CHINA HARBOUR ENGINEERING CO., LTD.

Waste Management Plan

For

Contract No. HY/2019/01

HONG KONG-ZHUHAI-MACAO BRIDGE
HONG KONG BOUNDARY CROSSING FACILITIES –
PHASE 2 AND OTHER WORKS

HIGHWAYS DEPARTMENT

The Government of the Hong Kong Special Administrative Region

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Endorsed by: _____

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1 INTRODUCTION

The Waste Management Plan (WMP) has been developed in accordance with clause 2.10 of Environmental Permit No. EP-353/2009/K, for the Highways Department Contract namely Contract No. HY/2019/01 Hong Kong-Zhuhai-Macao Bridge Hong Kong Boundary Crossing Facilities – Phase 2 and Other Works (hereinafter the Contract).

1.1 Project Description

China Harbour Engineering Company Limited (hereafter CHEC) is the Main Contractor to responsible for the execution of the construction works under Highways Department. The works mainly include the following works:

a) Landscaping and establishment works;
b) Irrigation system and associated drainage pumping system and facilities;
c) Erection and installation in the Passenger Clearance Building;
d) Public transport interchange (PTI) public toilet, satellite refuse collection point (RCP) and observation guard booths;
e) PTI cross boundary shuttle (CBS) / cross boundary coach (CBC) lanes and covered walkway;
f) Vehicle clearance plazas (VCP) vehicle kiosks and associated automatic vehicle clearance supporting system (AVCSS).

The main scope of works under the Contract does not include marine construction or vessel operation related to construction works.

1.2 Purpose of the Plan

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

- Providing reference to the waste management requirements, both statutory and non-statutory;
- Clarifying the responsibilities of each party on waste management and the personnel within the Contractor's management; and
- Establishing the waste management procedures for avoidance, minimization, material reuse/recovery/recycling, collection, transportation, storage and disposal of wastes generated from the activities.

1.3 Environmental Management Policy

An Environmental Management Policy is established to demonstrate the Company's commitment in improving environmental performance. It aims to communicate CHEC's mission, vision and beliefs towards the environment to the staff and provides a framework for guiding CHEC's ongoing environmental improvement efforts.

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

The Environmental Policy Statement, together with the Environmental Objectives and Targets, are listed below:

CHINA HARBOUR ENG. CO., LIMITED / ZHEN HUA ENG. CO., LIMITED

Environmental Policy Statement

The core business of China Harbour Engineering Company Limited / Zhen Hua Engineering Company Limited is design, construction and maintenance of civil, marine, environmental, building and foundation engineering works, design, supply, installation of ventilation systems, fire services systems, plumbing and drainage systems, low voltage and extra low voltage electrical systems. It is the policy of the Company to ensure that all its activities are carried out in a manner that causes minimum adverse impact on the environment through the establishment and implementation of an environmental management system. We committed to: -

- Comply with all environmental legal, contractual and other requirements by understanding the needs and expectations of interested parties.
- Prevent pollution by providing sufficient resources for implementation of environmental nuisance control and waste management.
- Maintain a proper and good communication channel with the stakeholders so as to minimize the environmental nuisance on them.
- Reduce the production of construction waste and to minimize the consumption of natural resources by careful planning and implementation and to consider the life cycle perspectives of the products or services by proper disposal or end of life treatment.
- Provide appropriate training to all staff including subcontractors' staff.
- Strive to achieve continual improvement and maintain the effectiveness through periodic review of the environmental management system , the environmental objectives and targets and management reviews.

Mr. So Sze Lung Lawrence (Deputy General Manager of Quality, Safety and Environmental Compliance Department) is appointed as Management Representative, responsible for the overall co-ordination and implementation of this policy. However, environmental protection is one of the prime responsibilities of every employee, all staff shall ensure that this policy is understood, implemented and maintained. This policy will be reviewed annually and whenever necessary.

環境保護政策

中國港灣工程有限責任公司/振華工程有限公司主要從事土木工程、海事工程、環保工程、樓宇和地基工程的設計、建造和保養、通風系統、消防系統、給排水系統、低壓電力和特低壓電力的系統的設計、物料供應和安裝。環境保護是本公司的基本政策之一，本公司通過建立和實施環境管理系統，致力減低施工時對環境產生的不良影響。為此，本公司承諾：

- 透過了解所有有關團體的需要及期望，達致遵守所有有關環境保護的法例、合約和其它與環保之有關要求。
- 提供充足資源實施環境及廢物管理方案，預防環境污染。
- 與所有持分者保持良好溝通從而將對他們於環境方面之影響減到最低。
- 透過仔細策畫和執行來減少建築廢物和耗用天然資源，以及考慮所有製成品及服務之生命週期，作出適當的處理如棄置，重用或循環再做等。
- 提供適當訓練給所有員工包括分包商員工。
- 定期檢討環境管理系統、環境目標及指標和進行管理評審，力求持續改善公司的環保表現及確保環境管理體系能有效執行。

品質安全監督部副總經理蘇仕龍先生被委任為管理者代表負責總體的統籌和履行本政策。然而，環境保護乃每一位員工的基本責任，所有員工必須瞭解本政策並貫徹執行。本政策會每年及在有需要時檢討。

Wang Yan 王 岩
Authorized Representative 授權代表 / Chairman 主席
12-6-2019

CHINA HARBOUR ENG. CO., LIMITED /
ZHEN HUA ENG. CO., LIMITED

Environmental Objectives and Targets

Item	Objective	Target
1	To comply with legal requirements	Zero Convictions Zero Pink/yellow Notices
2	To satisfy client's environmental requirements	Obtain a "satisfactory" or above ratings (environmental item) in the quarterly performance report for government project Obtain a "satisfactory" or above ratings (environmental item) in Customer Survey Form (OP16/F1) for private project
3	To prevent serious environmental incident	Zero Serious Environmental Incidents
4	To maintain an effective Environmental Management System	Audit the Environmental Management System not less than twice a year
5	Enhance environmental awareness of workers	All workers to receive environmental induction training

環境目標及指標

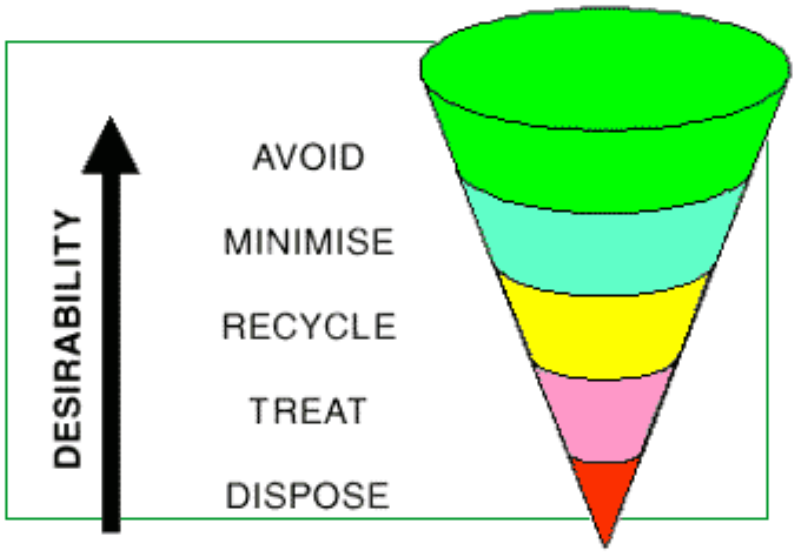
項目	目標	指標
1	奉公守法	零檢控 零粉紅/黃「環境改善通知書」
2	滿足業主環保要求	在政府工程之季度表現報告中(環保項目)取得『滿意』或以上之級別 在私人工程之客戶調查報告中(環保項目)取得『滿意』或以上之級別
3	防止嚴重環境事故	零嚴重環境事故
4	確保環境管理系統有效執行	每年審核環境管理系統不少於兩次
5	加強工人環保意識	所有工人接受環保入職培訓

Wang Yan 王 岩
Authorized Representative 授權代表 / Chairman 主席
1-4-2019

1.4 The Waste Management Policy

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

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



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

1.5 Regulations and Guidelines

1.5.1 General

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

1.5.2 Statutory Requirements

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

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

1.5.2.1 The Waste Disposal Ordinance (WDO)

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

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

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

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

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

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

1.5.2.4 The Land (Miscellaneous Provisions) Ordinance

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

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

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

1.5.2.6 Related Licence and Permits

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

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

1.5.3 Non-statutory Requirements

The following guidelines related to waste management and disposal would be adhered to during

construction of the Project:

- Waste Disposal Plan for Hong Kong (1989), Planning, Environmental and Lands Branch Government Secretariat;
- Environmental Guidelines for Planning in Hong Kong. Hong Kong Planning Standards and Guidelines (1990);
- New Disposal Arrangements for Construction Waste, EPD and CEDD (1992);
- Code of Practice on the Packaging, Labelling and storage of Chemical Wastes EPD (1992);
- Code of Practice on the Handling, Transportation and Disposal of Asbestos Waste, EPD;
- Works Branch Technical Circular No. 12/2000, Fill Management, Works Bureau, HKSAR Government;
- Works Branch Technical Circular No. 29/2000, Waste Management Plan, Works Bureau, HKSAR Government;
- Environment, Transport and Works Bureau Technical Circular (Works) No. 34/2002, Management of Dredged/Excavated Sediment, Environment, Transport and Works Bureau, HKSAR Government;
- Works Branch Technical Circular, 32/92, the Use of Tropical Hard Wood on Construction Site, Works Branch, Hong Kong Government;
- Works Branch Technical Circular No. 2/93, Public Dumps, Works Branch, Hong Kong Government;
- Works Branch Technical Circular No. 16/96, Wet Soil in Public Dumps, Works Branch, Hong Kong Government;
- Works Bureau Technical Circular NO. 4/98 and No.4/98A, Use of Public Fill in Reclamation and Earth Filling Projects, Works Bureau, HKSAR Government;
- Works Bureau Technical Circular No. 5/98, On-site sorting of Construction Waste on Demolition Site, Works Bureau, HKSAR Government;
- 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 Burea7, HKSAR Government;
- A Guide to the Registration of Chemical Waste Producers; and
- A Guide to the Chemical Waste Control Scheme.

2 SITE ORGANIZATION AND STAFF DUTIES

2.1 Organization Structure

The organisation structure for waste management is outlined in Figure 2.1. This chart outlines the overall site management in relation to waste management and environmental issues. Details on the roles and responsibilities of staffs responsible for implementation of the waste management plan are outlined below.

2.2 Roles and Responsibilities

Pursuant to P. S. Clause 25.25(6)(a), CHEC has appointed the Environmental Officer as the senior staff member fully responsible for implementing and overseeing the operation of the Trip Ticket System. The General Foremen and Foremen are appointed to man each exit from the Site for the purpose of ensuring that every truck carrying C&D materials leaving the Site bears a duly completed, signed and stamped CHIT ticket.

2.2.1 Construction Manager

The Construction Manager is a representative of head office responsible for ensuring commitment to environmental performance is fulfilled and assigning adequate resources and facilities to provide an effective environmental management programme on site.

2.2.2 Site Agent

The Site Agent, as a senior staff, is responsible to coordinate all environmental matters on sites and report to the Construction Manager. Site Agent is also responsible for all site operations, management of environmental issues, staff supervision, control, coordination & planning, external liaison as well as implementing and monitoring necessary corrective actions.

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

2.2.3 Environmental Manager

Environmental Manager is responsible to coordinate all environmental matters on sites and to report these to the Site Safety and Environmental Committee, Highways Department, Environmental Protection Department and Engineer's Representatives. The Environmental

Manager is also responsible for ensuring commitment to environmental performance is fulfilled and assigning adequate resources and facilities to provide an effective implementation of the Waste Management Plan on site. With the assistance of the Environmental Officer, he would also oversee the implementation and performance of the Waste Management Plan. The Environmental Manager reports to the Site Agent and is responsible for all site operations, management of environmental issues, staff supervision, control, coordination & planning, external liaison as well as implementing and monitoring necessary corrective actions. The Environmental Manager would assume environmental duties on site and ensure that works are executed in accordance with the Waste Management Plan. He will arrange regular site inspections with the Environmental Officer.

2.2.4 Environmental Officer

The Environmental Officer will be appointed as a senior staff member, who with at least two years experiences in site management, fully responsible for implementing and overseeing the operation of the Waste Management Plan.

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

- Review the Waste Management Plan and ensure works are executed in accordance with the plan;
- Update the yearly and monthly summary Waste Flow Table (WFT) and the summary table for timber usage in temporary works construction monthly and incorporated into the Environmental Management Plan;
- Monitor the works including those of subcontractors to ensure compliance with specified requirements.

2.2.5 Environmental Supervisor

Environmental Supervisor is responsible for the implementation of this Waste Management Plan with the assistance of the foremen. He is also responsible for:

- Co-operate with the Environmental Officer to rectify any non-conformances being identified;
- Attend environmental meetings whenever necessary; and
- Assist with Environmental Officer on any environmental accidents like chemical spillage.

2.2.6 General Foremen / Foremen

The General Foremen / Foremen are responsible for site supervision and coordination of the works

as well as implementation of any remedial actions or environmental protection measures as directed by the Site Agent / Environmental Officer.

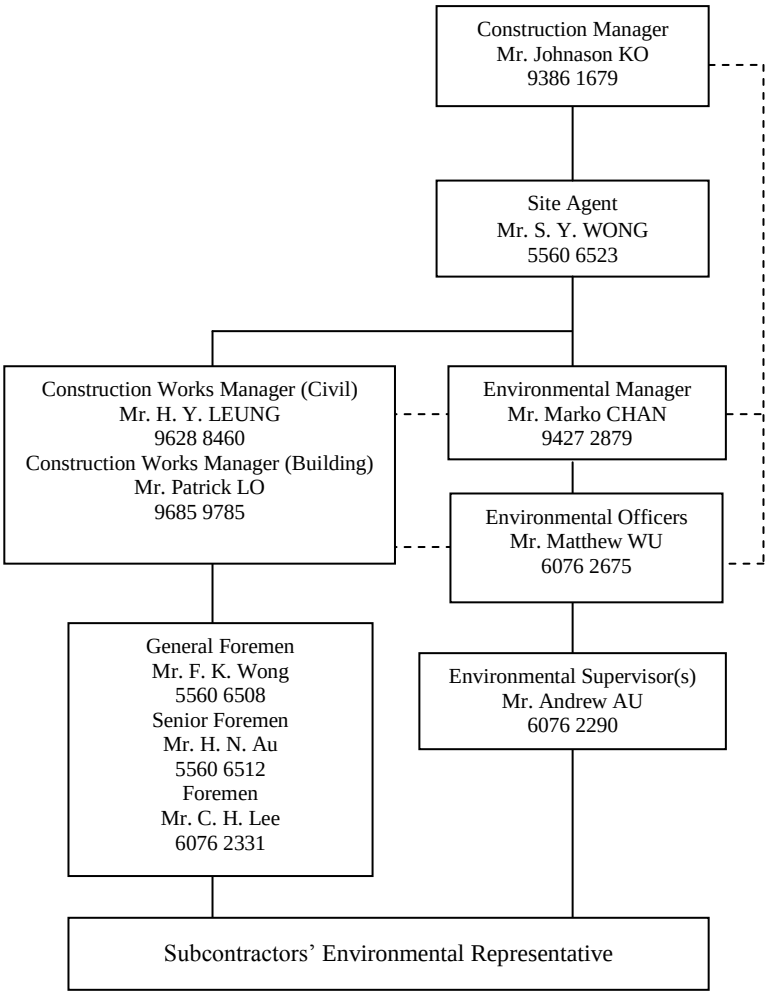
The General Foremen / Foremen are also responsible for:

- Assisting in the daily implementation of the Waste Management Plan including to ensure all waste is sorted, segregated, recycled or reused when applicable;
- Responsible to update the Daily Record Summary;
- Ensuring the Waste Management Plan is followed and all appropriate paperwork to be collected and signed off; and
- Ensuring waste is avoided and/or minimised as much as practically possible.

2.2.7 Workers

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

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



———— Line of responsibility

---------- Line of communication

Figure 2.1: The Organizational Structure for Waste Management

Name	Position	Telephone No.
Mr. Johnason KO	Construction Manager	9386 1679
Mr. S. Y. WONG	Site Agent	5560 6523
Mr. H. Y. LEUNG	Construction Work Manager	9628 8460
Mr. Patrick LO	Construction Works Manager (Building)	9685 9785
Mr. F. K. Wong	General Foremen	5560 6508
Mr. H. N. Au	Senior Foremen	5560 6512
Mr. C. H. Lee	Foreman	6076 2331
Mr. Marko CHAN	Environmental Manager	9427 2879
Mr. Matthew WU	Environmental Officer	6076 2675
Mr. Andrew AU	Environmental Supervisor	6076 2290

Table 2.1: Contact List of Designated Persons for Implementation of the Waste Management Plan

3 SITE SPECIFIC WASTE MANAGEMENT

3.1 Waste Policy Principles

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

3.1.1 Hierarchy of Waste Management

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

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

Table 3.1: Hierarchy of Waste Management

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

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

3.2 Waste Reduction

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

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

3.3 Bentonite Slurry

The bentonite system will be set up on site to suit the site condition. It consists of storage tanks and circulation tanks to minimize contamination into site temporary drainage or substandard discharge. During concreting of piling works, the used bentonite slurry will be delivered to the residue splitter for purification and reuse wherever practicable. Residual shall be disposed of at the Tseung Kwan O Area Fill Bank. (PS Clause 25.25(1)). All disposal record for bentonite will be summarized in the monthly waste flow table.

4 WASTE MANAGEMENT PROCEDURE

The quantities of disposal C&D materials will be recorded under the barcode Trip Ticket System by using the CHIT tickets. CHIT will be presented to the landfill site as part of the system for the disposal charging scheme which had already been officially effective in January 2006. Waste transaction records could be obtained either in the waste disposal facilities right after the transaction or retrieved from the Environmental Protection Department bill statement each month.

4.1 Acceptance Criteria for the Government Disposal Facilities

According to the Highways Department's Memo ref.: (2NQ9) in Highways Department 7/10/1 dated 15 July 2010, the new WAC (as Tabulated below) became effective from 29 December 2010.

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

Table 4.1: New Waste Acceptance Criteria

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

4.1.1 Acceptance Criteria for Tuen Mun Area 38 Fill Bank (TM 38) or Tseng Kwan O Area 137 Fill Bank (TKO 137)

- The truck driver should bear a duly completed, signed and stamped CHIT;
- The dump truck should also have a valid Dumping Licence issued by Civil Engineering and Development Department, dump trucks without Dumping Licences will be rejected;
- The inert C&D materials to be delivered to the fill bank(s) should be in accordance with the conditions stipulated in the Dumping Licence;
- Any over-sized inert C&D materials should be broken down to less than 250mm in size so as to facilitate 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); and
- According to the Highways Department's Memo ref.: (32FV) in Highways Department 7/8/13 dated 25 June 2010, the bituminous material is required to be separated from other inert construction and demolition (C&D) materials for disposal prior to delivery to the PFRF.

4.1.2 Acceptance Criteria for Northeast New Territories Landfill (NENT)

- The truck driver should bear a duly completed, signed and stamped CHIT;
- The dump truck should also have a valid Dumping Licence issued by Civil Engineering and Development Department, dump trucks without Dumping Licences will be rejected;
- The non-inert C&D waste to be delivered to the landfills should be in accordance with the conditions stipulated in the Dumping Licence;
- Construction waste should contained not more than 50% by weight of inert C&D waste (Gazette Notice G.N. 4272 published on 27 June 2008);
- For a load of C&D waste not consisting entirely of bamboo, plywood or timber delivered by a vehicle, the weight of the waste divided by the permitted gross vehicle weight of the vehicle must not greater than 0.25 for goods vehicle with demountable skip and 0.2 for other types of vehicle (Gazette Notice G.N. 4272 published on 27 June 2008);
- For a load of C&D waste consisting entirely of bamboo, timber or plywood delivered by a vehicle, there is no restriction on the weight of the waste divided by the permitted gross vehicle weight of the vehicle (Gazette Notice G.N. 4272 published on 27 June 2008);
- Mixed C&D materials should be sorted at source to reduce the inert content as far as practicable to meet the above criteria before they are delivered to landfills;
- C&D waste delivered for landfill disposal should contain no free water and the liquid content will not exceed 70% by weight;
- At least one week's notice, including contractors name and contact details etc, will be submitted to the Environmental Protection Department before commencing delivery of C&D waste to the landfills. Environmental Protection Department will be informed of any subsequent change to the disposal programme.

4.2 Procedures of the Trip Ticket System

China Harbour Engineering Co., Ltd. (CHEC) will implement a Trip Ticket System (TTS) to track the disposal of C&D materials. Under the TTS, each truck carrying C&D materials leaving the Site for a disposal ground will bear a duly completed and stamped CHIT Tickets. The C&D materials must be disposed of at the disposal grounds as stipulated in the CHIT Tickets.

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

- The General Foremen / Foremen will arrange the C&D waste to be sorted on site. He will also check the total actual amount of cumulated C&D waste after the completion of the particular works in the working area.
- If the sorted C&D waste is less than 1/3 of truckload, then the C&D waste will be transferred to the temporary holding area in CHEC's works area for temporary stockpiling.
- The C&D waste will be sorted and stored separately in different storage areas.
- Non-inert C&D waste will be stored in storage tanks properly covered with tarpaulin sheeting in the temporary holding area. Inert C&D materials will be stored on the ground properly covered with tarpaulin sheeting in the temporary holding area. Larvicidal oil or larvicide will be applied onto the stored C&D waste, if necessary.
- For every 7 days or one truckload collected, the stored non-inert C&D waste in the temporary holding area will be transferred to the designated landfills.
- For every 14 days or one truckload collected, the stored inert C&D waste in the temporary holding area will be transferred to the designated fill banks.
- If the sorted C&D waste is more than 1/3 of truckload, then the Foreman will arrange disposal of the C&D waste to designated fill banks / landfills.
- For each truckload of C&D materials leaving the working area / temporary holding area to the designated fill banks / landfills, the truck driver must bear a duly completed and signed CHIT.
- The General Foreman / Foremen will check, record with photo and ensure the dump truck is not overloaded by the electronic dump truck self-scale and the materials / waste are properly covered, a several weight buffer is allowed to prevent overloading.
- The General Foreman / Foremen will fill in and sign the Part 1 of the Daily Record Summary (Appendix D) and submit to the *Supervisor's* supervisory staff.
- The *Supervisor's* supervisory staff will cross check the dump truck loading and coverage and sign the Part 1 of the Daily Record Summary (Appendix D) for endorsement, and a duplicate and a copy of Daily Record Summary will give to the *Supervisor's* supervisory before departure of the truck.

- After that, the General Foreman / Foremen will give the duly completed and signed CHIT to the truck driver.
- The truck will proceed to the disposal ground as stipulated in the CHIT. The truck driver will present the CHIT to the reception facility operator. If the C&D waste accords with the acceptance criteria, disposal of the C&D waste will be permitted and the facility operator will give the truck driver a transaction receipt and the CHIT.
- The truck driver will present the CHIT at the in-weighbridge of the disposal facilities. If the vehicle load is accepted, the CHIT is deemed to be used and the in-weight would be recorded on the "Transaction Record Slip".
- If the truck driver is instructed by the reception facility operator to go to the sorting facility. The driver will need to return back to the site and report to the General Foreman / Foremen. No driver is allowed to go to sorting facility.
- The truck driver will then return the transaction receipt and the stamped CHIT to CHEC as soon as possible.
- CHEC will maintain a daily record disposal of C&D materials from the Site including details of the C&D waste, the truck number, departure time, etc, and notify the *Supervisor's* Representative in case any discrepancy is noted.
- For disposal at government disposal facilities, CHEC will check the information recorded in the Daily Record Summary against the disposal records in Civil Engineering and Development Department's website (http:www.cedd.gov.hk/eng/services/tripticket/index.html) or Environmental Protection Department's website (http://www.epd.gov.hk/epd/misc/cdm/trip.htm) and complete Part 2 of the DRS for submission to the *Supervisor's* Representative within 3 working days after the day of disposal.
- Where an irregularity is observed or when requested by the *Supervisor's* Representative under special circumstances (e.g. a CHIT has been issued but there is no disposal record at the designated disposal facilities), CHEC will submit to the *Supervisor's* Representative within 5 working days after the recorded date of disposal the supporting evidence such as duly stamped CHIT and/or the transaction receipt (where relevant) to confirm proper completion of the delivery trips in question, or within 2 working days after the *Supervisor's* Representative has requested for such evidence, whichever is later. A fax copy of the CHIT and transaction receipt is acceptable, unless otherwise directed by the *Supervisor's* Representative. CHEC will maintain all records on the CHIT for at least one year or other period as may be directed by the *Supervisor's* Representative.

4.3 Measures to be implemented during transportation of wastes to avoid leakage of wastes on public areas

- All of the dump trucks used would be equipped with mechanical covers in which maintained in a good condition.
- In order to minimize the leaking of material from the dump trucks, no material should be stored higher than the trail board.
- Deposited silt and wastes on all dump trucks' wheels and bodies should be properly washed off by wheel washing facilities before leaving the constructions sites.
- CHEC will provide wheel washing facilities on site at the site entrance.

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

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

Where the alternative disposal ground is a private construction project, CHEC will submit a letter from the Authorized Person of the development (as defined under the Building Ordinance) to confirm that:

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

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

Where the alternative disposal ground is a government project, CHEC will submit written consent from the project office of the alternative disposal ground to use the C&D materials generated from

the Site, and to confirm the estimated quantity and type of C&D materials required and the approximate delivery programme.

A system for transmitting disposal records from the alternative disposal ground will be submitted to the *Supervisor's* Representative for approval before disposal to the alternative ground starts.

4.5 Chemical Waste/ Hazardous Waste Handling and Disposal

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

4.5.1 Packaging

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

Containers used for the storage of chemical wastes will:

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

4.5.2 Labelling

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

4.5.3 Storage

The storage area will be specially constructed and bunded, and located close to the source of waste generation.

The storage area for chemical wastes will:

- Be clearly labelled and used solely for the storage of chemical waste;
- Be enclosed on at least 3 sides;

- Have an impermeable floor and bunding of sufficient capacity to accommodate 110% of the volume of the largest container or 20% of the total volume of waste stored in that area, whichever is the greatest;
- Have adequate ventilation;
- Be covered to prevent rainfall entering (water collected with the bund must be tested and disposed of as chemical waste); and
- Be arranged so that incompatible materials are adequately separated.
- Before reaching 80% capacity of the storage container, licensed waste collectors will be employed to remove the chemical waste.

4.5.4 Transportation and Disposal

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

4.6 General Refuse

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

- Reducing the number of photos copies to a minimum and by copying on both sides of paper for internal documents and external documents where appropriate;
- Preventing over-ordering of office equipment and consumables;
- Procuring green office equipment and consumables in terms of energy efficiency, recycled content and durability, etc;
- Deploying sufficient recycle bins in site offices to facilitate collection of recyclables including wasted aluminum cans, plastics bottles and papers;
- Deploying sufficient collection bins with cover at convenient locations at site to facilitate collection of non-recyclable for disposal at landfills; and
- General refuse generated from working vessels and barges can dispose the waste into temporary waste collection point.

4.7 Sewage

For sewage collection will be by holding tank to be pumped out at regular interval and ensuring no adverse water impacts by contracting with licensed contractors to collect sewage and maintain the facilities.

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

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

4.8 Use of Timber

CHEC aims to avoid, reduce or minimize the use of timber in temporary construction activities. Where the use of timber is unavoidable for temporary works construction processes or activities with an estimated quantity of greater than 5m^3, CHEC will submit a method statement to the ER for agreement before starting the relevant temporary works. The method statement will include the justifications for the use and the measures taken to minimize the use of timber.

The summary table of timber usage will be updated and submitted to the ER for monitoring and review by not later than the 15th day of each month or, if it is a general holiday, the day following the general holiday, or a day agreed upon with the ER.

4.9 Handling of Recyclables

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

4.10 Estimated Quantities of C&D Material/ Waste

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

- C&D materials / waste;
- Chemical waste;
- General refuse; and
- Recyclable waste
- Slurry/bentonite
- Inert C&D Soft Material

Material	Generated from Project (m^3)	Re-used onsite or on other Projects (m^3)	Disposal (m^3)	Proposed Disposal Outlet
General Refuse	1,000	0	1,000	NENT Landfill
Inert C&D Soft Material	63,000	12,000	51,000	TM 38 Fill Bank
C&D materials / waste	5,000	3,000	2,000	NENT Landfill
Slurry/bentonite	500	0	500	TKO 137 Fill Bank
Chemical waste;	10	0	10	Licensed Chemical Waste Collector
Recyclable waste	50	20	30	Recycling Collector

Table 4.1 Table for Estimated Quantities of C&D Material/ Waste

5 DISPOSAL PROGRAMME

There will be inert C&D materials (comprising soil, broken rock and concrete, etc), non-inert C&D materials and slurry and bentonite generated under Contract No.: HY/2019/01. With reference to the clause 25.25(1) of PS, the designated disposal grounds for mentioned are listed as follows:-

- Inert C&D Materials:
  Tuen Mun Area 38 Fill Bank or other disposal grounds as directed by the *Supervisor*

- Slurry and Bentonite
  Tseung Kwan O Area 137 Fill Bank

- Non-inert C&D Materials:
  North East New Territories Landfill (NENT)

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

Disposal locations for inert C&D materials would be Tuen Mun Area 38. The non-inert C&D materials would be disposed to NENT landfill. Tseung Kwan O Area 137 Fill Bank is designated for slurry and bentonite disposal.

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

6 NOTIFICATION TO TRUCK DRIVERS

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

- Each truck carrying C&D materials leaving the Site for a disposal ground must bear a duly completed and stamped CHIT, irrespective of the location and nature of the disposal ground;
- The C&D materials must be disposed of at the disposal ground as stipulated in the CHIT;
- Situations that constitute “improper disposal” and “Major improper disposal” (as defined in P.S. Section 25.25 (15) & (16)) and that the Public Fill Committee (PFC) will consider revoking the Dumping Licence from the holder of the offending trucks; and
- Truck drivers must bear a valid Dumping Licence that he can be applied from the Civil Engineering and Development Department

The truck drivers will sign on a receipt form upon receipt of the notification. A sample of the notification to truck drivers and the receipt form is attached in *Appendix C*.

7 WASTE MANAGEMENT RECORD

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

Prior to the vehicle leaving the site, the *Supervisor's* Representative will insert the date, time of departure, vehicle licence plate number, designated public filling facility/ landfill, and other information as required, and stamp the form. The *Supervisor's* Representative will then retain the first strip of the form and pass the rest to CHEC's Representative. The form will be carried on board the vehicle at all times throughout the vehicular trip.

A comprehensive register of the CHIT Tickets issued will be maintained and available for inspection by the *Supervisor's* Representative upon request. The following records will be kept for monitoring of the DDF issued:-

Daily Record Summary (DRS) and the Waste Flow Table (WFT) should be completed and submitted to the *Supervisor's* Representative for record. A sample of DRS and WFT, please refer to *Appendix D and E* respectively.

Waste Flow Table – Monthly

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

Waste Flow Table – Yearly

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

These summaries shall also be made available to ETL and IEC/ENPO

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

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

In order to ensure proper disposal of C&D materials, enhancement measures to further improve the TTS recording system, a video recording system shall be installed and disposal shall be checked against survey record. Such video recording system used to monitor the vehicular exit/ entrance of the site.

8 WASTE MONITORING AND AUDIT

The aims and objectives of waste management audit are:

- To ensure that the waste arising from works are handled, stored, collected, transported and disposed of in an environmentally acceptable manner;
- To ensure that the handling, storage, collection and disposal of waste arising from the demolition works comply with the relevant requirements under the Waste Disposal Ordinance and its regulations, and this WMP; and
- To encourage the reuse and recycling of materials.

The ET, with assistance from the Construction Manager, would audit the waste management practices during the weekly environmental site inspection to evaluate the overall performance of the implementation of the WMP and ensure the appropriate control measures are properly implemented. The results of the waste management audits would be reported in the monthly Environmental Monitoring and Audit reports.

In the event of any non-compliance or complaint against the provisions of this WMP, actions would be taken according to the event and Action Plan for non-compliance and complaints as shown in the following tables.

Step	Day	Action	Contractor / ET	ER	IEC / ENPO
1	1	Create a new non-compliance record within 1 working day after making an observation during a site audit accompanied by Construction Manager or his delegate. ET sends a Notice of Non-Compliance (NC) to the Contractor, ER and IEC/ENPO. The NC would include the observations and the reasons for non-compliance.	■		
2	2	Propose corrective actions within 1 working day after the receipt for the NC.	■	□	
3	3	Review and agree with the proposed corrective actions and make additional recommendations as required.		■ □	■ □
4	2	Implement the proposed corrective actions once they have been agreed.	■		
5	-	Check the implementation of the corrective actions at the next site audit. Close the non-compliance record if the implementation of the corrective actions is satisfactory/	■ □	■ □	■ □
6	-	Propose preventive actions within 3 working days after the closure of the non-compliance record.	■	□	

Table 8.1: Event Action Plan for Non-compliance

■ action party

□ comments on the non-compliance record where applicable

Step	Day	Action	Contractor / ET	ER	IEC / ENPO
1	1	Investigate validity of complaint and to assess whether the source of problem is due to site activity. If complaint is valid and due to site activity, log complaint into Complaint Record Form.	■		
2	2	Propose mitigation measures	■	□	
3	3	Review and agree with the proposed mitigation measures and propose further mitigation measures if required.		■ □	■ □
4	2	Implement the proposed mitigation measures once they have been agreed.	■		
5	-	Check the implementation of the mitigation measures at the next site audit. Close out the complaint case if the implementation of the mitigation measures is satisfactory.	■ □	■ □	■ □
6	-	Propose prevention measures within 3 working days after closure of the complaint case.	■	□	

Table 8.2: Event Action Plan for Complaint

■ action party

□ comments on the non-compliance record where applicable

Appendix A

Site Layout Plan

810000 E

815000 E

820000 E

825000 N

820000 N

815000 N

TAP SHEK KOK

CASTLE PEAK BAY

TAI LAM CHUNG

THE BROTHERS

THE SITE SEE DRAWING NO.
60191048/C9/000/C00/1001

THE SITE SEE DRAWING NO.
60191048/C9/000/C00/1002

TUEN MUN-CHEK LAP KOK LINK
(TM-CLKL) (BY OTHERS)

WORKS AREA 'WA3'
SEE DRAWING NO.
60191048/C9/000/C00/1051

RECLAMATION FOR THE TM-CLKL
SOUTHERN LANDFALL (BY OTHERS)

OTHER INFRASTRUCTURE AND
BUILDING WORKS OUTSIDE
SITH BOUNDARY (BY OTHERS)

HONG KONG LINK ROAD (HKLR)
(SEPARATE PROJECT) (BY OTHERS)

CHEK LAP KOK

TUNG CHUNG

LANTAU ISLAND

NORTH LANTAU HIGHWAY

PENG CHAU

SILVER MINE BAY

DISCOVERY BAY
(TAI PAK WAN)

NOTES:

1. COORDINATES ARE RELATED TO HONG KONG METRIC GRID (1980).
2. DIMENSIONS ARE IN MILLIMETER AND CHAINAGE ARE IN METRES UNLESS OTHERWISE SHOWN.

LEGEND:

SITE BOUNDARY

WORKS AREA

N

REV. 修訂	DESCRIPTION 內容摘要	D.E.	P.E. CHECKED 審核	DATE 日期
-	TENDER DRAWING	TTHK	BCC	JUL 19

路政署
HIGHWAYS DEPARTMENT
主要工程管理處(專責事務)
Major Works Project Management Office (Special Duties)

HONG KONG-ZHUHAI-MACAO BRIDGE
HONG KONG BOUNDARY CROSSING FACILITIES
- PHASE 2 AND OTHER WORKS

SITE LOCATION PLAN

AECOM
Rogers Stirk Harbour + Partners
BURO HAPPOLD ATKINS ADI

Aedas

DRG.NO. 圖紙編號 60191048/C9/000/C00/1000

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SATELLITE REFUSE COLLECTION POINT

CBC, CBS BAYS

PUBLIC TOILETS

ADDITIONAL RAILING

NORTH PUBLIC TRANSPORT INTERCHANGE

VERTICAL ACCESS TO PCB ROOF

INBOUND VEHICLE CLEARANCE PLAZA

DRAINAGE IMPROVEMENT WORKS AT VEHICLE INSPECTION PIT

VEHICLE KIOSKS, CANOPIES AND ASSOCIATED ROAD PAVEMENT

SECURITY MEASURE AT EXISTING GATE

VERTICAL ACCESS TO PCB ROOF

EXISTING GUARD BOOTHS TO BE DEMOLISHED

REPROVISION OF GUARD BOOTHS

CBC PICK UP BAYS

FRANCHISED BUS PICK-UP BAYS

OUTBOUND VEHICLE CLEARANCE PLAZA

C&ED INBOUND CARGO EXAMINATION BUILDING

FIRE STATION CUM AMBULANCE DEPOT

SLIDING GATE

ACCESS ROAD TO GENERATOR AND UPS ROOM

SOUTH PUBLIC TRANSPORT INTERCHANGE

GENERATOR AND UPS ROOM

CUT LINE A-A
SEE DRAWING NO. 60191048/C9/000/C00/1002

LANDSCAPING WORKS AREA

N

REMARKS:

1. IN SPTI:

   - DEMOLISH 2 NOS. EXISTING GUARD BOOTHS AND RE-PROVISION TO REVISED LOCATIONS AS SHOWN
   - CONSTRUCT COVERED WALKWAYS FOR THE NEW FB AND CBC PICK UP BAYS
   - MODIFY EXISTING DUCTING AND POLES FOR ELV SYSTEM, ROAD LIGHTING AND PILLAR BOXES, AND THE ASSOCIATED CABLING WORKS.
   - RELOCATE AND REINSTATE 3 NOS. OF EXISTING BUS OPERATOR OFFICES AND FOOD TRUCK
   - REPLACEMENT OF DRAWPIT COVERS

2. IN NPTI:

   - CONSTRUCT COVERED WALKWAYS FOR THE NEW CBC, CBS PICK UP BAYS AND PUBLIC TOILETS
   - PROVIDE AUTOMATIC IRRIGATION SYSTEM AT SLOPES
   - MODIFY EXISTING COVERED WALKWAY AND PROVISION OF LIGHTING
   - REPLACEMENT OF DRAWPIT COVERS

3. LANDSCAPING WORKS AREA:

   - CONSTRUCT IRRIGATION SYSTEM WITH 13 NOS. OF NEW WATER POINT AND THE AUTOMATIC IRRIGATION SYSTEM AND PROVIDE MAINTENANCE WORKS
   - LANDSCAPE SOFTWORK, ESTABLISHMENT AND MAINTENANCE WORKS
   - CONSTRUCT RIVER WASHED STONE SWATHE AND MAINTENANCE WORKS
   - PROTECT EXISTING PLANTING AND HARD STRUCTURES

4. PASSENGER CLEARANCE BUILDING

   - VERTICAL ACCESS
   - IMPROVEMENT WORKS FOR WATER FEATURE
   - MINOR REMAINING WORKS
   - PROVISION OF NEW CENTRAL AVCSS EQUIPMENT WITH SUFFICIENT CAPACITY, PROCESSING POWER AND STORAGE TO ACCOMMODATE BOTH THE EXISTING AND NEW AVCSS

5. VEHICLE KIOSKS AT INBOUND & OUTBOUND VCP

   - PROVISION OF AVCSS AT NEW KIOSKS TO SERVE 24 NOS. VEHICULAR LANES
   - REPLACEMENT OF BARRIER GATE WITH SKIRTING AT 72 NOS. EXISTING KIOSK

6. C&ED INBOUND CARGO EXAMINATION BUILDING

   - PROVISION OF NEW CENTRAL AVCSS EQUIPMENT WITH SUFFICIENT CAPACITY, PROCESSING POWER AND STORAGE TO ACCOMMODATE BOTH THE EXISTING AND NEW AVCSS

ABBREVIATION:

SPTI - SOUTH PUBLIC TRANSPORT INTERCHANGE
NPTI - NORTH PUBLIC TRANSPORT INTERCHANGE
VCP - VEHICLE CLEARANCE PLAZA
PCB - PASSENGER CLEARANCE BUILDING
FB - FRANCHISED BUS
CBC - CROSS BOUNDARY COACH
CBS - CROSS BOUNDARY SHUTTLE
ELV - EXTRA LOW VOLTAGE
AVCSS - AUTOMATIC VEHICLE CLEARANCE SUPPORT SYSTEM

NOTE:

1. THIS DRAWING TO BE READ IN CONJUNCTION WITH DRAWING NOS. 60191048/C9/000/C00/1002

LEGEND:

- SITE BOUNDARY
- AMENITY AREA
- FOOTPATH
- COVERED WALKWAY
- SECURITY FENCE
- TREE PLANTING
- IRRIGATION POINT

REV. 修訂	DESCRIPTION 內容摘要	D.C.	P.C. CHECKED 覆核	DATE 日期
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Major Works Project Management Office (Special Duties)

HONG KONG-ZHUHAI-MACAO BRIDGE
HONG KONG BOUNDARY CROSSING FACILITIES
- PHASE 2 AND OTHER WORKS

GENERAL ARRANGEMENT

SHEET 1 OF 2

AECOM
Rogers Stirk Harbour + Partners
BURO HAPPOLD ATKINS ADI
Aedas

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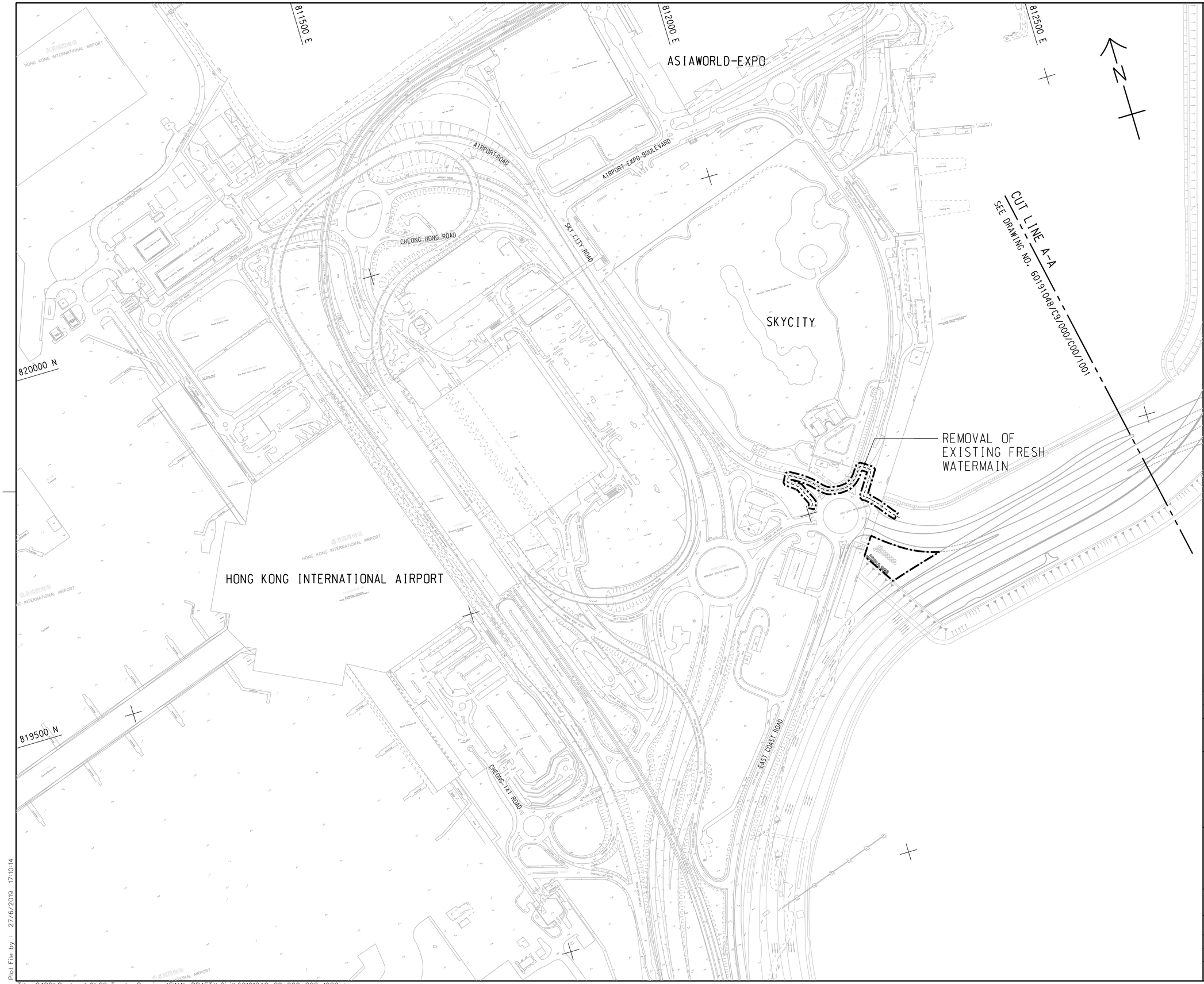

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Major Works Project Management Office (Special Duties)

HONG KONG-ZHUHAI-MACAO BRIDGE
HONG KONG BOUNDARY CROSSING FACILITIES
- PHASE 2 AND OTHER WORKS

GENERAL ARRANGEMENT

SHEET 2 OF 2

AECOM
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SETTING OUT POINT

POINT	EASTING	NORTHING
301	817467.265	819162.683
302	817314.741	819069.828
303	817327.338	819049.295
304	817440.865	819117.811
305	817340.825	819027.314
306	817387.350	819023.403
307	817387.861	819043.396
308	817466.133	819091.047
309	817469.783	819087.181
310	817513.449	819113.764
311	817347.717	819016.082
312	817620.269	819000.620
313	817445.362	819013.131
314	817450.595	819032.307
315	817495.828	819059.595
316	817522.110	819075.388
317	817566.404	819028.472
318	817568.506	819008.526
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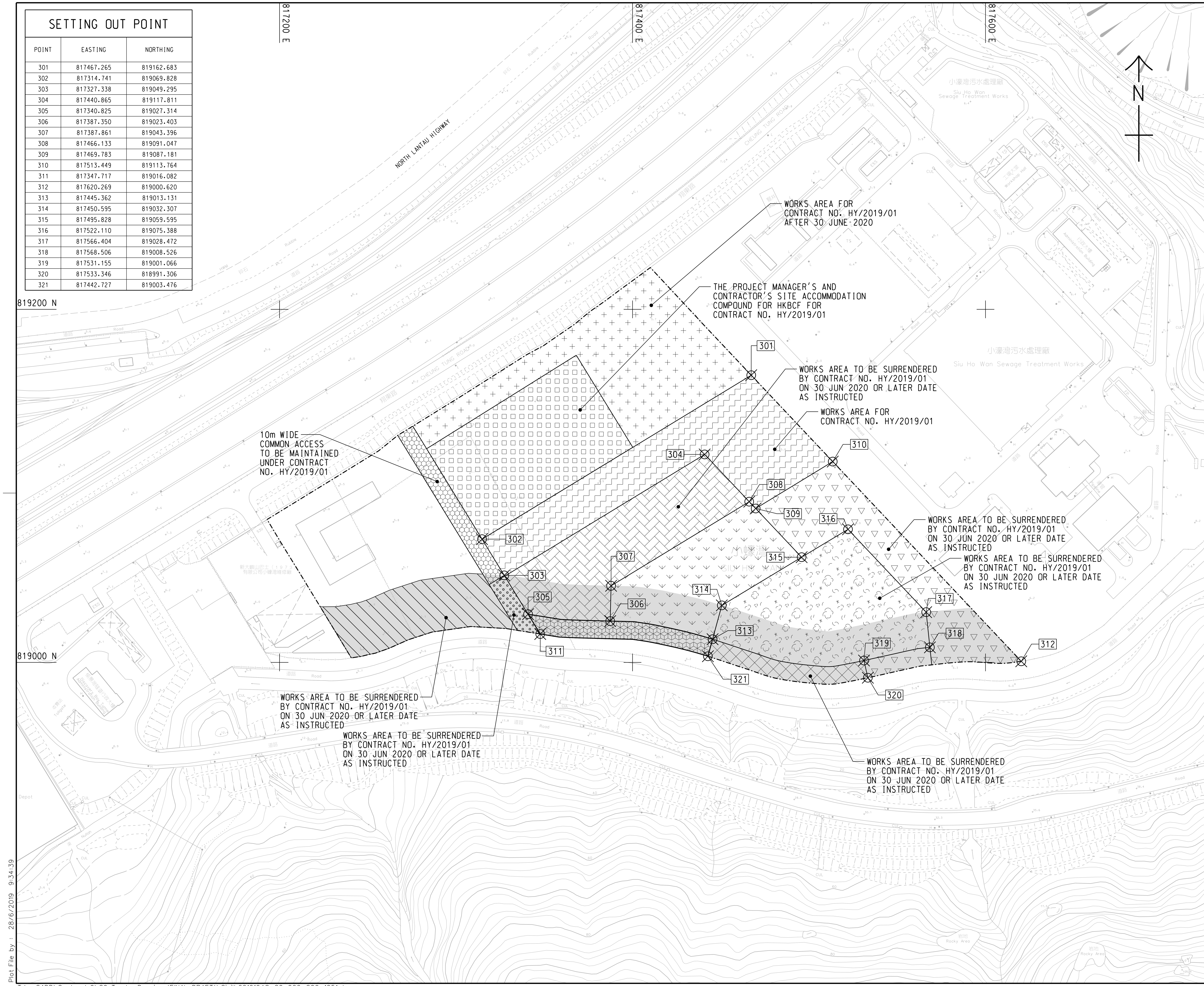

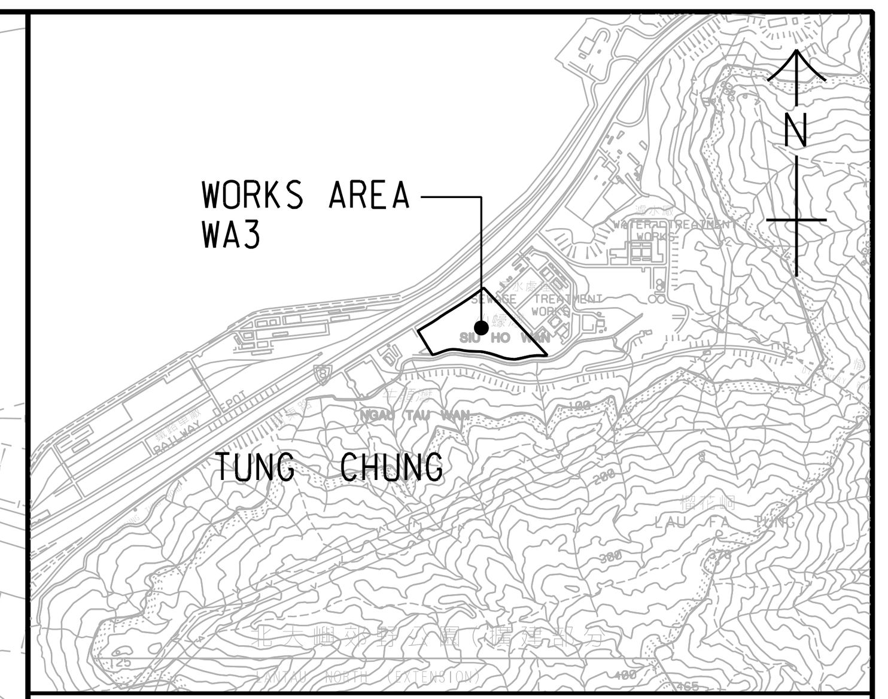

LOCATION PLAN
SCALE 1 : 25000

NOTES:

1. COORDINATES ARE RELATED TO HONG KONG METRIC GRID (1980).
2. DIMENSIONS ARE IN MILLIMETER AND CHAINAGE ARE IN METRES UNLESS OTHERWISE SHOWN.

LEGEND:

- WORKS AREA BOUNDARY
- PORTION 3.1
- PORTION 3.2
- PORTION 3.3
- PORTION 3.4
- PORTION 3.5
- PORTION 3.6
- PORTION 3.7
- PORTION 3.8
- PORTION 3.9
- PORTION 3.10
- PORTION 3.11
- PORTION 3.12
- NON-BUILDING AREA 8200m² (WHOLE)

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Major Works Project Management Office (Special Duties)

HONG KONG-ZHUHAI-MACAO BRIDGE
HONG KONG BOUNDARY CROSSING FACILITIES
- PHASE 2 AND OTHER WORKS

WORKS AREA WA3

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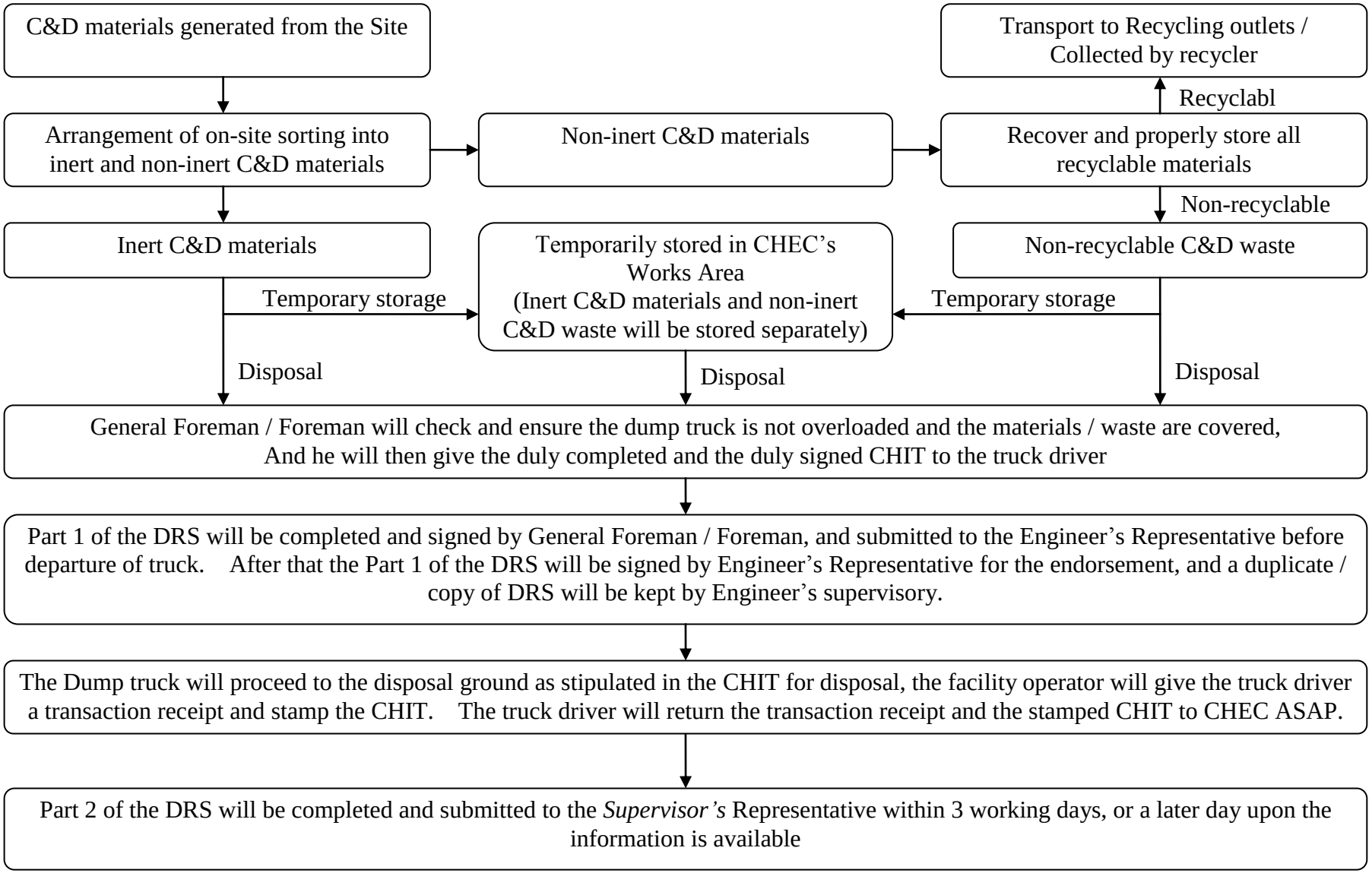
Appendix B

Flow Chart of the Trip Ticket System


C&D materials generated from the Site
Arrangement of on-site sorting into inert and non-inert C&D materials
Non-inert C&D materials
Transport to Recycling outlets / Collected by recycler
Recyclabl
Recover and properly store all recyclable materials
Non-recyclable
Inert C&D materials
Temporarily stored in CHEC's Works Area (Inert C&D materials and non-inert C&D waste will be stored separately)
Non-recyclable C&D waste
Temporary storage
Temporary storage
Disposal
Disposal
Disposal
General Foreman / Foreman will check and ensure the dump truck is not overloaded and the materials / waste are covered, And he will then give the duly completed and the duly signed CHIT to the truck driver
Part 1 of the DRS will be completed and signed by General Foreman / Foreman, and submitted to the Engineer's Representative before departure of truck. After that the Part 1 of the DRS will be signed by Engineer's Representative for the endorsement, and a duplicate / copy of DRS will be kept by Engineer's supervisory.
The Dump truck will proceed to the disposal ground as stipulated in the CHIT for disposal, the facility operator will give the truck driver a transaction receipt and stamp the CHIT. The truck driver will return the transaction receipt and the stamped CHIT to CHEC ASAP.
Part 2 of the DRS will be completed and submitted to the *Supervisor's* Representative within 3 working days, or a later day upon the information is available

Appendix C

Notification to Truck Drivers

合約 HY/2019/01 港珠澳大橋香港口岸 - 第二階段及其他工程

運載物料及傾倒時需注意及檢查事項

運泥車司機於運載物料及離開地盤前，司機必須注意並檢查以下事項：

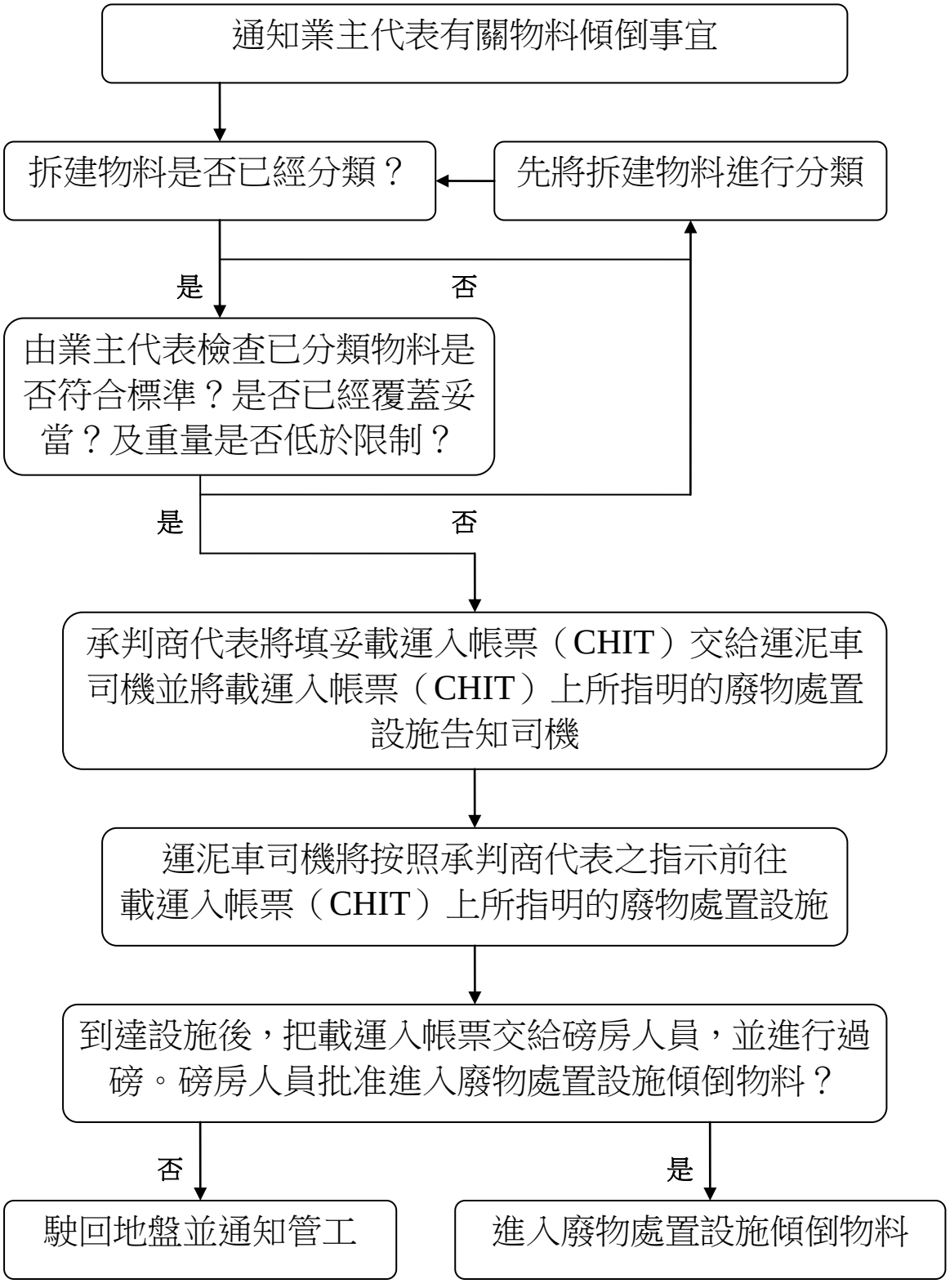
1. 運泥車上的物料已經篩選分類為：
   a. 惰性（如泥土、石屎頭、石頭、碎石等）；
   b. 非惰性（如樹枝、鐵枝、一般垃圾等）。
2. 運泥車沒有超載。
3. 車軌及車身已經徹底清洗及泥斗上物料已經完全蓋好。
4. 載運入帳票上的第一截已交給駐地盆監工人員。
5. 司機已持有有效的傾倒執照。
6. 司機已持有載運入帳票並票上的所有資料已經填妥。
7. 必須依照載運入帳票所指明的地點進行傾倒。
8. 如司機沒有持有已填妥資料的載運入帳票而離開地盤進行傾倒；或運泥車駛往非載運入帳票所指明的地點進行傾倒；或司機於傾倒後未能提供已蓋印的載運入帳票及傾倒記錄，則會構成不當傾倒。
9. 如運泥車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

※ 運泥車不當傾倒或嚴重不當傾倒可被吊銷傾倒執照。

中國港灣示

合約 HY/2019/01 港珠澳大橋香港口岸 - 第二階段及其他工程

運載物料及傾倒流程表



如填料區或堆填區人員指示運泥車前往篩選分類設施，司機必須將運泥車駛回地盤，並通知管工，再作處理。

在任何情況下，司機均不應將運泥車駛入篩選分類設施。

中國港灣示

Appendix D

Daily Record Summary

中國港灣工程有限責任公司
China Harbour Engineering Company Limited

Daily Record Summary for disposal of construction & demolition (C&D) materials / waste

Contract no. & title: CONTRACT NO: HY/2019/01 Hong Kong-Zhuhai-Macao Bridge
Hong Kong Boundary Crossing Facilities – Phase 2 and Other Works

Date of disposal: _____

Designated disposal ground(s): TM38 / TKO137 / NENT

CHIT no.	Vehicle registration mark	Approx. vol (e.g. Full/Three Quarter/Half/One quarter)	C&D material type (e.g. inert or non-inert)	Disposal ground	Signature & Name of the Contractor's Designated person before departure	Departure time from site	Signature & name of the Engineer's supervisory staff before departure or other time as agreed between the Engineer's Representative and the Contractor	Actual Disposal ground	Arrival time at disposal ground	Remarks
<---------- Part 1[1] ---------->								<---------- Part 2[2] ---------->		

Submitted by: _____ *[Name of Contractor's Designated Person]*
Signature: _____
Date: _____

Received by: _____ *[Name and signature of the Engineer's staff]*
Post: _____
Date & Time: _____

[1] Part 1 - The Contractor shall complete Part 1 in duplicate and a copy should be kept by Engineer's supervisory
[2] Part 2 - The Contractor shall complete Part 2 and submit the whole Summary to the Engineer's Representative within 1 working day after the records are posted at the EPD web-site.

Appendix E

Waste Flow Table

Monthly Summary of Waste Flow Table

Name of Person completing the Record:

Month	Actual Quantities of Inert C&D Materials Generated Monthly					Actual Quantities of Non-inert C&D Wastes Generated Monthly				
	Total Quantity Generated	Broken Concrete *(see Note 1)*	Reused in the Contract	Reused in other Projects	Disposed as Public Fill	Metals	Paper/ cardboard packaging	Plastics *(see Note 2)*	Chemical Waste	Others, e.g. general refuse
	(in '000m^3)	(in '000m^3)	(in '000m^3)	(in '000m^3)	(in '000m^3)	(in '000 Kg)	(in '000 Kg)	(in '000 Kg)	(in '000 Kg)	(in '000m^3)
Jan										
Feb										
Mar										
Apr										
May										
Jun										
Jul										
Aug										
Sept										
Oct										
Nov										
Dec										
Total										

Notes:

(1) Broken concrete for recycling into aggregates.

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

(3) Use the conversion factor: 1 full load of dumping truck being equivalent to 6.5m^3 by volume.

Appendix F

Environmental Mitigation Implementation Schedule (EMIS)

Environmental Mitigation Implementation Schedule

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measures	Objectives of the Recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to implement the measures?	What requirements or standards for the measures to achieve?
Waste Management (Construction Waste)							
S8.3.8	WM1	***Construction and Demolition Material*** The following mitigation measures should be implemented in handling the waste: • Maintain temporary stockpiles and reuse excavated fill material for backfilling and reinstatement; • Carry out on-site sorting; • Make provisions in the Contract documents to allow and promote the use of recycled aggregates where appropriate; • Adopt 'Selective Demolition' technique to demolish the existing structures and facilities with a view to recovering broken concrete effectively for recycling purpose, where possible; • Implement a trip-ticket system for each works contract to ensure that the disposal of C&D materials are properly documented and verified; and • Implement an enhanced Waste Management Plan similar to ETWBTC (Works) No. 19/2005 – "Environmental Management on Construction Sites" to encourage on-site sorting of C&D materials and to minimize their generation during the course of construction. • In addition, disposal of the C&D materials onto any sensitive locations such as agricultural lands, etc. should be avoided. The Contractor shall propose the final disposal sites to the Project Proponent and get its approval before implementation	Good site practice to minimize the waste generation and recycle the C&D materials as far as practicable so as to reduce the amount for final disposal	Contractor	All construction sites	Construction stage	• Land (Miscellaneous Provisions) Ordinance • Waste Disposal Ordinance • ETWB TC 19/2005

S8.3.9-S8.3.11	WM2	***C&D Waste*** • Standard formwork or pre-fabrication should be used as far as practicable in order to minimise the arising of C&D materials. The use of more durable formwork or plastic facing for the construction works should be considered. Use of wooden hoardings should not be used, as in other projects. Metal hoarding should be used to enhance the possibility of recycling. The purchasing of construction materials will be carefully planned in order to avoid over ordering and wastage. • The Contractor should recycle as much of the C&D materials as possible on-site. Public fill and C&D waste should be segregated and stored in different containers or skips to enhance reuse or recycling of materials and their proper disposal. Where practicable, concrete and masonry can be crushed and used as fill. Steel reinforcement bar can be used by scrap steel mills. Different areas of the sites should be considered for such segregation and storage.	Good site practice to minimize the waste generation and recycle the C&D materials as far as practicable so as to reduce the amount for final disposal	Contractor	All construction sites	Construction stage	• Land (Miscellaneous Provisions) Ordinance • Waste Disposal Ordinance • ETWB TC 19/2005
S8.2.12-S8.3.15	WM3	***Chemical Waste*** • Chemical waste that is produced, as defined by Schedule 1 of the Waste Disposal (Chemical Waste) (General) Regulation, should be handled in accordance with the Code of Practice on the Packaging, Labelling and Storage of Chemical Wastes. • Containers used for the storage of chemical wastes should 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 liters unless the specification has been approved by the EPD; and display a label in English and Chinese in accordance with instructions prescribed in Schedule 2 of the regulation. • The storage area for chemical wastes should be clearly labelled and used solely for the storage of chemical waste; enclosed on at least 3 sides; have an impermeable floor and bunding of sufficient capacity to accommodate 110% of the volume of the largest container or 20 % of the total volume of waste stored in that area, whichever is the greatest; have adequate ventilation; covered to prevent rainfall entering; and arranged so that incompatible materials are adequately separated. • Disposal of chemical waste should be via a licensed waste collector; be to a facility licensed to receive chemical waste, such as the Chemical Waste Treatment Centre which also offers a chemical waste collection service and can supply the necessary storage containers; or be to a reuser of the waste, under approval from the EPD.	Control the chemical waste and ensure proper storage, handling and disposal.	Contractor	All construction sites	Construction stage	• Waste Disposal (Chemical Waste) (General) Regulation • Code of Practice on the Packaging, Labelling and Storage of Chemical Waste

S8.3.16	WM4	***Sewage*** • Adequate numbers of portable toilets should be provided for the workers. The portable toilets should be maintained in a state, which will not deter the workers from utilizing these portable toilets. Night soil should be collected by licensed collectors regularly.	Proper handling of sewage from worker to avoid odour, pest and litter impacts	Contractor	All construction sites	Construction stage	• Waste Disposal Ordinance
S8.3.17	WM5	***General Refuse*** • General refuse generated on-site should be stored in enclosed bins or compaction units separately from construction and chemical wastes. • A reputable waste collector should be employed by the Contractor to remove general refuse from the site, separately from construction and chemical wastes, on a daily basis to minimize odour, pest and litter impacts. Burning of refuse on construction sites is prohibited by law. • Aluminium cans are often recovered from the waste stream by individual collectors if they are segregated and made easily accessible. Separate labelled bins for their deposit should be • provided if feasible. • Office wastes can be reduced through the recycling of paper if volumes are large enough to warrant collection. Participation in a local collection scheme should be considered by the Contractor. In addition, waste separation facilities for paper, aluminum cans, plastic bottles etc., should be provided. • Training should be provided to workers about the concepts of site cleanliness and appropriate waste management procedure, including reduction, reuse and recycling of wastes.	Minimize production of the general refuse and avoid odour, pest and litter impacts	Contractor	All construction sites	Construction stage	• Waste Disposal Ordinance