



**CONTRACT NO. ED/2020/03
TRUNK ROAD T2
TRAFFIC CONTROL AND SURVEILLANCE SYSTEM AND ASSOCIATED WORKS
WASTE MANAGEMENT PLAN**

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Prepared for

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



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Revision History




Date	Rev.	Details of Change	Prepared By	Reviewed By	Approved By
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1 INTRODUCTION

1.1 Background

This Waste Management Plan (WMP) is prepared by GTECH Services (Hong Kong) Limited (hereafter called “GTECH”) for Contract No. ED/2020/03 Trunk Road T2 – Traffic Control and Surveillance System and Associated Works. This Waste Management Plan (WMP) is prepared to comply with Condition 2.6 of EP- 458/2013/C, this plan shall be submitted before commencement of construction of the Project.

1.2 Scope of Works

The Site locates within the Trunk Road T2 from former Kai Tak Airport South Apron to Cha Kwo Ling. The Works comprise the design, develop, supply and install Traffic Control and Surveillance System (TCSS) and Associated Works for Trunk Road T2. The works shall facilitate the future tunnel operator to monitor and control traffic within the tunnel area associated with Trunk Road T2 and its approach roads.

The system will mainly consist of:

- Radio System for Tunnel Operation & Maintenance of use T2 / TKO-LTT in Underpass S21 in Central Kowloon Route (CKR) Control Area
- T2 Service Gallery with TCSS field equipment
- Traffic Control Devices
- Three Aspect Lane Control Signals (ALCS)
- Matrix Lane Control Signals (MLCS)
- Variable Speed Limit Signs (VSLS)
- Prismatic Variable Message Signs (PVMS)
- Turn On Radio’ Signs (TOR)
- Traffic Light Signals (TS)
- Traffic Barriers (MB)
- Detection System
- Over height Vehicle Detector (OHVD)
- Vehicle Detection Sub-system (VDS)
- Closed Circuit Television (CCTV) Surveillance
- Speed Enforcement System
- Emergency Telephones
- Radio System
- Radio Distribution Network
- Operation and Maintenance (O&M) Radio
- AM & FM Rebroadcast
- Fire Service Department (FSD) Radio
- Hong Kong Police Force (HKPF) Radio
- Other Tunnel Radio Equipment
- Public Address and Intercom
- Building Private Automatic Branch Exchange (PABX) System
- Operation Facilities
- Communication System
- Manual Fallback System
- Power Distribution System



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- All necessary interface provisions including software and hardware for connection of T2 field equipment and sub-systems to the TCSS Communication System and Central System of the TKO – LTT TCSS to form an integrated TCSS with Single User Interface (SUI)
- Testing and commissioning of T2 TCSS without and with connection to TKO-LTT TCSS and route-wide interface testing and commissioning for all sections of Route 6 include CKR, T2/TKO-LTT and CBL.

The Client of this project is “Hong Kong Special Administrative Region - Civil Engineering and Development Department (CEDD)”, while the Engineer of this project is “Hyder-Meinhardt Joint Venture (HMJV)”.

This contract commenced on 14 January 2022 and scheduled to complete on or before 14 January 2025.

1.3 Purpose and Objectives of the Plan

This WMP will describe the arrangements for avoidance, reuse, recovery and recycling, storage, collection, treatment and disposal of different categories of waste to be generated from the construction activities. This WMP includes the recommended mitigation measures on waste management in the EIA Report.

The Environmental Officer will be responsible for the preparation and checking of the WMP and the Site Agent is responsible for its approval.

This Waste Management Plan is developed by an environmental committee led by Site Agent to ensure GTECH compliance with environmental regulations (applicable ordinance) and the contractual requirements, to identify areas in which potential waste may be avoided or reduced, efficiency may be improved and other areas of environmental concern requiring management and operational control.

The objectives of the Plan would be:

- To achieve zero chemical waste to be generated throughout the whole project cycle
- At least 10% of the C&D materials (e.g. wooden box, wirings, etc.) to be reused on site
- At least 5% of the C&D materials (e.g. wirings, scrap metals, etc.) to be recycled by licensed collector(s)
- To reduce the amount of C&D materials to be generated and achieve an average of one dump truck per month to collect C&D materials.

1.4 Waste Management Policy

It is the policy of GTECH to ensure that the contractual work will be conducted in, as far as is practical, an environmental responsible manner. GTECH recognizes that environmental concern and protection are integral part of its business strategy. The following waste management statement will be documented, implemented and reviewed annually for continuous improvement, and will be made available to parties concerned.

- GTECH will comply with all contractual requirements, applicable legislation's, and relevant government guidelines as a minimum requirement and will strive to improve waste management performance beyond the required standards.
- GTECH will allocate sufficient resources in terms of time, personnel and finance to ensure that waste management objectives and targets are met.




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- All GTECH employees will be made aware of the waste management strategy through internal communications and training, will be encouraged to act in accordance with the waste management policy and to contribute in its improvement.
- Communicate with interested parties including the sharing of reducing or minimizing generation of construction and demolition materials on site.
- GTECH will strive to minimise waste production and maximise recycling options.
- GTECH is committed to auditing, reviewing and improving the policy statement and the waste management strategy.

The management of GTECH is responsible for implementing and maintaining the waste management policy, which is disseminated and understood at all levels of the organisation.

A policy statement setting out the management's commitments for environmental and waste management of this Contract is attached below. This statement will be reviewed at least once per year and revised if necessary. The latest revision of this statement is year 2018 version.



Environmental Policy

GTECH Services (Hong Kong) Limited (GTECH) is a contracting company engaged in the project management, design, supply, installation and maintenance of electrical, electronic and mechanical engineering works.

GTECH is to ensure that the contractual work will be conducted in, as far as is practical, an environmentally responsible manner. GTECH recognizes that environmental concern and protection are integral part of its business strategy. We are committed to:


- comply the applicable legal requirements and other requirements related to environmental management system;
- provide sufficient resources and facilities for the implementation of environmental nuisance control and waste management;
- seek continual improvement of the environmental management system to enhance environmental performance;
- ensure that sub-contractors and partners to implement mitigation measures to achieve environmental statutory requirements; and
- promote environmental awareness to all employees through internal communication and training.

環保政策

英國通用工程(香港)有限公司是一所從事電子及機電工程項目管理、設計、供應、安裝及維修的承包商。

我們確保以務實及對環境負責的態度履行合約有關的工作。本公司貫徹執行對環境關注和保護，以作為我們經營策略中的組成部分。我們承諾：

- 遵守適用的法律要求和環境管理體系有關的其他要求;
- 為實施環境滋擾控制和廢物管理提供足夠的資源和設施;
- 尋求持續改善環境管理體系以提升環保表現;
- 確保分包商和合作夥伴實施緩解措施以達到環境法定要求;和
- 通過內部溝通和培訓提高全體員工的環保意識。



Y W Ho
Managing Director

Date: 29 June 2018



1.5 Statutory Requirements

The following legislation relates to the handling, treatment and disposal of wastes probably associated with the project:

- The Waste Disposal Ordinance (Cap354);
- Waste Disposal (Chemical Waste) (General) Regulation (Cap. 354C);
- Waste Disposal (Charges for Disposal of Chemical Waste) Regulation (Cap. 354J);
- Waste Disposal (Designated Waste Disposal Facility) Regulation (Cap. 354L);
- Waste Disposal (Charges for Disposal of Construction Waste) Regulation (Cap. 354N)
- Land (Miscellaneous Provisions) Ordinance (Cap. 28);
- Public Health and Municipal Services Ordinance (Cap. 132) - Public Cleansing and Prevention of Nuisances Regulation; and
- Dumping at Sea Ordinance (Cap. 466)

The Waste Disposal Ordinance (WDO) prohibits the unauthorised disposal of wastes, requiring disposal only at designated waste disposal facilities, licensed by the waste disposal authority.

Under Waste Disposal (Chemical Waste) (General) Regulation all producers of chemical wastes (including asbestos) must register with EPD and treat their wastes either utilizing on-site plant licensed by EPD, or arranging for a licensed collector to take the wastes to a licensed facility. The regulation also prescribes the storage facilities to be provided on site, including labeling 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.

Under Waste Disposal (Charges for Disposal of Chemical Waste) Regulation, it listed the payment of charges for disposal of chemical waste at the Chemical Waste Treatment Centre thus providing an incentive scheme to minimize the chemical waste producers to produce chemical wastes.

Under the Waste Disposal (Charges for Disposal of Construction Waste) Regulation, for contracts with a value of more than HK\$1,000,000 or above, 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 reception facilities, etc.). Each load of construction waste delivered to a landfill for disposal must not contain more than 50% by weight of inert material. Each load of construction waste delivered to a sorting facility for disposal must contain more than 50% by weight of inert material, whereas each load of construction waste delivered to a public fill reception facility for disposal must consist entirely of inert construction waste.

Under the Waste Disposal (Designated Waste Disposal Facility) Regulation, the Contractor shall inform the Engineer of the account number of the billing account for disposal of construction waste.

Other relevant requirements of the following codes of practice, technical circulars and guidelines that may be useful and relevant in this project:

- Environment, Transport and Works Bureau Technical Circular (Works) No. 19/2005 – Environmental Management on Construction Sites;
- Project Administration Handbook for Civil Engineering Works”, 2020 Edition, CEDD, Chapter 4
- Section 4.1.3 – Management of Construction and demolition Material Including Rock;
- Development Bureau Technical Circular (Works) No. 6/2010 – Trip Ticket System for Disposal of Construction and Demolition Material;
- Environment, Transport and Works Bureau Technical Circular (Works) No. 24/2004 – Specifications Facilitating the Use of Concrete Paving Units Made of Recycled Aggregates;



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- Works Bureau Technical Circular No. 12/2002 – Specifications Facilitating the Use of Recycled Aggregates;
- Development Bureau Technical Circular (Works) No. 8/2010 – Enhanced Specification for Site
- Cleanliness and Tidiness;
- Works Bureau Technical Circular No. 19/2001 – Metallic Site Hoardings and Signboards;
- Works Bureau Technical Circular No. 12/2000 – Fill Management;
- Works Bureau Technical Circular No. 04/1998A – Use of Public Fill in Reclamation and Earth Filling Projects;
- Works Bureau Technical Circular No. 04/1998 – Use of Public Fill in Reclamation and Earth Filling Projects;
- Works Bureau Technical Circular No. 16/1996 – Wet Soil in Public Dumps;
- Works Bureau Technical Circular No. 02/1993B – Public Filling Facilities;
- Works Bureau Technical Circular No. 02/1993 – Public Dumps;
- 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;
- A Guide to the Registration of Chemical Waste Producers;
- A Guide to the Chemical Waste Control Scheme;
- Code of Practice on the Packaging, Labeling and Storage of Chemical Wastes;
- Code of Practice on the Handling, Transportation and Disposal of Asbestos Waste – (Cap 354, Section 35);
- Chapter 9 “Environment” of Hong Kong Planning and Standards Guidelines, Hong Kong Government; and
- Guidelines on Yard Waste Reduction and Treatment

1.6 Abbreviations

GTECH	-	GTECH Services (Hong Kong) Limited
C&D	-	Construction and Demolition
DDF	-	Disposal Delivery Form
DRS	-	Daily Record Summary
ET	-	Environmental Team
IEC	-	Independent Environmental Checker
SMP	-	Site Management Plan
TCSS	-	Traffic Control and Surveillance System
TTS	-	Trip-ticket System
WFT	-	Waste Flow Table
WMP	-	Waste Management Plan



2 SITE ORGANIZATION AND STAFF DUTIES

2.1 Project Organizational Structure

The project organization chart is set up so as to enable implement and enforce of waste management in managing the procedure of C&D material disposal. Such includes regular checking, and monitoring to ensure the enforcement of the WMP by GTECH. The project organization chart is shown as below:

ORGANISATION CHART FOR ENV TEAM FOR EPD, CEDD, HMJV, IEC, ET & IEC

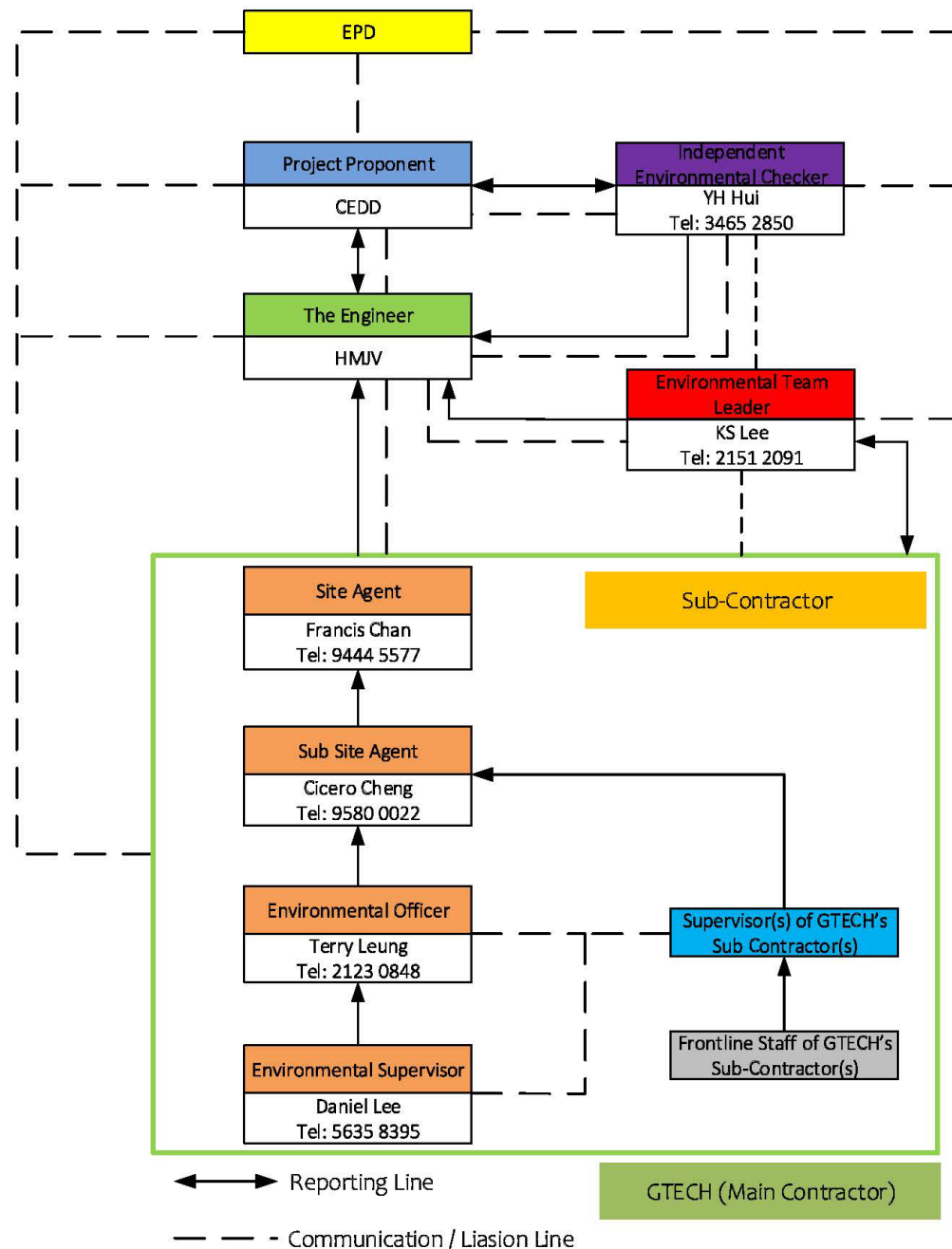


Figure 1: Organisational Structure for Waste Management



2.2 Roles and Responsibilities

The roles and responsibilities of responsible persons in the organisation chart of 2.1 are described in details as follows.

2.2.1 Site Agent

- As Contractor's Superintendence for this Contract;
- Full authority to receive on behalf of the Contractor directions and instructions from the Engineer and the Engineer's Representative;
- Commit the implementation of the waste management system described in this WMP;
- Ensure to achieve the policy commitments, targets and measures for waste management of the Contract;
- Provide sufficient resources and facilities for the implementation of the WMP;
- Maintain proper liaison and formal communication with the Engineer and other parties;
- Define the levels of delegated authority for the key positions of the project team ;
- Ensure the requirements stated in the Waste Management Plan is satisfactorily implemented; and
- In the event of a non-compliance, be empowered to stop the works.

2.2.2 Sub Site-Agent

- Responsible to enforce the WMP and its implementation, as well as the statutory and contractual obligations;
- Carry out the front line supervision and delegate engineers and/or foreman to assist and carry out duties, such as reporting, site inspections, training and liaison with sub-contractors; and
- Instruct and monitor sub-contractor to follow the WMP requirements and action plan.

2.2.3 Environmental Officer

- Prepare, implement and update the Waste Management Plan;
- Empower to discharge her duties in the proper implementation of the WMP on the Site;
- Advise on waste management measures to be taken in the interest of environmental protection, and implement such measures;
- Carry out inspections of the Site for identifying potential hazards to the environment, and to report findings with recommendations for corrective actions;
- Participate in the weekly environmental walks (whether this is combined with the weekly safety walk or otherwise) with the nominated site staff of the Engineer, and to supervise and monitor the environmental performance on the Site;
- Check and ensure that any polluting or potentially polluting situation is promptly rectified;
- Compile the monthly environmental report for submission to the Engineer;
- Arrange and provide the environmental training including the waste management trainings, site specific induction training and toolbox talks for workers on the Site, and to organize environmental promotional activities;
- Advise the Contractor on the implementation of an waste management system; and
- Record the quantities of C&D materials generated each month, using the Monthly Summary Waste Flow Table.



2.2.4 Environmental Supervisor

- Assist Environmental Officer (EO) to deal with environmental related matters;
- Assist EO to prepare, implement and update the Waste Management Plan;
- Carry out inspections of the Site for identifying potential hazards to the environment, and to report findings with recommendations for corrective actions;
- Participate in the weekly environmental walks (whether this is combined with the weekly safety walk or otherwise) with the nominated site staff of the Engineer, and to supervise and monitor the environmental performance on the Site;
- Check and ensure that any polluting or potentially polluting situation is promptly rectified;
- Assist EO to compile the monthly environmental report for submission to the Engineer;
- Arrange and provide the environmental training including the site specific induction training and toolbox talks for workers on the Site, and to organize environmental promotional activities; and
- Record the quantities of C&D materials generated each month, using the Monthly Summary Waste Flow Table.

2.2.5 Subcontractor's Environmental Representative / Site Supervisor

- Supervise the execution of waste sorting works by the workers on the Site; and
- Ensure their workers aware of the work activities which might affect the surrounding environment in site environmental performance.

2.2.6 Foreman / Frontline Staff

- 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



3 SOURCES OF WASTE AND DISPOSAL LOCATION

The following types of waste would be generated from the construction activities of the Contract:

- a) Non-inert C&D materials (C&D Wastes)
 - Metals
 - Paper / cardboard packaging
 - Plastics (i.e. plastic bottles / containers, plastic sheets / foam from equipment or material packaging)
- b) Chemical wastes *
- c) General refuse

Due to the nature of our scope of work, inert C&D materials (i.e. concrete, earth, soil, sand, etc.) will not be generated throughout the whole construction period.

The disposal sites for the wastes generated from the project are listed in Table 1.

Waste Type	Estimated Volume to be Generated (in '000m³)	Estimated Volume to be Disposed Off-site (in '000m³)	Estimated Volume to be reused / recycled On-site (in '000m³)	Disposal Site
Non-inert C&D Materials (e.g. metals, paper / cardboard, plastics)	0.888	0.444	0.444	Collected by recycling contractors and / or NENT Landfill
Inert C&D Materials (e.g. concrete, earth, soil, sand, etc.)	0	0	0	Public fill reception facilities or other disposal outlets as approved by the Engineer
Chemical Wastes	0*	0*	0*	Collected by licensed chemical waste collector
General Refuse	0.144	0.144	0	NENT Landfill

Table 1: Source of waste and corresponding disposal site (Volume estimated based on the construction programme throughout the whole construction period)



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* : Target for “ZERO” generation of chemical waste throughout the whole construction period. If there are variations throughout the project cycle that chemical wastes will be generated, mitigation measures will be implemented as indicated in Section 4.2 Table 2.



4 WASTE REDUCTION

4.1 Targets

To facilitate assessment of the effectiveness of the waste management measures, the following performance targets should be adopted:

- No excavated materials will be generated;
- All metallic waste should be recovered on site for collection by recycling contractors;
- All cardboard and paper packaging (for plant, equipment and materials) should be recovered in store, properly stockpiled in dry condition and covered to prevent cross contamination by other C&D materials;
- No chemical waste is expected to be generated and GTECH targeted for ZERO generation of chemical waste. Unfortunately, if there are variations within project cycle that chemicals will be used, GTECH will apply a chemical waste producer licence from EPD & chemical wastes will be removed on site and collected by licensed chemical waste collector;
- All demolition debris to be sorted to recover broken concrete, reinforcement bars, mechanical and electrical fittings, hardware as well as other fittings/materials that have established recycling outlets;
- The use of new timbers is to be reduced and the Temporary Works controlled; and
- Useful timber should be segregated for reuse.

4.2 Mitigation Measures

According to the ETWB TCW No. 19/2005 – Environmental Management on Construction Sites, “C&D materials” could be divided into inert or non-inert. The inert portion is the “Inert C&D materials” including soil, building debris, broken rock, concrete etc., and the non-inert portion is the “C&D wastes” comprising timber, paper, plastics, general refuse etc.

GTECH will apply the waste management hierarchy in the assessment and develop mitigation measures for waste which aims at evaluating the desirability of waste management methods by using the following philosophy:

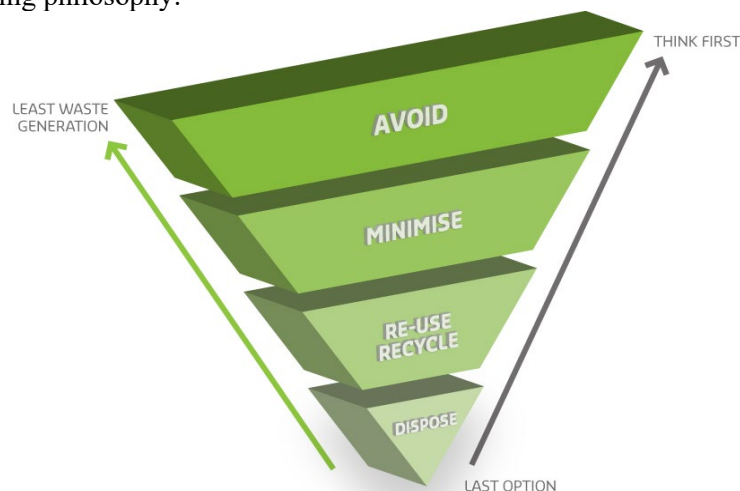


Figure 2: Waste Management Strategies



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

The order above is in priority. GTECH will adopt "avoid & reduce first, reuse, recover & recycle and disposal as final stage" approach before and after the generation of C&D materials.

For this Contract, the major C&D materials generating activities during construction of the Contract and the proposed mitigation measures are identified and listed below:

Work Processes and Activity	Location	Potential C&D Material	Mitigation Measure
Contractor's temporary accommodation and project signboards	Works Area at Wang Chiu Road, Kowloon Bay	<ul style="list-style-type: none">• Metal (e.g. wall panel and partition)• Timber• General refuse	<ul style="list-style-type: none">• Prevent over-ordering of materials• Avoid unnecessary use and cutting• Collect the surplus wall panel, partition and timber in temporary storage area for re-use• Segregate the recyclable wastes (such as metal debris) from general refuse
Unpacking equipment / materials	Store	<ul style="list-style-type: none">• Paper cardboard• Plastics• General refuse	<ul style="list-style-type: none">• Prevent over-ordering of materials• Request suppliers to provide low waste packaging• Collect all cardboard and paper packaging to be properly stockpiled in dry condition and covered to prevent cross contamination• Stockpiled C&D materials should be covered by tarpaulin and/or watered as appropriate to prevent windblown dust and surface run off
Installation of conduit and trunking, and cabling	Construction site	<ul style="list-style-type: none">• Metal• Timber (e.g. cable drum and wooden wedge)• Cable	<ul style="list-style-type: none">• Prevent over-ordering of conduit, trunking and cable• Avoid unnecessary use and cutting• Return the surplus materials and wooden wedge to store for re-use• Segregate the recyclable wastes (such as cable drum and metal debris) from general refuse• Collect all wooden surplus to be properly stockpiled in dry condition• Dumping of C&D materials at any sensitive locations is strictly prohibited
Painting (in case any variations that chemicals will be used throughout project cycle)	Construction site	<ul style="list-style-type: none">• Paints and Solvent	<ul style="list-style-type: none">• Order the right quantity of paints and solvent at the right time• Collect the exact amount to the Site• Return the surplus to store for re-use and identify with appropriate label



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Work Processes and Activity	Location	Potential C&D Material	Mitigation Measure
Temporary electricity supply by diesel engine (in case any variations that chemicals will be used throughout project cycle)	Construction site	<ul style="list-style-type: none"> Spent Diesel Oil 	<ul style="list-style-type: none"> Order the right quantity of diesel oil at the right time Collect the exact amount to the Site Return the surplus to store for re-use and identify with appropriate label
General housekeeping	Site office / Store / Construction site	<ul style="list-style-type: none"> General refuse Timber Construction materials Aluminium Can Surplus C&D materials 	<ul style="list-style-type: none"> Reduce the number of photo copies to a minimum and copy on both sides of paper for internal documents and external documents where appropriate Provide drinking facility and encourage employees to bring their own cups / bottles Discourage take-out food Collect in enclosed bins and covered waste skip Inspect regularly to ensure no breeding of mosquitoes Surplus C&D materials shall be sorted on-site and be separated into different categories for disposal at landfills, or reuse and recycling. All components of site hoardings and signboards shall be metallic and not be made of timber. Provision of sufficient waste disposal points and regular collection of waste Weekly environmental inspection shall be carried out to verify the effective implementation of waste management. Encourage collection of aluminium cans by providing separate labelled bins to enable this waste to be segregated from other general refuse generated by the workforce Training should be provided to workers about the concepts of site cleanliness and appropriate waste management procedure, including waste reduction, reuse and recycling Regular cleaning and maintenance programme for drainage systems, sumps and oil interceptors No waste is allowed to be burnt on site

Table 2: Details for the type and location of wastes to be generated and their relevant mitigation measures



5 HANDLING OF C&D MATERIALS

5.1 On-Site Sorting of C&D Materials

All C&D materials arising from or in connection with the Works shall be sorted on-site. All reusable and / or recyclable materials will be used on-site and disposed off-site at the end of their service lives.

Unless otherwise stated, all surplus C&D materials arising from or in connection with the Works shall become the property of GTECH when it is removed from the Site. GTECH shall promptly remove all sorted and processed materials arising from or in connection with the Works from the Site to minimize temporary stockpiling on site.

GTECH shall devise a system of work for on-site sorting of C&D materials and municipal wastes. The system shall include:

- identification of the source of generation
- estimated quantity
- arrangement for on-site sorting and / or collection of C&D materials and municipal wastes. C&D materials included packing materials, electric wires, scraps metals, etc.. Municipal wastes included aluminium cans, plastic bottles, waste papers, etc.
- temporary storage areas
- frequency of collection by recycling contractors for all kind of non-inert recyclable C&D materials such as electric wires, wooden box, scraps metals, etc.
- frequency of removal off site

GTECH shall advise the resources and facilities required to carry out effective on-site sorting for each type of C&D materials arising from or in connection with the Works.

5.1.1 Classification of C&D Materials

The C&D materials generated from the construction activities shall be divided into the following categories and should be sorted on site.

- Inert C&D Materials (it can be ignored in this contract due to our project nature)
- Non-Inert Re-usable or Recyclable Materials such as electric wires, wooden boxes, aluminium can, plastic bottles, papers, etc.
- Remaining Non-Inert & Non-Recyclable Construction Materials such as scrap wooden box, scrap plastic, etc.
- General Refuse
- Chemical Waste (Target for “ZERO” generation as stated in Section 3)



5.1.2 Re-usable or Recyclable Materials

The construction materials that are readily reusable will be first recovered at the site otherwise return to Store for reuse as far as practicable.

All recyclable wastes (such as metal debris, scrap cable, cable drum and cardboard packaging) shall be segregated from C&D materials and collected into suitable containers at a designated area within our temporary storage area for further reuse & recycle on-site, which known as the “Recycle Waste Collection Point”.

5.1.3 Construction Waste

If there are construction wastes to be generated on the site, all re-usable or recyclable construction wastes shall be segregated and removed off site by GTECH’s storekeeper and/or recycling collectors / contractors. The remaining construction waste will be handled as general refuse and disposed in waste skip on the site.

5.1.4 General Refuse

General refuse is domestic waste generated from daily human activities. General refuse may include food wastes and packaging, waste paper, plastic bottles, aluminium cans and other debris. Burning of general refuse in construction site is prohibited by law and will not be undertaken

All recyclable materials in general refuse, such as aluminium can, plastic bottles, waste paper, etc., should be separated and disposed into suitable containers at a designated area within our temporary storage area for collection and removal off-site by licensed collectors, which known as the “Waste Collection Point”.

Subcontractor will conduct daily cleaning and site tidying check to ensure that the general refuse should contain no observable reusable / recycling C&D materials by taking photo records by GTECH’s on site staff before disposal to landfill.

There are several points to note before disposal of C&D materials to designated landfill:

- The depth of the waste is greater than 1 meter for goods vehicle with demountable skip and 1.5 meters for other types of vehicle regardless of the weight of the waste;
- GTECH shall be aware that landfills accept construction waste loads consisting entirely of bamboo, timber or plywood, with no restriction on the ratio of weight of waste to the permitted gross vehicle weight of the vehicle. Sorting facilities no longer accept waste loads entirely of bamboo, timber or plywood.
- The C&D materials delivered for landfill disposal shall further contain no free water and the liquid content shall not exceed 70% by weight.

The remaining part of general refuse which is non-recyclable and cannot be reused, they will be placed in enclosed bins and covered waste skip on the Site. A waste collector will be employed to remove them from the site on regular basis to minimize odour, pest and litter impacts.



5.1.5 Chemical Waste

If there are chemical wastes to be generated on the Site, GTECH should register as a chemical waste producer under the Waste Disposal (Chemical Waste) (General) Regulation. All chemical wastes shall be segregated, removed and temporarily stored in chemical storage area in store by Storekeeper as per 'Code of Practice on the Packaging, Labelling and Storage of Chemical Wastes'.

After the completion of construction works, GTECH shall follow 'Waste Disposal (Chemical Waste) (General) Regulation' for collection and disposal arrangements.

For each trip of disposal, trip tickets issued for every chemical waste collection made by the licensed chemical waste collector shall be copied to the Engineer's Representative and the original maintained in site office for future reference.

The following good practices shall be adopted while handling chemical waste:

- Good quality containers compatible with the chemical wastes shall be used to store the chemical wastes. Incompatible chemicals shall be stored separately.
- Appropriate labels shall be securely attached on each chemical waste container indicating the corresponding chemical characteristics of the chemical waste, such as explosive, flammable, oxidizing irritant, toxic, harmful, corrosive, etc.; and
- Stored volume shall not be kept more than 450 litres unless the specification has been accepted by the EPD. Storage area shall be enclosed by three sides by a wall, partition of fence that is at least 2m height or height of tallest container with adequate ventilation and space.



5.1.6 Identification of Site Location and Works & Temporary Storage Areas

GTECH shall identify and provide sufficient space for temporary storage of C&D materials to facilitate collection and / or sorting on the Site. The site location and works & temporary storage area with fences as shown in Figure 3 and 4 respectively.

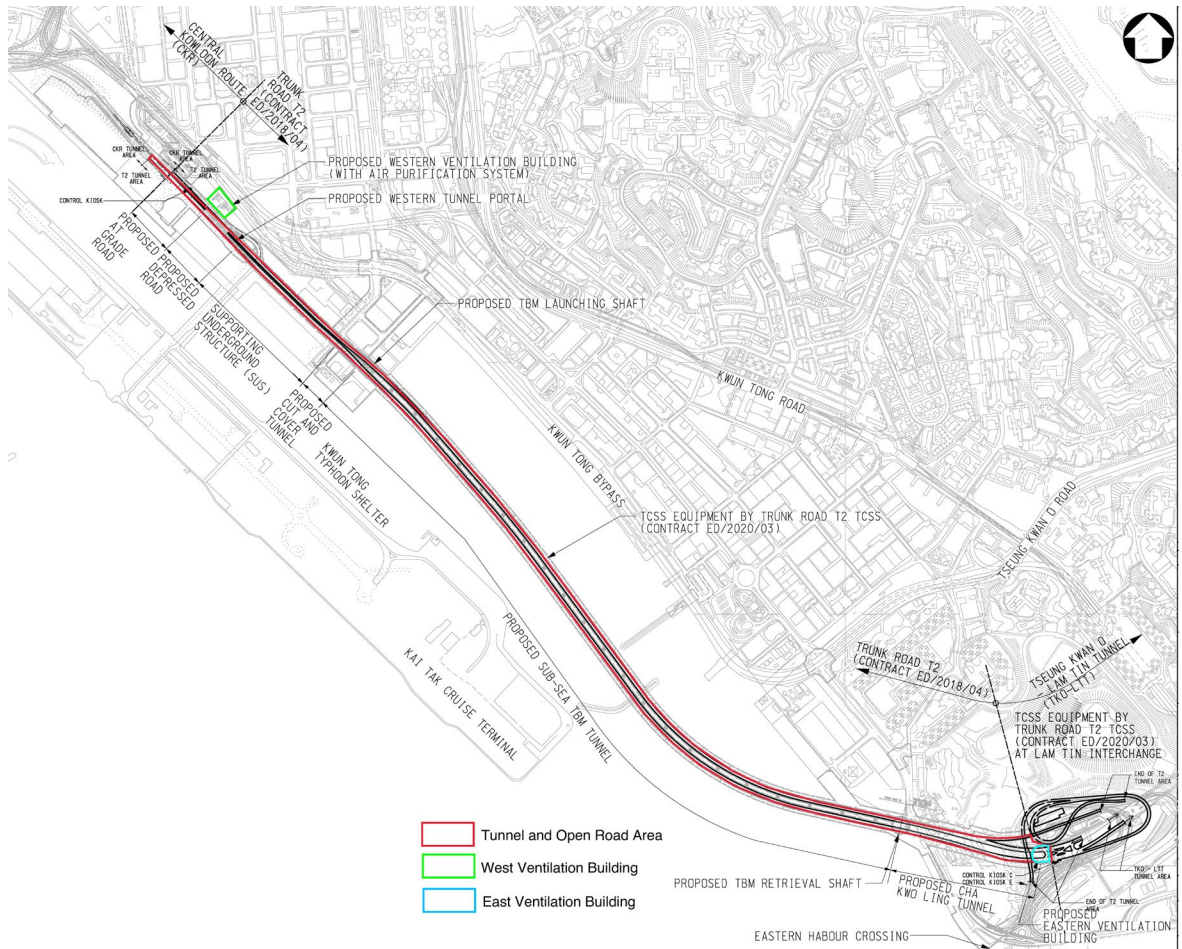


Figure 3: Site Location



6 TRIP TICKET SYSTEM

A trip ticket system (TTS) for the removal of C&D materials from the Site to the designated disposal ground or alternative disposal ground will be implemented as according to the PS 25.25. Under the Waste Disposal (Charges for Disposal of Construction Waste) Regulation, GTECH applied for a billing account for disposal of construction waste 31 January 2022. The account number is 7043158.

GTECH shall inform the Engineer of the account number of the billing account for disposal of construction waste under the Waste Disposal (Designated Waste Disposal Facility) Regulation (Cap. 354L). This is to enable the Engineer to check the disposal records posted at the Environmental Protection Department's website. The Engineer will provide the account number to the Civil Engineering and Development Department for overall monitoring of the trip ticket system, detecting and taking action to deal with malpractice such as overloading of dump trucks and improper covering of load, and compiling statistics as well as counting eligible trips for mechanical dump truck covers under the pay for safety and environment scheme / pay for safety scheme.

Before the disposal of C&D materials to designated disposal ground, GTECH shall inform EPD, by completing and submitting the Standard Reply Slip in PS Appendix 25.5 with the contact details of the Engineer and the Contractor, at least 2 weeks prior to the commencement of disposal of C&D materials to the NENT landfill (i.e. the designated landfill for this contract).

6.1 Site Procedure for Trip Ticket System

GTECH shall establish site procedures to ensure that each truckload of C&D materials leaving the Site will bear a duly completed CHIT / DDF and that Part 1 of the Daily Record Summary (DRS) has been filled in and signed properly before departure of the truck (Sample of the CHIT, DDF and DRS Form are attached in *Appendix A*). CHIT and DDF shall be used for C&D material disposal tracking purpose respectively at prescribed facilities and alternative legitimate disposal grounds. Other legitimate disposal grounds, for which a DDF will continue to be used, include disposal grounds as designated in the Contract or as directed by the Engineer and recycling facilities/construction sites proposed by GTECH and approved by the Engineer. The details of the site procedures are:



6.3 Waste Flow Table

GTECH shall use the Monthly Summary Waste Flow Table (WFT) (refer to *Appendix C*) and the summary table on the Use of Timber for Temporary Works (refer to *Appendix D*) to record the actual quantities of C&D materials and timbers generated each month on the site and submit them to the Engineer's Representative together with the updated sections of EMP (if any) by a 15th day of each month, or other specified date as agreed by the Engineer's Representative. These summaries shall also be made available to Environmental Team Leader and Independent Environmental Checker, too.

6.4 Surveillance System

GTECH shall establish a surveillance system within the Site and at any approved alternative disposal grounds to check that the disposal activities comply with the requirements as set out in the Particular Specification.

The following items shall be included in the agenda for discussion at every Site Safety and Environmental Management Committee meeting, and Site Safety and Environmental Committee meeting, or other established channels for performance monitoring as agreed by the Engineer's Representative:

- Review the site management plan on a monthly basis and implementation of the TTS, and identify areas for improvement;
- Audit the quantity of C&D materials removed from the Site (based on the DRS and survey records) against the quantities of C&D materials delivered to the disposal ground designated in the Contract (e.g. based on EPD website) and directed or approved by the Engineer;
- Review incidents of non-compliance and discuss the necessary follow-up actions;
- Monitor the follow-up action on defects and deficiencies identified.

6.5 Control Measures to Track Internal Movement of Materials

Where trucks need to exit and re-enter the Site for delivery of C&D materials generated by the Site, the Contractor shall devise control measures to ensure that the C&D materials are not disposed of outside the Site in breach of this contract. GTECH will provide, operate and maintain a video recording system installed at gate(s) for each vehicle exit/enter with the following essential features to record all vehicle/truck leaving the Site:

- 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 Site: 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 Engineer, 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 Engineer, 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;
- Securely protect the video cameras from being damaged or blocked;
- Design and construct all necessary temporary works, including any supporting frames and protections, for mounting the video cameras and their accessories;



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- Provide the software and hardware for capturing the vehicle registration mark, and the time and date for the Engineer'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;
- 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
- If a video camera system cannot be installed at the exit, propose alternative methods of control to the Engineer, who may accept such proposals if he is accepted that the proposals are equally effective.

6.6 Control Measures to Track External Movement of Materials

GTECH will record the quantities of C&DM generated each month, using the monthly summary "Waste Flow Table" (WFT). GTECH shall complete the monthly summary WFT and attach to monthly report for checking and record by the Engineer.

The following records will be kept by GTECH for inspection and reporting as necessary by the Site Agent, Environmental Officer and/or Frontline Supervisor(s):

- Trip Tickets for C&D materials disposal off-site
- Trip Tickets for Chemical waste material disposal off-site
- Waste disposal permits and/or licenses
- Records and/or receipt from the landfill(s) that C&D materials to be disposed
- Audit the quantity of C&D materials removed from the site (based on the Daily Record Summary and electronic weight gauge record(s) installed in the dump) against the quantities of C&D materials delivered to the disposal ground designated in this contract (e.g. based on EPD website) and directed or accepted by the Engineer;
- Videos recording to ensure the dump carried only project related C&D materials to be disposed to designated landfill(s) and/or fill bank; and
- Review any incidents of non-compliance about waste handling and/or waste management and discuss the necessary follow-up actions with the Engineer

6.7 Informing the Truck Drivers

GTECH shall write to all truck drivers engaged for removal of C&D materials from the Site and draw their attention to the following particular points:

- a) Each truck carrying C&D materials leaving the Site for a disposal ground must bear a duly completed CHIT/ DDF, irrespective of the location and nature of the disposal ground; and
- b) The C&D materials must be disposed of at the disposal grounds stipulated in this contract or directed by the Engineer or alternative disposal grounds accepted by the Engineer.

6.8 Prevention of Overloading

GTECH shall estimate the quantity of C&D materials that can be transported by different dump trucks according to the maximum permissible loading weight of the dump trucks and the material properties of the C&D materials, e.g. inert / non-inert, moisture content, density and materials properties, etc., to ensure effective measures to control and prevent overloading of dump trucks. Those methods include:



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- Limitation of the height of the skip equipped by dump truck with consideration of its volume and limitation of electronic measuring scale with the skip and C&D materials; and/or
- Maximum number of grabs that C&D materials can be grabbed into the skip of the dump truck by consideration of the grab volume, nature and moisture content of C&D waste, limitation of weight that the backhoe can withstand, etc..

At the initial stage, 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 while there is any significant change of properties of C&D materials. If necessary, these control parameters should be reviewed regularly to suit the ever-changing site conditions.

Photos shall be taken as a record to monitor and observe the condition of materials in the skip of the dump truck and the car plate number of dump truck such that close monitoring and feedback control can be conducted and recorded. The number of photos record can be fine tune in accordance with the number of monitoring control as agreed with HMJV. Representative monitoring photos shall also be displayed at site entrance for public inspection and reference of the dump truck and the backhoe operator.

GTECH shall counter check the vehicle loads shown on the used and returned trip ticket/electronic disposal data sheets from EPD's web page regularly, in order to monitor, control and fine tune the mitigation measures against overloading. These mitigation measures shall be reviewed immediately if there is any deficiency identified.

Furthermore, dump trucks will be equipped with pressure gauge for acknowledgment of truck loads in order to avoid overloading. Pressure gauge will be calibrated regularly 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 to the dump truck for disposal, relevant foreman at the exit will monitor the reference mark on the gauge while the loading of C&D wastes takes place. He will also make sure the mechanical cover to be fully closed to allow the truck to leave the site.

In order to control overloading effectively, the relevant frontline 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, frontline workers and staff will be briefed about control measure against overloading of dump truck.



7 PERFORMANCE MONITORING

GTECH will prepare a site management plan for implementation of the TTS for the whole Contract. The plan will include the site organization and staff duties, disposal programme, site procedures, surveillance, recording system, control measures to track internal movement of Materials, and video recording system.

Procedures will be prepared as part of the environmental management plan which will:

- Define the responsibility for handling and investigating non-conformance (in most cases it will be the staff member responsible for the action plan); and
- Evaluate and mitigate the resulting impact(s) on the environment; initiate and complete corrective and preventive action (restore compliance as quickly as possible); and implement and record changes to documented procedures that result from corrective and preventive action. The Site Agent / Sub Site-Agent in cooperation may also carry out case analysis with the employee responsible for the operations. This will detail the incident, loss, immediate cause, basic cause and lack of control. This analysis can help assess the effectiveness of corrective and, more importantly, preventive measures.

Environmental performance monitoring for site staff and/or frontline staff could be enhanced by the following methods:

- Training and Promotion activities such as monthly toolbox talk(s) trainings will be provided to our site staff and/or frontline staff. etc... Such trainings can educate then and enhance their environmental knowledge;
- Prize Winning game(s) from various non-governmental, governmental organizations and/or internals promotions related to waste management will be promoted to all our site staff. This encourage them to participate and spread the message of environmental protection to different people.

8 Event Contingency Plan for Non-Compliance and Compliant

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

In the event of Non-Compliance:

1. If any non-compliance is observed during site inspection by HMJV ,CEDD, ET and/or IEC, the Environmental Officer (EO)/ Environmental Supervisor (ES) will raise a Corrective & Preventive Action Report (CPAR) to Site Agent (SA) / Sub Site Agent (Sub SA) within one (1) working day;
2. The SA will notify and liaise with the Sub SA of non-compliance to obtain proposals and a response to the CPAR within two (2) working days;
3. The EO will notify Sub 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 HMJV as a Notification of Noncompliance (NNC) within two (2) working days;
4. After receipt of the NNC, the SA will propose corrective actions for the non-compliance in line with the GTECH's CPAR and implement the proposed corrective actions once they have been agreed by HMJV and IEC;
5. If the implementation of the corrective actions is satisfactory, the non-compliance record (CPAR) will be closed accordingly;



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6. The Sub SA/EO will propose preventive actions within three (3) working days if it has not been already included within the JV's response after the closure of the non-compliance records;
7. The Sub SA/EO will record CPARs accordingly in the CPAR log sheet; and
8. Independent Environmental Checker, Environmental Team and Site Agent should be notified immediately in case of the event of non-compliance.

In the Event of Complaint:

1. Complaint related to waste management will be collected by the EO/ES. The complaint will be referred to the SA for carrying out complaint investigation procedures;
2. The Sub SA will log complaint and date of receipt onto the complaint database and inform the SM and HMJV immediately within 2 working day;
3. Within 2 working day after receipt of the notification of complaint, the EO/ES will identify the source of the problem and provide HMJV 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 Sub SA to propose corrective actions/mitigation measures to HMJV within three (3) working days. The Sub SA will implement the mitigation measures once they have been agreed by HMJV and IEC;
5. The EO/ES will report the investigation results and subsequent actions taken to HMJV and IEC after the implementation of mitigation measures;
6. HMJV and IEC will check the implementation of the mitigation measures at the next site audit;
7. If the implementation of the mitigation measures is satisfactory and no further comments or complaints are received from the complainant within 20 days after responding to the complainant, close the complaint record.
8. Independent Environmental Checker, Environmental Team and Site Agent 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 HMJV within 2 working days.
2. GTECH will discuss with HMJV for the follow up actions (e.g. warning letter, cease operation, etc.) if required.



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Appendix A – Sample of CHIT, DDF and Daily Record Summary

入帳票編號: Chit No.: _____ 選擇「✓」一個預明設施: Tick (✓) One Prescribed Facility: <input type="checkbox"/> 堆填區 Landfills <input type="checkbox"/> 篩選分類設施 Sorting Facilities <input type="checkbox"/> 公眾填料接收設施 Public Fill Reception Facilities <input type="checkbox"/> 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: 由帳戶主保留 Part A: retained by Account-holder	入帳票編號: Chit No.: _____ 選擇「✓」一個預明設施: Tick (✓) One Prescribed Facility: <input type="checkbox"/> 堆填區 Landfills <input type="checkbox"/> 篩選分類設施 Sorting Facilities <input type="checkbox"/> 公眾填料接收設施 Public Fill Reception Facilities <input type="checkbox"/> 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: _____ 帳戶編號: Account No.: _____ 丙部份: 由政府保留 Part C: retained by Government  
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Serial No. 0012345678 Date of Use: 使用日期: _____ Disposal Ground: 接收設施: _____ Vehicle Registration Mark: 車牌號碼: _____ Issued By: 簽發: _____ (This part retained by Disposal Ground) (此部分由接收設施保留) Chop of Disposal Ground 接收設施蓋印	Serial No. 0012345678 Construction and Demolition Materials Disposal Delivery Form 拆建物料運載記錄票 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: _____ 車牌號碼: _____ Disposal Ground: 接收設施: _____ Arrival Time/Date: 抵達日期/時間: _____ (This part retained by Contract/Driver) (此部分由承建商/司機保留) Chop of Disposal Ground Representative 接收設施蓋印 Chop of Engineer's/Architect's 工程師 / 建築師代表蓋印
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"Daily Record Summary" to record daily disposal of construction & demolition (C&D) materials from the Site

"每日運載記錄摘要" 記錄每日由地盤所傾卸的拆建物料

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

CHIT / DDF no. 載運入場票 / 拆建物料運載記錄票編號	Vehicle registration mark 車輛登記號碼	Approx. vol (e.g. Full/Three/Quarter/Half/One Quarter) 大約承載量 (例如全、3/4、半、1/4)	C&D materials type (e.g. inert or non-inert) 建築廢料種類 (例如惰性或非惰性)	Disposal ground 接收設施	Signature & Name of the Contractor's Designated person before departure 於離開地盤前, 承建商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 1² 甲部 → Part 2³ 乙部 →

Submitted by 呈交: _____ [Name of Contractor's Designated Person]
 承建商的指定人仕姓名

Signature 簽名: _____

Date 日期: _____

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

Post 職位: _____

Date & Time 日期及時間: _____

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

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

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



Appendix B – Report on irregularity of disposal of C&D materials

REPORT ON IRREGULARITY OF DISPOSAL OF C&D MATERIALS

(To be submitted within 2 weeks after the date of disposal)

To : Secretary, Public Fill Committee
Civil Engineering and Development Department

Fax : 2714 0113

Contract No. _____

After checking against the “Disposal Records” at the website [http://www.epd.gov.hk/epd/misc/cdm/scheme.htm#j.], I note the following irregularities pertaining to disposal(s) made on _____ :

PART A No. of CHIT/ DDF issued : _____
No. of disposals recorded at the “Disposal Records” : _____

PART B CHIT/ DDF issued but Disposal Trip not found in the “Disposal Records”

Vehicle Registration Mark	Production of evidence (i.e. stamped CHIT/ DDF and/or transaction record slip) by the Contractor/truck driver upon request of Architect’s/ Engineer’s Representative (please tick the appropriate box).		If ticked “NO”, please give the actual location that the disposal was made.
	“YES”	“NO” (See Note below)	

PART C CHIT/ DDF not issued but disposal trip found in the “Disposal Records”

Vehicle Registration Mark (in column “REG_Mark” in “Disposal Records” file)	Transaction Reference No. (in column “REF_NO” in “Disposal Records” file)

Remarks (e.g. root cause of the non-compliance and corrective actions taken by the Contractor)

Signature of Architect’s/ Engineer’s Representative _____
Name of Architect’s/ Engineer’s Representative _____
Department / Consultant _____
Telephone No. _____ Fax. _____ Date _____

Note :-

The Architect/Engineer is reminded to take follow-up action in case of non-compliance with the trip ticket system in accordance with the Circular DEVB TCW No. 6/2010 and relevant departmental procedures. Usually, a “NO” entry in Part B constitutes a non-compliance with the trip ticket system. The Secretary of the Public Fill Committee will only provide a formal reply to the report upon request.



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Appendix C – Monthly Summary Waste Flow Table

GTECH Services (Hong Kong) Limited											
Name of Department: <u>Civil Engineering & Development Department</u>						Contract No.: <u>ED/2020/03</u>					
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 & 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)
Jan											
Feb											
Mar											
Apr											
May											
Jun											
Sub-total											
Jul											
Aug											
Sep											
Oct											
Nov											
Dec											
Total											
Notes: (1) The waste flow table shall also include C&D materials that are specified in the Contract to be imported for use at the Site. (2) Plastics refer to plastic bottles / containers, plastic sheets / foam from packaging material.											

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Appendix D – Summary Table of Timber usage

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

Contract No.: ED/2020/03

Contract Title: Trunk Road T2 - Traffic Control Surveillance System and Associated Works

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

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 Engineer monthly together with the Waste Flow Table for review and monitoring.
- (c) The commencement date of the Contract is 14 January 2020. The current reporting period is from DD/MM/YYYY to DD/MM/YYYY.



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WASTE MANAGEMENT PLAN**

Appendix E – Environmental Mitigation Implementation Schedule (EMIS)

EIA Ref.	Recommended Mitigation Measures	Objectives of the Recommended Measures & Main Concern to Address	Who to implement the measures?	Location of the measure	When to implement the measures?	What requirements or standards for the measure to achieve
Waste Management						
Construction Phase						
S8.6.3	<i>Good Site Practices and Waste Reduction Measures</i> <ul style="list-style-type: none"> Nomination of an approved person, such as a site manager, to be responsible for good site practices, arrangements for collection and 	To reduce waste management impacts	Contractor	All work sites	Construction Phase	Waste Disposal Ordinance (Cap. 354) Land

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	effective disposal to an appropriate facility, of all wastes generated at the site; <ul style="list-style-type: none"> • Training of site personnel in site cleanliness, proper waste management and chemical handling procedures; • Provision of sufficient waste disposal points and regular collection of waste; • Appropriate measures to minimize windblown litter and dust during transportation of waste by either covering trucks or by transporting wastes in enclosed containers; and • Regular cleaning and maintenance programme for drainage systems, sumps and oil interceptors. 					(Miscellaneous Provisions) Ordinance (Cap. 28)
S8.6.4	<i>Good Site Practices and Waste Reduction Measures (con't)</i> <ul style="list-style-type: none"> • Segregation and storage of different types of waste in different containers, skips or stockpiles to enhance reuse or recycling of materials and their proper disposal; • Encourage collection of aluminium cans by providing separate labelled bins to enable this waste to be segregated from other general refuse generated by the workforce; 	To achieve waste reduction	Contractor	All work sites	Construction Phase	Waste Disposal Ordinance (Cap. 354) Land (Miscellaneous Provisions) Ordinance (Cap. 28)

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	<ul style="list-style-type: none"> • Proper storage and site practices to minimize the potential for damage or contamination of construction materials; and • Plan and stock construction materials carefully to minimize amount of waste generated and avoid unnecessary generation of waste. 					
S8.6.5	<p><i>Good Site Practices and Waste Reduction Measures (con't)</i></p> <p>The Contractor shall prepare and implement a WMP as part of the EMP in accordance with ETWB TCW No. 19/2005 which describes the arrangements for avoidance, reuse, recovery, recycling, storage, collection, treatment and disposal of different categories of waste to be generated from the construction activities. Such a management plan should incorporate site specific factors, such as the designation of areas for segregation and temporary storage of reusable and recyclable materials. The EMP should be submitted to the Engineer for approval. The Contractor should implement the waste management practices in the EMP throughout the construction stage of the Project. The EMP should be reviewed regularly and updated by the Contractor.</p>	To achieve waste reduction	Contractor	All work sites	Construction Phase	ETWB TCW No. 19/2005

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S8.6.6	<p><i>Good Site Practices and Waste Reduction Measures (con't)</i></p> <p>C&D materials would be reused in the project and other local concurrent projects as far as possible.</p>	To achieve waste reduction	Contractor	All work sites	Construction Phase	ETWB TCW No. 19/2005
S8.6.7	<p><i>Storage, Collection and Transportation of Waste</i></p> <p>Should any temporary storage or stockpiling of waste is required, recommendations to minimize the impacts include:</p> <ul style="list-style-type: none"> • Waste, such as soil, should be handled and stored well to ensure secure containment, thus minimizing the potential of pollution; • Maintain and clean storage areas routinely; • Stockpiling area should be provided with covers and water spraying system to prevent materials from wind-blown or being washed away; and • Different locations should be designated to stockpile each material to enhance reuse. 	To minimize potential adverse environmental impacts arising from waste storage	Contractor	All work sites	Construction Phase	-
S8.6.8	<p><i>Storage, Collection and Transportation of Waste (con't)</i></p> <ul style="list-style-type: none"> • Remove waste in timely manner; • Waste collectors should only collect wastes 	To minimize potential adverse environmental impacts arising from waste collection and disposal	Contractor	All work sites	Construction Phase	-

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	<p>prescribed by their permits;</p> <ul style="list-style-type: none"> • Impacts during transportation, such as dust and odour, should be mitigated by the use of covered trucks or in enclosed containers; • Obtain relevant waste disposal permits from the appropriate authorities, in accordance with the Waste Disposal Ordinance (Cap. 354), Waste Disposal (Charges for Disposal of Construction Waste) Regulation (Cap. 345) and the Land (Miscellaneous Provisions) Ordinance (Cap. 28); • Waste should be disposed of at licensed waste disposal facilities; and • Maintain records of quantities of waste generated, recycled and disposed. 					
S8.6.9	<p><i>Storage, Collection and Transportation of Waste (con't)</i></p> <p>Implementation of trip ticket system with reference to DEVB TC(W) No. 6/2010, <i>Trip Ticket System for Disposal of Construction & Demolition Materials</i>, to monitor disposal of waste and to control fly-tipping at PFRFs or landfills. A recording system for the amount of waste generated, recycled and disposed (including</p>	To minimize potential adverse environmental impacts arising from waste collection and disposal	Contractor	All work sites	Construction Phase	DEVB TCW No. 6/2010

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	disposal sites) should be proposed.					
S8.6.11 - S8.6.13	<p>Sorting of C&D Materials</p> <ul style="list-style-type: none"> • Sorting to be performed to recover the inert materials, reusable and recyclable materials before disposal off-site. • Specific areas shall be provided by the Contractors for sorting and to provide temporary storage areas for the sorted materials. • The C&D materials should at least be segregated into inert and non-inert materials, in which the inert portion could be reused and recycled in the reclamation as far as practicable before delivery to PFRFs. While opportunities for reusing the non-inert portion should be investigated before disposal of at designated landfills. 	To minimize potential adverse environmental	Contractor	All work sites	Construction Phase	DEVB TCW No. 6/2010 ETWB TCW No. 33/2002 ETWB TCW No. 19/2005
S8.6.15 – S8.6.16	<p>Sediments</p> <ul style="list-style-type: none"> • Sediment encountered may be reused as filling material on-site after cement stabilization. Cement-stabilization process is undertaken by mixing sediment and cement and will convert sediment to earth filling material. The treated sediment has to comply with Risk-Based Remediation Goals (RBRGs) before being reused in order not to raise any land 	To ensure the sediment to be disposed of in an authorized and least impacted way	contractor	All works areas with sediments concern	Construction Phase	RBRG

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	<p>contamination issue. The adoption of RBRGs to assess stabilized sediment has been proposed in the current C&DMMP. MFC has no adverse comment on the current C&DMMP. The sediment quality indicates that all sediments comply with most stringent RBRGs except for one sediment sample (TKO-EBH501 3-3.95m) with lead exceeding the RBRG. Except for the sediment sample (TKO-EBH501 3-3.95m), the chemical screening results do not indicate sediment as contaminated soil. It is anticipated that reuse of sediment except sediment sample (TKO-EBH501 3-3.95m) will not lead to land contamination.</p> <ul style="list-style-type: none"> • Despite exceedance of RBRG, onsite reuse of sediment under sample (TKO-EBH501 3-3.95m) as filling material after cement stabilization is also a suitable treatment. Sediment quality indicates the sediment sample (TKO-EBH501 3-3.95m) exceed RBRG for lead. While cement stabilization will immobilize metal contaminants, it is capable to treat the exceedance on lead. The stabilized material should comply with UTS of Lead and UCS. If the treated material do not comply with UTS or UCS, re-stabilization have to be undertaken to 					

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	meet compliance of UTS and UCS before reusing the treated sediment as filling material. However, further agreement on final disposal/treatment on sediment under sample (TKO-EBH501 3-3.95m) has to be sought from DEP.					
S8.6.17 – S8.6.20	<p><i>Sediments (con't)</i></p> <ul style="list-style-type: none"> • Requirements of the <i>Air Pollution Control (Construction Dust) Regulation</i>, where relevant, shall be adhered to during boring, excavation, transportation and disposal of sediments or cement stabilization of sediment. • A treatment area should be confined for carrying out the cement stabilization mixing and temporary stockpile. The area should be designed to prevent leachate from entering the ground. Leachate, if any, should be collected and discharged according to the <i>Water Pollution Control Ordinance (WPCO)</i>. • In order to minimise the potential odour / dust emissions during boring, excavation and transportation of the sediment, the excavated sediments should be kept wet during excavation/boring and should be properly covered when placed on barges/trucks. Loading 	To determine the best handling and treatment of sediment	Contractor	All works areas with sediments concern	Construction Phase	

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	<p>of the excavated sediment to the barge should be controlled to avoid splashing and overflowing of the sediment slurry to the surrounding water.</p> <ul style="list-style-type: none"> In order to minimise the exposure to contaminated materials, workers should, when necessary, wear appropriate personal protective equipments (PPE) when handling contaminated sediments. Adequate washing and cleaning facilities should also be provided on site. 					
S8.6.21	<p><i>Sediments (con't)</i></p> <ul style="list-style-type: none"> Alternatively, excavated sediment can be treated with marine disposal. The basic requirements and procedures for excavated sediment disposal specified under ETWB TC(W) No. 34/2002 shall be followed. MFC is responsible for the provision and management of disposal capacity and facilities for the excavated sediment, while the permit of marine dumping is required under the <i>Dumping at Sea Ordinance</i> and is the responsibility of the DEP. 	To ensure the sediment to be disposed of in an authorized and least impacted way	contractor	All works areas with sediments concern	Construction Phase	ETWB TC(W) No. 34/2002 & Dumping at Sea Ordinance
S8.6.23	<p><i>Sediments (con't)</i></p> <ul style="list-style-type: none"> For allocation of sediment disposal sites and application of marine dumping permit, separate SSTP has to be submitted to EPD for agreement 	To determine the best handling and disposal option of sediment	Contractor	All works areas with sediments concern	Construction Phase	ETWB TC(W) No. 34/2002 & Dumping at Sea Ordinance

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	<p>under DASO. Additional site investigation, based on the SSTP, maybe carried out in order to confirm the disposal arrangements for the proposed sediments removal. A Sediment Quality Report (SQR) shall then be required for EPD agreement under DASO prior to the tendering of the construction contract, discussing in details the site investigation, testing results as well as the delineation of each of the categories of excavated materials and the corresponding types of disposal.</p>					
<p>S8.6.24 - S8.6.28</p>	<p><i>Sediments (con't)</i></p> <ul style="list-style-type: none"> The excavated sediments is expected to be loaded onto the barge and transported to the designated disposal sites allocated by the MFC. The excavated sediment would be disposed of according to its determined disposal options and <i>ETWB TC(W) No. 34/2002</i>. Stockpiling of contaminated sediments should be avoided as far as possible. If temporary stockpiling of contaminated sediments is necessary, the excavated sediment should be covered by tarpaulin and the area should be placed within earth bunds or sand bags to prevent leachate from entering the ground, 	<p>To ensure handling of sediments are in accordance to statutory requirements</p>	<p>Contractor</p>	<p>All works areas with sediments concern</p>	<p>Construction Phase</p>	<p>ETWB TC(W) No. 34/2002 & Dumping at Sea Ordinance</p>

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	<p>nearby drains and surrounding water bodies. The stockpiling areas should be completely paved or covered by linings in order to avoid contamination to underlying soil or groundwater. Separate and clearly defined areas should be provided for stockpiling of contaminated and uncontaminated materials. Leachate, if any, should be collected and discharged according to the Water Pollution Control Ordinance (WPCO).</p> <ul style="list-style-type: none"> • In order to minimise the potential odour / dust emissions during boring and transportation of the sediment, the excavated sediments should be kept wet during excavation/boring and should be properly covered when placed on barges. Loading of the excavated sediment to the barge should be controlled to avoid splashing and overflowing of the sediment slurry to the surrounding water. • The barge transporting the sediments to the designated disposal sites should be equipped with tight fitting seals to prevent leakage and should not be filled to a level that would cause overflow of materials or laden water during loading or transportation. In addition, monitoring of the barge loading shall be 					

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	<p>conducted to ensure that loss of material does not take place during transportation. Transport barges or vessels shall be equipped with automatic self-monitoring devices as specified by the DEP.</p> <ul style="list-style-type: none"> • In order to minimise the exposure to contaminated materials, workers should, when necessary, wear appropriate personal protective equipments (PPE) when handling contaminated sediments. Adequate washing and cleaning facilities should also be provided on site. • Another possible arrangement for Type 3 disposal is by geosynthetic containment. A geosynthetic containment method is a method whereby the sediments are sealed in geosynthetic containers and, at the disposal site, 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, thereby meeting the requirements for fully confined mud disposal. 					
S8.6.26	<p>Chemical Wastes</p> <p>If chemical wastes are produced at the construction site, the Contractor would be required to register</p>	To ensure proper management of	Contractor	All works sites	Construction Phase	Code of Practice on the Packaging,

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	with the EPD as a Chemical Waste Producer and to follow the guidelines stated in the <i>Code of Practice on the Packaging, Labelling and Storage of Chemical Wastes</i> . Good quality containers compatible with the chemical wastes should be used, and incompatible chemicals should be stored separately. Appropriate labels should be securely attached on each chemical waste container indicating the corresponding chemical characteristics of the chemical waste, such as explosive, flammable, oxidizing, irritant, toxic, harmful, corrosive, etc. The Contractor shall use a licensed collector to transport and dispose of the chemical wastes, to either the Chemical Waste Treatment Centre at Tsing Yi, or other licensed facility, in accordance with the <i>Waste Disposal (Chemical Waste) (General) Regulation</i> .	chemical waste				Labelling and Storage of Chemical Wastes Waste Disposal (Chemical Waste) (General) Regulation
S8.6.27	General Refuse General refuse should be stored in enclosed bins or compaction units separate from C&D material. A reputable waste collector should be employed by the contractor to remove general refuse from the site, separately from C&D material. Preferably an enclosed and covered area should be provided to reduce the occurrence of 'wind blown' light	To ensure proper management of general refuse	Contractor	All works sites	Construction Phase	Public Health and Municipal Services Ordinance (Cap. 132)

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	material.					
Operation Phase						
S8.6.30 - S8.6.31	<p>Chemical Wastes</p> <ul style="list-style-type: none"> The requirements given in the Code of Practice on the Packaging, Labelling and Storage of Chemical Wastes would be followed in handling of chemical waste as in construction phase. A trip-ticket system would be adopted by the operator to monitor disposal of chemical waste. Non-recyclable chemical waste should be disposed of at appropriate facility like CWTC by licensed collectors. Recyclable chemical waste should be collected and transported off-site by licensed collectors. 	To avoid environmental impacts in handling, storage and disposal of chemical waste	Operator	All facilities	Operation waste	Code of Practice on the Packaging, Labelling and Storage of Chemical Wastes Waste Disposal (Chemical Waste) (General) Regulation
S8.6.32 - S8.6.33	<p>General Refuse</p> <ul style="list-style-type: none"> Recycling of waste paper, aluminium cans and plastic bottles should be encouraged, it is recommended to place clearly labelled recycling bins at designated locations which could be accessed conveniently. Other general refuse should be separated from chemical and industrial waste by providing separated bins for storage to maximize the recyclable volume. 	To separate general refuse from other waste types and proper disposal of the refuse	Operator	All facilities	Operation Phase	Public Health and Municipal Services Ordinance (Cap. 132)

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	<ul style="list-style-type: none"> A reputable licensed waste collector should be employed to remove general refuse on a daily basis to minimize odour, pest and litter impacts. 					