

Contract No. HY/2011/03

**Hong Kong-Zhuhai-Macao Bridge Hong Kong Link
Road
Section between Scenic Hill and Hong Kong
Boundary Crossing Facilities**

**Waste Management Plan
Rev. 2**

16 October 2012

Main Contractor



Designer

ATKINS

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1 Introduction

1.1 Background

- 1.1.1 This Waste Management Plan is prepared for Contract HY/2011/03 Hong Kong-Zhuhai-Macao Bridge Hong Kong Link Road – Section between Scenic Hill and Hong Kong Boundary Crossing Facilities (“the Contract”) for the Highways Department of HKSAR. The Contract is part of the Hong Kong – Zhuhai – Macao Bridge Hong Kong Link Road (HKLR) Project and Hong Kong – Zhuhai – Macao Bridge Hong Kong Boundary Crossing Facilities (HKBCF), these projects are considered to be “Designated Projects”, under Schedule 2 of the Environmental Impact Assessment (EIA) Ordinance (Cap 499) and Environmental Impact Assessment (EIA) Reports (Register No. AEIAR-144/2009 and AEIAR-145/2009) were prepared for the Project. The current Environmental Permit (EP) EP-352/2009/A for HKLR and EP-353/2009/D for HKBCF were issued on 31 October 2011 and 7 March 2012, respectively. These documents are available through the EIA Ordinance Register.
- 1.1.2 Condition 2.12 of EP-352/2009/A and Condition 2.10 of EP-353/2009/D state: “The Permit Holder shall deposit with the Director, at least one month before the commencement of the construction of the project, three hard copies and one electronic copy of a waste management plan (WMP) for the construction stage of the Project. The WMP shall 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 and shall include the recommended mitigation measures on waste management in the EIA Report. The WMP shall indicate the disposal location(s) of all surplus excavated spoil and other waste. A trip ticket system (TTS) shall be included in the WMP. Surplus excavated spoil and other wastes shall only be disposed of at designated disposal locations unless otherwise approved by the Director. All measures recommended in the WMP shall be fully and properly implemented by the Permit Holder and any person working on the Project throughout the construction period.

1.2 Scope of Work

- 1.2.1 This WMP applies to the works undertaken by China State Construction Engineering Hong Kong Ltd. (CSHK) for the Contract. A Site Location Plan is provided as **Appendix A**. The works include:
- New reclamation along the east coast of the Hong Kong International Airport (HKIA), approximately 23 hectares.
 - Tunnel SHT from Scenic Hill to the new reclamation, of approximately 1km in length with three (3) lanes for the east bound carriageway heading to the HKBCF and four (4) lanes for the westbound carriageway heading to the Hong Kong Zhuhai Macao Bridge (HZMB) Main Bridge.
 - An abutment of the viaduct portion of the HKLR at the west portal of Tunnel SHT and associated road works at the west portal of Tunnel SHT.
 - An at grade road on the new reclamation along the east coast of the HKIA to connect with the Hong Kong Boundary Crossing Facilities (HKBCF), of approximately 1.6 km along dual 3-lane carriageway with hard shoulder for each bound.
 - Road links between the HKBCF and the HKIA including new roads and the modification of existing roads at the HKIA, involving viaducts, at grade roads and a Tunnel HAT.
 - A highway operation and maintenance area (HMA) located on the new reclamation, south of the Dragonair Headquarters Building, including the construction of buildings, connection roads and other associated facilities.

- Associated civil, structural, building, geotechnical, marine, environmental protection, landscaping, drainage and sewerage, tunnel and highway electrical and mechanical works, together with the installation of street lightings, traffic aids and sign gantries, water mains and fire hydrants, provision of facilities for installation of traffic control and surveillance system (TCSS), reprovisioning works of affected existing facilities, implementation of transplanting, compensatory planting and protection of existing trees, and implementation of an environmental monitoring and audit (EM&A) program.

1.3 Purpose of the Plan

- 1.3.1 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.
- 1.3.2 The main objectives of this WMP are to:
- Provide reference to the applicable environmental legislation and guidelines pertaining to waste management.
 - Clarify each party's responsibilities regarding waste management, and identify the personnel from each party that are assigned these responsibilities and their respective role on the Contract.
 - Establish waste management practices and treatment procedures, for the avoidance, minimization, material reuse/recovery/recycling, collection, transportation, storage and disposal of wastes that are generated during the course of the Contract that are specified by the EP and the implementation of the mitigation measures that are outlined in the EIA report.

1.4 Environmental Policy

- 1.4.1 An Environmental Policy has been established by CSHK to outline guidance, technical information, and instructions to designated personnel who will be responsible for the management of site environmental issues, and to ensure that all statutory and contractual environmental requirements and the Company Environmental Policy are followed. In addition, CSHK will create an Environmental Management Team (EMT) for establishing and implementing effective and efficient environmental protection procedures for the Contractor.
- 1.4.2 The Environmental Policy Statement, together with the Environmental Objectives and Targets, are listed below in the CSHK Environmental Policy:

CHINA STATE CONSTRUCTION ENGINEERING (H.K.) LIMITED
ENVIRONMENTAL POLICY
(English Translation)

The core business of China State Construction Engineering (Hong Kong) Limited (hereinafter referred to as "the Company") is the design and construction of multi-disciplinary projects, including building, civil, foundation, mechanical & electrical projects, and construction products. It is the Company's policy to protect the environment likely to be affected by its operations.

The Company is committed to:

- complying with statutory, contractual and other requirements in all respects
- preventing environmental pollution
- reducing construction wastes
- minimizing the consumption of natural resources; and
- improving its overall performance

The Company has, in accordance with the requirements of ISO 14001 : 2004, established an Environmental Protection Committee and commissioned an Environmental Manager to set up its environmental management system and to formulate environmental objectives and targets. The Company has provided environmental education and training, as well as established effective communication and consultation channels, in order to benefit its clients, staff and the general public. The Company shall continuously review and improve the environmental management system in an attempt to improve its overall performance.

The Environmental Management Manual sets out the Company's pertinent management system. As environmental protection forms part of the Company's Standard Operation Procedures, it is therefore mandatory that all employees shall fully conform to the Environmental Management Manual and the aforesaid procedures.



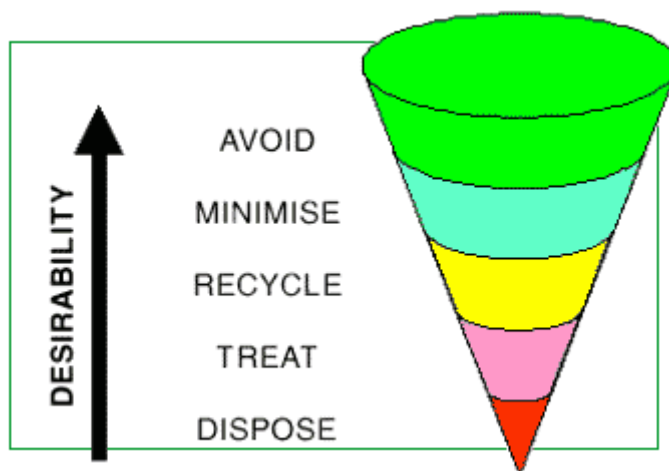
ZHOU Yong

Executive Director & President

15th February, 2011

1.5 Waste Management Policy

- 1.5.1 CSHK aims to recover, avoid and minimize the construction waste generated on site by utilizing the hierarchy illustrated below. 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, CSHK will minimise the amount of construction waste that is generated. The objective of CSHK is to reduce and minimize the amount of wastes generated and hence minimise the costs associated with subsequent waste handling and disposal.



1.6 Regulations and Guidelines

- 1.6.1 During the course of the Contract, it is anticipated that various types of waste will be generated. Each distinct waste type will require a different approach for the effective management and disposal as stipulated in the applicable legislation and guidelines.

Statutory Requirements

- 1.6.2 The following legislation relates to the handling, treatment and disposal of waste in Hong Kong:
- The Waste Disposal (Amendment) Ordinance (WDO) (Cap 354).
 - The Waste Disposal (Chemical Waste) (General) Regulation (Cap 354).
 - The Waste Disposal (Charges for Disposal of Construction Waste) Regulation.
 - The Land (Miscellaneous Provisions) Ordinance (Cap 28).
 - The Dumping at Sea Ordinance (Cap 466).
 - The Public Health and Municipal Services Ordinance (Cap 132) - Public Cleansing and Prevention of Nuisances (Urban Council) and (Regional Council) By-Laws.
 - Summary Offences Ordinance (Cap 228).
 - Other relevant regulations.
- 1.6.3 The WDO prohibits the unauthorized 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 the Environmental Protection Department (EPD).
- 1.6.4 Under the WDO and the Charging Regulation, wastes can only be disposed of at designated waste disposal facilities that are licensed by the EPD. For construction work with a

value of more than HK\$1M, the main contractor is required to establish a billing account at the 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 a public fill reception facility would need prior approval from EPD. Breach of these regulations can lead to a fine and/or imprisonment.

- 1.6.5 Under the Waste Disposal (Chemical Waste) (General) Regulation all producers of chemical wastes (including asbestos) must register with the EPD and treat their wastes either utilizing on-site plant licensed by the EPD, or arranging for a licensed collector transport the wastes to an appropriately licensed facility. The regulation also prescribes the storage facilities to be provided on site, including labelling and warning signs, and requires the preparation of written procedures and training to deal with emergencies such as spillages, leakages, or accidents arising from the storage of chemical wastes.
- 1.6.6 The current policy related to the dumping of construction and demolition (C&D) material is documented in the Works Branch Technical Circular No. 2/93, 'Public Dumps'. C&D materials that are wholly inert, namely public fill, should not be disposed of at landfill, but should be taken to public filling areas, which usually form part of reclamation schemes.
- 1.6.7 The Land (Miscellaneous Provisions) Ordinance requires that dumping licenses be obtained by individuals or companies who deliver public fill to public filling areas. The Civil Engineering & Development Department (CEDD) issues the licenses under delegated powers from the Director of Lands.
- 1.6.8 Under the Dumping at Sea Ordinance, a permit from the EPD is required if any waste generator intends to dump materials at sea. Cross boundary disposal of waste is also possible for this contract under permit issued by the State Oceanic Administration PRC (SAO).
- 1.6.9 The Public Cleansing and Prevention of Nuisances By-Laws provide further controls on the illegal tipping of wastes on unauthorized (unlicensed) sites.
- 1.6.10 The Contractor is required to obtain all necessary permits and licenses under these ordinances including, but not limited to:
 - Chemical waste permits/licenses under the Waste Disposal Ordinance (Cap 354).
 - Public Dumping License under the Land (Miscellaneous Provisions) Ordinance (Cap 28).
 - The Dumping at Sea Ordinance (Cap 466).

Non-statutory Regulations

- 1.6.11 The following guidelines related to waste management and disposal would be adhered to during construction:
 - 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. 19/2005, Environmental Management on Construction Site, Works Bureau, HKSAR Government.

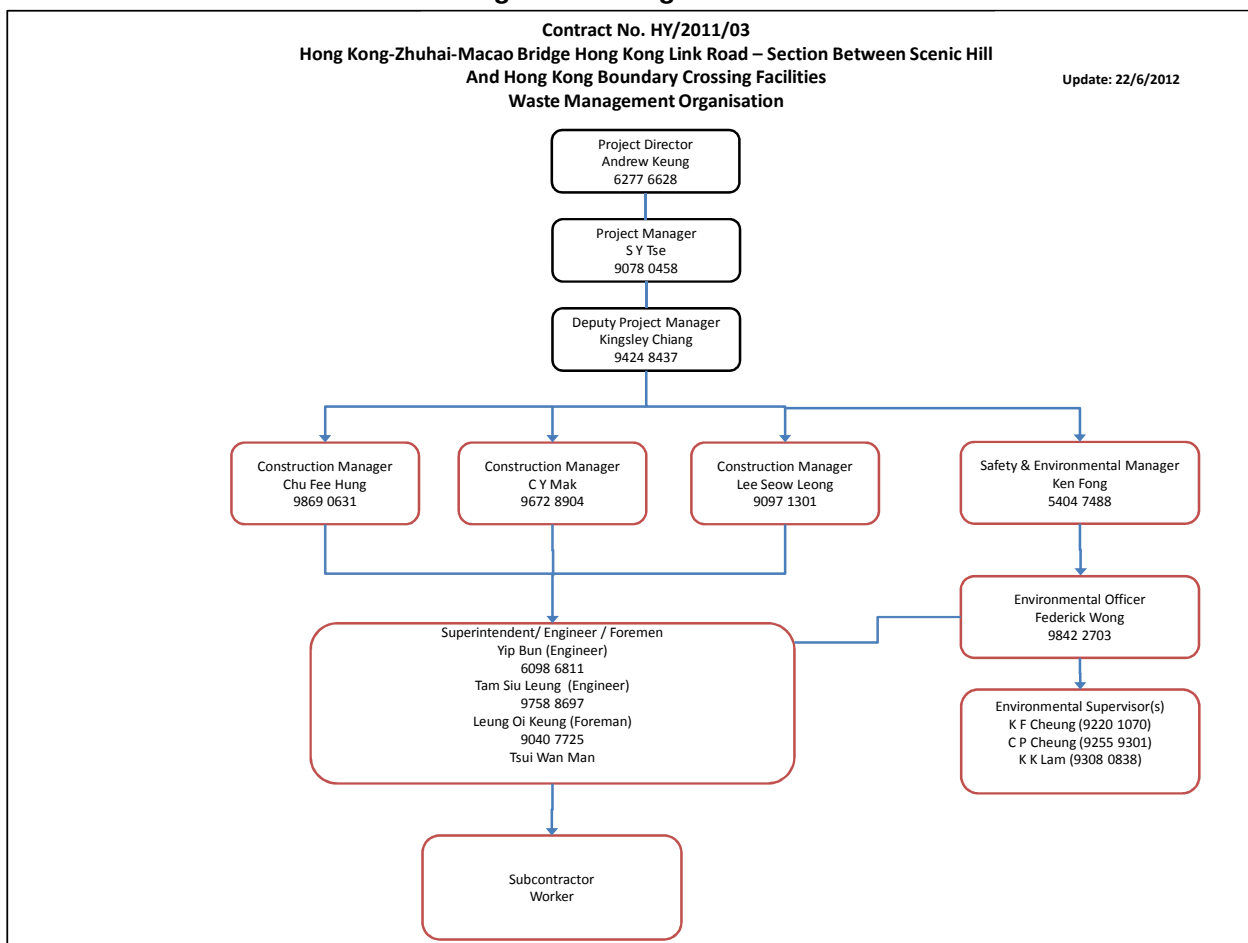
- Environment, Transport and Works Bureau Technical Circular (Works) No. 34/2002, Management of Dredged/Excavated Sediment, Environment, Transport and Works Bureau, HKSAR Government.
- Works Branch Technical Circular, 32/92, the Use of Tropical Hard Wood on Construction Site, Works Branch, HKSAR Government.
- 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.
- Environment, Transport and Works Bureau Technical Circular (Works) No. 33/2002, Management of Construction and Demolition Material including Rock, Environment, Transport and 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 Guide to the Chemical Waste Control Scheme.

2 Site Organization and Staff Duties

2.1 Organizational Structure

2.1.1 The organization structure for waste management onsite is outlined in **Figure 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 CSHK organizational chart for waste management below:

Figure 1 Organization Structure



2.2 Roles and Responsibilities

Project Director

- 2.2.1 The Project Director (PD) is responsible for coordinating all environmental matters on site and reporting on these matters to the CSHK EMT. Approve (internally) the WMP and ensure adequate resources for the implementation of the WMP.

Project Manager

- 2.2.2 The Project Manager (PM) is responsible for ensuring commitment to the WMP and assigning the necessary resources for its effective implementation.

Deputy Project Manager

- 2.2.3 The Deputy Project Manager (DPM) is also responsible for ensuring commitment to the WMP and assisting the PM in assigning the necessary resources for its effective implementation.

Safety and Environmental Manager

- 2.2.4 The Safety and Environmental Manager (S&EM) is also responsible for ensuring commitment to environmental performance with the WMP, and assists the PM and DPM in assigning adequate resources for the implementation and operation of the WMP.

Construction Manager

- 2.2.5 The 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.
- 2.2.6 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.
- 2.2.7 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.

Environmental Officer

- 2.2.8 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 S&EM. 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.

Engineer

- 2.2.9 The Engineers shall:
- Coordinate with the EO regarding the implementation of all appropriate environmental mitigation measures.
 - 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.

Environmental Supervisor

2.2.10 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.

Foremen

2.2.11 The 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. The Foremen are also responsible for:

- 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.

Workers

2.2.12 The onsite workers are expected to follow the practices that are outlined in the WMP. They are obligated to complete certain specific tasks, such as:

- The sorting of different types of wastes that are generated during construction.
- The collection of sorted wastes from work areas to the temporary storage area/designated fill banks/landfills.
- General site cleaning and upkeep.
- Attending waste management training that is organized by the EO.

3 Site Specific Waste Management

3.1 Hierarchy of Waste Management

3.1.1 The key to successful waste management is undertaking proactive measures to reduce the amount of waste generated. Waste management options will be exercised in accordance with the hierarchy outlined in **Table 2** below:

Table 2: Hierarchy of Waste Management

Waste Management Option	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.

- 3.1.2 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.
- 3.1.3 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.

3.2 Waste Reduction Targets

- 3.2.1 In order to determine whether the waste management procedures used by CSHK 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:
- 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) will be stored in covered stockpiles (to keep dry and prevent contamination) for subsequent collection and recycling at an approved facility.
 - 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.
- To minimize the use of timber during construction, recyclable metal formwork and hoarding will be used where practicable.

3.3 On Site Sorting of Materials

- 3.3.1 CSHK designate suitable areas onsite for the storage, sorting and segregation of construction waste. The areas that are designated by CSHK will be clearly defined with appropriate signage and barriers (or similar) and allow for easy access by workers and vehicles. As the project progresses it is anticipated that the designated areas will be reviewed depending upon construction program requirements. The areas designated by CSHK will be sufficient for the amounts of construction waste that are anticipated to be generated during the course of the contract. **Table 3** below shows the actions that will be taken for each type of construction waste generated onsite.

Table 3: 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	CSHK
Excavated material	Re-use on site where possible or dispose of at approved landfill facility	CSHK
Excavated Marine Deposits	Dispose of offsite at approved location	CSHK
Concrete	Sorted and segregated onsite, re-use on site where possible or recycle offsite	CCHK / Subcontractors
Metal	Segregate and recycle offsite	CSHK / Subcontractors
Paper/Cardboard Materials	Segregate and recycle offsite	CSHK / Subcontractors
Plastics	Use recycling containers and recycle offsite	CSHK / Subcontractors
Aluminium Cans	Use recycling containers and recycle offsite	CSHK / Subcontractors
Timber	Re-use on site if possible, other segregate and recycle off site	CSHK / Subcontractors
Chemical Waste	Store in approved containers and transport offsite for disposal at an approved facility	CSHK / Subcontractors

3.4 Imported Fill Materials

- 3.4.1 For imported fill materials, CSHK will seek the SO's approval prior to acceptance of such materials from other site(s). To ensure that the fill materials are imported from approved site(s) and to avoid the potential for illegal disposal of such materials, a tracking system for imported material will be developed by CSHK. The tracking system will be submitted to the SO for approval before commencing importation of material to the site.
- 3.4.2 In order to confirm that the material that is imported to the site complies with the requirements for General Filling material, as stipulated in the General Specification for Civil Engineering Works, representative material samples will be collected for analysis by an approved laboratory. The sampling and testing will be conducted at the material source, to confirm its compliance with the requirements. The test results will be provided for verification and/or approval by the Supervising Office (SO) and the IEC before the material is allowed to be imported to the site.

- 3.4.3 The target fine content of sand fill in the WMP shall not exceed 5% when placed onsite. The target maximum level of the fine content of the public fill material will be below 25%.
- 3.4.4 CSHK will report to the Environmental Team Leader (ETL), IEC/ENPO the anticipated daily filling rate for the coming month at least a week before the calendar month (or the reporting period of the Monthly EM&A Report). Similarly, CSHK will report to ETL, IEC/ENPO the actual daily fill import rate and filling rate within about 2 weeks after the end of the last calendar month (or the reporting period of the Monthly EM&A Report).

Design, Construction and Operation of Sorting Facilities and Barge Points

- 3.4.5 The delivery of imported materials as part of the reclamation to a formation level of +5.0mPD is estimated to commence in July 2013. In order to achieve this formation level the required daily handling rate of imported material is outlined in **Table 4** below. The proposed sorting facilities together with barge points have been designed to meet this production.

Table 4: The Overall Quantity of Fill Required for Reclamation

Material	Duration	Maximum Daily Fill Rate (m ³ /day)
Sand Fill	July 2013 - March 2014	4,000
Public Fill	September 2013 – May 2014	5,000
Surcharge	December 2013 – September 2014	8,000

Use of Public Fill from Fill Banks and Projects of MTRCL as Source Material

- 3.4.6 CSHK will utilize our barges to collect the fill material from designated barge points.
- 3.4.7 Owing to the available sorting facilities, the supply quantities of public fill will be constant and sorted to the most suitable for reclamation purposes. CSHK will closely coordinate with the contractors of barging points regarding the schedule of barge for collection of public fill and the site conditions of the loading facilities to ensure smooth progress of loading and transporting of public fill to the site.

Delivery Program for the Collection, Sorting, and Transportation of Public Fill Material

- 3.4.8 In order to achieve the daily fill rates outlined in **Table 4**, CSHK will deploy a total of twelve (12) barges. Details of the barges are outlined in the table below:

Table 5: The Daily Delivery Capacity of our Planned Fleet

Site	Barge Type	Barge (No's)	Avg. Capacity per Barge
Seawall	Hopper Barge	10	350 – 2,000m ³
Reclamation	Flat Top Barge	2	4,500T

- 3.4.9 In the above table, the overall logistic arrangements for barges has sufficient flexibility and takes into account unforeseen delays due to inclement weather and general holidays. Details of the estimated monthly filling rates of Public Fill, Sand Fill and Suitable Fill are outlined in **Tables 6, 7 and 8** below.

Table 6: Estimated Monthly Filling Rate for Public Fill Surcharge

Units	Dec 13	Jan 14	Feb 14	Mar 14	Apr 14	May 14	Jun 14	Jul 14	Aug 14	Sep 14
Ton	18,000	70,000	160,000	190,000	70,000	25,000	34,000	130,000	130,000	8,600

Table 7: Estimated Monthly Filling Rate for Sand Fill

Units	Jul 13	Aug 13	Sep 13	Oct 13	Nov 13	Dec 13	Jan 14	Feb 14	Mar 14	Apr 14
Ton	10,000	50,000	69,000	98,000	96,000	84,000	58,000	41,000	15,000	1,200

Table 8: Estimated Monthly Filling Rate for Suitable Fill

Units	Sep 13	Oct 13	Nov 13	Dec 13	Jan 14	Feb 14	Mar 14	Apr 14	May 14
Ton	10,000	53,000	83,000	128,000	140,000	100,000	80,000	54,000	18,000

3.5 Marine Sediments

- 3.5.1 The construction of the tunnels will require excavation of marine sediments. The excavated sediments will then be disposed of once a Loading / Dumping permit has been acquired. In order to apply for the permit a Sediment Quality Report (which will be duly updated to extend its reliability period) will be required, however, as the program of works calls for reclamation before excavation, the permit will be acquired after the reclamation has been stabilised. The estimated volume of marine sediment requiring excavation is outlined in **Table 9** below (subject to permanent design by Atkins China Ltd):

Table 9: Estimated Volume of Marine Sediment to be Excavated

Works	Volume of Marine Sediment (m ³)
HAT C&C Tunnel	36,000
SHT C&C Tunnel	167,000
Outfall	6,000
Foundation of Administration Building	550
Total	209,550

- 3.5.2 In accordance to the Sediment Quality Report ("SQR"), the marine sediments will be classified into different categories based upon test results, and the categories will determine whether the sediments can be disposed of locally or by cross-boundary disposal to the Mainland. Marine sediments that fall into categories Mf and H will need to be disposed of at the designated disposal site in Hong Kong. Marine sediments that fall into categories L and Mp will need to be disposed of at the designated disposal facilities in Hong Kong or at a cross-boundary facility. According to Marine Fill Committee's (MFC) memo Ref (ORD1Z-01) in FM 4/1C/65 Pt.20, MFC has agreed to allocate marine disposal spaces to HyD for the Category L/Mp/Mf/Hp sediments arising from the HKLR project. However, as the current SQR expired in July 2012, the SQR will need to be updated. Details of the disposal requirements for marine sediment will be subject to the updated SQR. Given that reclamation work is scheduled to take place before the excavation/ work it is proposed to carry out the reclamation work prior to the updating of the SQR.

4 Waste Management Procedure

4.1 General

- 4.1.1 The waste that is generated during the construction process will be disposed of at designated disposal facilities. Monthly summaries of the amount of waste material disposed of offsite will be provided to the SO in the form of a Waste Flow Table (WFT). The summaries will indicate the estimated quantities of waste removed the types of materials removed and the corresponding disposal ground in the WFT.
- 4.1.2 The quantities of C&D material disposed of will be recorded under the barcode TTS by using the CHIT / DDF (for disposal of C&D Materials at Disposal Grounds (Other than Prescribed Facilities) as designated in the Contract or as Directed by the SO, or Alternative Disposal Grounds Proposed by the Contractor and Approved by the SO). In addition, a completed "CHIT" will also be presented to the receiving facility as part of the system for the disposal charging scheme which became officially effective in January 2006. Waste transaction records could be obtained either from the waste disposal facilities directly, or retrieved from the EPD bill statement each month.

4.2 Waste Acceptance Criteria for Government Disposal Facilities

- 4.2.1 According to the Highways Department's Memo ref. (2NQ9) in Highways Department 7/10/1 dated 15 July 2010. The new waste acceptance criteria (WAC) (as tabulated below) became effective from 29 December 2010.

Table 10: Waste Acceptance Criteria

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

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

Acceptance Criteria for Fill Banks (Tuen Mun Area 38 Fill Bank)

- 4.2.3 The truck drivers should bear a duly signed CHIT / 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.
- 4.2.4 The inert C&D materials to be delivered to the fill bank(s) should be in accordance with the conditions stipulated in the Dumping Licence. Any over-sized inert C&D materials will be broken down to less than 250mm in size so as to facilitate its reuse by other reclamation or

earth-filling projects. The C&D materials to be disposed should consist entirely of inert construction waste (i.e. 100% inert construction waste).

- 4.2.5 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.

Acceptance Criteria for WENT Landfill and Outlying Island

- 4.2.6 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.
- 4.2.7 The non-inert C&D waste to be delivered to the landfills should be in accordance with the conditions stipulated in the Dumping License.
- 4.2.8 Construction waste containing not more than 50% by weight of inert C&D waste (Gazette Notice G.N. 4274 published on 16 June 2008).
- 4.2.9 For a load of C&D waste not consisting entirely of bamboo, plywood or timber delivered by a vehicle, the weight of the waste divided by the permitted gross vehicle weight of the vehicle must not greater than 0.25 for goods vehicle with demountable skip and 0.2 for other types of vehicle (Gazette Notice G.N. 4274 published on 16 June 2008).
- 4.2.10 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.
- 4.2.11 C&D waste delivered for landfill disposal should contain no free water and the liquid content will not exceed 70% by weight.
- 4.2.12 At least one (1) week's notice, including contractors name and contact details etc, will be submitted to the EPD before starting to deliver the C&D waste to the landfills. EPD will be informed of any subsequent change to the disposal programme.

4.3 Procedures of the Trip Ticket System (Land Based)

- 4.3.1 CSHK 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 disposal facility will be accompanied by a duly completed and stamped CHIT / DDF. 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:
- 4.3.2 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.
- 4.3.3 If the sorted C&D waste is less than 1/3 of truckload, then the C&D waste will be transferred to the temporary holding area in CSHK's Works Area for temporary stockpiling. The C&D waste will be sorted and stored separately into different storage areas.
- 4.3.4 Non-inert C&D waste will be stored in storage containers covered with tarpaulin sheeting in the temporary holding area. Inert C&D materials will be stored on the ground properly covered with tarpaulin sheeting in the temporary holding area. Larvicidal oil or larvicide will be applied to the stored C&D waste, if necessary, to control pests.
- 4.3.5 Upon every seven (7) days or one (1) truckload transported from the site, the stored non-inert C&D waste in the temporary holding area will be transferred to the designated landfills a duly completed, signed and stamped CHIT.

- 4.3.6 The stored inert C&D waste will be stored in the temporary holding area for reuse as first priority and where such case is not allowed, the inert C&D waste will be transferred to the designated fill banks along with a duly completed, signed and stamped CHIT.
- 4.3.7 If the sorted C&D waste is more than 1/3 of truckload, then the Foreman will arrange disposal of the C&D waste to designated fill banks / landfills after the DDF has been received from the SO.
- 4.3.8 For each truckload of C&D material leaving the working area / temporary holding area to the designated fill banks / landfills, the truck driver must bear a duly completed, signed and stamped CHIT.
- 4.3.9 The truck will proceed to the designated disposal facility as stipulated in the CHIT / DDF. The truck driver will present the CHIT / DDF to the reception facility operator. If the C&D waste accords with the acceptance criteria, disposal of the C&D waste will be permitted and the facility operator will give the truck driver a transaction receipt and stamp the CHIT / DDF.
- 4.3.10 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".
- 4.3.11 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.
- 4.3.12 The truck driver will then return the transaction receipt and the stamped CHIT / DDF to CSHK as soon as possible. All CHIT / DDFs are to be return to the EO.
- 4.3.13 CSHK 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 SO records as soon as possible and the SO will be notified immediately in case any discrepancy is noted.
- 4.3.14 Part 1 of the DRS will be completed in duplicate and a copy should be kept by the SO.
- 4.3.15 For disposal at government disposal facilities, CSHK will check the information recorded in the DRS against the disposal records on CEDD's or the EPD's website (see below).
- <http://www.cedd.gov.hk/eng/services/tripticket/index.html>.
 - <http://www.epd.gov.hk/epd/misc/cdm/trip.html>
- 4.3.16 Part 2 of the DRS will be completed and submit to the SO within 1 working day after the records are posted at the EPD web-site.
- 4.3.17 Where an irregularity is observed or where requested by the SO under special circumstances (e.g. a CHIT / DDF has been issued but there is no disposal record at the disposal ground), CSHK will submit to the SO within 5 working days after the recorded date of disposal the supporting evidence such as duly stamped CHIT / DDF and/or the Transaction Record Slip (where relevant) to confirm proper completion of the delivery trips in question, or within 2 working days after the SO has requested for such evidence, whichever is later. A fax copy of the CHIT / DDF or Transaction Record Slip is acceptable, unless otherwise directed by the Supervising

4.4 Procedures of the Trip Ticket System (Marine Based)

- 4.4.1 Import public fill and sand will be primarily by barges onto the site for filling although land route will also be used in some cases for filling works. The control of barges and trucks coming to the site for filling works will be controlled by the implementation of a TTS.

- 4.4.2 The public fill would be from the source sites of Fill Bank 137 at Tseung Kwan O managed by CEDD and the MTRC projects currently under construction. A TTS will be agreed with the SO, CEDD and MTRC for the filling record such as the date and time of the barge leaving the site and the quantities of fill checked and agreed by ER and CEDD/MTRC for endorsing the tickets. The copies of tickets would be issued to the SO daily for their record and a summary of the record would be issued to the SO monthly for checking and verification.
- 4.4.3 The public fill at source site must be tested to confirm compliance with the Contract Specifications such as the fine contents of the public fill etc. Before barges are allowed to leave the source site to start filling work. Test samples of public fill and sand at the source site must be submitted to the SO for record.

4.5 Measures to be implemented During Transportation of Wastes to Avoid Leakage of Wastes onto Public Areas

- 4.5.1 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.
- 4.5.2 Wastes collected on all the wheels and bodies of trucks will be washed off by wheel washing facilities before leaving the construction site. CSHK will provide wheel washing facilities on site at the site entrance.

4.6 Disposal of C&D Materials to Alternate Disposal Facilities

- 4.6.1 Where CSHK has identified a project that can serve as an alternative disposal facility, CSHK will provide a detailed description of the alternative disposal ground, including location, lot number (where appropriate) and location plan(s) to the SO to request for his written approval to dispose of waste at the proposed location.
- 4.6.2 Where the alternative disposal facility is a private construction project, CSHK 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 SO 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 DDF / internal trip ticket.
- 4.6.3 Where the alternative disposal facility is a private facility but not a construction site, CSHK 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.
- 4.6.4 Where the alternative disposal facility is a government project, CSHK 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.
- 4.6.5 A system for transmitting disposal records from the alternative disposal ground will be submitted to the SO for approval before disposal to the alternative ground starts.

4.7 Chemical Wastes / Hazardous Waste Handling and Disposal

4.7.1 CSHK 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

4.7.2 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.

4.7.3 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

4.7.4 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

4.7.5 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

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

4.8 General Refuse

4.8.1 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. aluminum cans, plastic bottles).
- Deploying containers with covers onsite to facilitate the collection of non-recyclables for disposal at landfills.
- General refuse generated from working vessels and barges will be collected into temporary waste collection points.
- Working vessels for import fill or delivery should be handled by themselves.
- There will be waste containers on the working vessels for the collection of waste. In the event that refuse is found on the water, CSHK will collect the refuse on an as needed basis.

4.9 Sewage

- 4.9.1 Sewage waste will be generated from amenity facilities used by the construction workforce and site office's sanitary facilities. 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.
- 4.9.2 The peak number of construction workers anticipated to on site by CSHK is to be about 500 staff. 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. CSHK 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.

4.10 Handling of Recyclables

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

4.11 Estimate Quantities of C&D Material/Waste

- 4.11.1 The following types of waste will be generated during the construction of the HKLR.
- Excavated sediments.
 - C&D materials / waste.
 - Chemical waste.
 - General refuse.
 - Recyclable waste.
 - Fill material for reclamation.
- 4.11.2 The estimated amount of waste to be generated from the Contract is listed in **Table 11** below:

Table 11: Estimated Amount of Waste to be Generated During the Contract

Material	Imported – Total Volume (Mm ³)	Generated – Total Volume (Mm ³)	Generated from HKLR (Mm ³)	Generated from BCF roadlink works (Mm ³)	Re-used onsite or on other Projects (Mm ³)	Disposal (Mm ³)	Proposed Disposal Outlet
Imported Sand	0.84	0	0	0	N/A	N/A	N/A
Imported Public Fill	0.52	0	0	0	N/A	N/A	N/A
Imported Rock	0.67	0	0	0	N/A	N/A	N/A
General Waste	N/A	0.85	0.6375	0.2125	N/A	0.85	WENT Landfill or Outlying Islands Transfer Facilities
Chemical Waste (kg)	N/A	15,000	11250	3750	N/A	15,000	To be handled by Registered Contractor on the approved list
Inert C&D Soft Material (MT)	N/A	1.1	0.825	0.275	1.1	0	Tuen Mun Area 38 Fill Bank
Surplus Surcharge (MT)	N/A	0.9	0.7	0.2	0.9	0	Tuen Mun Area 38 Fill Bank
Low Quality Rock (MT)	N/A	0.1	0.1	0	0.1	0	Tuen Mun Area 38 Fill Bank
Good Quality Rock (MT)	N/A	0.38	0.38	0	0.38	0	Tuen Mun Area 38 Fill Bank
C&D Waste (MT)	N/A	0.03	0.0225	0.0075	0	0.03	Tuen Mun Area 38 Fill Bank
Category L Sediment (m ³)	0	207,700*	207,700*	0	0	207,700*	Designated disposal facilities in Hong Kong / Cross boundary disposal
Category Mp Sediment (m ³)	0	0*	0*	0	0	0*	Designated disposal facilities in Hong Kong / Cross boundary disposal
Category Mf Sediment (m ³)	0	1,850*	1,850*	0	0	1,850*	Designated disposal sites for confined marine disposal in Hong Kong

These numbers are the estimations from the EIA report and to be updated.

* The amount will be updated upon completion of the SQR

4.11.3 It is estimated that this Contract will employ approximately 500 site personnel at peak level and the total general waste generated would be about 4,500m³.

4.11.4 The estimated amount of chemical waste is based upon the amounts of chemical waste generated during previous construction projects.

4.11.5 CSHK will either dispose of the excavated sediment generated during the course of the contract onsite under permit from the EPD or use a cross-boundary Mainland facility.

The amount of marine sediment will be updated once the Sediment Quality Report has been updated.

- 4.11.6 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.
- 4.11.7 All recyclable material that is generated during the course of the Contract will be collected by registered contractors and transported to an approved facility.
- 4.11.8 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

4.12 Timber Control System

- 4.12.1 CSHK's aim is to minimize the use of timber during construction, where practicable, by using suitable alternatives, such as, recyclable metal formwork. Where the use of timber is unavoidable for temporary works construction processes or activities with an estimated quantity of greater than 5m³, CHSK will submit a method statement to the SO for agreement prior to starting the relevant temporary works. The method statement will include the justification for the use and the measures taken to minimize the use of timber.
- 4.12.2 The summary table of timber usage will be submitted to the SO together with the monthly summary WFT for monitoring and review by not later than the fifteenth (15) day of each month or, if it is a general holiday, the day following the general holiday, or a day agreed upon with the SO.

5 Disposal Program

- 5.1.1 The applicable waste disposal requirements are listed in Section 1 of this WMP.
- 5.1.2 It is anticipated that there will be inert C&D materials (comprising soil, broken rock and concrete, etc), non-inert C&D materials and excavated sediments generated under Contract No. HY/2011/03. With reference to the clause 25.25 of PS, the designated disposal grounds for inert and non-inert C&D materials are listed as follows:-

Inert C&D Materials

- Tuen Mun Area 38 Fill Bank or other disposal outlets as directed by the SO.

Non-inert C&D Materials

- West New Territories Landfill (WENT) or Outlying Island Transfer Facilities.

- 5.1.3 Monthly summaries of the amount of C&D material disposed of off site will be provided to the SO. The summaries will indicate the estimated quantities of C&D material removed, the types of C&D materials removed and the corresponding disposal ground in the WFT.
- 5.1.4 Inert C&D materials will be disposed of at Tuen Mun Area 38. Non-inert C&D materials will be disposed of at WENT landfill or Outlying Island Transfer Facilities.

Marine Sediments

- 5.1.5 Marine sediments will be disposed of at designated disposal site in Hong Kong or at a cross-boundary facility.

6 Notification to Truck Drivers

- 6.1.1 CSHK will contact all transportation companies who are contracted by CSHK, 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 / DDF.
 - 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.
- 6.1.2 The Flow Chart of the TTS is attached in **Appendix B**.

7 Waste Management Records

7.1 General

- 7.1.1 The CHIT will be used for each and every vehicle that transports C&D material off site to a disposal facility.
- 7.1.2 Prior to the vehicle leaving the site, the SO will input the serial number, date, time of departure, vehicle licence plate number, designated public filling facility / landfill, and any other information as required onto the DDF, then stamp the DDF. The SO will retain the first strip of the form and pass the rest of the DDF to CSHK's representative. The DDF will be carried on board the vehicle by the driver at all times, for the duration of the trip.
- 7.1.3 A register of the DDF's issued will be maintained by CSHK in the project environmental filing system, and will be made available for inspection by the SO upon request. The following records will be kept to enable monitoring of the DDF's that have been issued:-
- DRS and the WFT will be completed and submitted to the SO for their records. A sample of the DRS and the WFT is provided in Appendices C and D of this WMP.

7.2 Waste Flow Table – Monthly

- 7.2.1 CSHK will maintain a record of the quantities of C&D materials that are generated each month using the monthly summary WFT. The CSHK EO will complete and submit the monthly summary WFT to the SO by no later than the fifteenth (15th) day of the following month, or if this day is a general holiday, the day following the General Holiday, or a later date as agreed to by the SO.

7.3 Waste Flow Table - Yearly

- 7.3.1 The estimated quantities of C&D materials that are generated each year from the site will be summarised using the yearly summary WFT. The yearly summary WFT will be updated on a half-yearly basis and will be submitted to the SO by not later than 1st of June and 1st of December of each calendar year, or if these days are general holidays, the day following the general holiday, or a later date as agreed to by the SO.
- 7.3.2 These summaries shall also be made available to the ETL and the IEC/ENPO.
- 7.3.3 Specific trip tickets and records for the internal transfer of C&D materials and imported fill materials will also be kept for monitoring and shall be made available to the SO upon request.
- 7.3.4 For recyclable materials, CSHK'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 SO.

7.4 Waste Flow Verification

- 7.4.1 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 CSHK 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.

8 Waste Monitoring and Audit Procedures

- 8.1.1 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.
- 8.1.2 The Environmental Team (i.e. BMT Asia Pacific), with assistance from the PM or DPM, 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.
- 8.1.3 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:

Table 12: Event Action Plan for Non-compliance

Step	Day	Action	CSHK/ET	SO	IEC/ENPO
1	1	A non-compliance record will be created within one (1) working day of making the observation during a site audit. The ET will send a Notice of Non-Compliance (NC) to CSHK, SO and IEC/ENPO. The NC 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	CSHK will propose suitable corrective action/s to mitigate the non-compliance observed within one (1) working day of receipt of the NC from the ET.	X	-	-
3	3	The SO and IEC/ENPO will review CSHK's proposed corrective action/s and make additional recommendations as necessary.	-	X	X
4	-	CSHK 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	X
6	-	CSHK 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 13: Event Action Plan for Complaint

Step	Day	Action	CSHK/ET	SO	IEC/ENPO
1	1	The ET 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 ET will log details of the complaint into a Complaint Record Form (CR).	X	-	-
2	2	CSHK will assess the CR and propose suitable mitigation measures.	X	-	-
3	3	The ER and IEC/ENPO will review the mitigation measures and agree or propose further mitigation measures if required.	-	X	X
4	-	CSHK will implement the proposed mitigation measures once they have been agreed to by all parties.	X	-	-
5	-	The ETL will check the implementation of the mitigation measures during the next site audit. The ET will close out the CR, if the implementation of the mitigation measures is satisfactory.	X	X	X
6	-	CSHK will propose suitable prevention measures within three (3) working days after closure of the CR.	X	-	-

Note: "x" denotes action party comments on the NC where applicable.




APPENDIX A

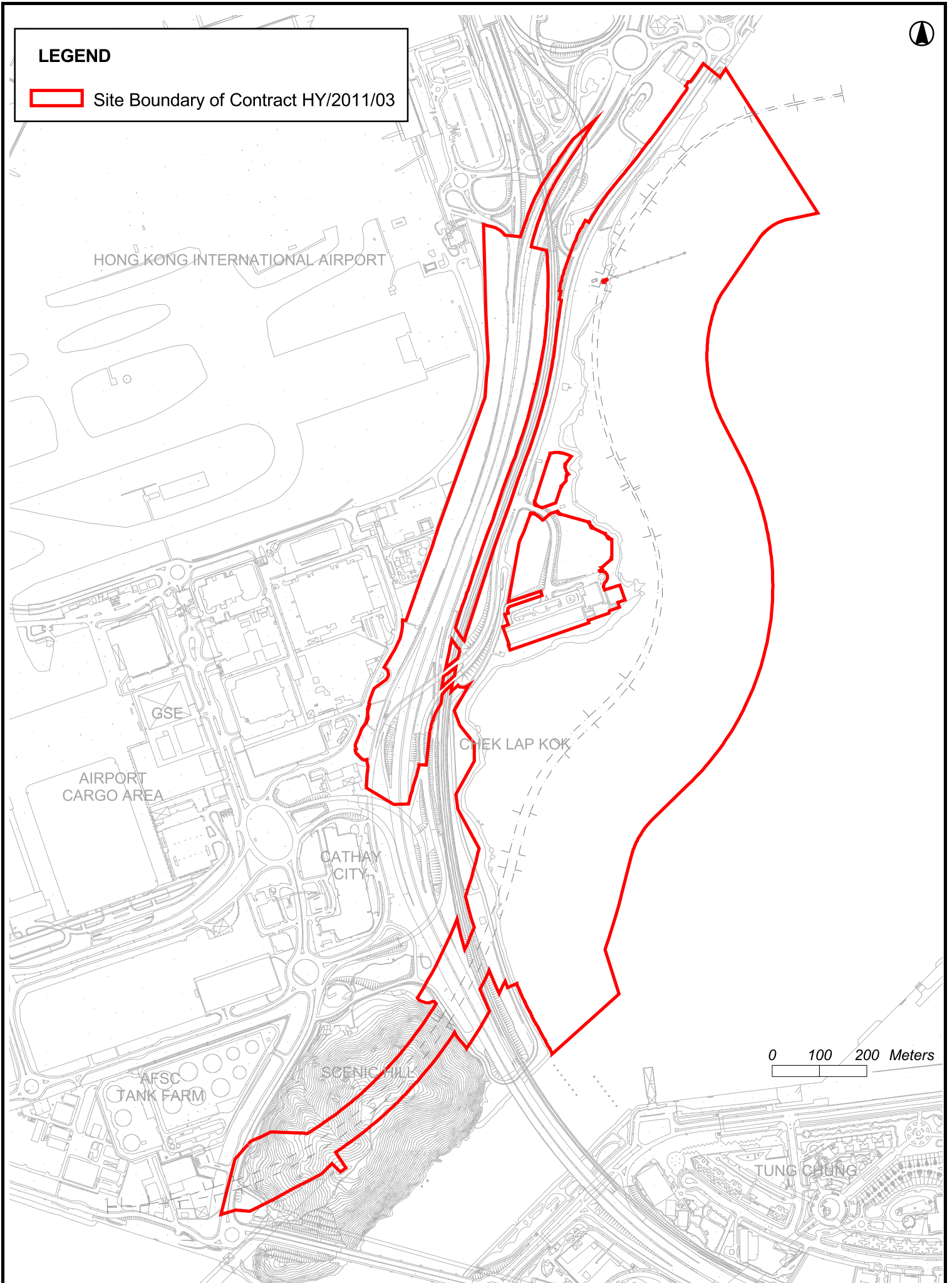
SITE LOCATION PLAN





LEGEND

 Site Boundary of Contract HY/2011/03



Location of the Site



APPENDIX B

TRIP TICKET SYSTEM FLOW CHART

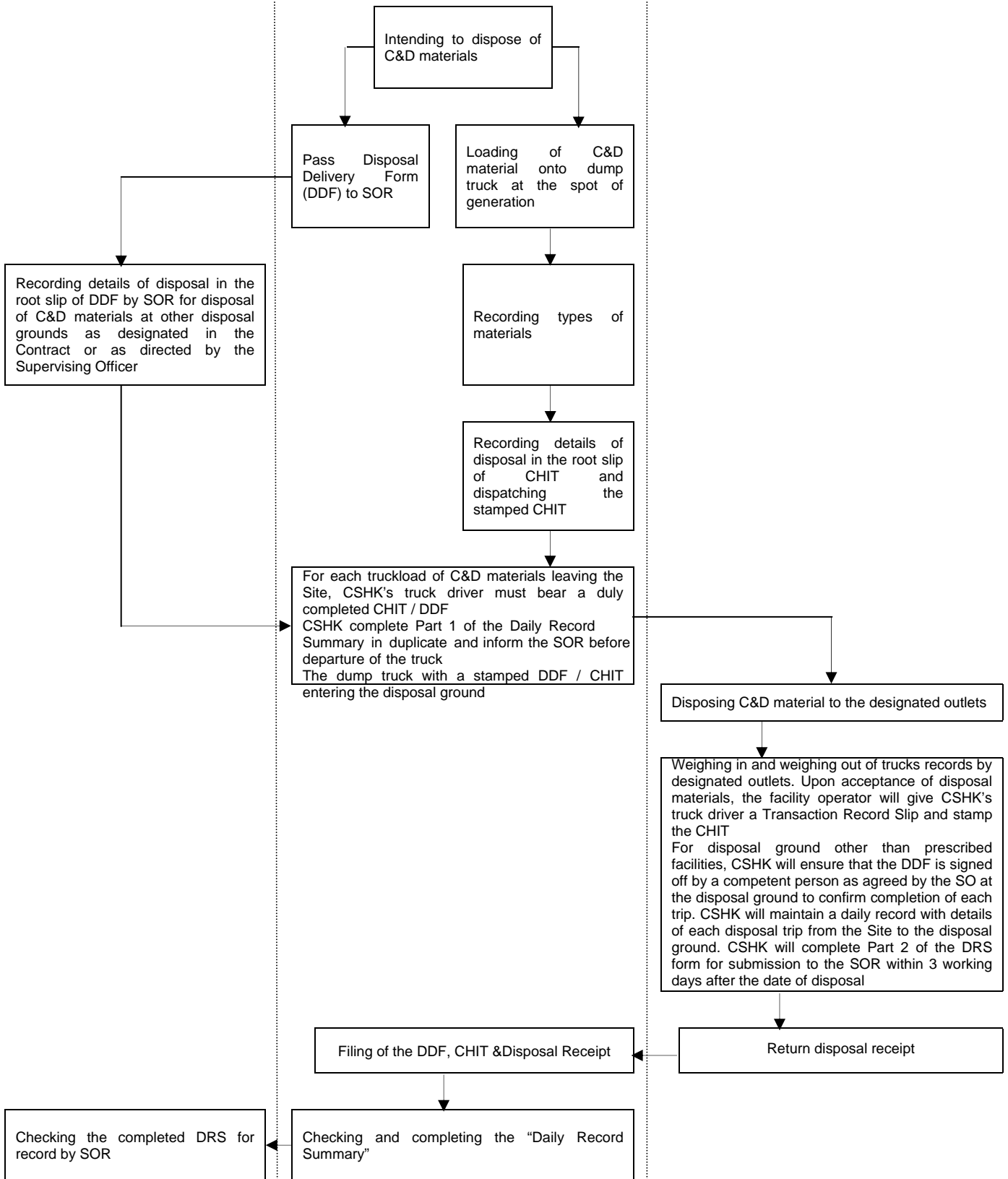


Appendix C: Procedures and Control Mechanisms for Implementing the TTS

Action By: Supervising Officer's Representative (SOR)

The Contractor CSHK

WENT Landfill & TM Area 38 Fill Bank





APPENDIX C

DAILY RECORD SUMMARY

“Daily Record Summary” to record daily disposal of construction & demolition (C&D) materials from the Site (ER14 – Construction Specification Appendix 25.6)

“每日運載記錄摘要”記錄每日由*地盤傾卸的拆建物料

(1) Contract no. & title 合約編號及名稱: HY/2011/03 Hong Kong-Zhuhai-Macao Bridge Hong Kong Link – Section between Scenic Hill and Hong Kong Boundary Facilities

(2) Date of disposal: _____

(3) Disposal ground(s) designated in the Contract or directed by the SOR 合約指定或工程師代表指示接收設施: (a) TM Area 38 Fill Bank 屯門 38 區填料庫
 (b) WENT 屯門稔灣堆填區
 Others 其它

(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 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 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 Contactor’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 SOR’s supervisory staff before departure or other time as agreed between the SOR’s Representative and the Contractor ¹ 於離開地盤前或其它經承建商與工程師代表同意 的時間，工程師代表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
承辦商的指定人仕姓名

Signature 簽名: _____

Date 日期: _____

Received by 接收: _____

[Name and signature of the SOR’
工程師代表監管人員姓名及簽名

Post 職位: _____

Date & Time 日期及時間: _____

¹For term contract, if there are no full time supervisory staff, the SOR 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

²Part 1- The Contractor shall complete Part 1 in duplicate and a copy should be kept by the SOR. 承建商填寫甲部兩份，副本由工程師代表持有

³Part 2- The Contractor shall complete Part 2 and submit the whole summary to the SOR 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上載在環境保護署網頁後 1 個工作天內呈交給工程師代表

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



APPENDIX D

WASTE FLOW TABLE





MONTHLY SUMMARY WASTE FLOW TABLE

Name of Department: HyD Contract No.: HY/2011/03

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	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											