented and burning of refuse on the site will be strictly prohibited.

Chemical Waste

- For chemical waste produced by a process, as defined by Schedule 1 of the Waste Disposal (Chemical Waste) (General) Regulation, chemical Waste Producer registration will be made.
- Chemical wastes are likely to be generated during maintenance of plant and equipment, painting work and these may include spent filter cartridges containing heavy metals, asbestos waste, spent batteries, used mechanical oil, cleaning fluid, spent solvents, lubricating oil and paints and paint containers.
- All chemical wastes generated on site will be stored and labeled in accordance with the Code of Practice on the Packaging, Labeling and Storage of Chemical Waste published by EPD.

All workers involved in the handling of chemical waste will be trained properly and will be provided with appropriate personal protective equipment.

- The sorting and segregation of chemical waste will be carried out on site to ensure the waste is appropriately handled, labeled and treated prior to disposal off-site. The recoverable chemical wastes such as oil, paint and solvent, will be separated from other chemical wastes and an EPD licensed chemical waste collector will be employed to collect the chemical waste.
- Chemical waste will be stored at designated storage areas in accordance with the Code of Practice on the Packaging, Labeling and Storage of Chemical Waste. The containers to be used for the storage of chemical waste will:
  - be suitable for the substance they are holding, resistant to corrosion and be maintained in a good condition and kept securely closed
  - have a capacity of less than 450L 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.
- The storage area for chemical waste will:
  - be clearly labeled and used solely for the storage of chemical waste；
  - be enclosed on at least three sides；
  - have an impermeable floor and be bunded to accommodate 110% of the volume of the largest container or 20% by volume of the chemical waste stored in that area, whichever is greater；
  - 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.

A licensed waste collector will be employed to deliver the chemical waste to legal treatment facilities, i.e. Chemical Waste Treatment Facility located at Tsing Yi. The trip ticket system will be strictly implemented to ensure the chemical waste is transported by and to proper agents. Trip tickets issued for every chemical waste collection will be retained and filed for future reference and inspection.

Attachment II

Waste Management Plan for

Contract No. NL/2020/06

Tung Chung New Town Extension –

Site Formation and Infrastructure Works at Tung Chung Valley, Phase 1

Civil Engineering and Development Department
The Government of the Hong Kong Special Administrative Region

WASTE MANAGEMENT PLAN

G	23/02/22	Simon Mak	Gregory Lo
Rev	**Date**	**Prepared By** Environmental Officer	**Approved By** Project Manager

Contents

List of Appendices

Abbreviations List

C&D	Construction & Demolition
CEDD	Civil Engineering and Development Department
CM	Construction Manager
CHIT	Disposal Delivery Form
DSD	Drainage Services Department
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
PFRF	Public Fill Reception Facility
PM	Project Manager (CREC)
PMR	Project Manager (ARUP)
SA	Site Agent
TTS	Trip Ticket System
WAC	Waste Acceptance Criteria
WFT	Waste Flow Table
WMP	Waste Management Plan

1. PROJECT DESCRIPTION

This Waste Management Plan (WMP) is developed China Railway Group Limited (known as CREC) in the execution of the following works. Environmental Permit (EP-519/2016) of this Project has been issued by Environmental Protection Department and the Waste Management Plan is to be prepared under EP Condition 2.24.

The works to be executed under the contract involve site formation and infrastructure works at Tung Chung Valley under Tung Chung New Town Extension (Contract No.: NL/2020/06). The date of commencement of construction work scheduled on 11 October 2021 and the works as described below:

(a) Site clearance (including, but not limited to, the demolition of the existing building structures);

(b) Site formation works for Area 42 and Area 46 with associated geotechnical works;

(c) Improvement works for Chung Mun Road and Shek Mun Kap Road with associated infrastructural and geotechnical works;

(d) Provision of infrastructural works at Yu Tung Road;

(e) Construction of Road L29 and Road L30 with associated infrastructural and geotechnical works;

(f) Provision of attenuation & treatment ponds;

(g) Provision of a Common Utility Trough and box culvert along Road L29;

(h) Provision of Pumping Stations;

(i) Construction of a proposed River Park with Visitor Centre, footbridge across river and other associated facilities;

(j) Provision of roadside Sustainable Urban Drainage Systems (SUDS) features;

(k) River de-channelization works;

(l) Construction of noise barriers;

(m) Woodland Compensation;

(n) Associated landscaping works;

(o) Tree felling, transplanting and compensatory planting works;

(p) Ground investigation, geotechnical and building instrumentation monitoring works; and

(q) Other works which are shown on the Drawings or specified in the Specifications.

No land formation works and surcharge operations are included in this project.

1.1 Purpose of the Plan

This Waste Management Plan (WMP) aims to describe the arrangements for avoidance, minimisation, 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 with mitigation measures.

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 CREC's management;
(c) Establishing the waste management procedures for avoidance, minimisation, material reuse/recovery/recycling, collection, transportation, storage and disposal of wastes generated from the activities.

1.2 Waste Management Policy

To demonstrate CREC's commitment on the continual improvement of our waste management performance, an Integrated Management Policy includes the waste management has been established. It aims to communicate CREC's 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 policy will be reviewed by relevant parties periodically and will be displayed on notice board for the workforce.

The Environmental Policy Statement is listed below:

中國中鐵股份有限公司
CHINA RAILWAY GROUP LIMITED

Environmental Management Policy

CHINA RAILWAY GROUP LTD. (the Company) is conscious of the need and states intention to strive, through self-management, to ensure that the Client's contractual and statutory requirements under any contract is satisfactorily fulfilled in terms of environmental aspects on a planned and systematic manner. The Company intends to commit to meeting client requirements and increasing client satisfaction through maintaining the environment of continual development and improvement of its products, services, and effectively communicating the policy to the relevant parties working for or on behalf of the Company.

The Company commits to continually improve its environmental performance and, ultimately, to minimize or even prevent any environmental impacts of its operations, activities, products, and services. The Company will identify materials, processes, products and wastes that cause or may cause pollution, and will implement measures to avoid, reduce or control pollution where technically and economically viable. Also, the Company will comply with applicable environmental laws, regulations, codes of practice, and other requirements which relate to the environmental aspects to which the company subscribes. To achieve and maintain compliance, the Company will develop and maintain management systems for identifying relevant requirements and for monitoring performance of related activities.

The management and process objectives are used as appropriate to the nature of work in order to monitor the effectiveness of the Environmental Management System and express the commitment to continual improvement.

To achieve these objectives, the Company establishes and operates a formal Environmental Management System that fully complies with the requirements of ISO 14001: 2015 as described in this Manual.

Every single individual working for or on behalf of the Company should understand and follow this System.

This Management System covers the following:

- **Construction of civil engineering works (site formation, roads and drainage, waterworks)**
- **Design and construction of civil engineering works (roads)**
- **Design and construction of bored piling and H-piling works**
- **Construction of landslip preventive and remedial works to slopes and retaining walls**

2. REGULATIONS AND GUIDELINES

2.1 General

Various types of wastes would be generated during the course of the Project (Contract No.: NL/2020/06) 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 summarised in the sections below.

2.2 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:

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

2.2.1 The Waste Disposal Ordinance (WDO)

The Waste Disposal Ordinance (WDO) prohibits the unauthorised disposal of waste. Construction waste is not directly 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.

2.2.2 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 utilising 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.

2.2.3 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.

2.2.4 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.

2.2.5 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 unauthorised (unlicensed) sites.

2.2.6 Related Licence and Permits

CREC 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 354C);
- 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 354N).

2.3 Non-Statutory Regulations

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

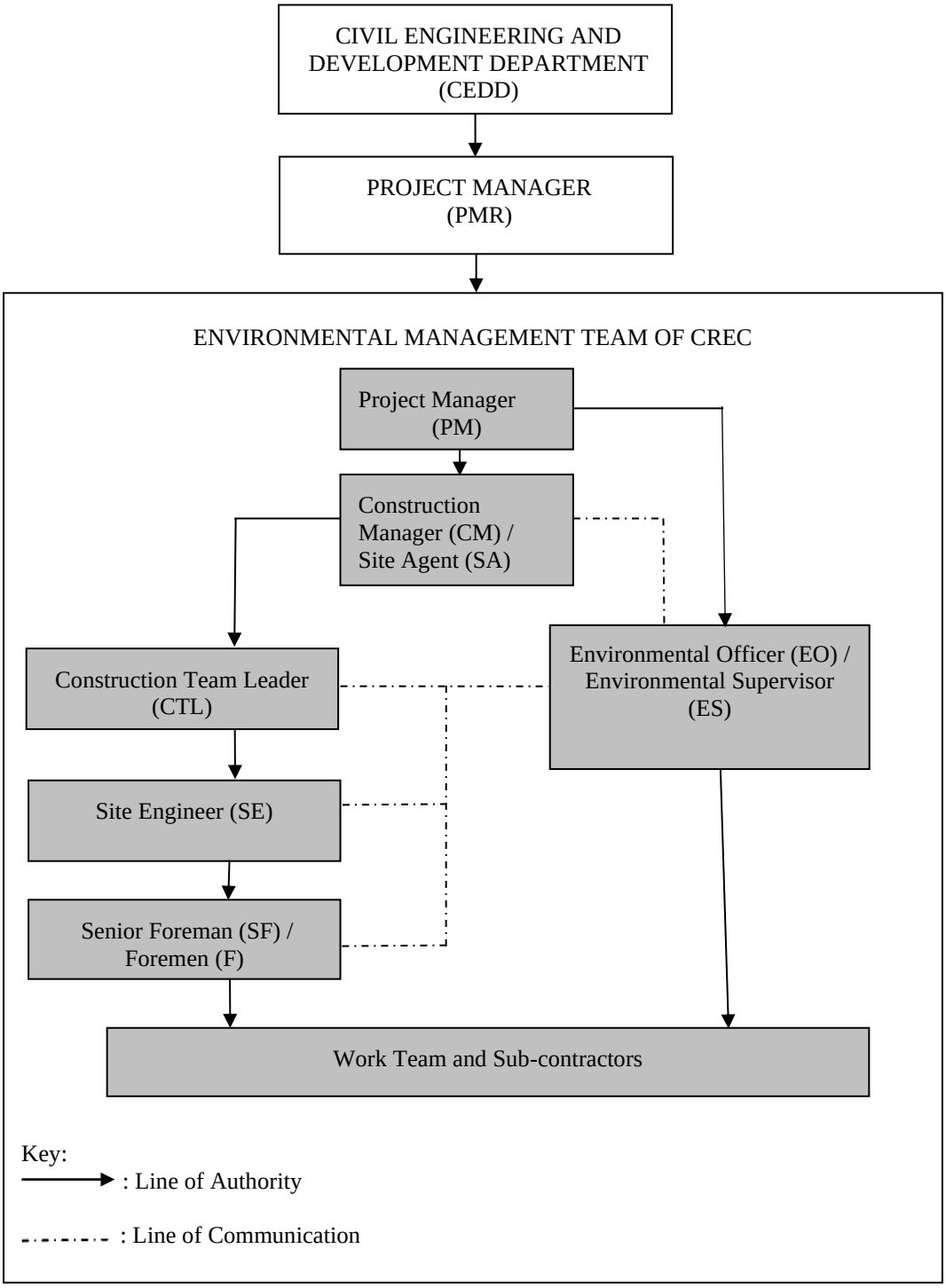
- Waste Disposal Plan for Hong Kong (1989), Planning, Environmental and Lands Branch Government Secretariat;
- Environmental Guidelines for Planning in Hong Kong. Hong Kong Planning Standards and Guidelines (1990);
- New Disposal Arrangements for Construction Waste, EPD and CEDD (1992);
- Code of Practice 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;
- Works Branch Technical Circular No. 29/2000, Waste Management Plan, Works Bureau, HKSAR Government;
- Environment, Transport and Works Bureau Technical Circular (Works) (PAH Chapter 4 Section 4.1.3), Management of Dredged/Excavated Sediment, Environment, Transport and Works Bureau, HKSAR Government;
- Works Branch Technical Circular (PAH Chapter 4 Section 4.13 & Appendix 4.14), 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;
- Works Bureau Technical Circular No. 25/99, 25/99A and 25/99C, Incorporation of Information on Construction and Demolition Material Management in Public Works Sub-committee Papers, Works Bureau, HKSAR Government;
- A Guide to the Registration of Chemical Waste Producers; and
- A Guide to the Chemical Waste Control Scheme.
- Works Bureau Technical Circular No. 6/2010, Trip-ticket System for Disposal of Construction and Demolition Materials.
- Environmental, Transport and Works Bureau Technical Circular (Works) No. 19/2005, Environmental Management on Construction Sites
- Hong Kong Planning Standards and Guidelines (2020)

3. PROJECT ORGANISATION

The Project Environmental Management Organisation Chart depicting the functional inter-relationship of personnel is shown in **Figure 3.1**. The purpose of this is to clearly indicate the managerial control, the reporting structure and the interface relationship between all parties involved in the Trip Ticket System (TTS) issue prior to issue of the disposal record to the Project Manager (PMR).

Figure 3.1: Organisation Structure for Environmental Management Team of CREC



Duties and Responsibilities

The environmental roles and responsibilities are summarised in the following table:

Title	Responsibilities
Project Manager (PM) / Construction Manager (CM) / Site Agent (SA) / Construction Team Leader (CTL) / Site Engineer (SE)	• Responsible for ensuring commitment to environmental performance is fulfilled and assigning adequate resources and facilities to provide an effective implementation of waste management on site; • Attend the Site Safety & Environmental Committee (SSEC) Meeting if required; • With the assistance of the Environmental Officer, oversee the implementation and performance of the WMP; • Responsible for all site operations, staff supervision, control, coordination & planning, external liaison as well as implementing and monitoring necessary corrective actions; • Carry out immediate action to rectify any non-compliance of this WMP as well as handle any complaints received; and • Ultimately responsible for the company's environmental performance on site.
Environmental Officer (EO) or the Assigned Person	• Overall coordination, monitoring and overseeing the performance and implementation of the WMP for the Contract and directly reports to the PM/CM/SA; • Review and revised the Waste Management Plan 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 suggest remedial action; • Update the monthly summary of Waste Flow Table (WFT); • Update the monthly summary of Use of Timber; • Record regarding the handling of chemical wastes; • Record regarding the disposal of all construction and demolition waste to public filling area and landfills; • Co-ordinate with Environmental Team to ensure waste management issues are properly handled; and • Attend the Site Safety & Environmental Committee (SSEC) Meeting.
Environmental Supervisor (ES)	• Responsible for the implementation of this Waste Management Plan with the assistance of the Senior Foreman / Foreman; • Assist the EO to rectify any non-conformances being identified; • Responsible for collecting chit records to update the Daily Record Summary (DRS);

	• Attend environmental meetings whenever necessary; • Assist with EO on any environmental matter; • Carry out ad-hoc environmental inspections to identify deficiencies on site; and • Attend the Site Safety & Environmental Committee (SSEC) Meeting.
Site Engineer (SE)	• Coordinate with the EO regarding the implementation of all appropriate waste mitigation measure; and • Report to the PM/CM/SA/EO regarding any non-compliance of waste management plan.
Senior Foreman (SF) / Foreman (F)	• Responsible for implementing and overseeing the operation of the TTS Implementing and overseeing the operation of the TTS including but not limited to fill in and sign Part 1 of the Daily Record Summary (DRS) properly before departure of the truck; • To man each exit from the site to ensure each dump truck carrying C&D materials bears duly completed, signed/stamped DDF; • Assisting in the daily implementation of the Waste Management Plan including to ensure all waste is sorted, segregated, recycled or reused when applicable; • Ensuring waste is avoided and/or minimised as much as practically possible; • Signed the CHIT after ensuring the trucks leaving the site are all compliance the requirement; and • Ensuring the Waste Management Plan is followed and all appropriate paperwork to be collected and signed off.
Workers	• To carry out the waste management practice; • Sorting of different types of wastes; • Collection of wastes from each working site to the temporary storage area / fill banks / landfills; • General site cleaning; • Attend waste management training organized by the EO; and • To follow the Waste Management Plan.
Sub-contractors	• Follow and implement this Waste Management Plan measure on site; • Report non-compliance to CREC; • Keep the site cleaning; • Attend Site Safety & Environmental Committee (SSEC) meeting; and • Follow the corrective and/or preventive action suggested by CREC.

4. IDENTIFY THE WASTE ARISING FROM THE PROJECT

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

- Non-Inert C&D waste (Including, waste wooden boards, non-recyclable plastic, empty container and packaging) & General refuse;
- Inert C&D Waste (including, broken concrete, asphalt, bricks, sand, aggregate);
- Yard Waste (Tree Trunks and Branch)
- Chemical waste;
- Recyclable waste (Metallic waste, recyclable plastic, cardboard and paper packaging)

4.1 Analysis of Waste Generation

Different types and quantities of waste will be generated throughout the construction activities and daily operation of the construction site. The major construction activities and the associated waste generating operations are identified as follows:

- Excavated materials (Inert C&D Waste)
- Site clearance, preparation establishment (Inert C&D Waste & Yard Waste)
- Scrap metals from piling construction and demolition (Metal)
- Timber from temporary work construction (Non-inert C&D Waste, and General Refuse)
- Debris from demolition (Inert C&D Waste)

Slurry/bentonite, hazardous waste and excavated sediments are not expected to generated through the project.

Table 4.1 Proposed Types of Waste and Disposal Outlet

Type of Waste		Generated from Project (m^3/kg/Tonnes/L)	Activities will generate	Re-used / recycle on site/on other Projects	Target recycling rate	Disposal (m^3/kg/Tonnes/L)	Proposed Disposal Outlet
Inert C&D Waste		80500T	Site formation works / Excavation works	20500 T	25.5%	60000 T	Alternative Disposal Ground (Other Project) / Tuen Mun Area 38 Fill Bank
Non-inert C&D Waste		315 T	Site formation works	0	0%	315 T	NENT Landfill
Non-inert - General Refuse		185 T	Employee's daily life	0	0%	185 T	NENT Landfill
Yard Waste		270T	Tree felling and pruning	0.27T	0.1%	269.73 T	Shredding Facility of the EPD/NENT Landfill
Chemical waste		400L	Machine maintenance, renovation work.	200L	50%	200L	Licensed Collector (ECO Space Limited/CWTC)
Recyclable waste	Metal	1000T	H-pile, sheet-pile, Rebar	600 T	60%	400 T	Baguio Waste Management & Recycling Limited Phone: 34436315 Email: waste@baguio.com.hk
	Plastic	300 kg	Waste water Barrier/plastic railing, plastic bottle	180 kg	60%	120 kg	Baguio Waste Management & Recycling Limited Phone: 34436315 Email: waste@baguio.com.hk
	Paper / Cardboard	500kg	Packaging, Site office	300kg	60%	200 kg	Baguio Waste Management & Recycling Limited Phone: 34436315 Email: waste@baguio.com.hk
	Glass	50kg	Waste glass, bottle	30kg	60%	20 kg	Baguio Waste Management & Recycling Limited Phone: 34436315 Email: waste@baguio.com.hk

Table 4.2 Generation schedule of both inert and non-inert C&D waste

Type of fill	2021	2022	2023	2024	2025	Total
Inert C&D - Disposal (m^3)	0	0	50000	10000	0	60000
Inert C&D - Re-used / recycle site/on other Projects (m^3)	1000	10000	8000	1500	0	20500
Non-Inert C&D -Disposal (Ton)	30	140	70	70	5	315
Non-Inert General Refuse -Disposal (Ton)	20	60	50	50	5	185

5. RECYCLING RATE TARGET

The following performance targets shall be achieved:

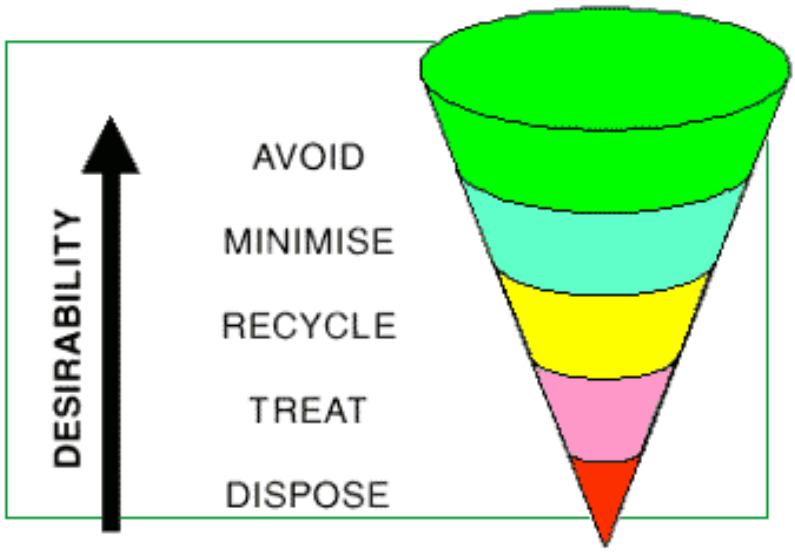
- 60% recovery of metallic waste;
- 60% recovery of non-contaminated paper and cardboard;

6. SITE SPECIFIC WASTE MANAGEMENT

6.1 Waste Policy Principles

Key to waste management is to reduce the amount of waste generated from the work site. The hierarchy of waste management 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 minimising over ordering or misuse of construction materials. Thereafter, encourage reuse and recycling of construction waste. The overall objective is to reduce and minimise 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

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

6.2 Waste Management Hierarchy

The waste management hierarchy will be applied and development of mitigation measures for waste which aims at evaluating the desirability of waste management methods and includes the followings in descending preference:

- Avoidance and reduction of waste generation;
- Reuse of materials as far as practicable;
- Recovery and recycling of residual materials where possible; and
- Treatment and disposal according to relevant laws, guidelines and good practices.

The waste management measures are presented in the next section and the implementation schedule is shown in Appendix D. The site layout plan of the waste management facilities is shown in Appendix E.

6.3 Good Site Practices

The following good site practices are recommended throughout the construction activities

- nomination of an approved personnel, such as a site manager, 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 site cleanliness, appropriate waste management procedures and concepts of waste reduction, reuse and recycling;
- provision of sufficient waste disposal points and regular collection for disposal;
- imposition of penalty system on CREC's improper behaviours when illegal dumping and landfilling outside their respective construction sites, i.e. on nearby farmlands and riverbanks, are reported;
- appropriate measures to minimise windblown litter and dust during transportation of waste by either covering trucks or by transporting wastes in enclosed containers;
- regular cleaning and maintenance programme for drainage systems, sumps and oil interceptors; and
- CREC should prepare a Waste Management Plan (WMP) as part of the Environmental Management Plan (EMP) in accordance with the ETWB TC(W) No. 19/2005 for construction phase. The EMP should be submitted to the PMR for approval. Mitigation measures proposed in the EIA Report and the EM&A Manual should be adopted.

6.4 Waste Reduction

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

- All dumped material should be sorted on site and approach, discuss and agree with CREC of interfacing contracts for disposal of inert construction waste for reuse, recovery and recycling;
- 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 minimise waste generation;
- Use of metal formworks and hoardings, and they would be recycled after demolition on site as far as it can before disposal.

Good management and control of construction site activities / processes can minimise the generation of waste. Waste reduction is best achieved at the planning and design stage, as well as by ensuring the implementation of good site practices. Recommendations to achieve waste reduction include:

- Segregate and store different types of construction related waste in different containers, skips or stockpiles to enhance reuse or recycling of materials and their proper disposal;
- Provide separate labelled bins to segregate recyclable waste such as aluminium cans from other general refuse generated by the work force, and to encourage collection by individual collectors;
- Any unused chemicals or those with remaining functional capacity shall be recycled;
- Maximising the use of reusable steel formwork to reduce the amount of C&D material;
- Prior to disposal of C&D waste, it is recommended that wood, steel and other metals

shall be separated for re-use and / or recycling to minimise the quantity of waste to be disposed of to landfill;
- Sort out demolition debris and excavated materials from demolition works to recover reusable/recyclable portions (i.e. soil, broken concrete, metal etc);
- Adopt proper storage and site practices to minimise the potential for damage to, or contamination of, construction materials;
- Plan the delivery and stock of construction materials carefully to minimise the amount of surplus waste generated;
- Adopt pre-cast construction method instead of cast-in-situ method for construction of concrete structures as much as possible; and
- Minimise over ordering of concrete, mortars and cement grout by doing careful check before ordering.

Measures to be implemented on site office to encourage waste avoidance/ minimisation 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; and
- Deploying sufficient recycle bins in site offices to facilitate collection of recyclables including wasted aluminium cans, plastics bottles and papers.
- Provide training to workers on the importance of appropriate waste management procedures, including waste reduction, reuse and recycling.

6.5 On-Site Sorting and Temporary C&D Waste Disposal Area

Waste facilities will be provided on site to facilitate on-site sorting, collection and temporary storage of waste materials, they include:

- Designated area for temporary storage of Inert C&D Material;
- Designated area for temporary storage of C&D Material;
- Recycling cages for collection of waste metal, plastic and paper;
- Recycling bins for collection of waste papers, cans and plastic bottles; and
- Designated storage area for chemical waste.

6.6 Handling of C&D Materials

The storage, collection and transport of the C&D materials will be carefully planned and implemented to minimise any adverse impact upon the environment. The method statement for stockpiling and transportation of excavated materials and other construction wastes is shown in **Appendix F**. The C&D materials generated will be sorted on site into public fill and C&D waste for recycling as appropriate in accordance with Works Bureau Technical Circular No. 5/98 for on-site sorting of Construction Waste on Demolition Site, Works Bureau, HKSAR Government, or subsequent disposal at approved strategic landfills and public filling areas. Wherever practicable, the SF/F will arrange the segregation of these wastes on site in order to maximise the recovery of reusable and recyclable materials. Separate areas will be designated for segregation and storage where site-specific conditions allow.

The segregated types of C&D materials will be stored in separate covered storage areas to avoid possible cross contamination and loss due to windblown and fugitive dust. If the

C&D materials are to be temporarily stored in piles on site, they will either be covered with a tarpaulin or watered regularly to prevent the emission of fugitive dust. The SF/F will ensure that C&D materials are removed from their origin and processed at designated points in a timely manner.

Materials of recyclable value, such as steel mesh, reinforcement bars, window frames, railing, banisters, wooden planks, etc., will be separated from other C&D materials. These materials will either be reused by CREC on site or be sold and collected by an external licensed waste recycling agent. If an external recycling agent is required, details of the nominated company will be submitted to the PMR.

Collection and Transportation of Waste

The following recommendation should be implemented to minimize the impacts:

- Remove waste in timely manner;
- Employ the trucks with cover or enclosed containers for waste transportation;
- Obtain relevant waste disposal permits from the appropriate authorities;
- Disposal of waste should be done at licensed waste disposal facilities

6.6.1 On Site Sorting

Sufficient space will be provided to accommodate the separation of inert and non-inert materials and a unique access checkpoint with security control. The SE/SF/Foreman will manage the on-site sorting facilities and promptly remove all the sorted and processed materials arising from or in connection with the works from the site to minimise the extent of temporary stockpiling on the site. The categories of C&D materials to be sorted within the on-site sorting facilities include:

- Inert materials consisting of earth, building debris, rock fragments, concrete bricks, tiles, masonry and mortar etc;
- Metals;
- Plastic;
- Paper/ cardboards; and
- Timber

Following the sorting of these wastes, they will be sent separately for reuse and recycling, processing or disposed of as described in the following sections.

Other than large on-site sorting facilities, CREC will provide separate refuse and recycling bins to collect different types of refuse generated by the site office and the workforce. These will include bins to collect general refuse such as food waste and recycling bins to collect wastepaper separately, plastic bottles and aluminium cans. These bins will be provided in common areas where the wastes are commonly generated such as site offices, workshops, canteen and other site accommodation areas for the workers.

6.6.2 Inert C&D Materials

The remaining inert C&D materials, following site sorting, will be managed as follows:

Excess Excavated Material

In order to minimise the amount of excess excavated material to be delivered to public fill facilities, the priority for the management options of excess excavated material will be as followings: -

- Suitable excavated material will be stored for backfilling purposes;
- Maintain temporary stockpiles and reuse excavated fill material for backfilling;
- Carry out on-site sorting;
- Make provisions in the Contract documents to allow and promote the use of recycled aggregates where appropriate;
- Implement a trip-ticket system for each works contract to ensure that the disposal of C&D materials are properly documented and verified, so as to avoid the illegal dumping and landfilling of C&D materials on farmlands/ riverbanks at TCW;
- Excess excavated material will be transported to other projects for reuse as approved by the PMR;
- The ET and IEC will be informed of other projects/sites for reuse of excess inert C&D materials approved by PMR; and
- Only the amount of excavated material remaining after reused for backfilling purposes will be transported to the public fill facilities.

Inert C&D materials which are to be disposed to public filling outlets will be broken down to a size less than 250mm as according to Dumping Licence conditions prior to disposal. Wet soil with free water or a liquid content of over 70% and other materials such as marine mud, pond mud, household refuse, plastic, metal, industrial and chemical waste matter etc. will not be loaded into the dump truck. This will be controlled by the SF/F during the earthwork operations and further verified at the exit checkpoint by SF/F before the trip ticket is issued for each truck.

Concrete Waste

The surplus concrete after each concrete pour will be used for some minor pre-cast elements where practicable. Dry concrete waste, including broken concrete from demolition works, will be sorted out from the other wastes for reuse in site temporary road construction.

All the remaining inert C&D materials will be transported to public fill as specified. The trip ticket system will ensure there is no illegal dumping of the above-mentioned materials.

6.6.3 Non-Inert C&D Materials

Timber Waste

CREC will avoid, reduce and minimise the use of timber in temporary works construction. Where the timber is used for this purpose or for one process/ activity with an estimated quantity exceeding 5m^3, CREC will submit method statement to the PMR for agreement prior to the commencement of the works.

Description, justification and the estimated quantity for every work process/ activity requiring the use of timber for temporary works construction will be documented in form of summary table in **Appendix C** which will be updated and submitted monthly to the PMR by the EO together with the monthly summary Waste Flow Table (WFT) for the purpose of ongoing monitoring and review. When timber waste has arisen on site, it will be sorted and collected daily by an assigned work team and will be stored in a designated storage area for subsequent use or collection by recycling contractors.

Metal Wastes

CREC will avoid and reduce metal waste during the design, planning and construction process. Cut metal or steel bar will be considered for re-use in temporary or minor works on site. When metal waste has arisen on site, it will be sorted and collected daily by an assigned work team and stored in a designated storage area for subsequent use or collection by recycling contractors.

Plastic Wastes

CREC will also avoid and reduce plastic waste during the design, planning and construction process. It will be considered for re-use in temporary or minor works on site. When plastic waste, including water barrier, road lantern, safety helmet, has been arisen on site, it will be sorted and collected daily by an assigned work team and stored in a designated storage area for subsequent use or collection by recycling contractors.

General Refuse and C&D Waste

Un-recyclable, non-inert C&D materials, i.e. C&D wastes, and general refuse, which mainly consists of food waste, aluminium cans and wastepaper, will be generated from construction activities, workers and the site office.

The C&D waste will be temporarily stored and containers or skips with openable doors will be provided for temporary waste storage to prevent odour, pest and windblown litter. The containers or skips will be located at a demarcated area


Reuse of Water Filled Barrier

Recycled paper will be used for the Project. Usage of recycled paper will be further reduced by printing all documents, submissions and letters on both sides. Use of soft copy document instead of hard copy document is also encouraged. Printing of colour document is discouraged except it is absolutely necessary. Sacks for wastepaper and baskets for reusable papers will be provided in the Site office. The used paper shall also be collected by recycler for recycling. Further waste management will be implemented, if necessary.

General refuse including food and domestic waste will be stored in enclosed bins or compaction units separate from the construction and chemical wastes. Lunch boxes, plastic bottles, containers, plastic sheets and foam will be sorted and stored in separately labelled bins for subsequent recycling. Reputable recycle contractors will be employed to collect recyclable materials. The amount of waste to be recycled will be recorded, controlled and monitored through the maintenance of WFT.

The general refuse and the un-recyclable C&D waste will be collected and disposed of on a regular basis to minimise the likelihood of odour, pests and litter. They will be transported and disposed of by a licensed waste haulier to strategic landfill. A trip-ticket system to trace the transportation and destination of the waste will be implemented and the burning of refuse on the site will be strictly prohibited.

6.7 Excavated Contaminated Soil

Land contamination issue is subject to site investigation conducted prior to construction. Guidelines/Recommendations stipulated in land contamination guidelines/manual and other land contamination plans/reports are required to be implemented prior to the construction phase to minimize any potential exposure to contaminated soils or groundwater.

6.8 Chemical Waste

For chemical waste produced by a process, as defined by Schedule 1 of the *Waste Disposal (Chemical Waste) (General) Regulation*, a 'Chemical Waste Producer' registration will be made with EPD.

Chemical wastes are likely to be generated during maintenance of plant and equipment and these may include spent filter cartridges containing heavy metals, spent batteries, used mechanical oil, cleaning fluid, spent solvents, lubricating oil and paints and paint containers.

All chemical wastes generated on site will be stored and labelled in accordance with the *Code of Practice on the Packaging, Labelling and Storage of Chemical Waste* published by EPD. All workers involved in the handling of chemical waste will be trained properly and will be provided with appropriate protective clothing.

The sorting and segregation of chemical waste will be carried out on site to ensure the waste is appropriately handled, labelled and treated prior to disposal off-site. The recoverable chemical wastes such as oil, paint and solvent, will be separated from other chemical wastes and an EPD licensed chemical waste collector will be employed to collect the chemical waste.

6.8.1 Handling of Chemical Waste

Handling of chemicals will be conducted in accordance with the *Factories and Industrial Undertakings Ordnance*, and the following measures should be adopted:

- No smoking is allowed in or near areas where chemicals are used or stored;
- Where necessary, chemicals should be used in accordance with the instructions given in MSDS. These documents are to be kept by the Safety Officer. All workers can request to access these documents;
- Where necessary, personal protective equipment and clothing, such as gloves and goggles should be worn while dispensing or using chemicals.

6.8.2 Storage of Chemical Waste

Chemical waste will be stored at designated storage areas in accordance with the *Code of Practice on the Packaging, Labelling and Storage of Chemical Waste*. The containers to be used for the storage of chemical waste will:

- be suitable for the substance they are holding, resistant to corrosion and be maintained in a good condition and kept securely closed;
- have a capacity of less than 450L 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.

Chemical Waste Store

The storage area for chemical waste will:

- be clearly labelled and used solely for the storage of chemical waste;
- be enclosed on at least three sides;
- have an impermeable floor and be bunded to accommodate 110% of the volume of the largest container or 20% by volume of the chemical waste stored in that area, whichever is greater;
- have adequate ventilation;
- be covered to prevent rainfall entering (water collected within the bund must be tested and disposed as chemical waste if necessary);
- be arranged so that incompatible materials are adequately separated; and
- be located away from watercourse (Tung Chung Stream).

6.8.3 Disposal of Chemical Waste

A licensed waste collector will be employed to deliver the chemical waste to the Chemical Waste Treatment Centre (CWTC) in Tsing Yi or others authorised by EPD. The trip-ticket system will be strictly implemented to ensure the chemical waste is transported by and to

proper agents. Trip tickets issued for every chemical waste collection will be retained and filed for future reference and inspection.

6.9 Hazardous Materials Including Asbestos Handling and Disposal

CREC will identify and report to the *Supervisor's* Representative the presence of hazardous materials on Site. If CREC encounters any hazardous materials including asbestos, he will employ Specialist Contractor to the approval of the *Supervisor's* Representative and other relevant Government departments to dispose of the hazardous materials. CREC will submit to the *Supervisor's* Representative and other relevant Government departments method of disposal, location for disposal etc. for approval. CREC will seek agreement with Environmental Protection Department the location of disposing the hazardous material and will keep the Supervisor's Representative informed of such agreement.

Should buildings be found with potential Asbestos Containing Materials (ACM), sufficient and reasonable lead time shall be allowed for preparation, vetting and implementation of Asbestos Investigation Report and Asbestos Abatement Plan in accordance with Air Pollution Control Ordinance before commencement of any demolition or site clearance work. The handling and disposal of ACM will be carried out in accordance with the EPD's Code of Practice on Handling, Transportation and Disposal of Asbestos Waste and ProPECC PN 2/97 Handling of Asbestos Containing Materials in Buildings.

6.10 Emergency Response Procedures

Emergencies on the construction site may result in adverse impacts to the surrounding environment. Potential emergencies are identified below together with procedures formulated to deal with such situations.

6.10.1 Handling of Environmental Emergency

In the event of an environmental emergency, the following procedure will be followed:

- Immediately report the environmental emergency to the CM/SA/CTL, EO, SE, PMR, ET, IEC and CEDD;
- If necessary, notify the Police and evacuate all staff to a safe place outside the site;
- Identify the source and cause of environmental emergency and cease such activity as necessary;
- Carry out any remedial action to rectify the emergency situation;
- Recommence work activity if the emergency situation has been rectified; and
- Keep a record of the environmental emergency and remedial action taken.

6.10.2 Typhoon and Rainstorm

During the typhoon and rainstorm season, the following additional precautions will be taken:

- Temporary main access roads will be protected by crushed stone or gravel;
- If digging/backfilling trenches is necessary, this will be carried out in short sections;
- Stockpiles and temporary exposed slopes will be covered by an impermeable sheeting;
- Intercepting channels or sandbag will be provided at the edge of the excavated area to prevent storm runoff from washing across the exposed surface; and,
- Silt removal facilities, channels and manholes will be maintained, and the deposited silt and grit will be removed regularly
- This drill will be carried out by Safety Department.

6.10.3 Chemical Waste Spillage

Environmental emergency procedures including chemical waste spill will be developed for the Project. Formal written emergency procedures will be provided to staff and workers, and emergency drills will be conducted annually to ensure that people are familiar with the actual emergency. The procedures for dealing with spillage/ leakage of chemical waste will be as follows:

- Immediately report the environmental emergency to the CM/SA/CTL, EO, SE, PMR, ET, IEC and CEDD;
- The workers will be instructed to keep at a safe distance from the spillage/ leakage. If necessary, emergency evacuation will be initiated, and the emergency services notified;
- Adjacent worksites and private homes, if any, will be notified for the emergency situation;
- Only trained persons equipped with suitable protective clothing and equipment will be allowed to clean up the spillage/leakage;
- Where the chemical spillage area is small, the spill will be confined within earth barriers and the waste will be transferred back into suitable containers or soaked with suitable absorbing materials. The used absorbing materials will be treated as chemical waste and transferred to suitable containers for disposal;
- During the clean-up, all heat and ignitable sources will be switched off; and,
- The spraying of water to wash away the spill will be prohibited since some chemicals are likely to be bought.

If the spillage/ leakage is large, other concerned parties such as safety, security and subcontractor's representatives will be notified to assess the spillage/ leakage and determine the methods of clean up/ containment. If necessary, the police, emergency services, nearby worksites and residential developments will be notified.

6.11 Waste Recording System

CREC will record the quantities of C&D materials that have been generated each month by making use of the "Waste Flow Tables" (WFT). The monthly summary WFT will be updated on a monthly basis to record the flow of actual C&D waste quantities in **Appendix A**.

The EO will use the Waste Flow Table (WFT) to record the actual quantities of C&D materials generated on Site. The following information will be included:

- Inert C&D materials to be generated in the Contract;
- Inert C&D materials to be reused in the Contract;
- Inert C&D materials reused in other projects or CREC's outlet approved by the PMR;
- Inert C&D material suitable for recycling into aggregates for concrete or sub-base to be disposed of at an Approved location;
- Inert C&D materials for disposal to public filling outlets;
- Steel and other metals for collection by recycling contractors;
- Paper/ cardboard packaging for collection by recycling contractors;
- Plastics;
- Chemical wastes for collection by specialist contractor; and
- General refuses to be disposed of at landfills.

7. WASTE MONITORING AND AUDITING

7.1 Site Procedures for Trip Ticket System (TTS)

7.1.1 Implementation Procedure

For the disposal of C&D materials, CREC shall implement and comply with the requirements of the Trip-Ticket System stipulated in Works Bureau Technical Circular No. 31/2004.

CREC has applied for a registration as waste producer from EPD under the Construction Waste Disposal Charging Scheme. A billing account has been opened for the payment of waste disposal and chits issued by the Environmental Protection Department.

Each vehicle load of public fill or C&D waste transported off-site shall be accompanied by a duly completed Chit. The chit has 3 sections. The Designated Public Filling Facility / Landfill (operator) will take the 3rd section (with bar code) and return the remaining 2 sections to the truck driver who will return to CREC shall be retained. The SF/F will register all completed Chits for subsequent monitoring of the return of the trip ticket after the load has been disposed of and the EO/ES will check that the implementation is adequately carried out.

Wheel wash facilities have to be provided at the site entrance before the trucks leaving the works area. Dust disturbance due to the trucks transportation to the public road network could be minimized by such arrangement.

The SF/F will issue a chit to the truck driver at the gate after checking the truck load and material/waste inside to ensure no overloading and proper control of material/waste disposed. Furthermore, he will also ensure any mud trail on public road from the site is prevented by ensuring that vehicle wheels are properly cleaned prior to exit. This will also be reinforced by the security guard who will control the boom at the exit.

For each trip, the truck driver shall present to the operator of the Designated Public Filling Facility / Landfill (operator) the Chit prior to disposal of the C&D materials. Upon completion of the disposal, the public fill / landfill operator will print-out receipt to acknowledge the disposal. The EO / ES shall collect and verify the chit and the computer receipt. A copy of the chit and computer receipt shall be maintained by the EO for record.

The truck shall proceed to the disposal ground as stipulated in the Contract. If the C&D materials accord with the acceptance criteria, disposal of the materials will be permitted and the facility operator will give CREC's truck driver a Transaction Record Slip and stamp the CHIT. When the disposal of waste is not permitted (rejected by facility operator due to overloading or non-compliance with relevant acceptance criteria, closure of facility etc.), the truck will go back to the construction site and CREC will sort out an appropriate mitigation measure, including reclassification or reduction of the weight of waste carried.

CREC shall maintain a daily record of disposal of C&D materials from the Site including details of C&D materials, the truck number, departure time, etc., using the Daily Record Summary (DRS), a sample of which is given in **Appendix B**. CREC shall check the information recorded in the DRS against available information including his own records and data from the website of Civil Engineering and Development Department (CEDD) and complete Part 2 of the DRS form.

Surveillance on the truck drivers will be carried out randomly by following the truck drivers to the point of disposal to ensure that they dispose of C&D material at the designated disposal site and that the disposal activities fully comply with the client's requirements.

For the disposal of C&D materials, CREC shall implement and comply with the requirements of the amended Trip-Ticket System stipulated in Development Bureau Technical Circular (Works) No. 6/2010 with inclusion of site monitoring measures, particularly video recording system, for tracking of disposal on inert or non-inert material. On the other hand, the weight measurement records of C&D materials as loaded in the dump trucks before departure from the construction site and upon the delivery to the receiving facilities are to be compared to confirm if irregularities are found.

Video Recording System

CREC will:

(i) provide, operate and maintain, including all necessary cables, wirings, lightings and other accessories, a video recording system at each vehicular exit/entrance with gate(s) installed with the following essential features to record all trucks leaving the Sites: The video cameras used in the system shall be of high resolution, lowlight and colour type; power backup shall be provided to cater for accidental breakdown of the power supply to the system; videos captured by the system shall be recorded continuously without break except with the agreement of the PMR, or in the month during which there is no disposal of C&D materials off the Site for the entire month; videos shall be captured in a format acceptable to the PMR; 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;

(ii) securely protect the video cameras from being damaged or blocked;

(iii) design and construct all necessary temporary works, including any supporting frames and protections, for mounting the video cameras and their accessories;

(iv) provide the software and hardware for capturing the vehicle registration mark, and the time and date for the PMR's immediate taking and viewing of photograph of every truck leaving the Site and viewing the recorded videos;

(v) keep the videos record for at least 60 days and the photographs until such time as instructed by the PMR;

(vi) 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; and

(vii) if a video camera system cannot be installed at the exit, propose alternative methods of control to the PMR, who may accept such proposals if he is satisfied that the proposals are equally effective.

7.1.2 Trip-ticket System for Disposal of C&D Materials to Approved Alternative Disposal Ground

- Maintain a daily record of disposal of C&D materials from the Site including Disposal Delivery Form (DDF) numbers, vehicle registration numbers, approximate volume, C&D materials type, approved alternative disposal ground, departure time from the Site, actual disposal ground and arrival time at disposal ground, using the Daily Record Summary (DRS);
- Submit the duly completed Part 1 of the DRS in duplicate before departure of the truck;
- When leaving the Site, each and every vehicle transporting C&D materials including both the inert and non-inert portion, must bear a DDF. A sample of the DDF for alternative disposal ground is shown at **Appendix B**. The DDF shall be duly completed and authorized by the PMR;
- Carry the DDF on board the vehicle at all times throughout the vehicular trip to the Approved alternative disposal ground as stipulated in the DDF;
- For each vehicular trip after disposal of C&D materials, ensure that the DDF is signed off by a competent person as agreed by the PMR at the Approved alternative disposal ground to confirm completion of each trip. Keep a copy of the DDF for inspection by the PMR upon request. Complete Part 2 of the DRS form and submit it to the PMR within 3 working days after the date of disposal; and
- Where an irregularity is observed or where requested by the PMR under special circumstances (e.g. a DDF has been issued but there is no disposal record at the Approved alternative disposal ground), submit to the PMR within 5 working days after the recorded date of disposal the supporting evidence such as the signed off DDF to confirm proper completion of the delivery trip(s) in question, or within 2 working days after the PMR has requested for such evidence, whichever is later.

7.1.3 Prevention of Overloading

CREC shall properly estimate the volume of C&D materials that can be carried by different dump trucks according to the permissible loading capacity of the dump trucks and the properties of the C&D materials, e.g. the bulk density with reference to the composition, moisture content and past data return, etc., in order to establish effective control measures to prevent overloading of dump trucks. They include:

- Height limit of the skip of the dump truck with consideration of its plan area and arrangement of measuring scale from the bottom of the skip; and/or
- Maximum number of grabs of the C&D materials loaded with the backhoe onto the dump truck with consideration of the grab capacity of the backhoe.

At the initial stage and any significant change of properties in C&D materials, trial run (means the first disposal dumping trip on that day) should be conducted with margin to avoid overloading in order to establish reference parameters for effective control of overloading. Whenever necessary, these control measures should be reviewed promptly to suit the prevailing site conditions.

Photos shall be taken to record the condition of materials in the skip of the dump truck and the related dump truck number for close monitoring and feedback control. Frequency of taking photo record can be adjusted in accordance with degree of monitoring control. Representative photos shall also be posted at site entrance as examples for reference of dump truck drivers and backhoe operators.

CREC shall check the vehicle loads shown on the returned trip ticket/electronic disposal data sheets to monitor its control measures against overloading. These control measures shall be reviewed immediately if there is any deficiency identified.

Furthermore, dump trucks employed will be fitted with pressure gauge for measurement of truck loads in order to avoid overloading. Pressure gauge will be calibrated and for ease of reference, an equivalent load value will be marked on the gauge itself to ensure no overloading will take place. Thus, at the time of loading of C&D waste for disposal the relevant Foreman at the exit will monitor with reference to the mark on the gauge while the loading of the truck takes place. He will also ensure the mechanical cover is in place prior to allowing the truck to leave the site.

7.1.4 Improvement Measures to Prevent Overloading

In order to control overloading effectively, the relevant SF/F/staff will monitor the maximum number of grabs of the C&D materials loaded onto the dump truck against the reference mark on the pressure gauge fitted on the dump truck to ensure no overloading will take place. If the gauge shows value beyond the referenced mark, the extra material will be unloaded prior to issue of chits for disposal. The returned trip ticket/electronic disposal data sheets will be checked to monitor its control measures against overloading. Furthermore, Senior Foreman / Foreman and staff will be briefed of the control measure.

7.1.5 Training for The Dump Truck Driver

Disposal trip training shall be provided to all truck drivers engaged for removal of C&D materials from the Site and keep the training records. All drivers must fully understand on the following particular points:

Each truck carrying C&D materials leaving the Site for a disposal ground must bear a duly completed chit, irrespective of the location and nature of the disposal ground;

The C&D materials must be disposed of at the designated disposal ground;

For an improper disposal, the Public Fill Committee (PFC) shall consider revoking the Dumping Licence from the holder of the offending trucks; and

Truck drivers must bear a valid Dumping Licence which he can apply from CEDD.

All dump trucks engaged on site shall be equipped with GPS or equivalent automatic system for real time tracking and monitoring of their travel routings and parking locations to prohibit illegal dumping and landfilling of C&D materials.

7.1.6 Mechanical Cover

All dump trucks (i.e. goods vehicles of gross vehicle weight equal to or more than 16 tonnes, fitted with a dump bed) leaving the Site carrying dusty materials shall be fitted with a mechanical cover in good service condition which covers the dump bed.

7.2 Surveillance

The implementation of this document shall be regularly monitored through site monitoring. The monitoring of environmental performance shall be conducted at two principal levels. Firstly, construction personnel shall on an on-going basis, through their normal surveillance of site operations, ensure the compliance of site activities including the operations of subcontractors.

Secondly, the EO/ES or the assigned person shall undertake weekly inspection to ensure satisfactory performance on compliance with this document. Such checks shall be site-wide and encompass all pertinent trip ticket management issues applicable to the on-going works. If required, surprise checks can also be arranged on the disposal locations. In addition, the EO/ES or the assigned person shall verify the site disposal records against the data kept by the government disposal facilities via internet at the below links:

EPD: https://www.epd.gov.hk/epd/misc/cdm/b5_scheme.htm

The Surveillance Team will conduct regular site inspections to identify and report immediately to the IEC, the ER and the PMR on suspected illegal dumping and landfilling of construction and demolition (C&D) materials within the Project site throughout the construction phase.

7.3 GPS Implementation

CREC shall implement a GPS System for real time monitoring and to keep record of the speed, travel routings and parking locations of dump trucks collecting C&D materials to and from the Site in order to prevent the dump trucks from travelling above the speed limit at public roads and prohibits illegal dumping and landfilling of C&D materials. In addition, CREC shall utilise the GPS System to monitor and ensure that the C&D materials are disposed at locations accepted by the Project Manager (PMR).

Record and Analysis of Data Collected by GPS System

All the dump truck owners and driver that with installation of GPS tracking device inside the vehicle, the corresponding location information including every trip involving disposal of C&D materials from the site to disposal grounds shall be checked by CREC and the PMR. GPS vehicle location data of the dump truck will be logged throughout the whole disposal trip. All monitoring is riding at the web-based application (e.g., Autotoll: http://gps.autotoll-gps.com.hk), allowing the users to track the positions of the target vehicles and download reports or summaries via the Internet.

The corresponding historical GPS vehicle location data will be maintained for at least 6 months after any C&D material disposal trips for retrieval if needed.

The GPS location data of the dump truck could be retrieved from the web-based application with output in Excel format. The data set is associated by the following information from the GPS tracking device.

(i). Contract No. and title;

(ii). Fleet name (if appropriate);

(iii). Registration date;

(iv). Vehicle registration mark;

(v). Time;

(vi). Latitude & longitude (NEMA);

(vii). Region (Hong Kong, Kowloon, New Territories);

(viii). District;

(ix). Street name;

(x). Travelling direction;

(xi). Travelling speed;

(xii). Engine status (on or off).

At the web-based application, the tracking route of dump truck could be located in form of a digital map of Hong Kong and the reporting frequency of GPS tracking device is at every 30 seconds when the engine is ON and every hour when the engine is OFF respectively.

Automatic Notification System

Geofences will be set for the designated disposal locations, i.e. NENT Landfill and TM38 Fill Bank, and other locations approved by the Project Manager / Supervisor. Geofences are designated areas that can be defined on a map. They can either be a certain radius around a single point or any shape that create from several points. When trucks enter/trigger the Geo-fencing Zone, GPS data, such as travelling routes, travelling time for every delivery, etc. via the Automatic Notification System will be recorded. An alert email will be sent to ET, IEC, the Project Manager / Supervisor, the contractor and surveillance team at the end of each working day if the dump truck does not reach designated disposal locations after leaving the project site. Environmental Officer (EO) / Environmental Supervisor (ES) will analyze the GPS data, such as travel routings, parking locations, etc. on a daily basis. The corresponding historical GPS vehicle location data will be maintained for at least 6 months after any C&D material disposal trips for retrieval if needed. EO/ES will also consolidate the GPS data with the Trip Ticket System by merging the corresponding chit number/DDF number, vehicle number, truck build-in weight record, recorded weight of the transaction (Government Facility) or other accepted/ designated disposal ground, etc. for the purpose of cross-checking and analyzing the time used for the delivery, traffic routing, weight difference for any irregularities and suspected illegal dumping situation. It ensures that the trucks are disposing of the C&D materials to the designated disposal locations after leaving the site. Also, ET, IEC, the Project Manager / Supervisor, the contractor and surveillance team can track the real-time position of the trucks on the web-based application.

To ensure that all C&D materials are disposed of at the designated disposal locations, at the end of each working day, in case that any dump truck does NOT reach the designated disposal locations after leaving the project site, the GPS monitoring system will automatically generate alert through email to the relevant parties (e.g. ET, IEC, project

manager, contractor, surveillance team, etc.) for follow up on any suspected irregularity and illegal dumping situation. The information of automatic notification includes relevant details, such as vehicle licence plate, event time, vehicle location, etc. Prohibited Zone on Tung Chung Road (section of Tung Chung Road south of Shek Mun Kap Road and all roads in south Lantau) or other areas designated as prohibited zones in Tung Chung can be set by the real time tracking and monitoring (RTTM) system, and signal (by email) will be sent to ET, IEC, project manager, contractor, surveillance team or other default users immediately once any irregularities/non-compliances are triggered. The notification emails records of the C&D materials disposal by trucks are to be checked by EO/ES to confirm whether all the dump trucks travel to the designated disposal locations after leaving the construction site.

7.4 Reporting Illegal Dumping and Follow-up Action

The approach of the monitoring of C&D materials disposal activities of the dump trucks from the construction site to the designated disposal facilities (e.g. landfills, public fill reception facilities and other locations approved by PMR) includes the following elements:

1. Travelling routes of the dump trucks via the GPS as installed in the dump trucks and the web-based application;
2. Travelling time of the dump trucks via the Automatic Notification System; and
3. Weight measurement records of the C&D materials as loaded in the dump truck before departure from the construction site and received at the designated disposal facilities or other locations approved by PMR.

CREC has established procedures to deal with any non-compliance and the principle corrective actions that would be undertaken include:

- Relevant staff including the EO, PM/CM/SA/CTL, PMR, ET, IEC and CEDD would be notified immediately in the event of there being a waste related non-conformance or complaint being made;
- The cause of the problem would be immediately investigated, and mitigation measures would be proposed by EO. These would be implemented with approval from the PM/CM/SA and the PMR;
- The PM/CM/SA would ensure that the mitigation measures are properly implemented;
- Further site surveillance by EO would evaluate the effectiveness of the mitigation measures and would immediately advise the PM/CM/SA if non-compliance persists;
- Reporting to the management on problems found, causes identified, improvement actions implemented, intended and the actual effects and any necessary follow-on actions being undertaken;
- Reporting of illegal dumping and landfilling of C&D materials within the Project site throughout the construction phase by the Surveillance Team appointed under the EP condition 2.6; and
- Follow-up actions to be taken by CREC and dump truck drivers for committing suspected offences relating to illegal dumping and landfilling of C&D materials.
- CREC will discuss with PMR for the follow up actions (e.g. warning letter, cease operation, etc.) if required.

7.5 Preventive Action

In order to ensure the waste related non-conformance would not recur, the following preventive actions would be adopted:

- The EO would liaise closely with the construction team and forecast likely waste impacts, which may arise during the construction period and develop preventive procedures.
- The arrangement and progress of implementing waste management measures on site would be discussed and reviewed in the weekly SSEC meeting;
- The EO would closely monitor the waste management measures by the weekly site surveillance and checking of relevant monitoring results, meeting minutes, permits and reports, etc.; and

The conduct of a training programme to educate site staff about waste management and chemical waste handling on-site.

7.6 Record System

EO/ES or the assigned person shall maintain contemporary records of the following documents in the site office during the Project period:

- Site Management Plan for Trip Ticket System;
- Yearly Waste Flow Table;
- Monthly Summary Waste Flow Table;
- Registration as a Chemical Waste Producer;
- Register of all Disposal Delivery Form;
- Daily Disposal Record;
- Other records like trip tickets on disposal of chemical waste;
- Photographs and various measurement records; and
- Other statutory permits application / renewal.

All records shall be maintained in a legible manner, stored and retained in such a way that they are readily retrievable on site in a suitable environment to prevent deterioration or damage and to prevent loss.

(END)

APPENDIX A

MONTHLY SUMMARY WASTE FLOW TABLE

Contract No.: NL/2020/06

Monthly Summary Waste Flow Table for _____ (Year)

Month	Total Quantity Generated	Actual Quantities of Inert C&D Materials Generated Monthly					Actual Quantities of Non-Inert C&D Wastes Generated Monthly				
		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 tonnes)	(in tonnes)	(in tonnes)	(in tonnes)	(in tonnes)	(in tonnes)	(in tonnes)	(in tonnes)	(in tonnes)	(in tonnes)	(in tonnes)
Jan											
Feb											
Mar											
Apr											
May											
June											
Sub-total											
July											
Aug											
Sept											
Oct											
Nov											
Dec											
Sub-total											
Total											

Notes:

(1) The performance targets ae given in PS clause 25.24

(2) The waste flow table shall also include C&D materials that are specified in the Contract to be imported for use at the Site.

(3) Plastics refer to plastic bottles/containers, plastic sheets/foam from packaging material.

(4) The summary table shall be submitted to the *Project Manager/Supervisor* monthly together with the Waste Flow Table for review and monitoring in accordance with the PS Clause 25.24

APPENDIX B

DAILY RECORD SUMMARY OF C&D MATERIALS, SAMPLE CHIT, DISPOSAL DELIVERY FORM (CHIT OF ALTERNATIVE DISPOSAL GROUND)

"Daily Record Summary" to Record Daily Disposal of Construction & Demolition (C&D) Materials from the Site
"每日運載記錄撮要" 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 : Contract No.: NL/2020/06 Tung Chung New Town Extension – Site Formation And Infrastructure Works At Tung Chung Valley, Phase 1

(2) Date of Disposal 傾卸日期 :

(3) Designated 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 (a) Tuen Mun 38 Fill Bank
(b) NENT Landfill
(c) OTHER

(4) Approved Alternative Disposal Ground(s) 另可接受的接收設施 :

CHIT/DDF No. 載運入帳票/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 Material Type (e.g. inert / 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，承建商的指定人仕姓名及簽名	Departure time from Site 離開地盤時間	Signature & name of the Engineer's supervisory staff before departure or other time agreed between the Architect/Engineer's Representative and the Contractor 於離開地盤前或其他經承建商與建築師/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	Remark 備註

Part 1[1] 甲部 — Part 2[2] 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 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] Part 1甲部 - The Contractor shall complete Part 1 in duplicate and a copy should be kept by the 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

[2] Part 2 乙部 - The Contractor shall complete Part 2 and submit the whole Summary to the 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記錄撮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

E 199279

入帳票編號:
Chit No.:_____

選擇「✓」一個訂明設施:
Tick (✓) One Prescribed Facility:

☐ 堆填區 Landfills ☐ 篩選分類設施 Sorting Facilities
☐ 公眾填料接收設施 Public Fill Reception Facilities
☐ 離島廢物轉運設施 Outlying Islands Transfer Facilities

車牌號碼 Vehicle Registration Mark:

_____

使用日期:
Date of Use:_____

簽發人:
Issued by:_____

建築廢物產生地點:
Construction Waste Generated Site:

帳戶編號:
Account No.:_____

甲部份：由帳戶戶主保留
Part A: retained by Account-holder

入帳票編號:
Chit No.:_____

選擇「✓」一個訂明設施:
Tick (✓) One Prescribed Facility:

☐ 堆填區 Landfills ☐ 篩選分類設施 Sorting Facilities
☐ 公眾填料接收設施 Public Fill Reception Facilities
☐ 離島廢物轉運設施 Outlying Islands Transfer Facilities

車牌號碼 Vehicle Registration Mark:

_____

使用日期:
Date of Use:_____

簽發人:
Issued by:_____

帳戶名稱:
Name of the Account-holder:

帳戶編號:
Account No.:_____

乙部份：由廢物運輸商保留
Part B: retained by Waste Hauler

香港法例第354章廢物處置條例
廢物處置(建築廢物處置收費)規例
Waste Disposal Ordinance (Chapter 354)
Waste Disposal (Charges for Disposal of Construction Waste) Regulation

載運入帳票
CHIT

車牌號碼:
Vehicle Registration Mark:

_____

有效期至:
Valid Until:_____

建築廢物產生地點:
Construction Waste Generated Site:

帳戶名稱:
Name of the Account-holder:

CEDD Civil Engineering and Development Department

丙部份：由政府保留
Part C: retained by Government

甲部分:由物料供應地的營運商或司機保留
Part A: Retained by CP/Driver at Departure Site

參考編號 Ref. No.: _____

中國中鐵股份有限公司 CHINA RAILWAY GROUP LIMITED

Contract No.: NL/2020/06
Tung Chung New Town Extension – Site Formation and Infrastructure Works at Tung Chung Valley, Phase 1

運載紀錄票
Disposal Delivery Form

使用日期
Date of Use: _____

到達日期
Date of Arrival: _____

離開時間
Departure Time: _____

到達時間
Arrival Time: _____

車牌號碼
Vehicle Registration Mark: _____

物料來源地
Location of Source: NL/2020/06 - Tung Chung New Town Extension – Site Formation and Infrastructure Works at Tung Chung Valley, Phase 1

物料接收地
Location of Reception Site: _____

「✓」適合的選項:
Tick (✓) the appropriate:

負載量
Loading: ☐ 1/4 ☐ 1/2 ☐ 3/4 ☐ 滿載 Full

物料類別
Material Type:
☐ 惰性填料 Inert Material
☐ 石 Rock
☐ 泥 Soil
☐ 泥夾石 Soil & Rock
☐ 混凝土 Broken Concrete

物料來源地簽辦人
Issued by (Location of Source): _____
(簽名或蓋印 Signature or Stamp)

物料接收方簽收
Received by (Location of Reception): _____
(簽名或蓋印 Signature or Stamp)

甲部份: 物料接收方簽收後三個工作天交回物料來源地
Part A: To return to the Location of Souce after signed by the Reception Site within 3 working days

乙部份: 物料接收方保留
Part B: To be retained by the Reception Site

乙部分:由物料供應地的營運商或司機保留
Part B: Retained by CP at Reception Site

參考編號 Ref. No.: _____

中國中鐵股份有限公司 CHINA RAILWAY GROUP LIMITED

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物料接收地
Location of Reception Site: _____

「✓」適合的選項:
Tick (✓) the appropriate:

負載量
Loading: ☐ 1/4 ☐ 1/2 ☐ 3/4 ☐ 滿載 Full

物料類別
Material Type:
☐ 惰性填料 Inert Material
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物料來源地簽辦人
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(簽名或蓋印 Signature or Stamp)

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(簽名或蓋印 Signature or Stamp)

甲部份: 物料接收方簽收後三個工作天交回物料來源地
Part A: To return to the Location of Souce after signed by the Reception Site within 3 working days

乙部份: 物料接收方保留
Part B: To be retained by the Reception Site

APPENDIX C

SUMMARY TABLE FOR WORK PROCESSES OR ACTIVITIES REQUIRING TIMBER FOR TEMPORARY WORKS

Summary Table for Work Processes or Activities Requiring Timber for Temporary Works

Contract No.: NL/2020/06
Contract Title: Tung Chung New Town Extension – Site Formation And Infrastructure Works At Tung Chung Valley, Phase 1

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 Project Manager/Supervisor in monthly basis together with the Waste Flow Table for review and monitoring in accordance with the PS Clause 25.24..

APPENDIX D

IMPLEMENTATION SCHEDULE

WMP Ref.	EIA Ref.	EM&A Log Ref	Recommended Mitigation Measures	Objectives of the Recommended Measures & Main Concerns to address	Implementation Agent	Location / Timing	Implementation Stage	Requirements and / or standards to be achieved
S6.3	S7.4.1	WM1	Good Site Practices The following good site practices are recommended throughout the construction activities: ▪ nomination of an approved personnel, such as a site manager, 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 site cleanliness, appropriate waste management procedures and concepts of waste reduction, reuse and recycling; ▪ provision of sufficient waste disposal points and regular collection for disposal; ▪ imposition of penalty system on Contractors' improper behaviours when illegal dumping and landfilling outside their respective construction sites, i.e. on nearby farmlands and riverbanks, are reported; ▪ appropriate measures to minimise windblown litter and dust during transportation of waste by either covering trucks or by transporting wastes in enclosed containers; ▪ regular cleaning and maintenance programme for drainage systems, sumps and oil interceptors; and ▪ the contractor should prepare a Waste Management Plan (WMP) as part of the Environmental Management Plan (EMP) in accordance with the ETWB TC(W) No.	Minimize waste generation during construction	Contractor	All construction sites	Construction stage	Waste Disposal Ordinance

WMP Ref.	EIA Ref.	EM&A Log Ref	Recommended Mitigation Measures	Objectives of the Recommended Measures & Main Concerns to address	Implementation Agent	Location / Timing	Implementation Stage	Requirements and / or standards to be achieved
			19/2005 for construction phase. The EMP should be submitted to the Engineer for approval. Mitigation measures proposed in the EIA Report and the EM&A Manual should be adopted.					
S6.4	S7.4.1	WM2	<u>Waste Reduction Measures</u> Waste reduction is best achieved at the planning and design phase, as well as by ensuring the implementation of good site practices. The following recommendations are proposed to achieve reduction: ▪ segregate and store different types of waste in different containers, skip or stockpiles to enhance reuse or recycling of materials and their proper disposal; ▪ proper storage and site practices to minimize the potential for damage and contamination of construction materials; ▪ plan and stock construction materials carefully to minimize amount of waste generated and avoid unnecessary generation of waste; ▪ sort out demolition debris and excavated materials from demolition works to recover reusable/recyclable portions (i.e. soil, broken concrete, metal etc.); provide training to workers on the importance of appropriate waste management procedures, including waste reduction, reuse and recycling.	Reduce waste generation	Contractor	All construction sites	Construction stage	Waste Disposal Ordinance
S6.5 S6.6	S7.4.1	WM3	Storage of Waste The following recommendation should be	Good site practice to minimize the	Contractor	All construction	Construction stage	Land (Miscellaneous

WMP Ref.	EIA Ref.	EM&A Log Ref	Recommended Mitigation Measures	Objectives of the Recommended Measures & Main Concerns to address	Implementation Agent	Location / Timing	Implementation Stage	Requirements and / or standards to be achieved
			implemented to minimize the impacts: ▪ waste such as soil should be handled and stored well to ensure secure containment; and Depends on actual site activities, certain locations within the site area would be used for storage of waste to enhance reuse. However, there would not be any designated location for storage of waste, and the storage locations would need to be adjusted to suite actual site conditions;	waste generation and recycle the C&D materials as far as practicable so as to reduce the amount for final disposal		sites		Provisions) Ordinance Waste Disposal Ordinance ETWB TCW No. 19/2005
S6.6	S7.4.1	WM4	Collection and Transportation of Waste The following recommendation should be implemented to minimize the impacts: ▪ remove waste in timely manner; ▪ employ the trucks with cover or enclosed containers for waste transportation; ▪ obtain relevant waste disposal permits from the appropriate authorities; and disposal of waste should be done at licensed waste disposal facilities.	Minimize waste impacts from storage	Contractor	All construction sites	Construction stage	Waste Disposal Ordinance
S6.6.2	S7.4.1	WM5	Excavated and C&D Materials Wherever practicable, C&D materials should be segregated from other wastes to avoid contamination and ensure acceptability at public fill reception facilities or reclamation sites. The following mitigation measures should be implemented in handling the excavated and C&D materials: ▪ maintain temporary stockpiles and reuse excavated fill material for backfilling; ▪ carry out on-site sorting; ▪ make provisions in the Contract documents	Minimize waste impacts from excavated and C&D materials	Contractor	construction sites	Construction stage	Land (Miscellaneous Provisions) Ordinance Waste Disposal Ordinance ETWB TCW No. 19/2005

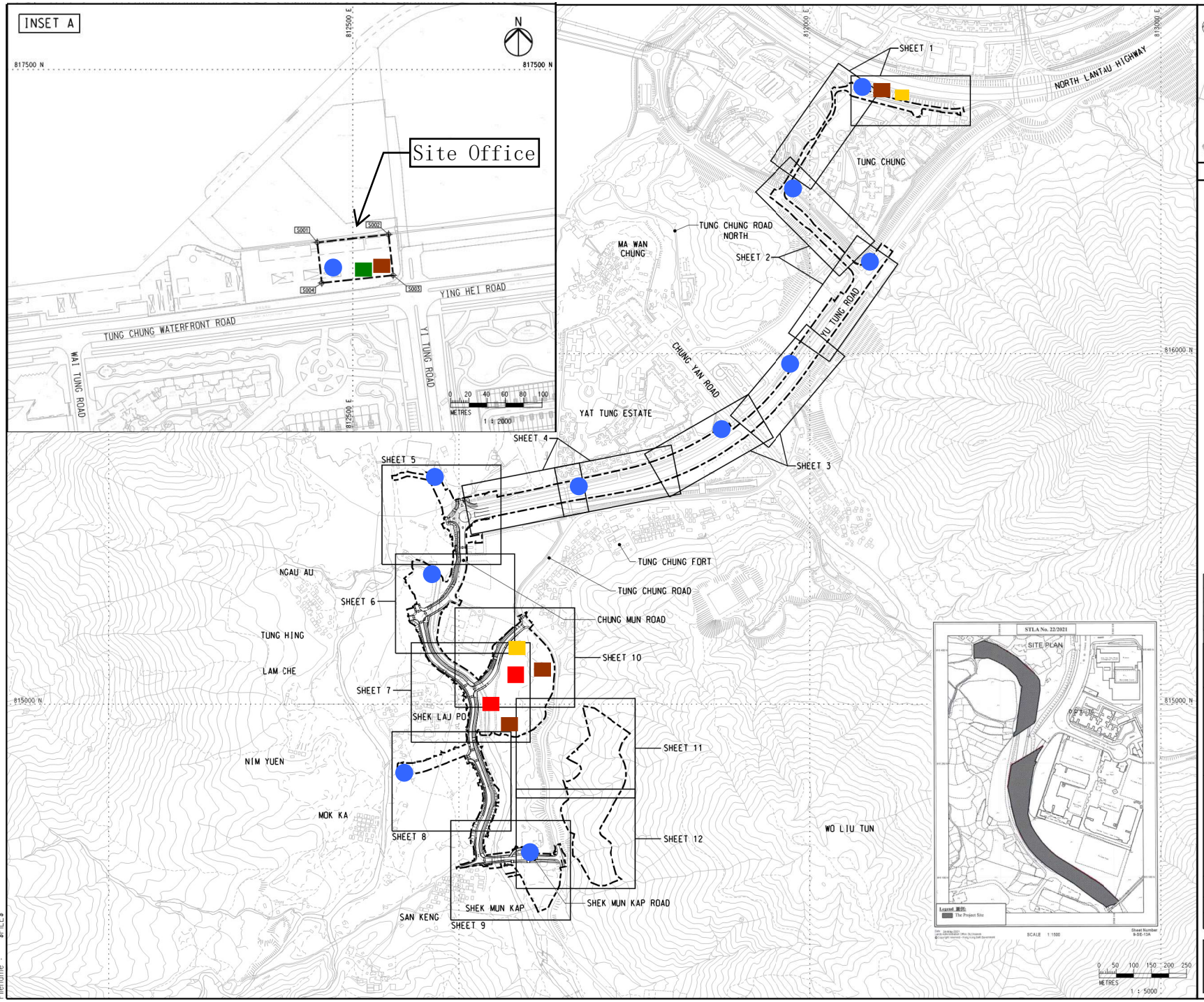
WMP Ref.	EIA Ref.	EM&A Log Ref	Recommended Mitigation Measures	Objectives of the Recommended Measures & Main Concerns to address	Implementation Agent	Location / Timing	Implementation Stage	Requirements and / or standards to be achieved
			to allow and promote the use of recycled aggregates where appropriate; and ▪ implement a trip-ticket system for each works contract to ensure that the disposal of C&D materials are properly documented and verified, so as to avoid the illegal dumping and landfilling of C&D materials on farmlands/ riverbanks at TCW; The recommended C&D materials handling should include: ▪ On-site sorting of C&D materials Reuse of C&D materials					Project Administrative Handbook for Civil Engineering Works, 2012 Edition
S7.1.1	S7.4.1	WM6	<u>Provision of Wheel Wash Facilities</u> Wheel wash facilities have to be provided at the site entrance before the trucks leaving the works area. Dust disturbance due to the trucks transportation to the public road network could be minimized by such arrangement.	Minimize waste impacts from trucks transportation	Contractor	All construction sites	Construction stage	All construction sites
S6.7	S7.4.1	WM7	<u>Excavated Contaminated Soil</u> Guidelines/Recommendations in land contamination assessment guidelines/manual and land contamination plans/reports are required to be implemented prior to the construction phase to minimize any potential exposure to contaminated soils or groundwater.	Remediate contaminated soil	Contractor	All construction sites	Prior to the construction stage	Guidance Note for Contaminated Land Assessment and Remediation, Practice Guide for Investigation and Remediation of Contaminated

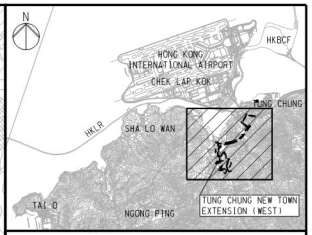
WMP Ref.	EIA Ref.	EM&A Log Ref	Recommended Mitigation Measures	Objectives of the Recommended Measures & Main Concerns to address	Implementation Agent	Location / Timing	Implementation Stage	Requirements and / or standards to be achieved
								Land, Guidance Manual for Use of Risk-based Remediation Goals for Contaminated Land Management
S6.8	S7.4.1	WM10	Chemical Waste If chemical wastes are produced at the construction site, the Contractors should register with EPD as chemical waste producer. Chemical wastes should be stored in appropriate containers and collected by a licensed chemical waste collector. Chemical wastes (e.g. spent lubricant oil) should be recycled at an appropriate facility as far as possible, while the chemical waste that cannot be recycled should be disposed of at either the Chemical Waste Treatment Centre, or another licensed facility, in accordance with the Waste Disposal (Chemical Waste) (General) Regulation.	Control the chemical waste and ensure proper storage, handling and disposal.	Contractor	All construction sites	Construction stage	Waste Disposal (Chemical Waste) General) Regulation Code of Practice on the Packaging, Labelling and Storage of Chemical Waste
S6.6.3	S7.4.1	WM11	General Refuse ▪ General refuse should be stored in enclosed bins separately from construction and chemical wastes. Recycling bins should also be placed to encourage recycling. ▪ Preferably enclosed and covered areas should be provided for general refuse collection and routine cleaning for these areas should also be implemented to keep areas clean.	Minimize production of the general refuse and avoid odour, pest and litter impacts	Contractor	All construction sites	Construction stage	Waste Disposal Ordinance

WMP Ref.	EIA Ref.	EM&A Log Ref	Recommended Mitigation Measures	Objectives of the Recommended Measures & Main Concerns to address	Implementation Agent	Location / Timing	Implementation Stage	Requirements and / or standards to be achieved
			A reputable waste collector should be employed to remove general refuse on a daily basis.					
S7.3	N/A	N/A	GPS Implementation GPS System shall be implemented for real time monitoring and to keep record of the speed, travel routings and parking locations of dump trucks collecting C&D materials to and from the Site in order to prevent the dump trucks from travelling above the speed limit at public roads and prohibits illegal dumping and landfilling of C&D materials. In addition, CREC shall utilise the GPS System to monitor and ensure that the C&D materials are disposed at locations accepted by the Project Manager (PMR). Geofences will be set for the designated disposal locations. When trucks enter/trigger the Geo-fencing Zone, GPS data, such as travelling routes, travelling time for every delivery, etc. via the Automatic Notification System will be recorded. The GPS monitoring system will automatically generate alert through email to the relevant parties (e.g. ET, IEC, Project Manager, contractor, surveillance team, etc.) if dump truck does not reach designated disposal locations after leaving the project site at the end of each working day for follow up on any suspected irregularity and illegal dumping situation. Environmental Officer (EO) / Environmental Supervisor (ES) will analyze the GPS data to prevent the dump truck from disposing illegally.	Prohibit illegal dumping and landfilling of C&D materials	Contractor	All construction sites	Construction stage	N/A

APPENDIX E

SITE LAYOUT PLAN FOR WASTE MANAGEMENT FACILITIES





LOCATION PLAN

NOTES

1. THIS DRAWING IS TO BE READ IN CONJUNCTION WITH DRAWING NO. 251854/C6/G/1011 TO 1022.

LEGEND

- WORKS LIMIT
- Skips for general waste
- Waste separation bins
- Construction Waste (inert) Collection Container/ Storage Area
- Covered Rubbish Bins
- Chemical waste storage

Rev	Description	By	Date
-	TENDER DRAWING	TL	12/20

Consultant

ARUP

Project Title

Contract No. NL/2020/06

Tung Chung New Town Extension - Site Formation and Infrastructure Works at Tung Chung Valley, Phase 1

Temporary site layout plan of the waste management facilities

Drawing no.	Rev.
251854/C6/G/1000	-

Drawn	Date	Checked	Approved
RY	02/20	AW	DL

Scale	Status
1:5000 @ A1	TENDER

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

Printed by : $DATE$
Filename : $FILE$

APPENDIX F

METHOD STATEMENT FOR STOCKPILING AND TRANSPORTATION OF EXCAVATED MATERIALS AND OTHER CONSTRUCTION WASTES

CONTENT

1.	**Scope of Work**
	• Stockpiling • Transportation of Excavated Materials • Transportation of Other Construction Waste
2.	**Construction Sequence of Works**
2.1	Stockpiling: • The excavated material generated from excavation will consist of soil and rock materials which will, as far as practicable, be reused on-site for the backfilling works. • Excavated material will also be generated from foundation work, underground services works and even any temporary works for excavation. Any surplus excavated material will be temporary stored in a designated area and would be engaged for backfilling. • The spoil will be stored in 2m high maximum and slope surface will be kept in 1:2. • When amber rainstorm signal or higher is hoisted, protective measures would be provided on slope surface against rainwater such as covered with tarpaulin or plastic sheet, erecting the temporary shelters, additional of pumps to drive out rainwater, etc..
2.2	Transportation of Excavated Materials • The excavated material will be sprayed with water when it is dry. The aim is to control dust in work area. • Dump truck loaded with excavated materials would be covered by tarpaulin sheeting or mechanical cover in order to prevent dust emission. • For the transportation of excavated materials, CREC will implement and comply with the requirements of the Trip-Ticket System (TTS) stipulated in Development Bureau Technical Circular (Works) No. 6/2010. A standalone Site Management Plan for implementation of TTS will be established which should be reviewed and updated on monthly basis.
2.3	Transportation of Other Construction Waste - <u>General refuse and C&D Materials</u> • Un-recyclable, non-inert C&D Materials, i.e. general refuse, which mainly consists of food waste, aluminium cans and waste paper, will be generated from construction activities, workers and the site office. • The C&D Materials will be temporarily stored and containers or skips will be provided for temporary waste storage to prevent odour, pest and windblown litter. • Office waste will be reduced through the recycling of paper. Sacks for waste paper and baskets for reusable papers will be provided in the Site Office. General refuse including food and domestic waste will be stored in enclosed bins or compaction units separate from the construction and chemical wastes. Lunch boxes, plastic bottles, containers and plastic sheets will be sorted and stored in separately labelled bins for subsequent recycling. Reputable recycle contractors will be employed to collect recycling materials. The amount of waste to be recycled will be recorded, controlled and monitored through the maintenance of WFT. • The general refuse and the un-recyclable C&D Materials will be collected and disposed of on a regular basis to minimize the likelihood of odour, pests and litter. They will be transported and disposed of by a licensed waste hauler. A trip-ticket

system to trace the transportation and destination of the waste will be implemented and the burning of refuse on the site will be strictly prohibited.

- Chemical Waste

- For chemical waste produced by a process, as defined by Schedule 1 of Waste Disposal (Chemical Waste)(General) Regulation, a 'Chemical Waste Producer' registration will be made with EPD.
- Chemical wastes are likely to be generated during maintenance of plant and equipment and these may include asbestos waste, used mechanical oil, cleaning fluid, spent solvents, lubricating oil and paints and paint containers.
- All chemical waste generated on site will be stored and labelled in accordance with the Code of Practice on the Packaging, Labelling and Storage of Chemical Waste published by EPD. All workers involved in the handling of chemical waste will be trained properly and will be provided with appropriate clothing.
- The sorting and segregation of chemical waste will be carried out on site to ensure the waste is appropriately handled, labelled and treated prior to disposal off-site. The recoverable chemical wastes such as oil, paint and solvent, will be separated from other chemical wastes and EPD licensed chemical waste collector will be employed to collect the chemical waste.
- Chemical waste will be stored at designated storage areas in accordance with the Code of Practice on the Packaging, Labelling and Storage of Chemical Waste. The containers to be used for the storage of chemical waste will:
  - Be suitable for the substance they are holding, resistant to corrosion and be maintained in a good condition and kept securely closed;
  - Have a capacity of less than 450L unless the specifications have been approved by the EPD; and
  - Display a label in English and Chinese in accordance with instruction prescribed in Schedule 2 of the Regulations.
- The storage area for chemical waste will:
  - Be clearly labelled and used solely for the storage of chemical waste;
  - Be enclosed on at least three sides;
  - Have an impermeable floor and be bunded to accommodate 110% of the volume of the largest container or 20% by volume of the chemical waste stored in that area, whichever is greater;
  - 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.
- All producers of chemical wastes (including asbestos) must register with EPD and treat their wastes either utilising on-site plant licensed by EPD, or arranging for a licensed collector to take the wastes to a licensed facility. The trip-ticket system will be strictly implemented to ensure the chemical waste is transported by and to ensure the chemical waste is transported by and to proper agents. Trip-tickets issued for every chemical waste collection will be retained and filed for future reference and inspection.

Attachment III

Waste Management Plan for

Contract No. NL/2023/10

Tung Chung New Town Extension –

Infrastructure Works at Tung Chung Valley, Yu Tung Road and Ma Wan Chung

Civil Engineering and Development Department
The Government of the Hong Kong Special Administrative Region

Tung Chung New Town Extension - Infrastructure Works at Tung Chung Valley, Yu Tung Road and Ma Wan Chung Contract No. NL/2023/10

WASTE MANAGEMENT PLAN

Document No. CRECJV/NL202310/WMP/rev.04

Rev	Date	Prepared By	Approved By
		Environmental Officer	Site Agent
04	06/01/2026	Ting Chi Pan	Dennis Chen

Contents

List of Appendices

Abbreviations List

C&D	Construction & Demolition
CEDD	Civil Engineering and Development Department
CM	Construction Manager
CHIT	Disposal Delivery Form
DSD	Drainage Services Department
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
PFRF	Public Fill Reception Facility
PM	Project Manager (CREC)
PMR	Project Manager (ARUP)
SA	Site Agent
TTS	Trip Ticket System
WAC	Waste Acceptance Criteria
WFT	Waste Flow Table
WMP	Waste Management Plan

Revision History

Rev. No.	Issue Date	Amendment Section	Content	Amended By
draft	13-11-2025	Draft Submission (WMP)		Ting Chi Pan
01	25-11-2025	Amend comments from RSS, ET & IEC		Ting Chi Pan
02	4-12-2025	Amend comments from RSS, ET & IEC		Ting Chi Pan
03	5-12-2025	Amend comments from RSS, ET & IEC		Ting Chi Pan
04	6-1-2026	Amend comments from EPD		Ting Chi Pan

1. PROJECT DESCRIPTION

This Waste Management Plan (WMP) is developed CREC Joint Venture(known as CREC JV) in the execution of the following works. Environmental Permit (EP-519/2016) of this Project has been issued by Environmental Protection Department and the Waste Management Plan is to be prepared under EP Condition 2.24.

The works to be executed under the contract involve Tung Chung New Town Extesion – Infrastructure Works at Tung Chung Valley, Yu Tung Road and Ma Wan Chung (Contract No.: NL/2023/10). The works as described below:

(a) Site clearance (including, but not limited to, the demolition of the existing building structures);

(b) Village sewerage works and upgrading works;

(c) Roadworks (including, but not limited to, provision of run-in / out) at Yu Tung Road;;

(d) Construction of roads L22 and L24 (including, but not limited to, construction of bridges) with associated infrastructural and geotechnical works;

(e) Modification of downstream of Tung Chung Stream (including, but not limited to, demolition of an existing bridge, construction of temporary bridges and construction of bridge);

(f) Construction of sewage pumping stations at Ma Wan Chung and Tung Chung Valley North with associated geotechnical works;

(g) Tree felling, transplanting and compensatory planting works with associated landscaping works;

(h) Provision of attenuation & treatment ponds in Area 45E;

(i) Modification of sewerage network at Tung Chung Road;

(j) Ground investigation, geotechnical and building instrumentation monitoring works;

(k) Management, maintenance, operation and servicing of waterfront promenade and CLC buildings;

(l) Management, maintenance, operation and servicing of the Temporary Yard Waste Workshop;

(m) Associated civil, geotechnical, structural, building services systems, electrical and mechanical engineering and landscaping works;

(n) Implementation of environmental mitigation measures, environmental monitoring and audit programme for the works mentioned above; and

(o) Other works which are shown on the Drawings or specified in the Specifications.

The Works do not involve any land formation nor surcharge operation.

1.1 Purpose of the Plan

This Waste Management Plan (WMP) aims to describe the arrangements for avoidance, minimisation, 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 with mitigation measures.

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 CREC JV's management;
(c) Establishing the waste management procedures for avoidance, minimisation, material reuse/recovery/recycling, collection, transportation, storage and disposal of wastes generated from the activities.

1.2 Waste Management Policy

To demonstrate CREC JV's commitment on the continual improvement of our waste management performance, an Integrated Management Policy includes the waste management has been established. It aims to communicate CREC JV's 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 policy will be reviewed by relevant parties periodically and will be displayed on notice board for the workforce.

The Environmental Policy Statement is listed below:

中國中鐵聯營
CREC JOINT VENTURE

Environmental Management Policy

CERC JV(The Company) is conscious of the need and status intention to strive, through self-management, to ensure that the Client's contractual and statutory requirements under any contract is satisfactorily fulfilled in terms of environmental aspects on a planned and systematic manner. The company intends to commit client requirements and increasing client satisfaction through maintaining the environment of continual development and improvement of its products, services, and effectively communicating the policy to the relevant parties working for or on behalf of the company.

The company commits to continually improve its environmental performance and, ultimately, to minimize or even prevent any environmental impacts of its operations, activities, products, and services. The company will identify materials, processes, products and wastes that cause or may cause pollution, and will implement measures to avoid, reduce or control pollution where technically and environmental viable. Also, the Company will comply with applicable environmental laws, regulations, codes of practice, and other requirements which relate to the environmental aspects to which the company subscribes. To achieve and maintain compliance, the Company will develop and maintain management systems for identifying relevant requirements and for monitoring performance of related activities.

The management and process objectives are used as appreciate to the nature of work in order to monitor the effectiveness of the Environmental Management System and express the commitment to continual improvement,

To achieve these objectives, the Company establishes and operates a formal Environmental Management System that fully complies with the requirements of ISO 14001:2015 as described in this Manual. Every single individual working for or on behalf of the Company should understand and follow this System.

This Management System covers the following:
-Construction of civil engineering works (site formation, roads and drainage, waterworks)
-Design and construction of civil engineering work (road)

Steven, Song Wen Bin
Project Manager
3 November 2025

2. REGULATIONS AND GUIDELINES

2.1 General

Various types of wastes would be generated during the course of the Project (Contract No.: NL/2023/10) 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 summarised in the sections below.

2.2 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:

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

2.2.1 The Waste Disposal Ordinance (WDO)

The Waste Disposal Ordinance (WDO) prohibits the unauthorised disposal of waste. Construction waste is not directly 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.

2.2.2 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 utilising 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.

2.2.3 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.

2.2.4 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.

2.2.5 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 unauthorised (unlicensed) sites.

2.2.6 Related Licence and Permits

CREC JV 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 354C);
- 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 354N).

2.3 Non-Statutory Regulations

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

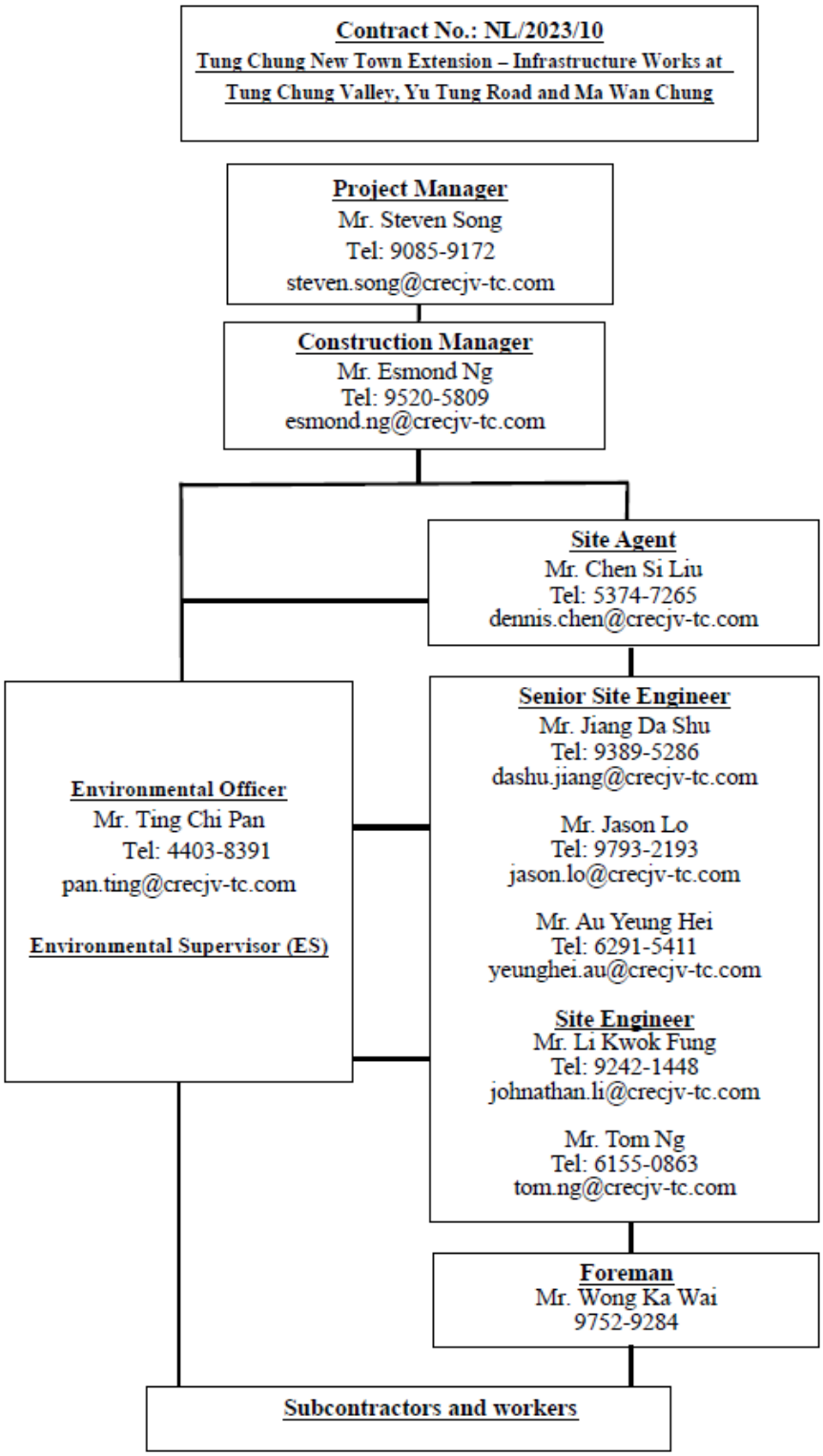
- Waste Disposal Plan for Hong Kong (1989), Planning, Environmental and Lands Branch Government Secretariat;
- Environmental Guidelines for Planning in Hong Kong. Hong Kong Planning Standards and Guidelines (1990);
- New Disposal Arrangements for Construction Waste, EPD and CEDD (1992);
- Code of Practice 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;
- Works Branch Technical Circular No. 29/2000, Waste Management Plan, Works Bureau, HKSAR Government;
- Environment, Transport and Works Bureau Technical Circular (Works) (PAH Chapter 4 Section 4.1.3), Management of Dredged/Excavated Sediment, Environment, Transport and Works Bureau, HKSAR Government;
- Works Branch Technical Circular (PAH Chapter 4 Section 4.13 & Appendix 4.14), 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;
- Works Bureau Technical Circular No. 25/99, 25/99A and 25/99C, Incorporation of Information on Construction and Demolition Material Management in Public Works Sub-committee Papers, Works Bureau, HKSAR Government;
- A Guide to the Registration of Chemical Waste Producers; and
- A Guide to the Chemical Waste Control Scheme.
- Works Bureau Technical Circular No. 6/2010, Trip-ticket System for Disposal of Construction and Demolition Materials.
- Environmental, Transport and Works Bureau Technical Circular (Works) No. 19/2005, Environmental Management on Construction Sites
- Hong Kong Planning Standards and Guidelines (2020)

3. PROJECT ORGANISATION

The Project Environmental Management Organisation Chart depicting the functional inter-relationship of personnel is shown in **Figure 3.1**. The purpose of this is to clearly indicate the managerial control, the reporting structure and the interface relationship between all parties involved in the Trip Ticket System (TTS) issue prior to issue of the disposal record to the Project Manager (PMR).

Figure 3.1: Organisation Structure for Environmental Management Team of CRECJV



Duties and Responsibilities

The environmental roles and responsibilities are summarised in the following table:

Title	Responsibilities
Project Manager (PM) / Construction Manager (CM) / Site Agent (SA)	• Responsible for ensuring commitment to environmental performance is fulfilled and assigning adequate resources and facilities to provide an effective implementation of waste management on site; • Attend the Site Safety & Environmental Committee (SSEC) Meeting if required; • With the assistance of the Environmental Officer, oversee the implementation and performance of the WMP; • Responsible for all site operations, staff supervision, control, coordination & planning, external liaison as well as implementing and monitoring necessary corrective actions; • Carry out immediate action to rectify any non-compliance of this WMP as well as handle any complaints received; and • Ultimately responsible for the company's environmental performance on site.
Environmental Officer (EO) or the Assigned Person	• Overall coordination, monitoring and overseeing the performance and implementation of the WMP for the Contract and directly reports to the PM/CM/SA; • Review and revised the Waste Management Plan 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 suggest remedial action; • Update the monthly summary of Waste Flow Table (WFT); • Update the monthly summary of Use of Timber; • Record regarding the handling of chemical wastes; • Record regarding the disposal of all construction and demolition waste to public filling area and landfills; • Co-ordinate with Environmental Team to ensure waste management issues are properly handled; and • Attend the Site Safety & Environmental Committee (SSEC) Meeting.
Environmental Supervisor (ES)	• Responsible for the implementation of this Waste Management Plan with the assistance of the General Foreman / Senior Foreman / Foreman; • Assist the EO to rectify any non-conformances being identified;

	• Responsible for collecting chit records to update the Daily Record Summary (DRS); • Attend environmental meetings whenever necessary; • Assist with EO on any environmental matter; • Carry out ad-hoc environmental inspections to identify deficiencies on site; and • Attend the Site Safety & Environmental Committee (SSEC) Meeting.
Site Engineer (SE)	• Coordinate with the EO regarding the implementation of all appropriate waste mitigation measure; and • Report to the PM/CM/SA/EO regarding any non-compliance of waste management plan.
General Foreman (GF) / Senior Foreman (SF) / Foreman (F)	• Responsible for implementing and overseeing the operation of the TTS Implementing and overseeing the operation of the TTS including but not limited to fill in and sign Part 1 of the Daily Record Summary (DRS) properly before departure of the truck; • To manage each exit from the site to ensure each dump truck carrying C&D materials bears duly completed, signed/stamped DDF; • Assisting in the daily implementation of the Waste Management Plan including to ensure all waste is sorted, segregated, recycled or reused when applicable; • Ensuring waste is avoided and/or minimised as much as practically possible; • Signed the CHIT after ensuring the trucks leaving the site are all compliance the requirement; and • Ensuring the Waste Management Plan is followed and all appropriate paperwork to be collected and signed off.
Sub-contractors and workers	• Follow and implement this Waste Management Plan measure on site; • Report non-compliance to CREC JV; • Keep the site cleaning; • Attend Site Safety & Environmental Committee (SSEC) meeting; and • Follow the corrective and/or preventive action suggested by CREC JV.

4. IDENTIFY THE WASTE ARISING FROM THE PROJECT

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

- Non-Inert C&D waste (Including, waste wooden boards, non-recyclable plastic, empty container and packaging) & General refuse;
- Inert C&D Waste (including, broken concrete, asphalt, bricks, sand, aggregate);
- Yard Waste (Tree Trunks and Branch)

- Chemical waste;
- Recyclable waste (Metallic waste, recyclable plastic, cardboard and paper packaging)

4.1 Analysis of Waste Generation

Different types and quantities of waste will be generated throughout the construction activities and daily operation of the construction site. The major construction activities and the associated waste generating operations are identified as follows:

- Excavated materials (Inert C&D Waste)
- Site clearance, preparation establishment (Inert C&D Waste & Yard Waste)
- Scrap metals from piling construction and demolition (Metal)
- Timber from temporary work construction (Non-inert C&D Waste, and General Refuse)
- Debris from demolition (Inert C&D Waste)

Slurry/bentonite, hazardous waste and excavated sediments are not expected to generated through the project.

Table 4.1 Proposed Types of Waste and Disposal Outlet

Type of Waste		Generated from Project (m^3/kg/Tonnes/L)	Activities will generate	Re-used / recycle on site/on other Projects	Target recycling rate	Disposal (m^3/kg/Tonnes/L)	Proposed Disposal Outlet
Inert C&D Waste		111846T	Site formation works / Excavation works	25000 T	22.4%	86846T	Tuen Mun Area 38 Fill Bank
Non-inert C&D Waste and General Waste		915 T	Site formation works	0	N/A	915 T	NENT landfill
Yard Waste		370T	Tree felling and pruning	37T	10%	333 T	Accepted local recycled wood / wood-plastic-composite manufacturers(s) / Y-Park/NENT landfill
Chemical waste		400L	Machine maintenance, renovation work.	0	N/A	400L	Licensed Collector (ECO Space Limited / CWTC)
Recyclable waste	Metal	100T	H-pile, sheet-pile, Rebar	60 T	60%	40 T	Baguio Waste Management & Recycling Limited Phone: 34436315 Email: waste@baguio.com.hk
	Plastic	300 kg	Waste water Barrier/plastic railing, plastic bottle	180 kg	60%	120 kg	Baguio Waste Management & Recycling Limited Phone: 34436315 Email: waste@baguio.com.hk
	Paper / Cardboard	500kg	Packaging, Site office	250kg	50%	250 kg	Baguio Waste Management & Recycling Limited Phone: 34436315 Email: waste@baguio.com.hk
	Glass	50kg	Waste glass, bottle	30kg	60%	20 kg	Baguio Waste Management & Recycling Limited Phone: 34436315 Email: waste@baguio.com.hk

5. RECYCLING RATE TARGET

The following performance targets shall be achieved:

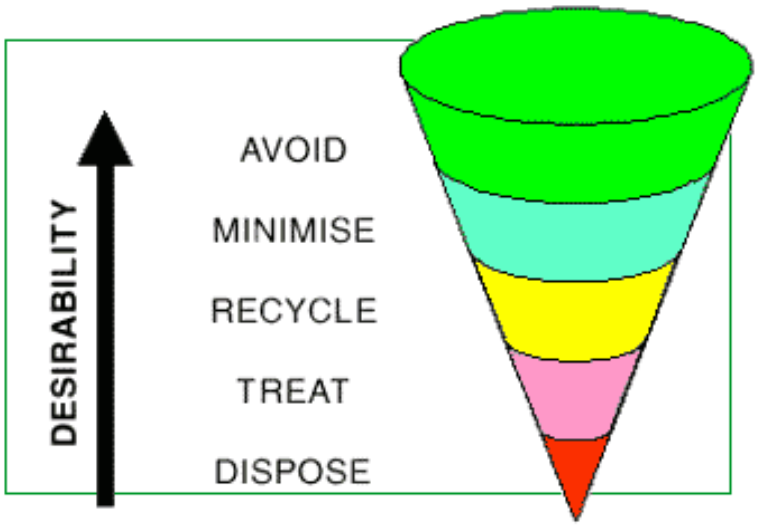
- 60% recovery of metallic waste;
- 50% recovery of non-contaminated paper and cardboard;

6. SITE SPECIFIC WASTE MANAGEMENT

6.1 Waste Policy Principles

Key to waste management is to reduce the amount of waste generated from the work site. The hierarchy of waste management 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 minimising over ordering or misuse of construction materials. Thereafter, encourage reuse and recycling of construction waste. The overall objective is to reduce and minimise 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

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

6.2 Waste Management Hierarchy

The waste management hierarchy will be applied and development of mitigation measures for waste which aims at evaluating the desirability of waste management methods and includes the followings in descending preference:

- Avoidance and reduction of waste generation;
- Reuse of materials as far as practicable;
- Recovery and recycling of residual materials where possible; and
- Treatment and disposal according to relevant laws, guidelines and good practices.

6.3 Good Site Practices

The following good site practices are recommended throughout the construction activities

- nomination of an approved personnel, such as a site manager, 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 site cleanliness, appropriate waste management procedures and concepts of waste reduction, reuse and recycling;
- provision of sufficient waste disposal points and regular collection for disposal;
- imposition of penalty system on CREC JV's improper behaviours when illegal dumping and landfilling outside their respective construction sites, i.e. on nearby farmlands and riverbanks, are reported;
- appropriate measures to minimise windblown litter and dust during transportation of waste by either covering trucks or by transporting wastes in enclosed containers;
- regular cleaning and maintenance programme for drainage systems, sumps and oil interceptors; and
- CREC JV should prepare a Waste Management Plan (WMP) as part of the Environmental Management Plan (EMP) in accordance with the ETWB TC(W) No. 19/2005 for construction phase. The EMP should be submitted to the PMR for approval. Mitigation measures proposed in the EIA Report and the EM&A Manual should be adopted.

6.4 Waste Reduction

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

- All dumped material should be sorted on site and approach, discuss and agree with CREC JV of interfacing contracts for disposal of inert construction waste for reuse, recovery and recycling;
- 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 minimise waste generation;
- Use of metal formworks and hoardings, and they would be recycled after demolition on site as far as it can before disposal.

Good management and control of construction site activities / processes can minimise the generation of waste. Waste reduction is best achieved at the planning and design stage, as well as by ensuring the implementation of good site practices. Recommendations to achieve waste reduction include:

- Segregate and store different types of construction related waste in different containers, skips or stockpiles to enhance reuse or recycling of materials and their proper disposal;
- Provide separate labelled bins to segregate recyclable waste such as aluminium cans from other general refuse generated by the work force, and to encourage collection by individual collectors;
- Any unused chemicals or those with remaining functional capacity shall be recycled;
- Maximising the use of reusable steel formwork to reduce the amount of C&D material;

- Prior to disposal of C&D waste, it is recommended that wood, steel and other metals shall be separated for re-use and / or recycling to minimise the quantity of waste to be disposed of to landfill;
- Sort out demolition debris and excavated materials from demolition works to recover reusable/recyclable portions (i.e. soil, broken concrete, metal etc);
- Adopt proper storage and site practices to minimise the potential for damage to, or contamination of, construction materials;
- Plan the delivery and stock of construction materials carefully to minimise the amount of surplus waste generated;
- Adopt pre-cast construction method instead of cast-in-situ method for construction of concrete structures as much as possible; and
- Minimise over ordering of concrete, mortars and cement grout by doing careful check before ordering.

Measures to be implemented on site office to encourage waste avoidance/ minimisation 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; and
- Deploying sufficient recycle bins in site offices to facilitate collection of recyclables including wasted aluminium cans, plastics bottles and papers.
- Provide training to workers on the importance of appropriate waste management procedures, including waste reduction, reuse and recycling.

6.5 On-Site Sorting and Temporary C&D Waste Disposal Area

Waste facilities will be provided on site to facilitate on-site sorting, collection and temporary storage of waste materials, they include:

- Designated area for temporary storage of Inert C&D Material;
- Designated area for temporary storage of C&D Material;
- Recycling cages for collection of waste metal, plastic and paper;
- Recycling bins for collection of waste papers, cans and plastic bottles; and
- Designated storage area for chemical waste.

6.6 Handling of C&D Materials

The storage, collection and transport of the C&D materials will be carefully planned and implemented to minimise any adverse impact upon the environment. The C&D materials generated will be sorted on site into public fill and C&D waste for recycling as appropriate in accordance with Works Bureau Technical Circular No. 5/98 for on-site sorting of Construction Waste on Demolition Site, Works Bureau, HKSAR Government, or subsequent disposal at approved strategic landfills and public filling areas. Wherever practicable, the GF/SF/F will arrange the segregation of these wastes on site in order to maximise the recovery of reusable and recyclable materials. Separate areas will be designated for segregation and storage where site-specific conditions allow.

The segregated types of C&D materials will be stored in separate covered storage areas to avoid possible cross contamination and loss due to windblown and fugitive dust. If the C&D materials are to be temporarily stored in piles on site, they will either be covered with

a tarpaulin or watered regularly to prevent the emission of fugitive dust. The GF/SF/F will ensure that C&D materials are removed from their origin and processed at designated points in a timely manner.

Materials of recyclable value, such as steel mesh, reinforcement bars, window frames, railing, banisters, wooden planks, etc., will be separated from other C&D materials. These materials will either be reused by CREC JV on site or be sold and collected by an external licensed waste recycling agent. If an external recycling agent is required, details of the nominated company will be submitted to the PMR.

Collection and Transportation of Waste

The following recommendation should be implemented to minimize the impacts:

- Remove waste in timely manner;
- Employ the trucks with cover or enclosed containers for waste transportation;
- Obtain relevant waste disposal permits from the appropriate authorities;
- Disposal of waste should be done at licensed waste disposal facilities

6.6.1 On Site Sorting

Sufficient space will be provided to accommodate the separation of inert and non-inert materials and a unique access checkpoint with security control. The SE/GF/SF/Foreman will manage the on-site sorting facilities and promptly remove all the sorted and processed materials arising from or in connection with the works from the site to minimise the extent of temporary stockpiling on the site. The categories of C&D materials to be sorted within the on-site sorting facilities include:

- Inert materials consisting of earth, building debris, rock fragments, concrete bricks, tiles, masonry and mortar etc;
- Metals;
- Plastic;
- Paper/ cardboards; and
- Timber

Following the sorting of these wastes, they will be sent separately for reuse and recycling, processing or disposed of as described in the following sections.

Other than large on-site sorting facilities, CREC JV will provide separate refuse and recycling bins to collect different types of refuse generated by the site office and the workforce. These will include bins to collect general refuse such as food waste and recycling bins to collect wastepaper separately, plastic bottles and aluminium cans. These bins will be provided in common areas where the wastes are commonly generated such as site offices, workshops, canteen and other site accommodation areas for the workers.

6.6.2 Inert C&D Materials

The remaining inert C&D materials, following site sorting, will be managed as follows:

Excess Excavated Material

In order to minimise the amount of excess excavated material to be delivered to public fill facilities, the priority for the management options of excess excavated material will be as followings: -

- Suitable excavated material will be stored for backfilling purposes;
- Maintain temporary stockpiles and reuse excavated fill material for backfilling;
- Carry out on-site sorting;
- Make provisions in the Contract documents to allow and promote the use of recycled aggregates where appropriate;
- Implement a trip-ticket system for each works contract to ensure that the disposal of C&D materials are properly documented and verified, so as to avoid the illegal dumping and landfilling of C&D materials on farmlands/ riverbanks at TCW;
- Excess excavated material will be transported to other projects for reuse as approved by the PMR;
- The ET and IEC will be informed of other projects/sites for reuse of excess inert C&D materials approved by PMR; and
- Only the amount of excavated material remaining after reused for backfilling purposes will be transported to the public fill facilities.

Inert C&D materials which are to be disposed to public filling outlets will be broken down to a size less than 200mm. Wet soil with free water or a liquid content of over 70% and other materials such as marine mud, pond mud, household refuse, plastic, metal, industrial and chemical waste matter etc. will not be loaded into the dump truck. This will be controlled by the GF/SF/F during the earthwork operations and further verified at the exit checkpoint by GF/SF/F before the trip ticket is issued for each truck.

Concrete Waste

The surplus concrete after each concrete pour will be used for some minor pre-cast elements where practicable. Dry concrete waste, including broken concrete from demolition works, will be sorted out from the other wastes for reuse in site temporary road construction.

All the remaining inert C&D materials will be transported to public fill as specified. The trip ticket system will ensure there is no illegal dumping of the above-mentioned materials.

6.6.3 Non-Inert C&D Materials

Timber Waste

CREC JV will avoid, reduce and minimise the use of timber in temporary works construction. Where the timber is used for this purpose or for one process/ activity with an estimated quantity exceeding 5m^3, CREC JV will submit method statement to the PMR for agreement prior to the commencement of the works.

Description, justification and the estimated quantity for every work process/ activity requiring the use of timber for temporary works construction will be documented in form of summary table in **Appendix E** which will be updated and submitted monthly to the PMR

by the EO together with the monthly summary Waste Flow Table (WFT) for the purpose of ongoing monitoring and review. When timber waste has arisen on site, it will be sorted and collected daily by an assigned work team and will be stored in a designated storage area for subsequent use or collection by recycling contractors.

Metal Wastes

CREC JV will avoid and reduce metal waste during the design, planning and construction process. Cut metal or steel bar will be considered for re-use in temporary or minor works on site. When metal waste has arisen on site, it will be sorted and collected daily by an assigned work team and stored in a designated storage area for subsequent use or collection by recycling contractors.

Plastic Wastes

CREC JV will also avoid and reduce plastic waste during the design, planning and construction process. It will be considered for re-use in temporary or minor works on site. When plastic waste, including water barrier, road lantern, safety helmet, has been arisen on site, it will be sorted and collected daily by an assigned work team and stored in a designated storage area for subsequent use or collection by recycling contractors.

General Refuse and C&D Waste

Un-recyclable, non-inert C&D materials, i.e. C&D wastes, and general refuse, which mainly consists of food waste, aluminium cans and wastepaper, will be generated from construction activities, workers and the site office.

The C&D waste will be temporarily stored and containers or skips with openable doors will be provided for temporary waste storage to prevent odour, pest and windblown litter. The containers or skips will be located at a demarcated area

Recycled paper will be used for the Project. Usage of recycled paper will be further reduced by printing all documents, submissions and letters on both sides. Use of soft copy document instead of hard copy document is also encouraged. Printing of colour document is discouraged except it is absolutely necessary. Sacks for wastepaper and baskets for reusable papers will be provided in the Site office. The used paper shall also be collected by recycler for recycling. Further waste management will be implemented, if necessary.

General refuse including food and domestic waste will be stored in enclosed bins or compaction units separate from the construction and chemical wastes. Lunch boxes, plastic bottles, containers, plastic sheets and foam will be sorted and stored in separately labelled bins for subsequent recycling. Reputable recycle contractors will be employed to collect recyclable materials. The amount of waste to be recycled will be recorded, controlled and monitored through the maintenance of WFT.

The general refuse and the un-recyclable C&D waste will be collected and disposed of on a regular basis to minimise the likelihood of odour, pests and litter. They will be transported and disposed of by a licensed waste haulier to strategic landfill. A trip-ticket system to trace the transportation and destination of the waste will be implemented and the burning of refuse on the site will be strictly prohibited.

Yard Waste

Yard Waste including (a) Grass clippings, leaves, bushes, shrubs and twigs; (b) Tree Trunks and branches; (c) Tree stumps shall be sorted on site for the purpose of recycling and should not be considered as waste for disposal except for the parts of plant carrying contaminants, chemical residues, diseases or pests. Yard waste without contaminants, chemical residues, diseases or pests shall be disposed of at site for reuse or recycling, accepted local recycled wood/wood-plastic-composite manufacturer(s)/Y-Park. Cut tree trunks with no longer than 6 meters and tree branches with twigs and leaves attached to the truck could be sent to Y-Park for recycling Yard Waste.

A Temporary Yard Waste Disposal Workshop will be set up to cut and shredded into wood chips in order to meet the collection requirement of recycling outlets. A 3-Bin Composting System will also be set up to collect, sort and chip yard waste appropriate for composting.

6.7 Excavated Contaminated Soil

Land contamination issue is subject to site investigation conducted prior to construction. Guidelines/Recommendations stipulated in land contamination guidelines/manual and other land contamination plans/reports are required to be implemented prior to the construction phase to minimize any potential exposure to contaminated soils or groundwater.

6.8 Chemical Waste

For chemical waste produced by a process, as defined by Schedule 1 of the *Waste Disposal (Chemical Waste) (General) Regulation*, a 'Chemical Waste Producer' registration will be made with EPD.

Chemical wastes are likely to be generated during maintenance of plant and equipment and these may include spent filter cartridges containing heavy metals, spent batteries, used mechanical oil, cleaning fluid, spent solvents, lubricating oil and paints and paint containers.

All chemical wastes generated on site will be stored and labelled in accordance with the *Code of Practice on the Packaging, Labelling and Storage of Chemical Waste* published by EPD. All workers involved in the handling of chemical waste will be trained properly and will be provided with appropriate protective clothing.

The sorting and segregation of chemical waste will be carried out on site to ensure the waste is appropriately handled, labelled and treated prior to disposal off-site. The recoverable chemical wastes such as oil, paint and solvent, will be separated from other chemical wastes and an EPD licensed chemical waste collector will be employed to collect the chemical waste.

6.8.1 Handling of Chemical Waste

Handling of chemicals will be conducted in accordance with the *Factories and Industrial Undertakings Ordnance,* and the following measures should be adopted:

- No smoking is allowed in or near areas where chemicals are used or stored;
- Where necessary, chemicals should be used in accordance with the instructions given in MSDS. These documents are to be kept by the Safety Officer. All workers can request to access these documents;
- Where necessary, personal protective equipment and clothing, such as gloves and goggles should be worn while dispensing or using chemicals.

6.8.2 Storage of Chemical Waste

Chemical waste will be stored at designated storage areas in accordance with the *Code of Practice on the Packaging, Labelling and Storage of Chemical Waste*. The containers to be used for the storage of chemical waste will:

- be suitable for the substance they are holding, resistant to corrosion and be maintained in a good condition and kept securely closed;
- have a capacity of less than 450L 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.

Chemical Waste Store

The storage area for chemical waste will:

- be clearly labelled and used solely for the storage of chemical waste;
- be enclosed on at least three sides;
- have an impermeable floor and be bunded to accommodate 110% of the volume of the largest container or 20% by volume of the chemical waste stored in that area, whichever is greater;
- have adequate ventilation;
- be covered to prevent rainfall entering (water collected within the bund must be tested and disposed as chemical waste if necessary);
- be arranged so that incompatible materials are adequately separated; and
- be located away from watercourse (Tung Chung Stream).

6.8.3 Disposal of Chemical Waste

A licensed waste collector will be employed to deliver the chemical waste to the Chemical Waste Treatment Centre (CWTC) in Tsing Yi or others authorised by EPD. The trip-ticket system will be strictly implemented to ensure the chemical waste is transported by and to proper agents. Trip tickets issued for every chemical waste collection will be retained and filed for future reference and inspection.

6.9 Hazardous Materials Including Asbestos Handling and Disposal

CREC JV will identify and report to the *Supervisor's* Representative the presence of hazardous materials on Site. If CREC JV encounters any hazardous materials including asbestos, he will employ Specialist Contractor to the approval of the *Supervisor's* Representative and other relevant Government departments to dispose of the hazardous materials. CREC JV will submit to the *Supervisor's* Representative and other relevant Government departments method of disposal, location for disposal etc. for approval. CREC JV will seek agreement with Environmental Protection Department the location of disposing the hazardous material and will keep the Supervisor's Representative informed of such agreement.

Should buildings be found with potential Asbestos Containing Materials (ACM), sufficient and reasonable lead time shall be allowed for preparation, vetting and implementation of Asbestos Investigation Report and Asbestos Abatement Plan in accordance with Air

Pollution Control Ordinance before commencement of any demolition or site clearance work. The handling and disposal of ACM will be carried out in accordance with the EPD's Code of Practice on Handling, Transportation and Disposal of Asbestos Waste and ProPECC PN 2/97 Handling of Asbestos Containing Materials in Buildings.

6.10 Emergency Response Procedures

Emergencies on the construction site may result in adverse impacts to the surrounding environment. Potential emergencies are identified below together with procedures formulated to deal with such situations.

6.10.1 Handling of Environmental Emergency

In the event of an environmental emergency, the following procedure will be followed:

- Immediately report the environmental emergency to the CM/SA/CTL, EO, SE, PMR, ET, IEC and CEDD;
- If necessary, notify the Police and evacuate all staff to a safe place outside the site;
- Identify the source and cause of environmental emergency and cease such activity as necessary;
- Carry out any remedial action to rectify the emergency situation;
- Recommence work activity if the emergency situation has been rectified; and
- Keep a record of the environmental emergency and remedial action taken.

6.10.2 Typhoon and Rainstorm

During the typhoon and rainstorm season, the following additional precautions will be taken:

- Temporary main access roads will be protected by crushed stone or gravel;
- If digging/backfilling trenches is necessary, this will be carried out in short sections;
- Stockpiles and temporary exposed slopes will be covered by an impermeable sheeting;
- Intercepting channels or sandbag will be provided at the edge of the excavated area to prevent storm runoff from washing across the exposed surface; and,
- Silt removal facilities, channels and manholes will be maintained, and the deposited silt and grit will be removed regularly
- This drill will be carried out by Safety Department.

6.10.3 Chemical Waste Spillage

Environmental emergency procedures including chemical waste spill will be developed for the Project. Formal written emergency procedures will be provided to staff and workers, and emergency drills will be conducted at 6 months intervals to ensure that people are familiar with the actual emergency. The procedures for dealing with spillage/ leakage of chemical waste will be as follows(Appendix G):

- Immediately report the environmental emergency to the PM, CM, SA, EO, SE, PMR, ET, IEC and CEDD;
- The workers will be instructed to keep at a safe distance from the spillage/ leakage. If necessary, emergency evacuation will be initiated, and the emergency services notified;
- Adjacent worksites and private homes, if any, will be notified for the emergency situation;
- Only trained persons equipped with suitable protective clothing and equipment will be allowed to clean up the spillage/leakage;
- Where the chemical spillage area is small, the spill will be confined within earth barriers and the waste will be transferred back into suitable containers or soaked with suitable

absorbing materials. The used absorbing materials will be treated as chemical waste and transferred to suitable containers for disposal;

- During the clean-up, all heat and ignitable sources will be switched off; and,
- If the spillage/ leakage is large, other concerned parties such as safety, security and subcontractor's representatives will be notified to assess the spillage/ leakage and determine the methods of clean up/ containment. If necessary, the police, emergency services, nearby worksites and residential developments will be notified.
- The spraying of water to wash away the spill will be prohibited since some chemicals are likely to be bought.
- Oil and fuels should only be used and store in designated areas which have pollution prevention facilities. All fuel tanks and storage areas should be sited on sealed areas in order to prevent spillage of fuels and solvents to the nearby watercourses and coastal water. All waste oils and fuels should be collected in designated tanks prior to disposal.
- Maintenance of vehicles and equipment involving activities with potential of leakage and spillage should only be undertaken within the areas which are appropriately equipped to control these discharges.

6.11 Waste Recording System

CREC JV will record the quantities of C&D materials that have been generated each month by making use of the "Waste Flow Tables" (WFT). The monthly summary WFT will be updated on a monthly basis to record the flow of actual C&D waste quantities in **Appendix A**.

The EO will use the Waste Flow Table (WFT) to record the actual quantities of C&D materials generated on Site. The following information will be included:

- Inert C&D materials to be generated in the Contract;
- Inert C&D materials to be reused in the Contract;
- Inert C&D materials reused in other projects or CREC's outlet approved by the PMR;
- Inert C&D material suitable for recycling into aggregates for concrete or sub-base to be disposed of at an Approved location;
- Inert C&D materials for disposal to public filling outlets;
- Steel and other metals for collection by recycling contractors;
- Paper/ cardboard packaging for collection by recycling contractors;
- Plastics;
- Chemical wastes for collection by specialist contractor; and
- General refuses to be disposed of at landfills.

7. WASTE MONITORING AND AUDITING

7.1 Site Procedures for Trip Ticket System (TTS)

7.1.1 Implementation Procedure

For the disposal of C&D materials, CREC JV shall implement and comply with the requirements of the Trip-Ticket System stipulated in Works Bureau Technical Circular No. 06/2010.

CREC JV has applied for a registration as waste producer from EPD under the Construction Waste Disposal Charging Scheme. A billing account has been opened for the payment of waste disposal and chits issued by the Environmental Protection Department.

Each vehicle load of public fill or C&D waste transported off-site shall be accompanied by a duly completed Chit. The chit has 3 sections. The Designated Public Filling Facility / Landfill (operator) will take the 3rd section (with bar code) and return the remaining 2 sections to the truck driver who will return to CREC JV shall be retained. The GF/SF/F will register all completed Chits for subsequent monitoring of the return of the trip ticket after the load has been disposed of and the EO/ES will check that the implementation is adequately carried out.

Wheel wash facilities have to be provided at the site entrance before the trucks leaving the works area. Dust disturbance due to the trucks transportation to the public road network could be minimized by such arrangement.

The GF/SF/F will issue a chit to the truck driver at the gate after checking the truck load and material/waste inside to ensure no overloading and proper control of material/waste disposed. Furthermore, he will also ensure any mud trail on public road from the site is prevented by ensuring that vehicle wheels are properly cleaned prior to exit. This will also be reinforced by the security guard who will control the boom at the exit.

For each trip, the truck driver shall present to the operator of the Designated Public Filling Facility / Landfill (operator) the Chit prior to disposal of the C&D materials. Upon completion of the disposal, the public fill / landfill operator will print-out receipt to acknowledge the disposal. The EO / ES shall collect and verify the chit and the computer receipt. A copy of the chit and computer receipt shall be maintained by the EO for record.

The truck shall proceed to the disposal ground as stipulated in the Contract. If the C&D materials accord with the acceptance criteria, disposal of the materials will be permitted and the facility operator will give CREC JV's truck driver a Transaction Record Slip and stamp the CHIT. When the disposal of waste is not permitted (rejected by facility operator due to overloading or non-compliance with relevant acceptance criteria, closure of facility etc.), the truck will go back to the construction site and CREC JV will sort out an appropriate mitigation measure, including reclassification or reduction of the weight of waste carried.

CREC JV shall maintain a daily record of disposal of C&D materials from the Site including details of C&D materials, the truck number, departure time, etc., using the Daily Record Summary (DRS), a sample of which is given in **Appendix B**. CREC JV shall check the information recorded in the DRS against available information including his own records and data from the website of Civil Engineering and Development Department (CEDD) and complete Part 2 of the DRS form.

Surveillance on the truck drivers will be carried out randomly by following the truck drivers to the point of disposal to ensure that they dispose of C&D material at the designated disposal site and that the disposal activities fully comply with the client's requirements.

For the disposal of C&D materials, CREC JV shall implement and comply with the requirements of the amended Trip-Ticket System stipulated in Development Bureau Technical Circular (Works) No. 6/2010 with inclusion of site monitoring measures, particularly video recording system, for tracking of disposal on inert or non-inert material. On the other hand, the weight measurement records of C&D materials as loaded in the dump trucks before departure from the construction site and upon the delivery to the receiving facilities are to be compared to confirm if irregularities are found.

Video Recording System

CREC JV will:

(i) provide, operate and maintain, including all necessary cables, wirings, lightings and other accessories, a video recording system at each vehicular exit/entrance with gate(s) installed with the following essential features to record all trucks leaving the Sites: The video cameras used in the system shall be of high resolution, lowlight and colour type; power backup shall be provided to cater for accidental breakdown of the power supply to the system; videos captured by the system shall be recorded continuously without break except with the agreement of the PMR, or in the month during which there is no disposal of C&D materials off the Site for the entire month; videos shall be captured in a format acceptable to the PMR; 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;

(ii) securely protect the video cameras from being damaged or blocked;

(iii) design and construct all necessary temporary works, including any supporting frames and protections, for mounting the video cameras and their accessories;

(iv) provide the software and hardware for capturing the vehicle registration mark, and the time and date for the PMR's immediate taking and viewing of photograph of every truck leaving the Site and viewing the recorded videos;

(v) keep the videos record for at least 60 days and the photographs until such time as instructed by the PMR;

(vi) 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; and

(vii) if a video camera system cannot be installed at the exit, propose alternative methods of control to the PMR, who may accept such proposals if he is satisfied that the proposals are equally effective.

7.1.2 Trip-ticket System for Disposal of C&D Materials to Approved Alternative Disposal Ground

- Maintain a daily record of disposal of C&D materials from the Site including Disposal Delivery Form (DDF) numbers, vehicle registration numbers, approximate volume, C&D materials type, approved alternative disposal ground, departure time from the Site, actual disposal ground and arrival time at disposal ground, using the

Daily Record Summary (DRS);

- Submit the duly completed Part 1 of the DRS in duplicate before departure of the truck;
- When leaving the Site, each and every vehicle transporting C&D materials including both the inert and non-inert portion, must bear a DDF. A sample of the DDF for alternative disposal ground is shown at **Appendix D**. The DDF shall be duly completed and authorized by the PMR;
- Carry the DDF on board the vehicle at all times throughout the vehicular trip to the Approved alternative disposal ground as stipulated in the DDF;
- For each vehicular trip after disposal of C&D materials, ensure that the DDF is signed off by a competent person as agreed by the PMR at the Approved alternative disposal ground to confirm completion of each trip. Keep a copy of the DDF for inspection by the PMR upon request. Complete Part 2 of the DRS form and submit it to the PMR within 3 working days after the date of disposal; and
- Where an irregularity is observed or where requested by the PMR under special circumstances (e.g. a DDF has been issued but there is no disposal record at the Approved alternative disposal ground), submit to the PMR within 5 working days after the recorded date of disposal the supporting evidence such as the signed off DDF to confirm proper completion of the delivery trip(s) in question, or within 2 working days after the PMR has requested for such evidence, whichever is later.

7.1.3 Prevention of Overloading

CREC JV shall properly estimate the volume of C&D materials that can be carried by different dump trucks according to the permissible loading capacity of the dump trucks and the properties of the C&D materials, e.g. the bulk density with reference to the composition, moisture content and past data return, etc., in order to establish effective control measures to prevent overloading of dump trucks. They include:

- Height limit of the skip of the dump truck with consideration of its plan area and arrangement of measuring scale from the bottom of the skip; and/or
- Maximum number of grabs of the C&D materials loaded with the backhoe onto the dump truck with consideration of the grab capacity of the backhoe.

At the initial stage and any significant change of properties in C&D materials, trial run (means the first disposal dumping trip on that day) should be conducted with margin to avoid overloading in order to establish reference parameters for effective control of overloading. Whenever necessary, these control measures should be reviewed promptly to suit the prevailing site conditions.

Photos shall be taken to record the condition of materials in the skip of the dump truck and the related dump truck number for close monitoring and feedback control. Frequency of taking photo record can be adjusted in accordance with degree of monitoring control. Representative photos shall also be posted at site entrance as examples for reference of dump truck drivers and backhoe operators.

CREC JV shall check the vehicle loads shown on the returned trip ticket/electronic disposal data sheets to monitor its control measures against overloading. These control measures shall be reviewed immediately if there is any deficiency identified.

Furthermore, dump trucks employed will be fitted with pressure gauge for measurement of truck loads in order to avoid overloading. Pressure gauge will be calibrated and for ease of reference, an equivalent load value will be marked on the gauge itself to ensure no overloading will take place. Thus, at the time of loading of C&D waste for disposal the relevant Foreman at the exit will monitor with reference to the mark on the gauge while the loading of the truck takes place. He will also ensure the mechanical cover is in place prior to allowing the truck to leave the site.

7.1.4 Improvement Measures to Prevent Overloading

In order to control overloading effectively, the relevant GF/SF/F/staff will monitor the maximum number of grabs of the C&D materials loaded onto the dump truck against the reference mark on the pressure gauge fitted on the dump truck to ensure no overloading will take place. If the gauge shows value beyond the referenced mark, the extra material will be unloaded prior to issue of chits for disposal. The returned trip ticket/electronic disposal data sheets will be checked to monitor its control measures against overloading. Furthermore, GF / SF / Foremen and staff will be briefed of the control measure.

7.1.5 Training for The Dump Truck Driver

Disposal trip training shall be provided to all truck drivers engaged for removal of C&D materials from the Site and keep the training records. All drivers must fully understand on the following particular points:

Each truck carrying C&D materials leaving the Site for a disposal ground must bear a duly completed chit, irrespective of the location and nature of the disposal ground;

The C&D materials must be disposed of at the designated disposal ground;

For an improper disposal, the Public Fill Committee (PFC) shall consider revoking the Dumping Licence from the holder of the offending trucks; and

Truck drivers must bear a valid Dumping Licence which he can apply from CEDD.

All dump trucks engaged on site shall be equipped with GPS or equivalent automatic system for real time tracking and monitoring of their travel routings and parking locations to prohibit illegal dumping and landfilling of C&D materials.

7.1.6 Mechanical Cover

All dump trucks (i.e. goods vehicles of gross vehicle weight equal to or more than 16 tonnes, fitted with a dump bed) leaving the Site carrying dusty materials shall be fitted with a mechanical cover in good service condition which covers the dump bed.

7.2 Surveillance

The implementation of this document shall be regularly monitored through site monitoring. The monitoring of environmental performance shall be conducted at two principal levels. Firstly, construction personnel shall on an on-going basis, through their normal surveillance of site operations, ensure the compliance of site activities including the operations of subcontractors.

Secondly, the EO/ES or the assigned person shall undertake weekly inspection to ensure satisfactory performance on compliance with this document. Such checks shall be site-wide and encompass all pertinent trip ticket management issues applicable to the on-going works. If required, surprise checks can also be arranged on the disposal locations. In addition, the EO/ES or the assigned person shall verify the site disposal records against the data kept by the government disposal facilities via internet at the below links:

EPD: https://www.epd.gov.hk/epd/misc/cdm/b5_scheme.htm

The Surveillance Team will conduct regular site inspections to identify and report immediately to the IEC, the ER and the PMR on suspected illegal dumping and landfilling of construction and demolition (C&D) materials within the Project site throughout the construction phase.

7.3 GPS Implementation

CREC JV shall implement a GPS System for real time monitoring and to keep record of the speed, travel routings and parking locations of dump trucks collecting C&D materials to and from the Site in order to prevent the dump trucks from travelling above the speed limit at public roads and prohibits illegal dumping and landfilling of C&D materials. In addition, CREC JV shall utilise the GPS System to monitor and ensure that the C&D materials are disposed at locations accepted by the Project Manager (PMR).

Record and Analysis of Data Collected by GPS System

All the dump truck owners and driver that with installation of GPS tracking device inside the vehicle, the corresponding location information including every trip involving disposal of C&D materials from the site to disposal grounds shall be checked by CREC JV and the PMR. GPS vehicle location data of the dump truck will be logged throughout the whole disposal trip. All monitoring is riding at the web-based application (e.g., Autotoll: http://gps.autotoll-gps.com.hk), allowing the users to track the positions of the target vehicles and download reports or summaries via the Internet.

The corresponding historical GPS vehicle location data will be maintained for at least 6 months after any C&D material disposal trips for retrieval if needed.

The GPS location data of the dump truck could be retrieved from the web-based application with output in Excel format. The data set is associated by the following information from the GPS tracking device.

(i). Contract No. and title;

(ii). Fleet name (if appropriate);

(iii). Registration date;

(iv). Vehicle registration mark;

(v). Time;

(vi). Latitude & longitude (NEMA);

(vii). Region (Hong Kong, Kowloon, New Territories);

(viii). District;

(ix). Street name;

(x). Travelling direction;

(xi). Travelling speed;

(xii). Engine status (on or off).

(xiii). Travelling routing;

(xiv). Parking locations of dump trucks;

At the web-based application, the tracking route of dump truck could be located in form of a digital map of Hong Kong and the reporting frequency of GPS tracking device is at every 30 seconds when the engine is ON and every hour when the engine is OFF respectively.

Automatic Notification System

Geofences will be set for the designated disposal locations, i.e. NENT Landfill and TM38 Fill Bank, and other locations approved by the Project Manager / Supervisor. Geofences are designated areas that can be defined on a map. They can either be a certain radius around a single point or any shape that create from several points. When trucks enter/trigger the Geo-fencing Zone, GPS data, such as travelling routes, travelling time for every delivery, etc. via the Automatic Notification System will be recorded. An alert email will be sent to ET, IEC, the Project Manager / Supervisor, the contractor and surveillance team at the end of each working day if the dump truck does not reach designated disposal locations after leaving the project site. Environmental Officer (EO) / Environmental Supervisor (ES) will analyze the GPS data, such as travel routings, parking locations, etc. on a daily basis. The corresponding historical GPS vehicle location data will be maintained for at least 6 months after any C&D material disposal trips for retrieval if needed. EO/ES will also consolidate the GPS data with the Trip Ticket System by merging the corresponding chit number/DDF number, vehicle number, truck build-in weight record, recorded weight of the transaction (Government Facility) or other accepted/ designated disposal ground, etc. for the purpose of cross-checking and analyzing the time used for the delivery, traffic routing, weight difference for any irregularities and suspected illegal dumping situation. It ensures that the trucks are disposing of the C&D materials to the designated disposal locations after leaving the site. Also, ET, IEC, the Project Manager / Supervisor, the contractor and surveillance team can track the real-time position of the trucks on the web-based application.

To ensure that all C&D materials are disposed of at the designated disposal locations, at the end of each working day, in case that any dump truck does NOT reach the designated disposal locations after leaving the project site, the GPS monitoring system will automatically generate alert through email to the relevant parties (e.g. ET, IEC, project manager, contractor, surveillance team, etc.) for follow up on any suspected irregularity and illegal dumping situation. The information of automatic notification includes relevant

details, such as vehicle licence plate, event time, vehicle location, etc. Prohibited Zone on Tung Chung Road (section of Tung Chung Road south of Shek Mun Kap Road and all roads in south Lantau) or other areas designated as prohibited zones in Tung Chung can be set by the real time tracking and monitoring (RTTM) system, and signal (by email) will be sent to ET, IEC, project manager, contractor, surveillance team or other default users immediately once any irregularities/non-compliances are triggered. The notification emails records of the C&D materials disposal by trucks are to be checked by EO/ES to confirm whether all the dump trucks travel to the designated disposal locations after leaving the construction site.

7.4 Reporting Illegal Dumping and Follow-up Action

The approach of the monitoring of C&D materials disposal activities of the dump trucks from the construction site to the designated disposal facilities (e.g. landfills, public fill reception facilities and other locations approved by PMR) includes the following elements:

1. Travelling routes of the dump trucks via the GPS as installed in the dump trucks and the web-based application;
2. Travelling time of the dump trucks via the Automatic Notification System; and
3. Weight measurement records of the C&D materials as loaded in the dump truck before departure from the construction site and received at the designated disposal facilities or other locations approved by PMR.

CREC JV has established procedures to deal with any non-compliance and the principle corrective actions that would be undertaken include:

- Relevant staff including the EO, PM/CM/SA, PMR, ET, IEC and CEDD would be notified immediately in the event of there being a waste related non-conformance or complaint being made;
- The cause of the problem would be immediately investigated, and mitigation measures would be proposed by EO. These would be implemented with approval from the PM/CM/SA and the PMR;
- The PM/CM/SA would ensure that the mitigation measures are properly implemented;
- Further site surveillance by EO would evaluate the effectiveness of the mitigation measures and would immediately advise the PM/CM/SA if non-compliance persists;
- Reporting to the management on problems found, causes identified, improvement actions implemented, intended and the actual effects and any necessary follow-on actions being undertaken;
- Reporting of illegal dumping and landfilling of C&D materials within the Project site throughout the construction phase by the Surveillance Team appointed under the EP condition 2.6; and
- Follow-up actions to be taken by CREC JV and dump truck drivers for committing suspected offences relating to illegal dumping and landfilling of C&D materials.
- CREC JV will discuss with PMR for the follow up actions (e.g. warning letter, cease operation, etc.) if required.

7.5 Preventive Action

In order to ensure the waste related non-conformance would not recur, the following preventive actions would be adopted:

- The EO would liaise closely with the construction team and forecast likely waste impacts, which may arise during the construction period and develop preventive procedures.
- The arrangement and progress of implementing waste management measures on site would be discussed and reviewed in the weekly SSEC meeting;
- The EO would closely monitor the waste management measures by the weekly site surveillance and checking of relevant monitoring results, meeting minutes, permits and reports, etc.; and

The conduct of a training programme to educate site staff about waste management and chemical waste handling on-site.

7.6 Record System

EO/ES or the assigned person shall maintain contemporary records of the following documents in the site office during the Project period:

- Site Management Plan for Trip Ticket System;
- Yearly Waste Flow Table;
- Monthly Summary Waste Flow Table;
- Registration as a Chemical Waste Producer;
- Register of all Disposal Delivery Form;
- Daily Disposal Record;
- Other records like trip tickets on disposal of chemical waste;
- Photographs and various measurement records; and
- Other statutory permits application / renewal.

All records shall be maintained in a legible manner, stored and retained in such a way that they are readily retrievable on site in a suitable environment to prevent deterioration or damage and to prevent loss.

(END)

Appendix A - Monthly Summary Waste Flow Table

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 Rocks and Large Broken Concrete	Reused in the Contract	Reused in other Projects	Disposed as Public Fill	Imported Fill	Metals	Paper/cardboard packaging	Plastics	Chemical Waste	Others, e.g. general refuse
	(in '000 kg)	(in '000 kg)	(in '000 kg)	(in '000 kg)	(in '000 kg)	(in '000 kg)	(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											

Appendix B - Daily Record Summary

"Daily Record Summary" to record daily disposal of construction & demolition (C&D) materials from the *Site
"每日運載記錄撮要" 記錄每日由*地盤所傾倒的拆建物料

(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. 核准入帳單/ 拆建物料運載記錄簿編號	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，承建商的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 1[2]甲部 ← → Part 2[3] 乙部

Submitted by 呈交：

Signature 簽名：

Date 日期:

Received by 接收：

Post 職位：

Date & Time 日期及時間：

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

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

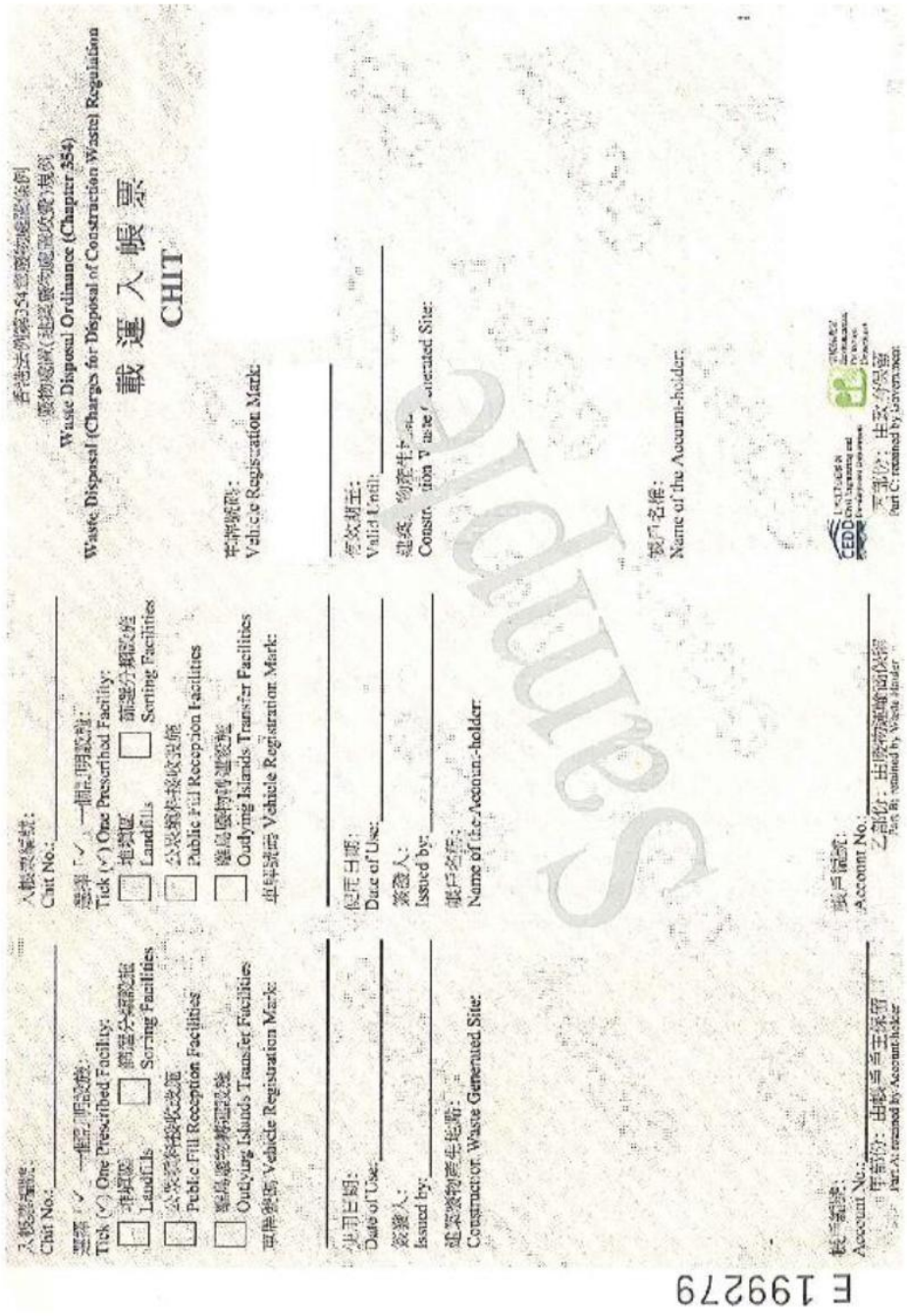
[1] For term contract, if there are no full time site supervisory staff, the Architect/Engineer's supervisory staff should spot check and then sign as appropriate in accordance with paragraph 25 of DEVB TC(W) 6/2010 定期合約，如沒有全職地盤監管人員，應根據 DEVB TC(W) 6/2010 的第 25 段進行定點檢查及簽署

[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撮要於記錄上傳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 C - Sample Chit



Appendix D - Disposal Delivery Form

Serial No. 0012345678

Date of Use:
使用日期:_____

Disposal Ground :
接收設施:

_____

Vehicle Registration Mark. :
車輛號碼:

_____

Issued By:
發放:

_____

(This part retained by Disposal Ground)
(此部份由接收設施保留)

_____
Chop of Disposal Ground 接收設施蓋印

Serial No. 0012345678

Construction and Demolition Materials
Disposal Delivery Form
拆建物料運載記錄單

Contract No: _____ Contract Title: _____
合約編號: _____ 合約名稱: _____

Date of Use: _____ Time of departure from site: _____ Vehicle Registration Mark: _____
使用日期: _____ 離開地盤時間: _____ 車輛號碼: _____

Disposal Ground:
接收設施: _____

Arrival Time/Date:
抵達日期/時間: _____
(This part retained by Contract/Driver)
(此部份由承建商/司機保留)

_____
Chop of Disposal Ground Representative
接收設施蓋印

_____
Chop of *Project Manager*

Appendix E - Summary Table for Use of Timber in Temporary Works

Summary Table for Work Processes or Activities Requiring Timber for Temporary Works

Contract No.: _____

Contract Title: _____

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:
(1) 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.
(2) The summary table shall be submitted to the Engineer's Representative monthly together with the Waste Flow Table for review and monitoring in accordance with the PS Clause 25.24.

Appendix F - Implementation Schedule

WMP Ref.	EIA Ref.	EM&A Log Ref	Recommended Mitigation Measures	Objectives of the Recommended Measures & Main Concerns to address	Implementation Agent	Location / Timing	Implementation Stage	Requirements and / or standards to be achieved
S6.3	S7.4.1	WM1	Good Site Practices The following good site practices are recommended throughout the construction activities: ▪ nomination of an approved personnel, such as a site manager, 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 site cleanliness, appropriate waste management procedures and concepts of waste reduction, reuse and recycling; ▪ provision of sufficient waste disposal points and regular collection for disposal; ▪ imposition of penalty system on Contractors' improper behaviours when illegal dumping and landfilling outside their respective construction sites, i.e. on nearby farmlands and riverbanks, are reported; ▪ appropriate measures to minimise windblown litter and dust during transportation of waste by either covering trucks or by transporting wastes in enclosed containers; ▪ regular cleaning and maintenance programme for drainage systems, sumps and oil interceptors; and ▪ the contractor should prepare a Waste Management Plan (WMP) as part of the Environmental Management Plan (EMP) in accordance with the ETWB TC(W) No.	Minimize waste generation during construction	Contractor	All construction sites	Construction stage	Waste Disposal Ordinance

WMP Ref.	EIA Ref.	EM&A Log Ref	Recommended Mitigation Measures	Objectives of the Recommended Measures & Main Concerns to address	Implementation Agent	Location / Timing	Implementation Stage	Requirements and / or standards to be achieved
			19/2005 for construction phase. The EMP should be submitted to the Engineer for approval. Mitigation measures proposed in the EIA Report and the EM&A Manual should be adopted.					
S6.4	S7.4.1	WM2	Waste Reduction Measures Waste reduction is best achieved at the planning and design phase, as well as by ensuring the implementation of good site practices. The following recommendations are proposed to achieve reduction: ▪ segregate and store different types of waste in different containers, skip or stockpiles to enhance reuse or recycling of materials and their proper disposal; ▪ proper storage and site practices to minimize the potential for damage and contamination of construction materials; ▪ plan and stock construction materials carefully to minimize amount of waste generated and avoid unnecessary generation of waste; ▪ sort out demolition debris and excavated materials from demolition works to recover reusable/recyclable portions (i.e. soil, broken concrete, metal etc.); provide training to workers on the importance of appropriate waste management procedures, including waste reduction, reuse and recycling.	Reduce waste generation	Contractor	All construction sites	Construction stage	Waste Disposal Ordinance
S6.5 S6.6	S7.4.1	WM3	Storage of Waste The following recommendation should be	Good site practice to minimize the	Contractor	All construction	Construction stage	Land (Miscellaneous

WMP Ref.	EIA Ref.	EM&A Log Ref	Recommended Mitigation Measures	Objectives of the Recommended Measures & Main Concerns to address	Implementation Agent	Location / Timing	Implementation Stage	Requirements and / or standards to be achieved
			implemented to minimize the impacts: ▪ waste such as soil should be handled and stored well to ensure secure containment; and Depends on actual site activities, certain locations within the site area would be used for storage of waste to enhance reuse. However, there would not be any designated location for storage of waste, and the storage locations would need to be adjusted to suite actual site conditions;	waste generation and recycle the C&D materials as far as practicable so as to reduce the amount for final disposal		sites		Provisions) Ordinance Waste Disposal Ordinance ETWB TCW No. 19/2005
S6.6	S7.4.1	WM4	Collection and Transportation of Waste The following recommendation should be implemented to minimize the impacts: ▪ remove waste in timely manner; ▪ employ the trucks with cover or enclosed containers for waste transportation; ▪ obtain relevant waste disposal permits from the appropriate authorities; and disposal of waste should be done at licensed waste disposal facilities.	Minimize waste impacts from storage	Contractor	All construction sites	Construction stage	Waste Disposal Ordinance
S6.6.2	S7.4.1	WM5	Excavated and C&D Materials Wherever practicable, C&D materials should be segregated from other wastes to avoid contamination and ensure acceptability at public fill reception facilities or reclamation sites. The following mitigation measures should be implemented in handling the excavated and C&D materials: ▪ maintain temporary stockpiles and reuse excavated fill material for backfilling; ▪ carry out on-site sorting; ▪ make provisions in the Contract documents	Minimize waste impacts from excavated and C&D materials	Contractor	construction sites	Construction stage	Land (Miscellaneous Provisions) Ordinance Waste Disposal Ordinance ETWB TCW No. 19/2005

WMP Ref.	EIA Ref.	EM&A Log Ref	Recommended Mitigation Measures	Objectives of the Recommended Measures & Main Concerns to address	Implementation Agent	Location / Timing	Implementation Stage	Requirements and / or standards to be achieved
			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, so as to avoid the illegal dumping and landfilling of C&D materials on farmlands/ riverbanks at TCW; The recommended C&D materials handling should include: ▪ On-site sorting of C&D materials Reuse of C&D materials					Project Administrative Handbook for Civil Engineering Works, 2012 Edition
S7.1.1	S7.4.1	WM6	Provision of Wheel Wash Facilities Wheel wash facilities have to be provided at the site entrance before the trucks leaving the works area. Dust disturbance due to the trucks transportation to the public road network could be minimized by such arrangement.	Minimize waste impacts from trucks transportation	Contractor	All construction sites	Construction stage	All construction sites
S6.7	S7.4.1	WM7	Excavated Contaminated Soil Guidelines/Recommendations in land contamination assessment guidelines/manual and land contamination plans/reports are required to be implemented prior to the construction phase to minimize any potential exposure to contaminated soils or groundwater.	Remediate contaminated soil	Contractor	All construction sites	Prior to the construction stage	Guidance Note for Contaminated Land Assessment and Remediation, Practice Guide for Investigation and Remediation of Contaminated

WMP Ref.	EIA Ref.	EM&A Log Ref	Recommended Mitigation Measures	Objectives of the Recommended Measures & Main Concerns to address	Implementation Agent	Location / Timing	Implementation Stage	Requirements and / or standards to be achieved
								Land, Guidance Manual for Use of Risk-based Remediation Goals for Contaminated Land Management
S6.8	S7.4.1	WM10	Chemical Waste If chemical wastes are produced at the construction site, the Contractors should register with EPD as chemical waste producer. Chemical wastes should be stored in appropriate containers and collected by a licensed chemical waste collector. Chemical wastes (e.g. spent lubricant oil) should be recycled at an appropriate facility as far as possible, while the chemical waste that cannot be recycled should be disposed of at either the Chemical Waste Treatment Centre, or another licensed facility, in accordance with the Waste Disposal (Chemical Waste) (General) Regulation.	Control the chemical waste and ensure proper storage, handling and disposal.	Contractor	All construction sites	Construction stage	Waste Disposal (Chemical Waste) General) Regulation Code of Practice on the Packaging, Labelling and Storage of Chemical Waste
S6.6.3	S7.4.1	WM11	General Refuse ▪ General refuse should be stored in enclosed bins separately from construction and chemical wastes. Recycling bins should also be placed to encourage recycling. ▪ Preferably enclosed and covered areas should be provided for general refuse collection and routine cleaning for these areas should also be implemented to keep areas clean.	Minimize production of the general refuse and avoid odour, pest and litter impacts	Contractor	All construction sites	Construction stage	Waste Disposal Ordinance

WMP Ref.	EIA Ref.	EM&A Log Ref	Recommended Mitigation Measures	Objectives of the Recommended Measures & Main Concerns to address	Implementation Agent	Location / Timing	Implementation Stage	Requirements and / or standards to be achieved
			A reputable waste collector should be employed to remove general refuse on a daily basis.					
S7.3	N/A	N/A	GPS Implementation GPS System shall be implemented for real time monitoring and to keep record of the speed, travel routings and parking locations of dump trucks collecting C&D materials to and from the Site in order to prevent the dump trucks from travelling above the speed limit at public roads and prohibits illegal dumping and landfilling of C&D materials. In addition, CREC shall utilise the GPS System to monitor and ensure that the C&D materials are disposed at locations accepted by the Project Manager (PMR). Geofences will be set for the designated disposal locations. When trucks enter/trigger the Geo-fencing Zone, GPS data, such as travelling routes, travelling time for every delivery, etc. via the Automatic Notification System will be recorded. The GPS monitoring system will automatically generate alert through email to the relevant parties (e.g. ET, IEC, Project Manager, contractor, surveillance team, etc.) if dump truck does not reach designated disposal locations after leaving the project site at the end of each working day for follow up on any suspected irregularity and illegal dumping situation. Environmental Officer (EO) / Environmental Supervisor (ES) will analyze the GPS data to prevent the dump truck from disposing illegally.	Prohibit illegal dumping and landfilling of C&D materials	Contractor	All construction sites	Construction stage	N/A

Appendix G - Method Statement for Stockpile and Transportation of Excavated Materials and other Construction Wastes

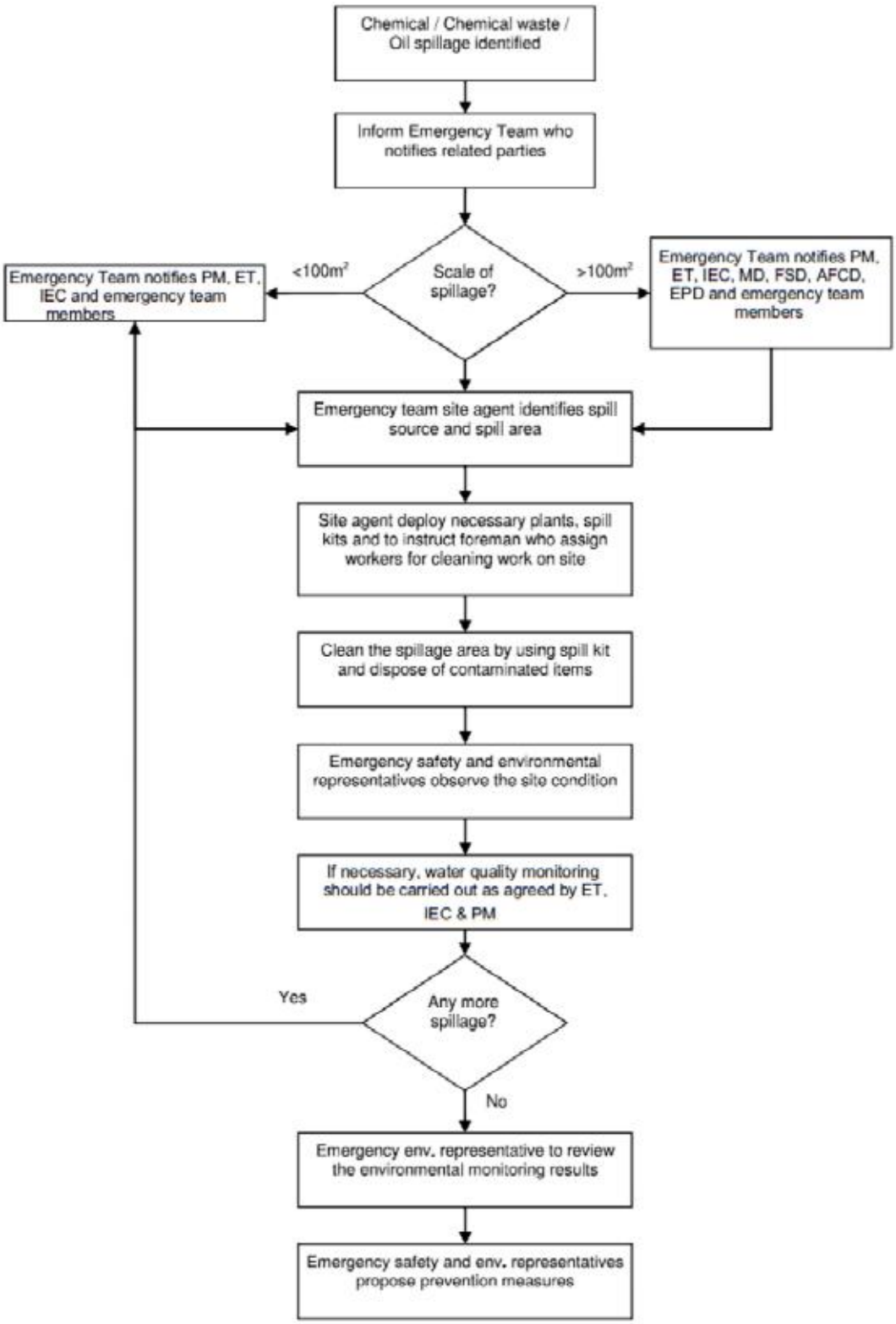
1.	**Scope of Work**
	• Stockpiling • Transportation of Excavated Materials • Transportation of Other Construction Waste
2.	**Construction Sequence of Works**
2.1	Stockpiling: • The excavated material generated from excavation will consist of soil and rock materials which will, as far as practicable, be reused on-site for the backfilling works. • Excavated material will also be generated from foundation work, underground services works and even any temporary works for excavation. Any surplus excavated material will be temporary stored in a designated area and would be engaged for backfilling. • The spoil will be stored in 2m high maximum and slope surface will be kept in 1:2. • When amber rainstorm signal or higher is hoisted, protective measures would be provided on slope surface against rainwater such as covered with tarpaulin or plastic sheet, erecting the temporary shelters, additional of pumps to drive out rainwater, etc..
2.2	Transportation of Excavated Materials • The excavated material will be sprayed with water when it is dry. The aim is to control dust in work area. • Dump truck loaded with excavated materials would be covered by tarpaulin sheeting or mechanical cover in order to prevent dust emission. • For the transportation of excavated materials, CREC will implement and comply with the requirements of the Trip-Ticket System (TTS) stipulated in Development Bureau Technical Circular (Works) No. 6/2010. A standalone Site Management Plan for implementation of TTS will be established which should be reviewed and updated on monthly basis.
2.3	Transportation of Other Construction Waste - <u>General refuse and C&D Materials</u> • Un-recyclable, non-inert C&D Materials, i.e. general refuse, which mainly consists of food waste, aluminium cans and waste paper, will be generated from construction activities, workers and the site office. • The C&D Materials will be temporarily stored and containers or skips will be provided for temporary waste storage to prevent odour, pest and windblown litter. • Office waste will be reduced through the recycling of paper. Sacks for waste paper and baskets for reusable papers will be provided in the Site Office. General refuse including food and domestic waste will be stored in enclosed bins or compaction units separate from the construction and chemical wastes. Lunch boxes, plastic bottles, containers and plastic sheets will be sorted and stored in separately labelled bins for subsequent recycling. Reputable recycle contractors will be employed to collect recycling materials. The amount of waste to be recycled will be recorded, controlled and monitored through the maintenance of WFT. • The general refuse and the un-recyclable C&D Materials will be collected and disposed of on a regular basis to minimize the likelihood of odour, pests and litter. They will be transported and disposed of by a licensed waste hauler. A trip-ticket

system to trace the transportation and destination of the waste will be implemented and the burning of refuse on the site will be strictly prohibited.

- Chemical Waste

- For chemical waste produced by a process, as defined by Schedule 1 of Waste Disposal (Chemical Waste)(General) Regulation, a 'Chemical Waste Producer' registration will be made with EPD.
- Chemical wastes are likely to be generated during maintenance of plant and equipment and these may include asbestos waste, used mechanical oil, cleaning fluid, spent solvents, lubricating oil and paints and paint containers.
- All chemical waste generated on site will be stored and labelled in accordance with the Code of Practice on the Packaging, Labelling and Storage of Chemical Waste published by EPD. All workers involved in the handling of chemical waste will be trained properly and will be provided with appropriate clothing.
- The sorting and segregation of chemical waste will be carried out on site to ensure the waste is appropriately handled, labelled and treated prior to disposal off-site. The recoverable chemical wastes such as oil, paint and solvent, will be separated from other chemical wastes and EPD licensed chemical waste collector will be employed to collect the chemical waste.
- Chemical waste will be stored at designated storage areas in accordance with the Code of Practice on the Packaging, Labelling and Storage of Chemical Waste. The containers to be used for the storage of chemical waste will:
  - Be suitable for the substance they are holding, resistant to corrosion and be maintained in a good condition and kept securely closed;
  - Have a capacity of less than 450L unless the specifications have been approved by the EPD; and
  - Display a label in English and Chinese in accordance with instruction prescribed in Schedule 2 of the Regulations.
- The storage area for chemical waste will:
  - Be clearly labelled and used solely for the storage of chemical waste;
  - Be enclosed on at least three sides;
  - Have an impermeable floor and be bunded to accommodate 110% of the volume of the largest container or 20% by volume of the chemical waste stored in that area, whichever is greater;
  - 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.
- All producers of chemical wastes (including asbestos) must register with EPD and treat their wastes either utilising on-site plant licensed by EPD, or arranging for a licensed collector to take the wastes to a licensed facility. The trip-ticket system will be strictly implemented to ensure the chemical waste is transported by and to ensure the chemical waste is transported by and to proper agents. Trip-tickets issued for every chemical waste collection will be retained and filed for future reference and inspection.

Appendix H - Flow Chart of Environmental Emergency Procedures for Chemical Waste Spillage



Attachment IV

Waste Management Plan for

Entrustment Agreement No. ENT/TUE/001

Construction of Infrastructure Works in the Tung Chung New Town Extension Area

Bouygues - Dragages (1201) Joint Venture
布依格 - 寶嘉 (1201) 聯營

Entrustment Agreement No. ENT/TUE/001 Construction of Infrastructure Works in the Tung Chung New Town Extension Area

PROJECT PLAN

WASTE MANAGEMENT PLAN

(Pursuant to the Environmental Permit No. EP-519/2016)

DOCUMENT REFERENCE NUMBER:

1201EW	-	BDJ	-	PLN	-	000	-	510	-	000080	-	B
Project Code		Issuer Code		Doc. Type		Location		Subject/Activity		Sequential No.		Rev

	Prepared by:	BDJV Internal Review and Approval	
		Reviewed and Endorsed by:	Approved by:
Company	BDJV	BDJV	BDJV
Name	Derek NG	Gena TSANG	Clement CHASSET
Position	Environmental Supervisor	Environmental Officer	Project Director
Signature			
Date	30/1/2026	30/1/2026	30/1/2026

DOCUMENT STATUS

Details of Revision

Revision	Rev. Date	Sections	Amendment Source and/or Details
A	25/11/2025	ALL	First Issue for Use
B	30/12/2025	1.2 & 3	Revision in accordance with EPD comments received on 29 Dec 2025.

Status of Page Revision

Rev. Section No.	A	B
1	X	
1.1	X	
1.2	X	X
2	X	
2.1	X	
3	X	X
4	X	
4.1	X	
4.2	X	
4.3	X	
5	X	
5.1	X	
6	X	
6.1	X	
6.2	X	
6.3	X	
6.4	X	
6.5	X	
7	X	
7.1	X	
7.2	X	
7.3	X	
7.4	X	
7.5	X	
7.6	X	

Rev. Section No.	A	B
7.7	X	
7.8	X	
7.9	X	
7.10	X	
7.11	X	
7.12	X	
7.13	X	
8	X	
9	X	
9.1	X	
10	X	
Appendix A	X	
Appendix B	X	
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Appendix G	X	

Contents

APPENDIX

1. Introduction

1.1. Background

This Waste Management Plan details the construction works programme and location plans of Works to be deployed by **Bouygues – Dragages (1201) Joint Venture (BDJV)** during the construction works under **Entrustment Agreement No. ENT/TUE/001.**

The Environmental Impact Assessment (EIA) Report (Register No.: AEIAR-196/2016) pertaining to the "Tung Chung New Town Extension" project has been duly approved by the Director of Environmental Protection. Subsequently, an Environmental Permit (Permit No.: EP-519/2016) has been issued for the project in accordance with the Environmental Impact Assessment Ordinance. In compliance with **Condition 2.24 of the Environmental Permit (EP)**, BDJV is mandated to formulate and submit a Waste Management Plan for the undertaking.

1.2. Scope of Works

The works mainly comprise:

a) Construction of Road L31 and associated works
b) Construction of Yu Tung Road footbridge lift

No surcharge operations are involved in this project.

2. Objectives of the WMP

This WMP will describe the arrangements for avoidance, minimization, handling, reuse, recovery and recycling, storage, transportation, collection, treatment and disposal of the different categories of waste that are expected to be generated during the construction activities of the Contract. This WMP includes the recommended mitigation measures on waste management that are contained in the EIA report and EM&A manual. The main objectives of the WMP include:

- Providing reference to the waste management requirements;
- Clarifying the responsibilities of each party on waste management and the personnel within the BDJV management; and
- Establishing the waste management procedures for avoidance, minimization, material reuse/recovery/recycling, collection, transportation, storage and disposal of wastes generated from the activities of the Contract that are specified by EP and the implementation of the mitigation measures that outlined in the EIA report.

2.1. Project Waste Policy Statement

A Project Waste Policy Statement has been established to do at all time what is necessary to comply with the legislation related to the waste management and to strive for the improvement of site environmental and hygiene conditions in all area under its control. The BDJV's Waste Policy Statement is presented in below.

Bouygues - Dragages (1201) Joint Venture
布依格 - 寶嘉 (1201) 聯營

Tung Chung Line Extension
Contract 1201
Tung Chung West Station and Tunnels

WASTE POLICY STATEMENT

We all are committed to always do what is necessary to comply with the legislation related to the waste management and to strive for the improvement of site environmental and hygiene conditions in all areas under its control. The BDJV is committed to implement and maintain an environmental management system that complies with the requirements of ISO 14001:2015 to ensure that:

- Avoiding or minimizing the waste generation through optimising the design approach in the project planning, such as material conservation technique.
- Avoiding or minimizing the waste generation through optimising the construction method or sequence in the construction stage.
- Avoiding or minimizing the waste generation through widely reuse materials, avoid unnecessary packaging.
- Avoiding or minimizing the waste generation through procure environmental-friendly gifts or avoid giving out souvenirs.
- Reusing or recycling waste materials in other construction activities where possible.
- Diverting waste to other construction sites or to public dumps for beneficial use if applicable.
- Adopting better management practices on site to reduce cross contamination and promote waste segregation, sorting and reduction programme.
- Installing appropriate facilities for segregation of various types of wastes; and
- Arranging and facilitating collection of wastes by the appropriate waste recyclers as far as possible.

The Waste Management Plan (WMP) will be reviewed periodically by the Project Team and revised if necessary to achieve continual improvement. The requirement of this WMP will be communicated to all project staff who are required to diligently perform the duties that are assigned to them and to extend the understanding and acceptance of waste management policy to the subcontractors, suppliers and service providers.

Clement CHASSET
Project Director
March 2025

www.dragageshk.com

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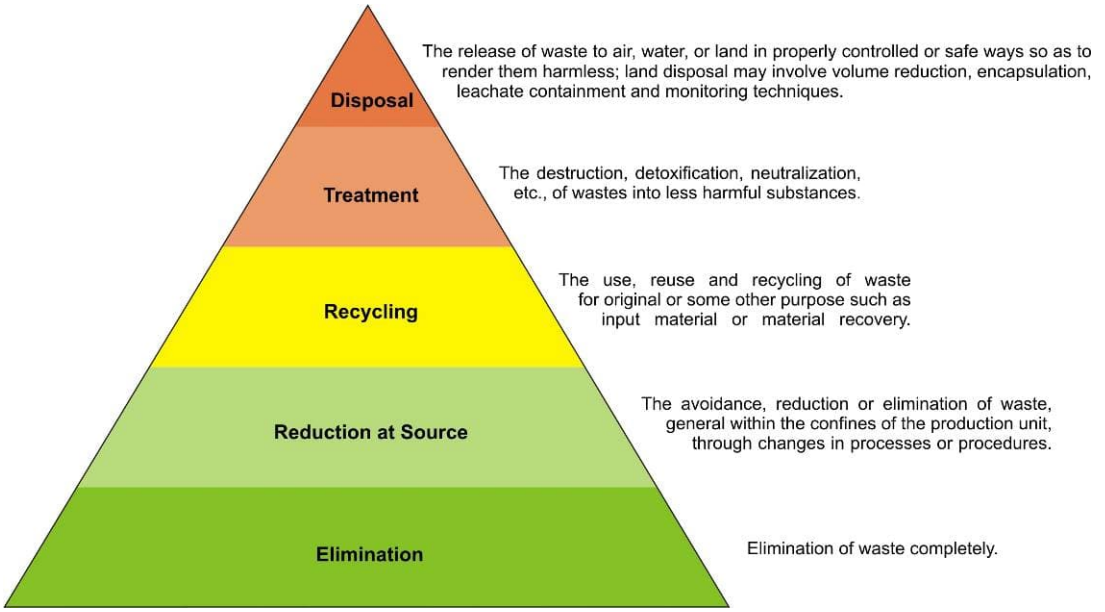
BDJV aims to recover, avoid and minimize the construction waste generated on site by utilizing the hierarchy illustrated below. And we target to recycle and reuse 100% of inert C&D material from excavation. This attempts to evaluate waste management practices and selects the best practical option since conceptually it makes sense to avoid producing a waste rather than developing extensive treatment schemes. Through good planning, and effective site management practices, BDJV will minimise the amount of construction waste that is generated. The objective of BDJV is to reduce and minimize the amount of wastes generated and hence minimise the costs associated with subsequent waste handling and disposal



3. Ordinances and Regulations

The following environmental ordinances and regulations are relevant to waste management on the Site:

- Waste Disposal Ordinance, Cap. 354
- Waste Disposal (Chemical Waste)(General)Regulation
- Waste Disposal (Charge of Disposal of Construction Waste) Regulation
- Dumping at Sea Ordinance, Cap. 466
- Land (Miscellaneous Provisions) Ordinance, Cap. 28
- Public Health and Municipal Services Ordinance, Cap. 132
- Public Cleansing and Prevention of Nuisances Regulation

The following environmental ordinances and regulations are relevant to waste management on the Site:

- Waste Disposal Plan for Hong Kong (December 1989)
- Chapter 9 Environment (1999), Hong Kong Planning Standards and Guidelines
- New Disposal Arrangements for Construction Waste (1992)
- Code of Practice on the Packaging, Labeling and Storage of Chemical Wastes (1992)
- Works Branch Technical Circular (WBTC) No. 32/92, The Use of Tropical Hard Wood on Construction Site
- WBTC No. 2/93, Public Dumps
- WBTC No. 2/93B, Public Filling Facilities
- WBTC No. 16/96, Wet Soil in Public Dumps
- WBTC No. 4/98 and 4/98A, Use of Public Fill in Reclamation and Earth Filling Projects
- Waste Reduction Framework Plan, 1998 to 2007
- WBTC No. 25/99, 25/99A and 25/99C, Incorporation of Information on Construction and Demolition Material Management in Public Works Subcommittee Papers
- WBTC No. 12/2000, Fill Management
- WBTC No. 19/2001, Metallic Site Hoardings and Signboards
- WBTC No. 6/2002 and 6/2002A, Enhanced Specification for Site Cleanliness and Tidiness
- WBTC No. 11/2002, Control of Site Crusher
- WBTC No. 12/2002, Specification Facilitating the Use of Recycled Aggregates
- ETWBTC No. 33/2002, Management of C&D Material Including Rock
- PAH No. 6/2025, Management of Dredged / Excavated Sediment
- ETWBTC No. 31/2004, Trip Ticket System for Disposal of C&D Materials
- ETWBTC No. 19/2005, Environmental Management of Construction Site
- DEVBTC No. 6/2010, Trip Ticket System for Disposal of C&D Materials

4. Site Organisation and Staff Duties

4.1. Organization Structure

The organization structure for waste management onsite is outlined in Figure 2.1. This structure outlines the overall site management in relation to waste management and the associated environmental issues. Details on the roles and responsibilities of staff members responsible for the implementation of the WMP are outlined in the BDJV organizational chart for waste management below:

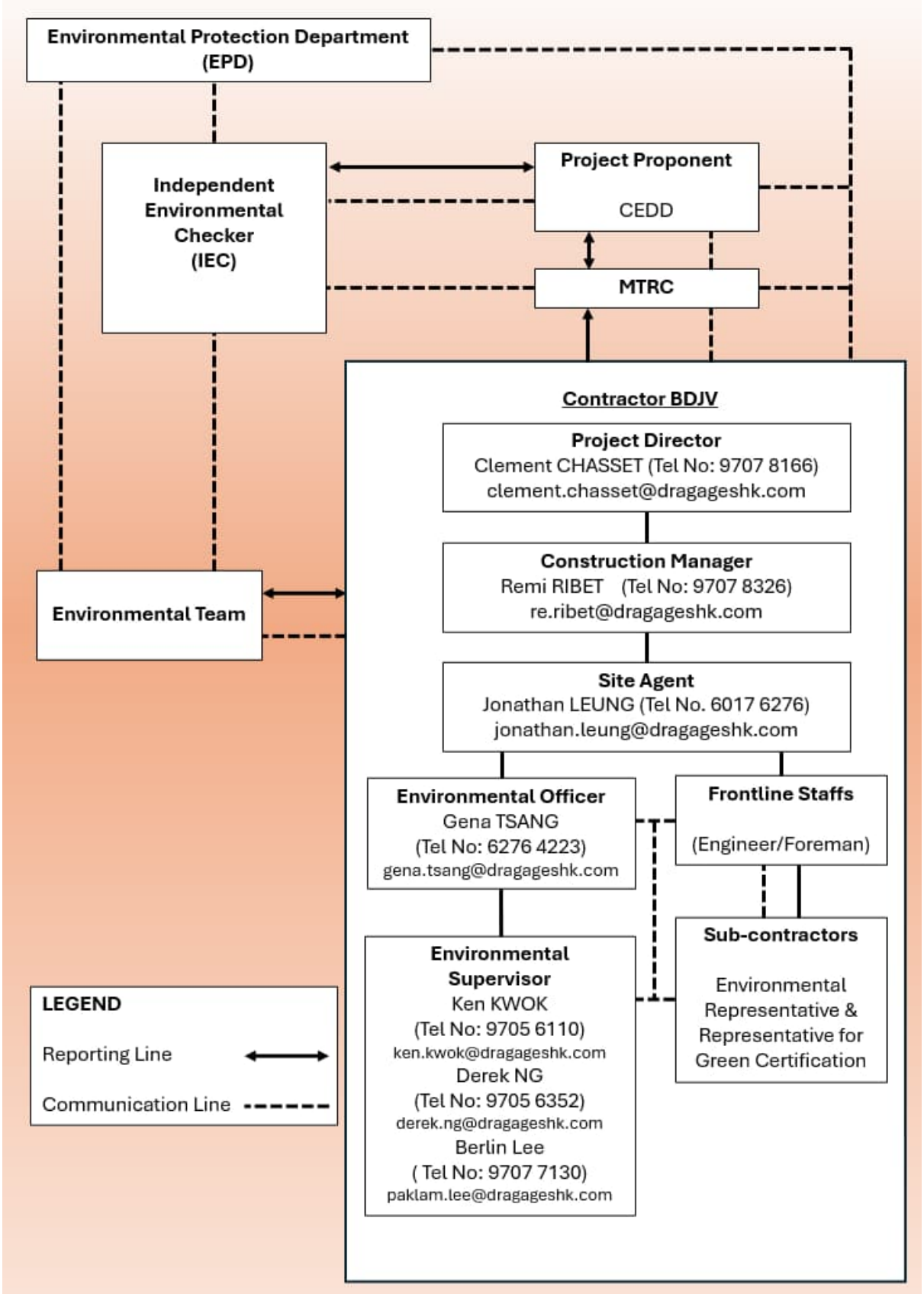


Figure 2.1 Organization structure

4.2. Role and Responsibilities

4.2.1. Project Director / Project Manager

The Project Director (PD) or Project Manager (PM) is responsible for coordinating all environmental matters on site and reporting on these matters to the BDJV. Approve (internally) the WMP and ensure adequate resources for the implementation of the WMP.

4.2.2. Construction Manager(s)

Construction Manager (CM) reports to the PD and has the responsibility to coordinate all environmental matters related to the WMP. The CM is also responsible for all site operations, management of environmental issues, staff supervision, control, coordination & planning, external liaison as well as implementing and monitoring corrective actions related to the WMP.

The CM, when necessary, will also carry out immediate corrective action to rectify any non-compliance of environmental requirements of the WMP, as well as handle any complaints that are received from the public regarding the WMP.

The CM will also assist the EO in overseeing the implementation and performance of the WMP. The CM would also assist with environmental duties onsite and ensure that works are executed in accordance with the WMP. The CM will arrange regular site inspections with the EO.

4.2.3. Environmental Officer

The EO will be appointed on site for the overall coordination, monitoring, oversight and implementation of the WMP for the duration of the contract. The EO directly reports to the PD and DPD. The responsibilities of the EO include, but are not limited to:

- Review of the Site Management Plan for Implementation of the TTS and ensure works are executed in accordance with the plan.
- Monitor onsite work to ensure compliance with the environmental requirements for the site.
- Assist the CM in handling any complaints that are received.
- Ensure that the required environmental monitoring is carried out, and that all environmental monitoring results are recorded.
- Carrying out waste management training.

4.2.4. Environmental Supervisor

The Environmental Supervisor (ES) is responsible for the implementation of the WMP with the assistance of the Foremen. The ES is also responsible for:

- Assisting the EO to rectify any non-conformances with the environmental requirements of this WMP that are identified onsite.
- Attend environmental meetings related to waste management when necessary.
- Carry out environmental site inspections with the EO when deficiencies in waste management are identified.

Assist the EO with any environmental accidents, such as the release of chemicals.

4.2.5. Engineers and Foreman (Frontline staff)

The Senior Engineer/ Engineer and Foremen are responsible for onsite supervision, the coordination of the works as well as the implementation of any corrective actions as directed by the CM/EO. They are also responsible for:

- Coordinate with the EO regarding the implementation of all appropriate environmental mitigation measures and waste management.
- Coordinate with the EO to make sure that all the applicable environmental licenses and permits are identified and allowed for in the program of work.
- Assisting in the daily implementation of the WMP including the sorting and segregation of construction waste in to separate stockpiles/staging areas and where possible the recycling (via recycling containers) or reusing materials.
- Ensuring that the trip-ticket system is followed and that all paperwork (e.g. CHIT / Disposal Delivery Form (DDF)) is signed, completed and collected.
- Ensuring that, where possible, the generation of waste is avoided or minimized.

4.3. Trainings and Promotions

Site-specific induction training cover environmental matters, including waste management shall be presented to all staff and workers employed for the Contract, whether in the employment of BDJV or his sub-contractors or in connection with the Contract. The training will be delivered by the Environmental Officer, Environmental Supervisor or assigned person, as applicable as per construction programme. The training content will cover subjects such as environmental management policy, waste management policy, project environmental organization structure, duties and responsibilities, waste control measures, disposal targets, in-house rules and regulations, mechanical cover requirement, disposal sites …etc.

Apart from the induction training, toolbox talks shall be provided for workers on general site environmental nuisance abatement and waste management in addition to safety and health. Prior approval will be obtained from the Project Manager' delegate on the frequency and the contents of the toolbox trainings. If further

required by the Project Manager' delegate, trainings organized by training institutes or organizations as considered appropriate will be arranged.

Method of promoting and maintaining the awareness on environmental aspects and its control measures and waste management amongst all persons on Site include:

- Display of the company's environmental policy, non-compliance statistics, posters and signs at prominent locations;
- Talks and campaigns, and distribution of safety/environmental bulletins or newsletters drawing attention to the particular environmental issues; and
- Procedures for recognition and commending those site personnel, teams or sub-contractors with good performance on environmental control measures and waste management.

5. Waste Management

Control of construction and demolition (C&D) waste is fully detailed in the following paragraphs and the Waste Management Plan for trip tickets implementation.

5.1. Waste Management Hierarchy and Waste Reduction

The key to successful waste management is undertaking proactive measures to reduce the amount of waste generated. Waste management options/programme will be exercised in accordance with the hierarchy outlined in Table 5.1 below:

Table 5.1: Hierarchy/Programme of Waste Management

Waste Management Option/Programme	Required Actions
Avoidance / Reduction / Minimization	Avoid the generation of excessive waste by planning and scheduling material deliveries. Minimize the amount of waste generated through careful planning and design, before commencing the contract.
Re-use	Where appropriate and practicable, construction materials such as timber formwork, metal, etc, and any spoil generated during excavation work should be re-used onsite.
Recovery and Recycling	Recyclable construction materials such as plastics and metal will be recovered, sorted and stored onsite in containers. The containers will be transported off site for recycling at an approved facility. Regularly serviced, covered recycling containers will be provided for the use of the onsite workforce.
Treatment and Disposal	All waste removed from the site requiring treatment and/or disposal will be transported to an approved facility.

To achieve waste reduction, environmentally responsible purchasing would involve the introduction of practices that discourage unnecessary purchases and encourage the purchase of products or materials that can be found locally, that have reduced packaging or recyclable packaging, increased durability and materials with recycled content, such as, recycled paper, steel, concrete and other raw construction materials.

Waste minimization is best achieved through the use of careful planning, design and close supervision. It is expected that, following good waste management practices on site will result in a reduction of the amount waste being generated. To minimize the wastage of raw materials that are delivered to the site, good management, estimation and planning techniques will be required.

6. Waste Reduction Programme

6.1. On-site sorting of C&D Material

BDJV will designate suitable areas onsite for the storage, sorting and segregation of construction waste. The areas that are designated by BDJV will be clearly defined with appropriate signage and barriers (or similar) and allow for easy access by workers and vehicles. As the project progresses, the designated areas will be reviewed depending upon construction program requirements. The areas designated by BDJV will be sufficient for the amounts of construction waste that are anticipated to be generated during the course of the contract. Table 6.1 below shows the actions that will be taken for each type of construction waste generated onsite.

Table 6.1: Sorting of C&D Waste

Type of C&D Material	Required Action	Responsible Party
Rock	Re-use on site where possible or recycle off site	BDJV
Excavated material	Re-use on site where possible or dispose of at approved landfill facility	BDJV/ Subcontractors
Concrete	Sorted and segregated onsite, minimize wastage by accurate ordering, re-use on site where possible or recycle offsite	BDJV/ Subcontractors
Metal	Segregate and recycle offsite	BDJV/ Subcontractors
Paper/ Cardboard Materials	Segregate and recycle offsite	BDJV/ Subcontractors
Plastics	Use recycling containers for temporary storage and recycle offsite / Reuse / Replaced by other materials	BDJV
Aluminium Cans	Use recycling containers for temporary storage and recycle offsite	BDJV
Timber	Re-use on site if	BDJV/ Subcontractors

Type of C&D Material	Required Action	Responsible Party
	possible, other segregate and recycle off site	
Chemical Waste	Store in approved containers and transport offsite for disposal at an approved facility	BDJV/ Subcontractors

Reusable or recyclable materials such as hard rock, broken concrete, metallic waste, timber, paper as well as cardboard packaging will be separately sorted out and pre-identified on-site at different area, for easy collection of those materials by recyclers.

Arrangements with potential recycling contractors shall be made to facilitate that recyclable materials sorted from the Site are collected with reasonable care.

6.2. Recyclable Materials

Control measures would be devised to ensure that the recyclable materials are delivered to a proper recycling outlet for processing, and to avoid such materials being considered as C&D materials for the purposes of the Contract. Trip ticket system is not applicable to recyclable materials. However, the invoice, receipt or disposal records will form parts of the comprehensive register as described in the previous section to ensure integrity of disposal records. The monthly quantities of the recyclable materials removed off site will be recorded in the waste flow table for monthly submission to the Project Manager's delegate.

C&D waste generated from construction activities will be basically on-site sorted to inert and non-inert. For the inert portion, it will be collected and stored separately from other non-inert materials to prevent cross-contamination. About the non-inert portion, recyclable materials such as plastics, aluminium cans and cardboard will be collected and stored separately for other non-recyclable materials.

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:

- Sort all excavated materials and recover the inert portion of C&D materials, such as hard rock, soil and broken concrete, for reuse on the Site or, if cannot be used on the Site, disposal to designated outlets for reuse;
- Sort reclaimed asphalt pavement (RAP) out from other inert C&D materials for reusing on-site or when delivered to the PFRFs;
- recover all metallic waste for recycling;

- recover cardboard and paper packaging, and properly stockpile them in dry and covered condition to prevent cross contamination; and

- sort all demolition debris to recover reinforcement bars, mechanical and electrical fittings, hardware and all other fittings/ materials that have established recycling outlets.

6.3. Waste Reduction Targets

In order to determine whether the waste management procedures used by BDJV are effective, the following specific targets will be implemented onsite in an effort to reduce the generation of waste materials, and thus minimize the amount of waste requiring disposal at landfill:

- 100% of reuse and recycle to all inert C&D material. All excavated material will be sorted on site to recover the inert portion of construction and demolition debris materials, such as hard rock, soil and broken concrete, for subsequent re-use on site or disposal to designated outlets.

- Recover and store all metallic waste (e.g. scrap metal) for subsequent collection by a recycling contractor and recycling at an approved facility.

- Recover all cardboard and/or paper packaging (for plant, equipment and materials) and store in covered stockpiles (to keep dry and prevent contamination) for subsequent collection and recycling at an approved facility, if possible.

- All chemical waste that is generated on site (e.g. servicing of plant) will be stored for collection and disposal at an approved disposal facility.

- All demolition debris will be sorted on site to recover broken concrete, reinforcement bars, mechanical and electrical fittings, hardware as well as other recyclable fittings for subsequent recycling at an approved facility.

- The use of timber formwork shall be avoided when practicable and alternatives such as steel formwork shall be considered and used to increase the potential for re-use. Timber hoarding shall not be Instead of wooden pallets for material delivery, the use of plastic re-usable pallets shall be encouraged by BDJV with its discussions with suppliers. When timber is required for the works, it will be selected whenever practicable from managed sources.

6.4. System for Proper Control of Using Timber in Temporary Works

In order to control the quantity of using timber in temporary works, controlling system will be implemented:

- Use of timber in temporary works shall be reduced or minimized as far as practicable; for example, pre-cast concrete elements or steel formwork which will reduce the quantity of timber required for formwork. Timber pallets when delivered to site will be carefully handled so that they may be reused.

- The design of formwork shall maximize the use of standard panels so that high re-use levels can be achieved. Timber formwork shall be carefully dismantled to prevent damage. The timber shall be de-nailed, cleaned and stacked neatly for re-use. Wooden pallets for material delivery may be returned to the supplier for re-use.

- Review construction method statements to estimate and control of use of timber, and use of alternative materials to place timber for temporary works.

6.5. Good Site Practices

BDJV will follow some good site practices to reduce the adverse waste issues such as:

- cleaning and maintenance for drainage systems, sumps and oil interceptors shall be carried out once per week or if necessary;

- regular collection of waste at disposal points, etc.

7. Waste Disposal Management and Procedure

7.1. General

The waste that is generated during the construction process will be disposed to designated disposal facilities. Monthly summaries of the amount of waste material disposed offsite will be provided to the Project Manager's delegate in the form of a Waste Flow Table (WFT). The summaries will indicate the estimated quantities of different types of waste removed offsite and the corresponding disposal ground in the WFT.

The quantities of C&D material disposed of will be recorded under the barcode TTS by using the CHIT / DDF (for disposal of Inert C&D Materials at disposal grounds (Other than Prescribed Facilities) as designated in the Contract, or alternative disposal grounds proposed by the Contractor and approved by the *Project Manager's* delegate). In addition, a completed "CHIT" will also be presented to the receiving facility as part of the system for the disposal charging scheme. Waste transaction records could be obtained either from the waste disposal facilities directly or retrieved from the EPD website or bill statement.

7.2. Onsite Disposal Arrangement

The recommended waste disposal sites are listed in Table 7.1 below:

Table 7.1 Recommended Waste Disposal Sites

Type of Waste	**EIA recommended Disposal Site**
C&D materials	Tuen Mun Area 38 (TM 38) Fill Bank
C&D waste (plastics, glass, wood, including cleared vegetation etc.)	Recycler
Chemical waste (as defined under Schedule 1 of the Waste Disposal (Chemical Waste) Regulation)	Licensed chemical waste treatment and disposal facility
General refuse	NENT Landfill

Alternative disposal facility is recommended to perform local matching of inert C&D material to other Project, to minimise C&D disposal to Public Fill.

Inert C&D material in liquid form will be solidified so that it can be contained and delivered to PFRFs by dump trucks instead of tanker trucks.

In order to reduce the disposal of C&D material to fill bank activities, BDJV is intent to maximize and target 100% reuse and recycle of C&D material from the project, and one of the proposed option is to recycle as far as practicable for all inert C&D material generated from our constriction works by EPD approved licenced C&D material recycler "Tapbo Environmental Ltd", which include recuse of all rock material

and reuse all other inert material for concurrent project, for example use as capping layer at NENT landfill.

When there is no other alternative disposal site accepted by the client, the last resort will be disposed to TM38 Fill Bank as mentioned in section 7.2. Non-inert C&D materials is proposed to be disposed in public landfills. BDJV will comply with the acceptance criteria laid down by the operators of the corresponding fill bank(s) and landfill(s), as outlined in Section 7.3 and 7.4 below.

7.3. Acceptance Criteria for Fill Bank (Tuen Mun Area 38 Fill Bank)

The truck drivers should bear a duly signed CHIT / a duly completed, signed and stamped DDF. The dump truck should also have a valid Dumping Licence issued by CEDD. Dump trucks without valid 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. The C&D materials to be disposed should consist entirely of inert construction waste (i.e. 100% inert construction waste). Moisture content of the inert C&D materials should be lowered to 25% max. when delivered to public fill banks. And reclaimed asphalt pavement (RAP) should not be mixed with other materials when delivered to public fill banks. The size of any C&D materials sent to PFRFs should be less than 250mm.

Recyclable materials such as metal, paper, plastics and milled bituminous materials etc., which have been sorted on the site for the purposes of recycling, shall not be considered as C&D materials and should be delivered to a proper recycling outlet for processing. Recycling contractors will be arranged to collect the recyclable materials.

7.4. Acceptance Criteria for NENT Landfill

The truck drivers should bear a duly signed CHIT. The dump truck should also have a valid Dumping License issued by CEDD. Dump trucks without valid 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. 4274 published on 16 June 2008).

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 vehicles (Gazette Notice G.N. 4274 published on 16 June 2008). The depth of waste loaded on the goods vehicle, or any other vehicle must be greater than 1 meter for goods vehicle with demountable skip and 1.5 meters for any other types of vehicle.

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.

7.5. Acceptance Criteria for EPD approval licenced C&D material recycler

The truck drivers should bear a duly completed, signed and stamped DDF (for approved alternative disposal grounds). The dump truck should also have a valid Dumping Licence issued by CEDD. Dump trucks without valid Dumping Licences will be rejected.

The inert C&D materials to be delivered to the C&D recycler should be in accordance with the conditions stipulated in the Dumping Licence. The C&D materials to be disposed should consist entirely of inert construction waste (i.e. 100% inert construction waste).

Recyclable materials such as metal, paper, plastics and milled bituminous materials etc., which have been sorted on the site for the purposes of recycling, shall not be considered as C&D materials and should be delivered to a proper recycling outlet for processing. Recycling contractors will be arranged to collect the recyclable materials.

7.6. Procedures of the Trip Ticket System (TTS)

Under the Waste Disposal (Charges for Disposal of Construction Waste) Regulation, BDJV will apply for a vehicle billing account for disposal of construction waste.

We will implement a TTS to track the disposal of C&D materials. Under the TTS, each truck carrying C&D materials leaving the Site for a Government disposal facility will be accompanied by a duly completed and stamped CHIT. The C&D materials must be disposed of at the disposal grounds as stipulated in the DDF. The TTS will be executed according to the following procedures:

The Foremen will arrange the C&D waste to be segregated on site and also check the total actual amount of cumulated C&D waste after the completion of the particular works in the working area.

The C&D waste will be sorted and stored separately into different storage areas.

Non-inert C&D waste will be stored in waste receptacles at a temporary holding area. Inert C&D materials will be stored on a temporary holding area enclosed by water barriers or rigid concrete barriers.

For each load on truck of C&D material leaving the working area to the designated fill banks / landfills, the truck driver must bear a duly completed, signed and stamped CHIT. A Notification to Truck Driver (attached in **Appendix C**) will be given to truck drivers to remind them the proper disposal procedures.

The truck will proceed to the designated disposal facility as stipulated in the CHIT. The truck driver will present the CHIT 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 stamp the CHIT.

The truck driver will present the CHIT at the weighbridge. If the vehicle load is accepted, the CHIT is deemed to be used and the 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 Foremen. No driver is allowed to go to sorting facility without Foremen permission or instruction.

The truck driver will then return the transaction receipt and the stamped CHIT to BDJV as soon as possible. All CHITs are to be returned to the EO or ES.

BDJV will maintain a daily record summary (DRS) of disposal of C&D material from the Site including details of the C&D waste, the truck number, departure time, etc. This record will be checked against the PMD records as soon as possible and the PMD will be notified immediately in case any discrepancy is noted.

Part 1 of the DRS will be completed in duplicate and a copy should be kept by the PMD.

For disposal at government disposal facilities, BDJV will check the information recorded in the DRS against the disposal records on the EPD's website (see below).

http://www.epd.gov.hk/epd/misc/cdm/trip.html

Part 2 of the DRS will be completed and submit to the PMD within 1 working day after the records are posted at the EPD website.

Where an irregularity is observed or where requested by the PMD under special circumstances (e.g. a CHIT has been issued but there is no disposal record at the disposal ground), BDJV will submit to the PMD within 5 working days after the recorded date of disposal the supporting evidence such as duly stamped CHIT 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 PMD has requested for such evidence, whichever is later. A fax copy of the CHIT or Transaction Record Slip is acceptable, unless otherwise directed by the PMD.

A Trip Ticket Management System (either via land transportation) and relevant transportation arrangement shall be developed and agreed with the alternative disposal project(s) and get approval from PMD if alternative disposal ground is proposed.

7.7. Measures to be Implemented during Transportation of Waste to Avoid Leakage of Waste onto Public Area

All trucks to transport waste from the site will be in good working condition and will be equipped with mechanical covers (or similar) to prevent leakage of waste onto public areas. In addition to the cover, to further minimize the leaking of waste from the trucks, trucks should not be filled higher than the trail board.

Wastes collected on all the wheels and bodies of trucks will be washed off by wheel washing facilities before leaving the construction site. BDJV will provide wheel washing facilities on site at the site entrance.

7.8. GPS

Pursuant to Section 2.24 of Environmental Permit EP-519/2016, all dump trucks for C&D materials transportation and disposal shall be equipped with Global Positioning System (GPS) or equivalent automatic system for real time tracking and monitoring of their travel routings and parking locations in order to avoid illegal dumping or landfilling of C&D materials. BDJV will ensure that C&D material is disposed at designated location.

The GPS tracking system installed on dump trucks transmit monitoring data to management system via mobile network in 30 seconds time interval when the dump truck engine is ON and 60 minutes time interval when the engine is OFF. The real time tracking and monitoring system provides a platform to BDJV to carry out inspection of the location and direction of dumping in webpage and mobile phone app. The configuration of the real time tracking system is shown below in Figure7.1.

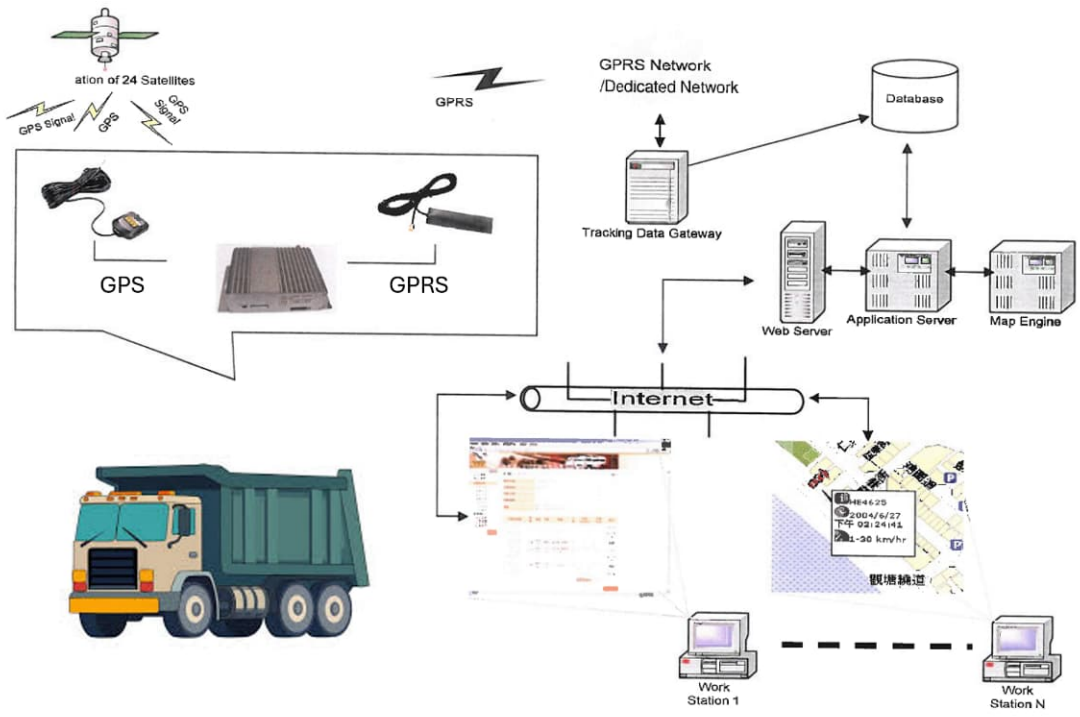


Figure 7.1 – Real time tracking system configuration

To ensure all C&D materials are disposed at the designated locations, the GPS monitoring system will automatically generate an alert via email to all relevant parties (such as ET, IEC, contractor, and surveillance team) if any dump trucks are not following the designated route or going into restricted zones for follow-up on any suspected irregularities or illegal dumping. The restricted zones are defined by a geofences created from certain points on the map. These automatic notifications will include important information details like the vehicle's license plate, event time, and

location. Prohibited areas, such as the Tung Chung Road (south of Shek Mun Kap Road and all roads in south Lantau) or any other zones marked as restricted in Tung Chung, can be monitored using real-time tracking and monitoring system. If any irregularities or non-compliance are identified, an email notification will be sent immediately to ET, IEC, contractor, surveillance team, or other relevant personnel. The notification emails and disposal records will be reviewed by the EO/ES to confirm that all dump trucks traveled to the designated disposal site after leaving the construction site.

7.9. Disposal of C&D Material to Alternate Disposal Facilities and EPD Approved C&D Recycler

Where BDJV has identified a project that can serve as an alternative disposal facility or reuse of C&D material at EPD approved C&D recycler recycler, BDJV will provide a detailed description of the alternative disposal ground, including location, lot number (where appropriate) and location plan(s) to the PMD to request for his written approval to dispose of waste at the proposed location.

If in case the alternative disposal facility is a private construction project, BDJV will submit a letter from the Authorized Person of the development (as defined under the Building Ordinance) to confirm that:

- The use of C&D materials in the development is acceptable.
- The use of land formed by C&D materials is in conformity with the statutory town plan / lease conditions.
- The PMD is allowed to enter the alternative facility to conduct an inspection when necessary.
- The estimated quantity and type of C&D materials to be used in the construction works and the approximate delivery program, together with the name, post and specimen signature of the competent person to sign the internal trip ticket.

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

Where the alternative disposal facility is a government project, BDJV will submit written consent from the project office of the alternative disposal facility 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 PMD for approval before disposal to the alternative ground starts.

With an option to recycle our C&D material at EPD licensed recycler (Tapbo Environmental Limited"), Under the requirement of EPD, Tapbo Environmental

Limited also implement recording and trip ticket system, BDJV will implement the trip ticket system with relevant DDF provided by Tapbo Environmental Limited and detail disposal record will also be provided regularly including quantities and type of C&D disposal. the chit ticket procedure mentioned in Section 7.6 will be followed, and chit ticket of the EPD approved recycler will be adopted

7.10. Chemical Waste / Hazardous Waste Handling and Disposal

BDJV has been registered as Chemical Waste Producer. Chemical waste that is generated, 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 Packaging, Labelling and Storage of Chemical Wastes as follows:

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.
- 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 with details of the chemical waste. 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 bunded, and located close to the source of waste generation. The storage area for chemical wastes will:

- Be clearly labelled and used solely for the storage of chemical waste.
- Be enclosed on at least three (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).
- Be arranged so that incompatible materials are adequately separated.
- Before reaching 80% capacity of the storage container, licensed waste collectors will be contracted 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.

7.11. General Refuse

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

- Reducing the number of photocopies to a minimum and copying on both sides of paper for internal documents and external documents where appropriate.
- Preventing over-ordering of office equipment and consumables.
- Procuring energy efficient office equipment and consumables.
- Deploying and servicing recycling containers on site to facilitate collection of recyclables (e.g. aluminium cans, plastic bottles).
- Deploying containers with covers onsite to facilitate the collection of non-recyclables for disposal at landfills.

7.12. Sewage

Sewage waste will be generated from amenity facilities used by the construction workforce and site office's sanitary facilities. Such sewage waste will be treated by a sewage treatment system to minimize the volume of waste. The treated sewage sludge will be pumped out by suction trucks and disposed off site.

Night soil from chemical toilets will also be generated. The sludge needs to be properly managed to minimise odour and potential health risks to the workforce by attracting pests and other disease vectors.

As the workers will be scattered within the construction site, the most cost-effective solution will be to provide adequate number of portable toilets within the site to ensure that sewage from site staff is properly collected. BDJV will ensure adequate numbers of portable toilets for the workforce and ensure no adverse water impacts by contracting with licensed contractors to maintain the facilities.

7.13. Handling of Recyclables

Before starting the transportation of recyclable materials off site to recycling facilities, BDJV will meet with recycling contractors to establish a suitable system for collecting recyclable materials with care.

The following types of waste will be generated during the construction of the Contract.

- General Waste.
- Non-inert C&D materials.
- Inert C&D materials / waste.
- Chemical waste.
- Recyclable waste.

The estimated amount of waste to be generated from the whole Contract is listed in Table 7.2 below:

Table 7.2: Estimated Amount of Waste to be Generated During the Contract

Material	Generated from Project (m^3)	Re-used/ Recycled onsite or on other Projects (m^3)	Disposal (m^3)	Proposed Disposal Outlet
Non- Inert C&D Materials (such as timber, unclean packaging paper and plastics)	30	0	30	NENT Landfill
Inert C&D Materials/ Waste	10,000	10,000	0	1st priority, EPD approved C&D recycler, Alternative Disposal Ground (including concurrent project), Last priority TM Area 38 Fill Bank
Import Fill	32,000	32,000	0	To be received from other Project
Chemical waste	0	0	0	To be handled by

Material	Generated from Project (m^3)	Re-used/ Recycled onsite or on other Projects (m^3)	Disposal (m^3)	Proposed Disposal Outlet
				Registered Contractor on the approved list

BDJV targeted to recycle and reuse 100% of inert C&D material.

Control measures would be devised to ensure that the recyclable materials are delivered to a proper recycling outlet for processing, and to avoid such materials being considered as C&D materials for the purposes of the Contract.

All recyclable material that is generated during the course of the Contract will be collected by registered contractors and transported to an approved facility.

Details of these contractors were listed in the website of EPD as waste collectors and recyclers, the information can be search via the hyperlinks at:

http://www.epd.gov.hk/epd/english/environmentinhk/waste/guide_ref/guide_ref_dwc.html

It is aimed to maximize the reuse of C&D waste in suitable facilities or concurrent projects in Hong Kong. Any opportunities to minimize the transportation distance so as to minimize the related environmental impact are explored.

8. Notification to Truck Driver

BDJV will contact all transportation companies who are contracted by BDJV, or its subcontractors, for the removal of C&D materials from the Site and highlight the following parts of the WMP:

- Each truck transporting C&D materials from the Site to a disposal facility must carry a duly completed, signed and stamped DDF, irrespective of the location and nature of the disposal facility.

- The C&D materials must be disposed of at the disposal ground as stipulated in the CHIT.

- The improper disposal of C&D materials, as outlined by the Public Fill Committee, may result in the revoking of the transportation company Dumping License.

- Truck drivers must bear a valid Dumping License that has been issued by the CEDD.

- All Trucks and Vessels shall be equipped with Global Positioning System (GPS) or equivalent automatic identification system (AIS) for real time monitoring as stated in section 2.24 in Environmental Permit EP-519/2016.

A sample of notification to truck drivers is attached in **Appendix C**. The Flow Chart of the TTS is attached in **Appendix D**.

Waste Management Record

The CHIT will be used for each and every vehicle that transports C&D material off site to a disposal facility.

Prior to the vehicle leaving the site, the BDJV's representative will input the serial number, date, time of departure, vehicle licence plate number, designated public filling facility / landfill, and any other information as required in Part 1 onto the Daily Record Summary (DRS) for Disposal of Construction and Demolition (C&D) Materials from Site while dispatching the CHIT to dump truck driver. The PMD will sign DRS when Part 2 of the DRS is completed by BDJV after the disposal. The CHIT will be carried on board the vehicle by the driver at all times, for the duration of the trip.

A register of the CHIT's issued will be maintained by BDJV in the project environmental filing system, and will be made available for inspection by the PMD upon request. The following records will be kept to enable monitoring of the CHIT's that have been issued: -

- Completed Daily Record Summary (DRS)
- Waste Flow Table (WFT)
- A sample of the DRS and the WFT is provided in **Appendix E** and **F** of this WMP.

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

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). The BDJV will complete and submit the monthly summary WFT to the Project Proponent 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.

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.

Summary Table – Timber Usage

A method statement will be submitted to the Project Proponent if the use of timber for temporary works construction for one process / activity with an estimated quantity exceeding 5 m3.

A timber usage summary table which contains the description, justification and the estimated quantity for every work process / activity requiring the use of timbers for temporary works

construction irrespective of the quantity of timber used will be updated and submitted to the Project Proponent together with the monthly summary WFT for monitoring and review.

Specific trip tickets and records for the internal transfer of C&D materials will also be kept for monitoring and shall be made available to the PMD upon request.

For recyclable materials, BDJV's Representative will record the quantities of recyclable materials before removal off the Site via recycling contractors, and also include the details in the WFT for submission to the PMD.

Waste Flow Verification

In order to ensure the proper disposal of C&D materials that are generated during the course of the contract, the following enhancement measure to improve the TTS recording system will be utilised:

A video recording system will be installed onsite by BDJV and disposal records shall be checked against the survey record. The video recording system shall also be used to monitor the vehicular exit / entrance of the site.

9. Waste Monitoring and Action Plan

The aims and objectives of the waste management audit program are:

- To ensure that waste generated by the works is handled, stored, collected, transported and disposed of in accordance with the applicable environmental guidelines and regulations.
- To ensure that the handling, storage, collection and disposal of waste arising from the demolition works complies with the relevant requirements under the WDO and its regulations, and this WMP.
- To encourage the reuse and recycling of materials.

The EO, with assistance from the PD or DPD, will conduct audits of the waste management practices during the weekly environmental site inspection to evaluate the overall implementation of the WMP, and to ensure that the appropriate control measures are properly implemented. The results of the waste management audits will be reported in the monthly EM&A reports. The Environmental Mitigation Implementation Schedule (EMIS) of the Tung Chung New Town Extension EM&A Manual (AEIAR-196/2016) is given in **Appendix B**.

In the event of any non-compliance observations or complaints against the provisions of this WMP, appropriate actions will be taken according to the particular event. An Action Plan for non-compliance and complaints is shown in the following tables:

9.1. Surveillance Team

A surveillance team, designated under EP condition 2.6, will conduct regular site inspections to identify and report immediately to the IEC, the ER and the Director on any suspected illegal dumping and landfilling of C&D materials within Project site throughout the construction phase.

Table 11.1: Event Action Plan for Non-compliance

Step	Day	Action	Construction Team	Env. Officer
1	1	A non-compliance record will be created within one (1) working day of making the observation during a site audit. The EO will send a Non-Compliance Report (NCR) to Construction Team. The NCR would include details of the observation/s, the time and location of the observation/s and the reason/s for the non-compliance.		X
2	2	The Construction Team will propose suitable corrective action/s to mitigate the non-compliance observed within Three (3) working day of receipt of the NC from the ET.	X	-
3	3	The EO will review BDJV's proposed corrective action/s and make additional recommendations as necessary.	-	X
4	-	The Construction Team will implement the proposed corrective action/s once they have been agreed to by all parties.	X	-
5	-	The implementation of the corrective action/s will be checked at the next site audit. Close the NC if the implementation of the corrective action/s is satisfactory.	X	X
6	-	Construction Team will propose preventive action/s within three (3) working days of the closure of the NC.	X	-
Note: "x" denotes action party comments on the NC where applicable.				

Table 11.2: Event Action Plan for Complaint

Step	Day	Action	Construction Team	EO
1	1	The EO will investigate validity of complaint, and assess whether the complaint is due to an onsite activity. If the complaint is valid and due to site activity, the EO will log details of the complaint into a Complaint Register (CR).	-	X
2	2	Construction Team will assess the CR and propose suitable mitigation measures.	X	X
3	3	The EO will review the mitigation measures and agree or propose further mitigation measures if required.	-	X
4	-	Construction Team will implement the proposed mitigation measures once they have been agreed to by all parties.	X	-
5	-	The EO will check the implementation of the mitigation measures during the next site audit. The EO will close out the compliant, if the implementation of the mitigation measures is satisfactory.	X	X
6	-	Construction Team will propose suitable prevention measures within three (3) working days after closure of the compliant.	X	-
Note: “x” denotes action party comments on the NC where applicable.				

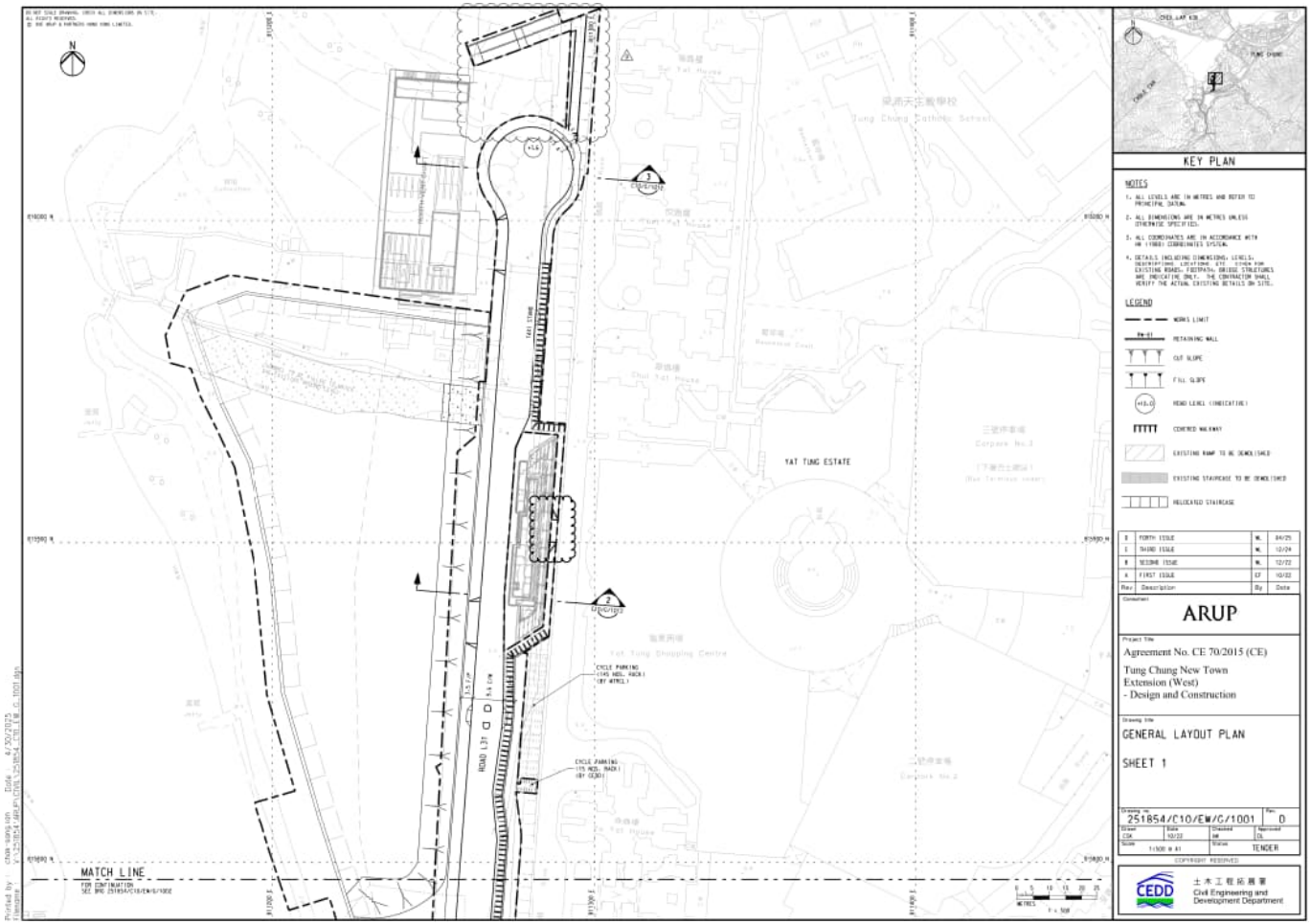
10. Waste Management Audit

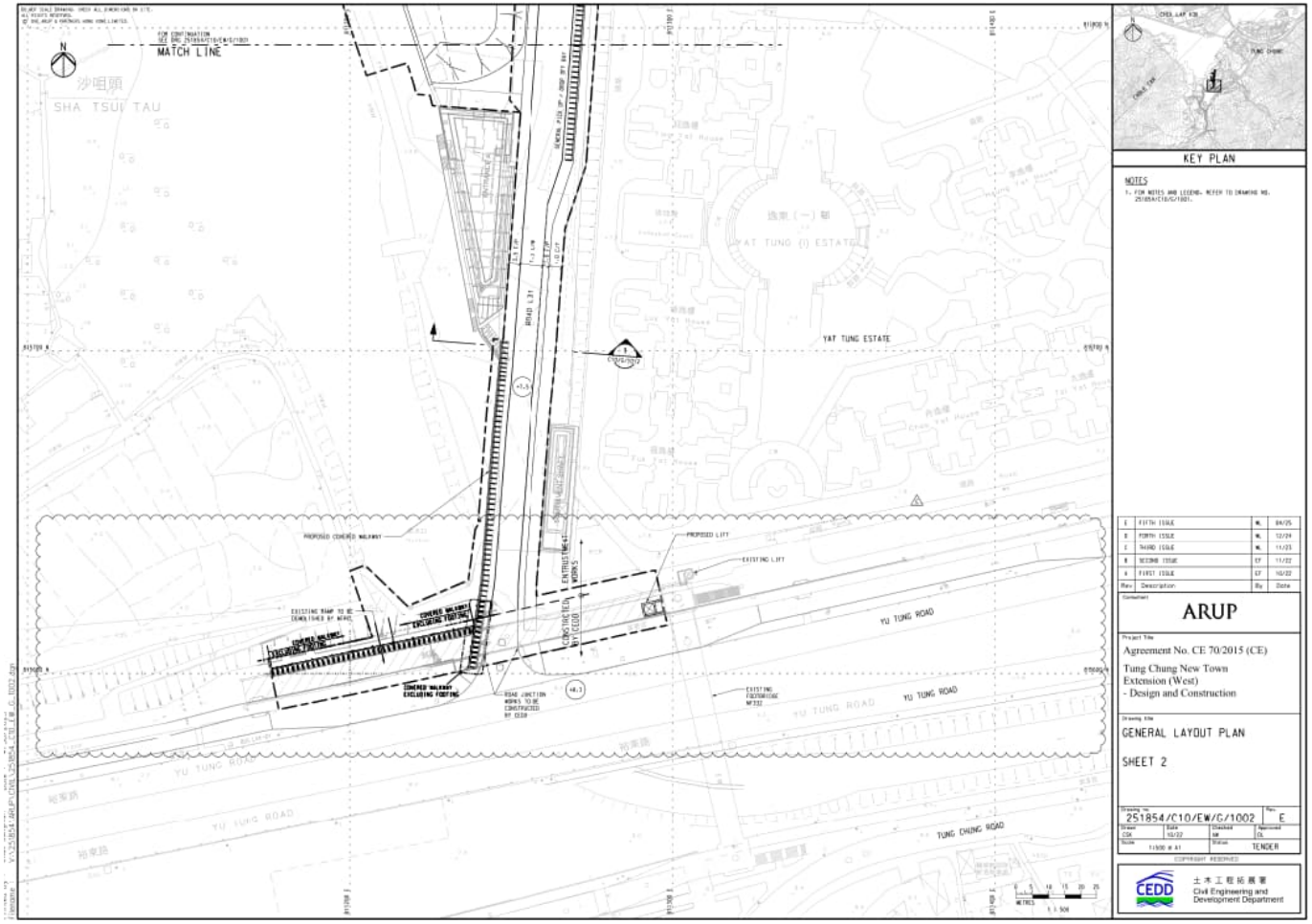
The aims of the waste audit are:

- To ensure proper arrangements/procedures to avoid/minimize the waste generated from construction activities;
- To ensure that the waste arising from works are handled, stored, collected, transferred 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;
- To ensure on-site sorting of C&D materials is properly carried out to recover inert C&D materials and reusable and/or recyclable materials before disposal;
- Plastic bottles/containers or plastic sheets/foam from packaging are collected as far as possible for recycling;
- Inert C&D materials suitable for recycling into aggregates are recovered and delivered to recycling facility;
- To encourage the reuse and recycling of inert C&D materials; and
- To facilitate the Project Proponent to audit the JV's performance in implementing the WMP.

Site inspections provide a direct means to trigger and enforce the specified environmental protection and pollution control measures. Site inspection will be undertaken weekly by the Engineer and attended by the BDJV and Environmental Officer to inspect the Site to ensure satisfactory performance on compliance with this Waste Management Plan.

APPENDIX A – Project Layout Plan




MATCH LINE
SHA TSUI TAU
沙咀頭
YAT TUNG ESTATE
YU TUNG ROAD
TUNG CHUNG ROAD
KEY PLAN
NOTES
ARUP
Agreement No. CE 70/2015 (CE)
Tung Chung New Town Extension (West) - Design and Construction
GENERAL LAYOUT PLAN
SHEET 2
251854/C10/EW/G/1002
TENDER
CEDD
Civil Engineering and Development Department

APPENDIX B – Environmental Mitigation Implementation Schedule (EMIS)

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measures	Objectives of the Recommended Measures & Main Concerns to address	Implementation Agent	Location / Timing	Implementation Stage	Requirements and / or standards to be achieved
Waste Management (Construction Waste)							
S7.4.1	WM1	Good Site Practices The following good site practices are recommended throughout the construction activities: • nomination of an approved personnel, such as a site manager, 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 site cleanliness, appropriate waste management procedures and concepts of waste reduction, reuse and recycling; • provision of sufficient waste disposal points and regular collection for disposal; • imposition of penalty system on Contractors' improper behaviours when illegal dumping and landfilling outside their respective construction sites, i.e. on nearby farmlands and riverbanks, are reported; • appropriate measures to minimise windblown litter and dust during transportation of waste by either covering trucks or by transporting wastes in enclosed containers; • regular cleaning and maintenance programme for drainage systems, sumps and oil interceptors; and • the contractor should prepare a Waste Management Plan (WMP) as part of the Environmental Management Plan (EMP) in accordance with the ETWB TC(W) No. 19/2005 for construction phase. The EMP should be submitted to the Engineer for approval. Mitigation measures proposed in the EIA Report and the EM&A Manual should be adopted.	Minimize waste generation during construction	Contractor	All construction sites	Construction stage	• Waste Disposal Ordinance

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measures	Objectives of the Recommended Measures & Main Concerns to address	Implementation Agent	Location / Timing	Implementation Stage	Requirements and / or standards to be achieved
S7.4.1	WM2	Waste Reduction Measures Waste reduction is best achieved at the planning and design phase, as well as by ensuring the implementation of good site practices. The following recommendations are proposed to achieve reduction: • segregate and store different types of waste in different containers, skip or stockpiles to enhance reuse or recycling of materials and their proper disposal; • proper storage and site practices to minimize the potential for damage and contamination of construction materials; • plan and stock construction materials carefully to minimize amount of waste generated and avoid unnecessary generation of waste; • sort out demolition debris and excavated materials from demolition works to recover reusable/recyclable portions (i.e. soil, broken concrete, metal etc.); • provide training to workers on the importance of appropriate waste management procedures, including waste reduction, reuse and recycling.	Reduce waste generation	Contractor	All construction sites	Construction stage	• Waste Disposal Ordinance
S7.4.1	WM3	Storage of Waste The following recommendation should be implemented to minimize the impacts: • waste such as soil should be handled and stored well to ensure secure containment; and • Depends on actual site activities, certain locations within the site area would be used for storage of waste to enhance reuse. However, there would not be any designated location for storage of waste, and the storage locations would need to be adjusted to suite actual site conditions;	Good site practice to minimize the waste generation and recycle the C&D materials as far as practicable so as to reduce the amount for final disposal	Contractor	All construction sites	Construction stage	• Land (Miscellaneous Provisions) Ordinance • Waste Disposal Ordinance • ETWB TCW No. 19/2005

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measures	Objectives of the Recommended Measures & Main Concerns to address	Implementation Agent	Location / Timing	Implementation Stage	Requirements and / or standards to be achieved
S7.4.1	WM4	Collection and Transportation of Waste The following recommendation should be implemented to minimize the impacts: • remove waste in timely manner; • employ the trucks with cover or enclosed containers for waste transportation; • obtain relevant waste disposal permits from the appropriate authorities; and • disposal of waste should be done at licensed waste disposal facilities.	Minimize waste impacts from storage	Contractor	All construction sites	Construction stage	• Waste Disposal Ordinance
S7.4.1	WM5	Excavated and C&D Materials Wherever practicable, C&D materials should be segregated from other wastes to avoid contamination and ensure acceptability at public fill reception facilities or reclamation sites. The following mitigation measures should be implemented in handling the excavated and C&D materials: • maintain temporary stockpiles and reuse excavated fill material for backfilling; • 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, so as to avoid the illegal dumping and landfilling of C&D materials on farmlands/ riverbanks at TCW; The recommended C&D materials handling should include:	Minimize waste impacts from excavated and C&D materials	Contractor	All construction sites	Construction Stage	• Land (Miscellaneous Provisions) Ordinance • Waste Disposal Ordinance • ETWB TCW No. 19/2005 • Project Administrative Handbook for Civil Engineering Works, 2012 Edition

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measures	Objectives of the Recommended Measures & Main Concerns to address	Implementation Agent	Location / Timing	Implementation Stage	Requirements and / or standards to be achieved
		• On-site sorting of C&D materials • Reuse of C&D materials • Use of Standard Formwork and Planning of Construction Materials purchasing					
S7.4.1	WM6	Provision of Wheel Wash Facilities Wheel wash facilities have to be provided at the site entrance before the trucks leaving the works area. Dust disturbance due to the trucks transportation to the public road network could be minimized by such arrangement.	Minimize waste impacts from trucks transportation	Contractor	All construction sites	Construction Stage	N/A
S7.4.1	WM7	Excavated Contaminated Soil As a precaution, it is recommended that standard good site practice should be implemented during the construction phase to minimize any potential exposure to contaminated soils or groundwater.	Remediate contaminated soil	Contractor	All construction sites where applicable	Construction stage	• Practice Guide for Investigation and Remediation of Contaminated Land
S7.4.1	WM8	Excavated Marine Sediments Reference has been made to the sediment testing results. Possible mitigation measures to handle the contaminated/ uncontaminated sediment are summarized as follows. • All construction plant and equipment shall be designed and maintained to minimise the risk of silt, sediments, contaminants or other pollutants being released into the water column or deposited in the locations other than designated location. • All vessels shall be sized such that adequate draft 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. • Adequate freeboard shall be maintained on barges to	Handle excavated sediment	Contractor	All construction sites where applicable	Construction stage	• ETWB-TCW 34/2002

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measures	Objectives of the Recommended Measures & Main Concerns to address	Implementation Agent	Location / Timing	Implementation Stage	Requirements and / or standards to be achieved
		ensure that decks are not washed by wave action.					
S7.4.1	WM9	Dumping of excavated sediment • Keep and produce logs and other records to demonstrate compliance and ensure journeys are consistent with designated locations • Comply with the conditions in the dumping permit. • All bottom dumping vessels (hopper barges) shall be fitted with tight fittings seals to their bottom openings to prevent leakage of material. • The excavated sediment shall be placed into the disposal pit by bottom dumping. • Contaminated marine mud shall be transported by split barge of not less than 750m^3 capacity and capable of rapid opening and discharge at the disposal site. • Discharge shall be undertaken rapidly and the hoppers shall be closed immediately. Sediment adhering to the sides of the hopper shall not be washed out of the hopper and the hopper shall remain closed until the barge returns to the disposal site. • For Type 3 special disposal treatment, sealing of contaminant with geosynthetic containment before dropping into designated mud pit. A geosynthetic containment method is a method whereby the sediments are sealed in geosynthetic containers and, the containers would be dropped into the designated contaminated mud pit where they would be covered by further mud disposal and later by the mud pit capping at the disposal site, thereby fulfilling the requirements for fully confined mud disposal.	Handle excavated sediment	Contractor	All construction sites where applicable	Construction stage	• ETWB-TCW 34/2002
S7.4.1	WM10	Chemical Waste	Control the chemical waste and ensure proper	Contractor	All construction	Construction stage	• Waste Disposal

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measures	Objectives of the Recommended Measures & Main Concerns to address	Implementation Agent	Location / Timing	Implementation Stage	Requirements and / or standards to be achieved
		If chemical wastes are produced at the construction site, the Contractors should register with EPD as chemical waste producer. Chemical wastes should be stored in appropriate containers and collected by a licensed chemical waste collector. Chemical wastes (e.g. spent lubricant oil) should be recycled at an appropriate facility as far as possible, while the chemical waste that cannot be recycled should be disposed of at either the Chemical Waste Treatment Centre, or another licensed facility, in accordance with the Waste Disposal (Chemical Waste) (General) Regulation.	storage, handling and disposal.		sites		(Chemical Waste) General) Regulation • Code of Practice on the Packaging, Labelling and Storage of Chemical Waste
S7.4.1	WM11	General Refuse • General refuse should be stored in enclosed bins separately from construction and chemical wastes. Recycling bins should also be placed to encourage recycling. • Preferably enclosed and covered areas should be provided for general refuse collection and routine cleaning for these areas should also be implemented to keep areas clean. • A reputable waste collector should be employed to remove general refuse on a daily basis.	Minimize production of the general refuse and avoid odour, pest and litter impacts	Contractor	All construction sites	Construction stage	• Waste Disposal Ordinance
S7.4.1	WM12	Floating Refuse accumulated along the seawall The floating refuse along seawall should be collected to avoid accumulation. In addition, proper seawall design should be employed, and regular checking and cleaning of floating refuse should be implemented.	Control floating refuse and ensure proper disposal	Contractor	Construction sites along seawall	Construction stage	• Waste Disposal Ordinance
Waste Management (Operational Waste)							
S7.4.2	WM13	Illegal dumping and landfilling	Prevent waste from	Relevant	All	Operational stage	

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measures	Objectives of the Recommended Measures & Main Concerns to address	Implementation Agent	Location / Timing	Implementation Stage	Requirements and / or standards to be achieved
		As a Development Permission Area (DPA) plan will be issued by the Town Planning Board as a temporary measure before the formal Outline Zoning Plan (OZP) for Tung Chung New Town Extension is adopted, statutory right to guide and control the development and use of land would be authorised. Should there be illegal dumping and landfilling observed/ reported on nearby farmlands and riverbanks, the government authority should take all necessary actions including but not limited to prosecution to remediate the circumstances.	illegal dumping and landfilling	government departments	construction sites		
S7.4.2	WM14	Municipal Solid Waste • A reputable waste collector should be employed to remove general refuse on a daily basis. • A 4-bin recycling system for paper, metals, plastics and glass should be adopted together with a general refuse bin. They should be placed in prominent places to promote waste separation at source. All recyclable materials should be collected by recyclers.	Remove general refuse generated from the proposed development	FEHD/ Relevant Operators	All construction sites	Operational stage	• Waste Disposal Ordinance
S7.4.2	WM15	Chemical Waste • Localized chemical waste storage areas should be located close to the source of waste generation for temporary storage. Drum-type containers with proper labelling should be used to collect chemical wastes for storage at the designated areas. • A licensed collector should be employed for the chemical waste collection and the chemical wastes should be disposed at an appropriate facility, such as Chemical Waste Treatment Centre (CWTC) in Tsing Yi. • Collection receipts issued by the licensed collector showing the quantities and types of chemical waste taken off-site and details of the treatment facility should be kept for record.	Reduce chemical waste due to waste handling	Contractors/ Relevant Operators	All construction sites	Operational stage	

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measures	Objectives of the Recommended Measures & Main Concerns to address	Implementation Agent	Location / Timing	Implementation Stage	Requirements and / or standards to be achieved
S7.4.2	WM16	Floating Refuse accumulated along seawall • The floating refuse along seawall should be collected to avoid accumulation.	Control floating refuse and ensure proper disposal	MD	Along seawall	Operational stage	• Waste Disposal Ordinance
S7.4.2	WM17	Floating Refuse inside Marina • Floating refuse at the marina will be collected and disposed by the licensed waste collector and as required.	Reduce floating refuse washing up onto marina by currents and wind	Future operator	Marina	Operational stage	• Waste Disposal Ordinance

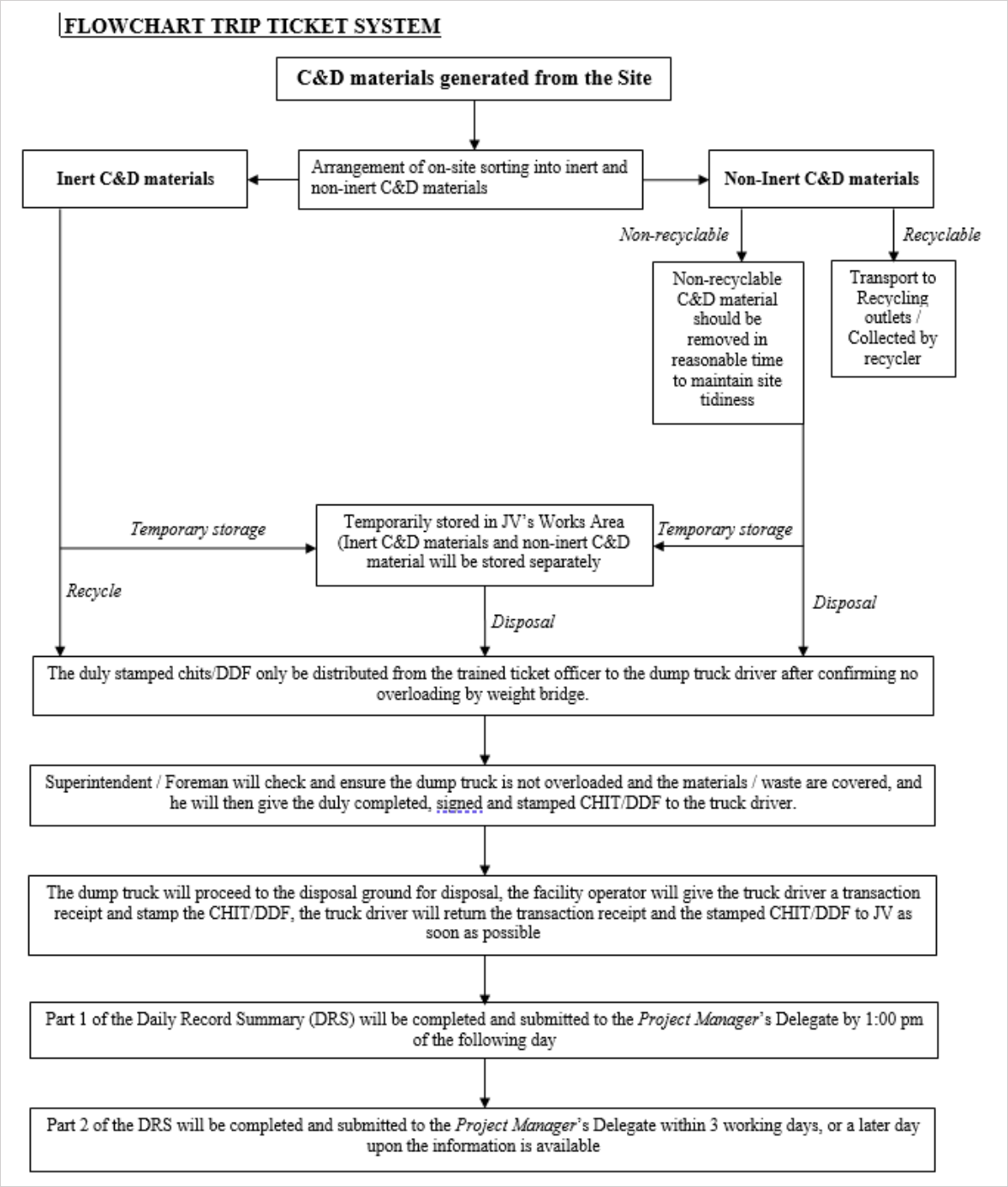
APPENDIX C –Notification to Truck Driver

NOTIFICATION TO TRUCK DRIVER

泥頭車司機運載物料及傾倒時需注意及檢查事項

- 泥頭車嚴禁超載
- 司機需持有有效的傾倒執照
- 已用帆布覆蓋整個泥斗及綁穩在車身或機動蓋掩已經蓋上
- 車身及車轆已經徹底清洗乾淨
- 已領取運載入帳票 (綠色)並已填妥票上所有資料
- 到達指定檢查點才可打開帆布或機動蓋掩
- 如泥頭車駛往非指定的地點進行傾倒, 或進行非法傾倒, 則會構成嚴重不當傾倒, 可被吊銷傾倒牌照

APPENDIX D –Trip Ticket System Flow Chart



APPENDIX E –Daily Record Summary of C&D Material template and Sample of Trip Ticket

Bouygues - Dragages (1201) Joint Venture

Tung Chung Line Extension Contract No. 1201
Tung Chung West Station and Tunnels

"Daily Record Summary" to record daily disposal of construction & demolition (C&D) materials from the *Site
"每日運載記錄撮要"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 : Contract No. 1201 – Tung Chung Line Extension Tung Chung West Station and Tunnels

(2) Date of Disposal 傾倒日期 :

(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 : (1) EPD approved C&D material recycler
: (2) Tuen Mun Area 38 Fill Bank (屯門第38區填料庫) (TM38)

(4) Approved Alternative Disposal Grounds 另可接受的接收設施 :

CHIT/DDF No. 載運入帳票/拆建物料運載記錄票編號	Vehicle registration no. 車輛登記號碼	Approx. vol (e.g. Full/Three Quarter/Half/One Quarter) 大約承載量(例如全, ¾, 半, ¼)	C&D material 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, 承建商的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 於離開地盤前或其他經承建商與建築師/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
		全 / ¾ / 半 / ¼	Inert / Non-inert	(1) / (2)				(1) / (2)		
		全 / ¾ / 半 / ¼	Inert / Non-inert	(1) / (2)				(1) / (2)		
		全 / ¾ / 半 / ¼	Inert / Non-inert	(1) / (2)				(1) / (2)		
		全 / ¾ / 半 / ¼	Inert / Non-inert	(1) / (2)				(1) / (2)		
		全 / ¾ / 半 / ¼	Inert / Non-inert	(1) / (2)				(1) / (2)		

甲部 Part 1[1] 乙部 Part 2[2]

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

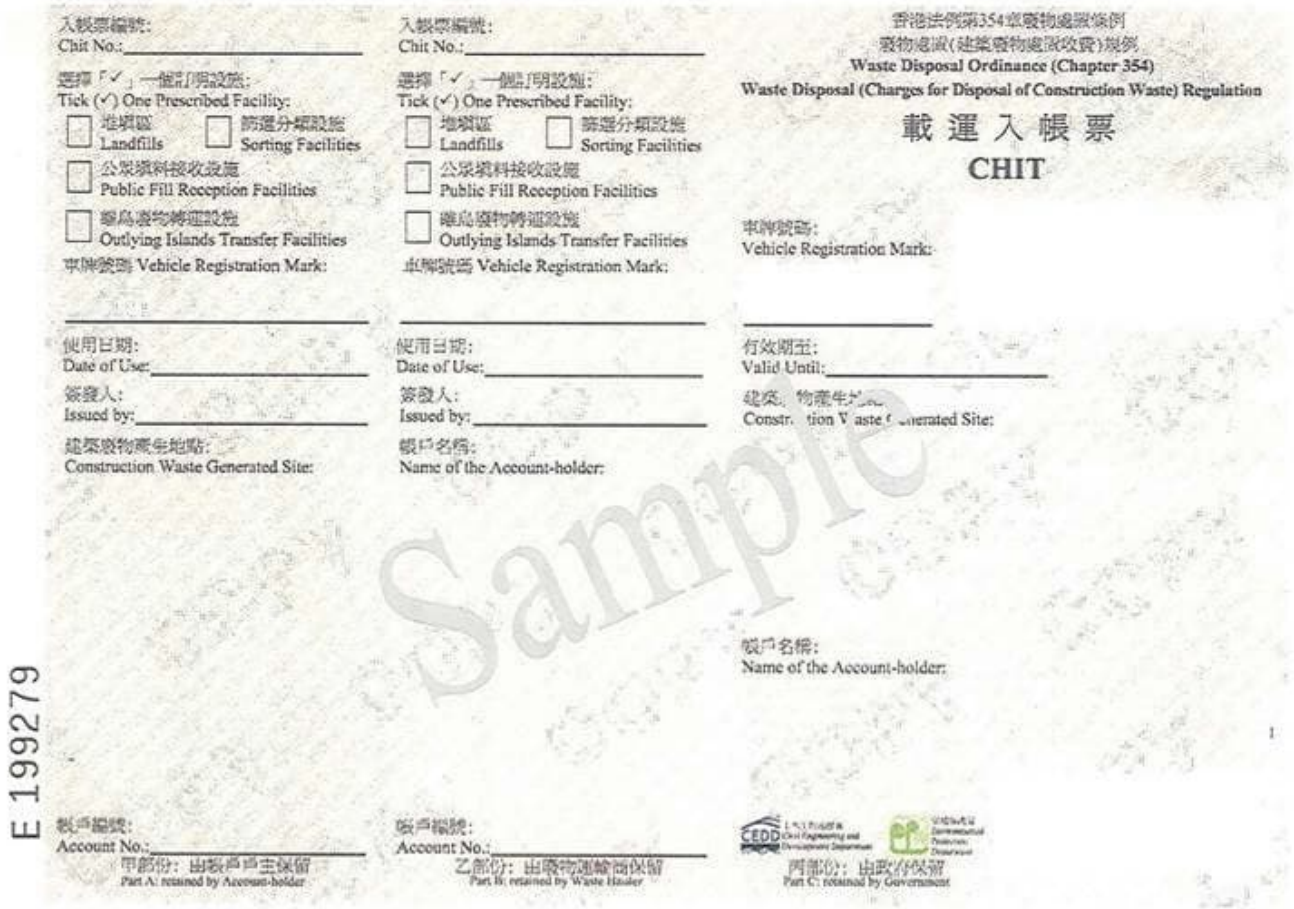
Submitted by 呈交:
Signature 簽名:
Date 日期:

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

Received by 接收:
Post 職位:
Date & Time 日期及時間:

Remark: [1]Part 1 甲部 – The Contractor shall complete Part 1 in duplicate and a copy should be kept by the Architect/ 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
[2]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撮要於記錄上載在環境保護署網頁後一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

Page 1 of 1



入帳票編號:
Chit No.:

選擇「✓」一個訂明設施:
Tick (✓) One Prescribed Facility:

☐ 堆填區 Landfills ☐ 篩選分類設施 Sorting Facilities
☐ 公眾填料接收設施 Public Fill Reception Facilities
☐ 離島廢物轉運設施 Outlying Islands Transfer Facilities

車牌號碼 Vehicle Registration Mark:

使用日期:
Date of Use:

簽發人:
Issued by:

建築廢物產生地點:
Construction Waste Generated Site:

帳戶名稱:
Name of the Account-holder:

帳戶編號:
Account No.:

甲部份：由帳戶持有人保留
Part A: retained by Account-holder

入帳票編號:
Chit No.:

選擇「✓」一個訂明設施:
Tick (✓) One Prescribed Facility:

☐ 堆填區 Landfills ☐ 篩選分類設施 Sorting Facilities
☐ 公眾填料接收設施 Public Fill Reception Facilities
☐ 離島廢物轉運設施 Outlying Islands Transfer Facilities

車牌號碼 Vehicle Registration Mark:

使用日期:
Date of Use:

簽發人:
Issued by:

帳戶名稱:
Name of the Account-holder:

帳戶編號:
Account No.:

乙部份：由廢物運輸商保留
Part B: retained by Waste Hauler

香港法例第354章廢物處置條例
廢物處置(建築廢物處置收費)規例
Waste Disposal Ordinance (Chapter 354)
Waste Disposal (Charges for Disposal of Construction Waste) Regulation

載運入帳票
CHIT

車牌號碼:
Vehicle Registration Mark:

有效期至:
Valid Until:

建築廢物產生地點:
Construction Waste Generated Site:

帳戶名稱:
Name of the Account-holder:

丙部份：由政府保留
Part C: retained by Government

Sample

E 199279

APPENDIX F – Waste Flow Table

Bouygues - Dragages (1201) Joint Venture

Tung Chung Line Extension Contract No. 1201
Tung Chung West Station and Tunnels

Monthly Summary Waste Flow Table for 2022 (Forecast)

Month	Forecast of Total Quantities of C&D Materials to be Generated from the Contract*										
	a.Total Quantity Generated (a=c+d+e)	b. Hard Rock and Large Broken Concrete	c. Reused in the Contract	d. Reused in Other Projects	e. Disposed as Public Fill	f. Imported Fill	g. Metals	h. Paper / Cardboard Packaging	i. Plastics	j. Chemical Waste	k. Others, e.g. general refuse
	(in '000m^3)	(in '000m^3)	(in '000m^3)	(in '000m^3)	(in '000m^3)	(in '000m^3)	(in '000kg)	(in '000kg)	(in '000kg)	(in '000kg)	(in '000m^3)
January											
February											
March											
April											
May											
June											
Sub-total											
July											
August											
September											
October											
November											
December											
Total											

Monthly Summary Waste Flow Table

Notes:

(1)The performance targets are given in the EM&A Manual(s).

(2)The waste flow table shall also include C&D materials to be imported for use at the Site.

(3)Plastics refer to plastic bottles/containers, plastic sheets/foam from packaging material.

Bouygues - Dragages (1201) Joint Venture

Tung Chung Line Extension Contract No. 1201
Tung Chung West Station and Tunnels

Yearly Waste Flow Table

Year	Actual Quantities of Inert C&D Materials Generated						Actual Quantities of C&D Wastes Generated				
	a.Total Quantity Generated (a=c+d+e)	b. Hard Rock and Large Broken Concrete	c. Reused in the Contract	d. Reused in Other Projects	e. Disposed as Public Fill	f. Imported Fill	g. Metals	h. Paper / Cardboard Packaging	i. Plastics	j. Chemical Waste	k. Others, e.g. general refuse
	(in '000m^3)	(in '000m^3)	(in '000m^3)	(in '000m^3)	(in '000m^3)	(in '000m^3)	(in '000kg)	(in '000kg)	(in '000kg)	(in '000kg)	(in '000m^3)
2020											
2021											
2022											
2023											
2024											
2025											
2026											
Total	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

Yearly Waste Flow Table

Notes:

(1)The performance targets are given in the EM&A Manual(s).

(2)The waste flow table shall also include C&D materials to be imported for use at the Site.

(3)Plastics refer to plastic bottles/containers, plastic sheets/foam from packaging material.

APPENDIX G – METHOD STATEMENT FOR STOCKPILING AND TRANSPORTATION OF EXCAVATED MATERIALS AND OTHER CONSTRUCTION WASTES

1. Scope of Work

- Stockpiling
- Transportation of Excavated Materials
- Transportation of Other Construction Waste

2. Construction Sequence of Works

2.1 Stockpiling:

- The excavated material generated from excavation will consist of soil and rock materials which will, as far as practicable, be reused on-site for the backfilling works.
- Excavated material will also be generated from foundation work, underground services works and even any temporary works for excavation. Any surplus excavated material will be temporary stored in a designated area and would be engaged for backfilling
- The spoil will be stored at 2m high maximum and slope surface will be kept in 1:2.
- When amber rainstorm signal or higher is hoisted, protective measures would be provided on slope surface against rainwater such as covered with tarpaulin or plastic sheet, erecting the temporary shelters, additional of pumps to drive out rainwater, etc..

2.2 Transportation of Excavated Materials

- The excavated material will be sprayed with water when it is dry. The aim is to control dust in work area
- Dump truck loaded with excavated materials would be covered by tarpaulin sheeting or mechanical cover to prevent dust emission.
- For the transportation of excavated materials, BDJV will implement and comply with the requirements of the Trip-Ticket System (TTS) stipulated in Development Bureau Technical Circular (Works) No. 6/2010.

2.3 Transportation of Other Construction Waste

- General refuse and C&D materials

- Un-recyclable, non-inert C&D Materials, i.e. general refuse, which mainly consists of food waste, aluminum cans and waste paper, will be generated from construction activities, workers and the site office.
- The C&D Materials will be temporarily stored and containers or skips will be provided for temporary waste storage to prevent odour, pest and windblown litter
- Office waste will be reduced through the recycling of paper. Sacks for wastepaper and baskets for reusable papers will be provided in the Site Office. General refuse including food and domestic waste will be stored in enclosed bins or compaction units separate from the construction and chemical waste. Lunch boxes, plastic bottles, containers and plastic sheets will be sorted and stored in separately labelled bins for subsequent recycling. The waste will be recycled by sending to the government recycling facility such as the Community Green Station operated by the EPD.
- The general refuse and the un-recyclable C&D Materials will be collected and disposed of on a regular basis to minimize the likelihood of odour, pests and litter. They will be transported and disposed of by a licensed waste hauler. A trip-ticket system to trace the transportation and destination of the waste will be implemented and the burning of refuse on the site will be strictly prohibited.

- Chemical waste

- For chemical waste produced by a process, as defined by Schedule 1 of Waste Disposal (Chemical Waste)(General) Regulation, a 'Chemical Waste Producer' registration will be made with EPD.
- Chemical waste is likely to be generated during maintenance of plant and equipment, and these may include asbestos waste, used mechanical oil, cleaning fluid, spent solvents, lubricating oil and paints and paint containers.
- All chemical waste generated on site will be stored and labelled in accordance with the Code of Practice on the Packaging, Labelling and Storage of Chemical Waste published by the EPD. All workers involved in the handling of chemical waste will be trained properly and will be provided with appropriate clothing.
- The sorting and segregation of chemical waste will be carried out on site to ensure the waste is appropriately handled, labelled and treated

prior to disposal off-site. The recoverable chemical wastes such as oil, paint and solvent, will be separated from other chemical wastes and EPD licensed chemical waste collector will be employed to collect the chemical waste.

- Chemical waste will be stored at designated storage areas in accordance with the Code of Practice on the Packaging, Labelling and Storage of Chemical Waste. The containers to be used for the storage of chemical waste will:
  - Be suitable for the substance they are holding, resistant to corrosion and be maintained in a good condition and kept securely closed;
  - Have a capacity of less than 450L unless the specifications have been approved by the EPD; and
  - Display a label in English and Chinese in accordance with instruction prescribed in Schedule 2 of the Regulations.
- The storage area for chemical waste will:
  - Be clearly labelled and used solely for the storage of chemical waste;
  - Be enclosed on at least three sides;
  - Have an impermeable floor and be bunded to accommodate 110% of the volume of the largest container or 20% by volume of the chemical waste stored in that area, whichever is greater;
  - 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.
- All producers of chemical waste (including asbestos) must register with EPD and treat their waste either utilizing on-site plant licensed by EPD or arranging for a licensed collector to take the waste to a licensed facility. The trip-ticket system will be strictly implemented to ensure the chemical waste is transported by and to ensure the chemical waste is transported by and to proper agents. Trip tickets issued for every chemical waste collection will be retained and filed for future reference and inspection.