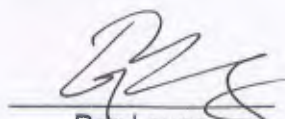


Waste Management Plan
for
Contract No. HY/2012/07
Tuen Mun Chek Lap Kok Link – Southern
Connection Viaduct Section

J3518

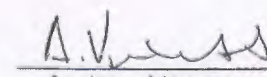
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CONTENTS

1	INTRODUCTION.....	1
1.1	Background.....	1
1.2	Project Descriptions	1
2	PURPOSE OF THE PLAN	1
3	WASTE MANAGEMENT POLICY AND STRATEGIES	2
3.1	Principles	2
3.2	Hierarchy	2
4	LEGISLATION AND GUIDELINES	2
4.1	Statutory Requirements	2
5.2	Additional Guidelines	3
5	LICENCE OR PERMIT REQUIREMENTS	4
5.1	Registration as a Chemical Waste Producer	4
5.2	Dumping licence to Public Filling Area	4
5.3	Dumping permit for Marine Disposal of Excavated Mud/Sediment	4
5.4	Registration as a Waste Producer under the Construction Waste Disposal Charging Scheme.....	5
6	PROJECT ORGANISATION.....	5
7	INDIVIDUAL DUTIES AND RESPONSIBILITIES	5
7.1	Project Director	5
7.2	Project Manager	5
7.3	Site Engineers/	5
7.4	Site Agents/ Foremen	6
7.5	Environmental Manager	6
7.6	Environmental Officer (EO) / Engineer (EE)	6
7.7	Environmental Supervisor	7
7.8	Environmental Team (ET) / Environmental Team Leader (ETL)	7
7.9	Subcontractors and other Employees	7
8	WASTE CLASSIFICATION AND CONTROL MEASURES.....	7
8.1	Construction and Demolition (C&D) Materials	8
8.2	Chemical Wastes	10
8.3	General Refuses	10
8.4	Marine sediments.....	11
9	WASTE MONITORING AND AUDITING.....	12
9.1	Trip-Ticket System	12
9.2	Inspection Programme	13
9.3	Record Keeping and Reporting	15

10	TRAINING	16
11	MITIGATION MEASURES IN EIA.....	17
12	MITIGATION MEASURES IN EM&A Manual	17

APPENDICES

Appendix A	Gammon's Health, Safety and Environmental Policy
Appendix B	Organisation Structure for Environmental Management
Appendix C	Contact List
Appendix D	Proforma of Yearly Summary Waste Flow Table
Appendix E	Proforma of Monthly Summary Waste Flow Table
Appendix F	Disposal Scenarios and Transportation Modes
Appendix G	Proposed Temporary Storage and Sorting Area for C&D Materials
Appendix H	Memo from Marine Fill Committee of CEDD
Appendix I	Control Procedures on Off-Site Disposal of C&D Materials
Appendix J	Sample of CHIT Form
Appendix K	Protocol of Guidelines to Dump Truck Drivers
Appendix L	Sample of Daily Record Summary
Appendix M	Environmental Mitigation Implementation Schedule for Waste Management

1 INTRODUCTION

1.1 Background

Environmental protection and sustainable development are part and parcel of the daily operations of the Gammon Construction Limited (referred to hereinafter as the GCL). GCL will initiate appropriate actions in order to minimize, and where possible eliminate, the environmental impact arising from the construction of this project.

1.2 Project Descriptions

Gammon Construction Limited (GCL) has been awarded of the Contract No. HY/2012/07 – Tuen Mun Chek Lap Kok Link – Southern Connection Viaduct Section for Highways Department (HyD) of the Government of the Hong Kong Special Administrative Region (HKSARG). The Works to be executed comprise the design and construction of a dual 2-lane elevated carriageway between the HZMB HKBCF and North Lantau Highway (NLH) with associated slip roads, as well as modifications and realignment of sections of the NLH and Cheung Tung Road at North Lantau, and associated works.

2 PURPOSE OF THE PLAN

The Waste Management Plan (WMP) has been prepared to describe the arrangements for minimising the generation of construction and demolition (C&D) materials and disposing of the surplus C&D materials during the course of the Works.

This contract-specific WMP shall be deposited to the Director of Environmental Protection in accordance with the Condition 2.10 of the Environmental Permit No. EP-354/2009/A..

The WMP shall address the potential and actual impacts and necessary mitigation measures in light of the preferred construction programme and consists of the following:-

- A review of the ordinances, regulations, codes of practices as well as contractual obligations that are applicable to the wastes arising from the Works;
- An organisation chart setting out the roles and responsibilities of the GCL's personnel responsible for waste management and appropriate mitigation measures;
- An analysis of timing, quantities and types of C&D materials are anticipated to be generated in the course of the execution of the Works;
- A classification of C&D materials into inert portion (Public Fill) and non-inert portion (C&D Waste);
- Proposals for avoiding/minimizing, handling, recycling, reuse, return, storage and disposal of C&D materials, chemical waste and general refuse;
- An appraisal of the potential establishment on site of a sorting facility, including the identification of potential area on-site of facilitate the waste sorting;
- A proposal for maintaining the site in a clean and tidy condition;
- A monitoring and auditing proposal to ensure that the requirements of the WMP are properly implemented.

3 WASTE MANAGEMENT POLICY AND STRATEGIES

3.1 Principles

The principles of waste management adopted in this project shall be in line with Gammon's environmental management system which follows the requirements of the ISO 14001 and based on a cyclical process comprising policy, planning, implementation & operation, checking and corrective action and management review. A policy statement is given in **Appendix A**. Core elements of waste management are listed in Table 3.1 below and described in the following sections of the WMP:

Table 3.1 Core Elements of Waste Management

Elements	Ref. Section
Legislation and Guidelines	4.0
License or Permit Requirements	5.0
Project Organisation	6.0
Individual Duties and Responsibilities	7.0
Classification of Waste & Control Measures	8.0
Waste Monitoring and Auditing	9.0
Training	10.0
Mitigation Measures in EIA	11.0
Mitigation Measures in EM&A Manual	12.0

3.2 Hierarchy

The various waste management options shall be categorised in terms of preference from an environmental viewpoint. The options considered to be more preferable have the least impacts and are more sustainable in the longer term. Hence, the hierarchy of waste management is as follows:

- Avoidance and minimisation, i.e. not generating waste through changing or improving practices and design;
- Reuse of materials, thus avoiding disposal;
- Recovery and recycling, thus avoiding disposal; and
- Treatment and disposal, according to relevant laws, guidelines and good practice.

This hierarchy shall be used to evaluate waste management options, thus allowing maximum waste reduction. Waste reduction measures shall be introduced at the detailed planning stage and carried through the construction activities, whenever possible, by careful purchasing control, reuse of formworks and good site management. By reducing or eliminating over-ordering of construction materials, waste is avoided and costs are reduced both in terms of purchasing of raw materials and in disposing of wastes.

4 LEGISLATION AND GUIDELINES

4.1 Statutory Requirements

The following legislation covers, or has some bearing upon, the storage, collection, treatment and disposal of wastes in Hong Kong:

- Foreshore and Sea-bed (Reclamations) Ordinance (Cap 127);
- Waste Disposal Ordinance (Cap 354);
- Waste Disposal (Chemical Waste) (General) Regulation (Cap 354);
- Land (Miscellaneous Provisions) Ordinance (Cap 28);
- Public Health and Municipal Services Ordinance (Cap 132) – Public Cleansing and Prevention of Nuisances (Urban Council) and (Regional Council) By-laws; and
- Dumping At Sea Ordinance (Cap 466).

5.2 Additional Guidelines

Other guiding documents which detail how the GCL should comply with the regulations are as follows:-

- *Waste Reduction Framework Plan, 1998 to 2007*, Planning, Environment and Lands Bureau, Government Secretariat (5 November 1998);
- *2001 Review of the Waste Reduction Framework Plan*, Waste Reduction Committee;
- *Site Practice for Waste Reduction in Construction Industry* (2001), Environmental Protection Department;
- *Environmental Guidelines for Planning in Hong Kong* (1990), Hong Kong Planning and Standards Guidelines, Hong Kong Government;
- *New Disposal Arrangements for Construction Waste* (1992), Environmental Protection Department & Civil Engineering Department;
- *A Guide to the Registration of Chemical Waste Producers* (2001), Environmental Protection Department;
- *Code of Practice on the Packaging, Labelling and Storage of Chemical Wastes* (1992), Environmental Protection Department;
- *A Guide to the Control on Import and Export of Waste* (1999), Environmental Protection Department;
- Works Bureau Technical Circular No. 10/92, Provision of Refuse Containment Booms in Reclamation Contracts Involving Public Dumping, Works Bureau;
- Works Bureau Technical Circular No. 2/93, Public Dumps, Works Bureau;
- Works Bureau Technical Circular No. 2/93B, Public Filling Facilities, Works Bureau;
- Works Bureau Technical Circular No. 16/96, Wet Soil in Public Dumps, Works Bureau;
- Works Bureau Technical Circular No. 4/98 and 4/98A, Use of Public Fill in Reclamation and Earth Filling Projects, Works Bureau;
- 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;
- Works Bureau Technical Circular No 12/00, Fill Management; Works Bureau;

- Works Bureau Technical Circular No 19/01, Metallic Site Hoardings and Signboards, Works Bureau;
- Works Bureau Technical Circular No 6/02 and 6/02A, Enhancement Specification for Site Cleanliness and Tidiness, Works Bureau;
- Works Bureau Technical Circular No 12/2002, Specification Facilitating the Use of Recycled Aggregates, Works Bureau;
- Works Bureau Technical Circular No 24/2004, Specification Facilitating the Use of the Concrete Paving Units Made of Recycled Aggregates, Works Bureau;
- Environment, Transport and Works Bureau Technical Circular (Works) No 33/2002, Management of Construction and Demolition Material including Rock, Environment, Transport and Works Bureau;
- Environment, Transport and Works Bureau Technical Circular (Works) No 34/2002, Management of Dredged/Excavated Sediment, Environment, Transport and Works Bureau;
- Environment, Transport and Works Bureau Technical Circular (Works) No 15/2003, Waste Management on Construction Sites, Environment, Transport and Works Bureau;
- Environment, Transport and Works Bureau Technical Circular (Works) No 19/2005, Environmental Management on Construction Sites, Environment, Transport and Works Bureau; and
- Development Bureau Technical Circular (Works) No 6/2010, Trip-ticket System for Disposal of Construction and Demolition Material, Development Bureau.

5 LICENCE OR PERMIT REQUIREMENTS

5.1 Registration as a Chemical Waste Producer

Under the Waste Disposal (Chemical Waste) (General) Regulation, producers of chemical wastes must have registration with Environmental Protection Department. The registration shall be applied for as required.

5.2 Dumping licence to Public Filling Area

The Land (Miscellaneous Provisions) Ordinance requires that dumping licences are obtained by individuals or companies who deliver inert portion of construction and demolition material (i.e. Public Fill) to Public Filling Areas. The licences are issued by Civil Engineering Department under delegated powers from the Director of Lands. The license shall be applied for as required.

5.3 Dumping permit for Marine Disposal of Excavated Mud/Sediment

The Dumping at Sea Ordinance requires that dumping permits are obtained by individuals or companies who deliver dredged/excavated marine sediment to designated disposal sites. The permits are issued by Environmental Protection Department under delegated powers from the Director of Environmental Protection.

5.4 Registration as a Waste Producer under the Construction Waste Disposal Charging Scheme

A billing account shall be opened with EPD prior to using Government waste disposal facilities. Waste shall be handled, transported, disposed and paid for in accordance with the Charging Scheme.

6 PROJECT ORGANISATION

The organisational structure for environmental management are in-line with the project management during the course of the Works is presented in **Appendix B**, which identifies the major parties with environmental responsibilities and illustrates their lines of communication. Descriptions on the roles and responsibilities of these parties are provided in the following sub-sections. The contact list for the representatives of the concerned parties is given in **Appendix C**.

7 INDIVIDUAL DUTIES AND RESPONSIBILITIES

7.1 Project Director

He is responsible to GCL's Executive Directors for overall planning, contract review, appointment of Site Health Safety & Environmental (HS&E) Representative and other site members for environmental matters. He will ensure provision of adequate resources to address environmental matters for the Project.

The Project Director has the following responsibilities in relation to waste management: -

- Approving the WMP;
- Maintaining the overall control of the Contract and oversee the implementation of the WMP;
- Ensuring that adequate resources are provided for the efficient implementation of WMP;
- Reporting to Senior Management of Company on all environmental matters whenever necessary; and
- Ensuring compliance of all relevant waste management legislation throughout the duration of the Contract..

7.2 Project Manager

The Project Manager has the following responsibilities in relation to waste management: -

- the day-to-day overview of site practices in relation to waste management;
- directing Section Agents, General Foremen and Foremen as appropriate in supervising and enforcing the on-site mitigation measures;
- reporting to the PM; and
- ensuring all waste records be promptly available to the Environmental Manager for record and/or action as necessary

7.3 Site Engineers/

Site Engineers/Site Agents/Foremen are responsible for the following duties in relation to environmental control:

- coordinating waste management on site, gather data about waste and keep up-dated record of waste movement on and off site;
- obtaining a list of potential buyers or collectors of waste to be reused or recycled; and
- investigating potential re-use and recycle opportunities of waste.

7.4 Site Agents/ Foremen

Site Agents/Foremen are responsible for the following duties in relation to environmental control:

- assisting Environmental Manager in all aspects of required waste management on site;
- supervising and monitoring the works of workers including subcontractors in relation to waste management; and
- ensuring all waste containers and storage areas are properly labelled.

7.5 Environmental Manager

The Environmental Manager shall oversee the implementation and the performance of the WMP and shall also be responsible for:

- the day-to-day overview of site practices in relation to waste management on site;
- applying all necessary licences in relation to waste management;
- reporting to the PM;
- coordinate with the Construction Manager to ensure proper implementation of mitigation measures on waste management;
- conducting meetings/ briefings/ inductions/ tool-box talks with all sub-contractors, direct contractors, specialist contractors, utility undertakers and employees to enhance understanding of aims and contents of WMP; and
- preparing and submitting the Monthly Summary Waste Flow Table (WFT), Yearly Summary WFT and Summary Table for Work Processes or Activities Requiring Timber for Temporary Works.

7.6 Environmental Officer (EO) / Engineer (EE)

The Environmental Officer/ Engineer shall assist the Environmental Manager to oversee the implementation and the performance of the WMP and shall also be responsible for:

- assisting EnvM to disseminate information and requirement to the site operative in connection with the implementation of the waste management on-site;
- monitoring the WMP implementation, carrying out site surveillance;
- keeping environmental related documents as well as assisting on training staff at different levels;
- assisting in the review and update of the WMP, the Waste Flow Tables (WFT) and the summary table for the use of timber during temporary works construction; and
- working closely with Site Engineers to ensure the Contract is carried out in compliance with all waste related contractual and legal requirements..

7.7 Environmental Supervisor

Site-resident Environmental Supervisor (ES) will be appointed by the GCL. The duties of the ES's will include but not limited to the following:

- (a) Assist the EO/ EE in carrying out his duties;
- (b) Carry out daily site environmental inspections based on a checklist approved by the SOR, and to ensure that follow-up actions have been taken promptly against defects and deficiencies identified;
- (c) Advise the EO/ EE on the upkeeping of environmental performance and standards of the Site;
- (d) Attend the weekly environmental walk;
- (e) Supervise and promote the execution of environmental work on the Site;
- (f) Attend SSEMC meetings and SSEC meetings; and
- (g) Conduct toolbox talks as assigned by the GCL's Agent after acquiring the necessary.

7.8 Environmental Team (ET) / Environmental Team Leader (ETL)

The ET /ETL shall be an independent environmental consultant from GCL. The ET shall:

- maintaining overall control of the monitoring and professional services;
- reporting directly to the Environmental Manager;
- providing assistance and guidance to the Contractor in the implementation of WMP;
- identifying the potential hazardous waste whenever possible and take proactive actions before problems arise;
- providing briefing to the project team as necessary on the waste management requirements; and
- carrying out Waste Management Audit.

7.9 Subcontractors and other Employees

Every employee and subcontractor has the duty to carry out agreed waste management practices as instructed by the Site Agent / Site Engineer. Their duties are:

- observing and implementing the measures set out by this WMP;
- following all environmental related instructions given by the management staff of GCL;
- reporting any non-compliance of the waste management measures; and
- conducting the rectifying actions as required in a timely and efficient manner.

8 WASTE CLASSIFICATION AND CONTROL MEASURES

The waste generated from the construction activities shall be divided into distinct categories based on their composition, as follows:

- (a) Construction and demolition (C&D) materials
 - (i) Inert C&D materials
 - (ii) Non-inert C&D materials
- (b) Chemical wastes
- (c) General refuses

- (d) Dredged marine sediments
 - (i) Uncontaminated marine sediments (Cat. L)
 - (ii) Contaminated marine sediments (Cat. M_p & M_i)

A quantities of excavated materials to be generated, reuse on- or offsite during works has been estimated and shown in **Appendix D**. The estimated quantities, types of the C&D materials and corresponding disposal grounds will be updated monthly and indicated in the monthly programme for disposal of C&D materials, which will be reported to the SOR via submissions of monthly waste flow tables as shown in **Appendix E**. All anticipated disposal scenarios and transportation modes are summarized in **Appendix F**.

8.1 Construction and Demolition (C&D) Materials

C&D materials comprise unwanted materials generated during construction, including rejected structures and materials, materials which have been over ordered or are surplus to requirements, and materials used and discarded.

C&D material could be divided into two categories according to whether they are inert or non-inert. Inert C&D material are known as rock, rubble, boulder, earth, soil, sand, concrete, asphalt, brick, tile, masonry and used bentonite, where to be maximized the reuse of these materials within the Contract and to be disposed of the surplus of these materials to other Contracts, subjected to the approval or direction of Supervising Office Representative (SOR). Under any circumstances that no site is able to receive the unsuitable C&D materials for the filling purpose, GCL will apply to CEDD for the public fill reception facilities (PFRF) as a back-up option.

Non-inert C&D material are such as metal, timber, vegetation, packaging waste, organic material and all recyclables and non-recyclables is called "C&D Waste". C&D waste, excluding recyclables, shall be disposed of at NENT Landfill.

Recyclables are mainly metals, paper/cardboard packaging and plastics. Plastics refer to plastic bottles/containers, plastic sheets/foam from packaging material. Recyclables would be collected by relevant recyclers. Non-recyclable materials are treated as general refuse.

The following general low waste construction designs and principles together with careful planning shall be adopted to avoid/minimise C&D material generation. Such measures include: -

- (a) Management of construction materials such that over-ordering, poor storage and maintenance, mishandling as well as improper operation procedures shall be avoided.
- (b) Restriction on use of hardwood such that softwood, metal props and/or proprietary steel system shall be considered for false work and the shoring of trenches and pits;
- (c) The formwork shall be designed to maximise the use of standard wooden panels so that high reuse levels can be achieved. More durable alternatives such as steel formwork or plastic facing shall be considered for repetitive areas to increase the potential for reuse.
- (d) C&D materials shall be, as much as possible and practicable, separated into reusable items and materials to be disposed of or recycled. It shall be conducted at the immediate working area to avoid loss/leakage and cross contamination during handling.

- (e) All C&D materials arising from or in connection with the construction and demolition work shall be sorted on-site and be separated into different categories for disposal at landfills, public filling areas, or reuse and recycling as appropriate. The sorting area may be revised from time to time in order to suit the construction activities.
- (f) Useful materials such as timber, rubble and steel/metal shall be segregated for reuse. For example formwork and timber shall be cleaned for reuse, off-cuts of reinforcement shall be sorted into usable lengths and short off cuts stacked for scrap metal. Where it is no longer reusable, scrap steel and metal items will be collected by recycling companies.
- (g) Segregated materials shall be temporarily stored at designated areas for reuse on site. Steel will be stored at the reinforcement yards, timber at the formwork yard and rubble in a stockpile (either covered or sprayed to control dust). Cardboard and paper packaging recovered from site shall be properly stockpiled in dry condition and covered.
- (h) In order to avoid over-order of concrete, accurate calculation shall be made prior to concrete pouring. Close supervision shall also be arranged during concrete pouring to avoid over-cast.
- (i) Surplus concrete shall be used for paving of temporary road or cast of concrete blocks for bunding etc. as far as practicable. In case immediate use of surplus concrete cannot be identified, the surplus concrete will be temporarily poured into designated surplus concrete pouring areas on site for further disposal to public filling areas.
- (j) Entirely cover every stock of more than 20 bags of cement by impervious sheeting and carry out the de-bagging, batching and mixing processes in an area sheltered on the top and the 3 sides. Damp and gather the waste cement bags for proper disposal.
- (k) Used bentonite shall only be disposed of at Public Fill area.

GCL designate suitable areas onsite for the storage, sorting and segregation of construction waste. The areas that are designated by GCL 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 GCL will be sufficient for the amounts of construction waste that are anticipated to be generated during the course of the contract. The sorting mechanism is shown in Table 8.1. The tentative locations for the temporary storage and sorting of C&D waste are shown in **Appendix G**.

Table 8.1 Sorting of C&D Materials

Type of C&D Material	Required Action
Rock	Reuse on site where possible or recycle off site
Excavated material	Reuse on site where possible or dispose of at approved landfill facility
Excavated Marine Deposits	Dispose of offsite at approved location
Concrete	Sorted and segregated onsite, reuse on site where possible or recycle offsite
Metal	Segregate and recycle offsite
Paper/Cardboard Materials	Segregate and recycle offsite

Plastics	Use recycling containers and recycle offsite
Aluminium Cans	Use recycling containers and recycle offsite
Timber	Reuse on site if possible, other segregate and recycle off site
Chemical Waste	Store in approved containers and transport offsite for disposal at an approved facility

8.2 Chemical Wastes

Chemical wastes are the substances defined by the *Schedule 1 of the Waste Disposal (Chemical Waste) (General) Regulation*. Chemical wastes generated from the construction sites will primarily arise from the maintenance of plant and equipment. These may typically include oils, lubricants, paints and solvents.

Containers used for the storage of chemical waste shall:

- 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 specification have been approved by the EPD; and
- display a label in English and Chinese in accordance with instruction prescribed in *Schedule 2 of the Waste Disposal (Chemical Waste)(General) Regulation*.

The storage area for chemical wastes shall:

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

Disposal of chemical waste shall:

- be via a licensed waste collector;
- be to an off site facility licensed to receive chemical waste, such as a recycling facility located in Yuen Long Industrial Estate or the Chemical Waste Treatment Facility located in Tsing Yi.

A Spill Response Plan shall be prepared separately and implemented to deal with any accidental spillage of chemicals on site. The spill response plan should contain procedures for:

- Spill prevention and precaution
- Response actions
- Spill clean up and disposal

8.3 General Refuses

General refuses include food wastes, non-recyclable materials (including waste paper/cardboard packaging, plastics and timber) and other debris arising from various construction activities, site workforce and site housekeeping. General refuses shall be disposed of at NENT Landfill.

Measures that encourage waste avoidance/minimization include:

- Reducing the number of photo 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;
- Providing drinking facility and encouraging employees to bring their own cup; and
- Discouraging take-out food.

Additional measures that facilitate reuse/recycling and orderly disposal include:

- Deploying sufficient recycle bins at convenient locations to facilitate collection of recyclables including wasted aluminium cans, plastic bottles and cardboard and papers packaging;
- Deploying sufficient refuse collection bin at convenient locations to facilitate collection of non-recyclables for disposal at landfills; and
- Participating local collection scheme (e.g. scheme launched by District Board) if available.

8.4 Marine sediments

Marine sediment means excavated from the Works of the foundation and associated substructures at the sea. It could be classified as contaminated and uncontaminated based on its contamination level with reference to Chemical Exceedance Level (CEL) laid down in the Appendix A of the ETWB TCW No. 34/2002. The excavation and disposal of marine sediments generated shall be minimized from the Works in this Contract, e.g. only from the excavation of the foundation and the associated substructures such as the piles, pile caps and piers. In events that dredging/excavation of marine sediment are unavoidable, the GCL shall handle/ process such marine sediment in accordance with the procedures given in ETWB TCW No. 34/2002. GCL will apply to the EPD for all valid permits and licenses in accordance with only dispose of the marine sediment at the designated disposal facilities as directed by the Director of Environmental Protection and/or the Marine Fill Committee (MFC) unless otherwise agreed or ordered in writing by the Supervising Officer. The copy of memo from Marine Fill Committee of CEDD granting the allocations for the sediment disposal space is attached in **Appendix H**.

8.4.1 Cat. L / Cat. M_p Marine Sediments

In case of disposal of any amount of the marine sediment in Hong Kong waters, the dumping of sediments shall be strictly within the designated sediment disposal sites and shall be controlled through a dumping permit issued under the Dumping at Sea Ordinance (Cap 466), or called a DASO permit, by the Director of Environmental Protection. Dumping shall take place at sub-areas within the sediment disposal sites, the locations of which will be changed from time to time as notified by the Director of Environmental Protection through the Supervising Officer.

Subject to the instruction of SO, notwithstanding whether the GCL elects to dispose of any or all dredged/excavated marine sediments at the designated sediment disposal sites in Hong Kong, the GCL will apply for approval to relevant authorities in Mainland and Hong Kong for the cross-boundary disposal of Cat. L and M_p.

sediments at the tentative disposal site of South Dangan Liedao (擔杆列島). This cross-boundary disposal option shall only proceed with the Supervising Officer's instruction. In the event that the approval of cross-boundary disposal is not obtained in a timely manner, Cat. L and M_p sediments would be arranged to dispose of at South Cheung Chau Open Sea Sediment Disposal Area and East Sha Chau or South of the Brothers Marine Sediment Disposal Facility as a fallback option to be authorized by Supervising Officer, EPD and CEDD-MFC.

In cases that off-site disposal of marine sediment in Hong Kong Water required, GCL shall apply for the allocation of a sediment disposal site in the name of Highways Department of the HKSAR, and marine loading permits under Dumping at Sea Ordinance (Cap. 466) (DASO) for the disposal of marine sediment at the designated disposal facilities in Hong Kong.

8.4.2 Cat. M_f Marine Sediments

The marine sediment of Category M failing biological tests as defined in ETWB TC(W) No. 34/2002 shall be disposed of in CEDD-MFC's designated contaminated mud pits in Hong Kong waters, at mud pit of East Sha Chau or South of the Brothers Marine Sediment Disposal Facility as allocated by CEDD-MFC. GCL shall place the contaminated mud at a location and in a manner as directed on site by the CEDD management team. GCL shall proceed with the disposal operation as instructed by the management team and in accordance with the relevant sections of the Requirements of the Contaminated Mud Pit Management Scheme which may be modified from time to time by the management team. GCL shall not carry out any dumping without permission of the management team or when the management team is not in operation. GCL will carry out the dumping operation in strict accordance with the method statement agreed by the Licensing Authority.

9 WASTE MONITORING AND AUDITING

9.1 Trip-Ticket System

In accordance with DEVB TC(W) No. 6/2010, with tender invitation was on or after 1 November 2010, the administration of CHIT/ DDF was streamlined. CHIT in lieu of the bar-coded Disposal Delivery Form (DDF) should be used at all prescribed facilities, i.e. public fill reception facilities, sorting facilities, outlying island transfer facilities and landfills. Moreover, under the Construction Waste Disposal Charging Scheme, GCL registered with EPD a disposal account and will adopt the CHIT as the enhanced control of C&D material disposal. The control procedure on off-site disposal of C&D materials is shown in **Appendix I**. The sample of CHIT is given in **Appendix J**.

Every C&D material disposal trip to the public fill reception facilities and designated landfill shall be controlled under the trip-ticket system as per the DEVB TC(W) No. 6/2010 in order to avoid fly-tipping. Appendix G gives the site procedure for the TTS operation.

For disposal of chemical wastes, the trip-ticket system as per the Waste Disposal (Chemical Waste) Regulation in which licensed collector will be employed and the chemical wastes be disposed of at designated chemical waste treatment facility.

GCL will inform all truck drivers engaged for removal of C&D materials from the Site of the following particular points:

- Each truck carrying C&D materials leaving the Site for a disposal ground must bear a duly completed CHIT, irrespective of the location and nature of the disposal ground; and
- The C&D materials must be disposed of at the disposal grounds stipulated in the Contract or directed by the SOR or alternative disposal grounds approved by the SOR.

GCL would formulate a guiding protocol for truck drivers being engaged and give all of them a copy for their information. Where necessary, a tool box talk relating to the protocol will be given to all engaged driver. The protocol is shown in **Appendix J**.

9.2 Inspection Programme

GCL shall arrange weekly inspection attended by the Environmental Officer and SOR to inspect the site to ensure satisfactory performance on compliance with the WMP with due regards to the followings:

- (a) Inert C&D materials suitable for recycling into aggregates are recovered and delivered to Tuen Mun Area 38 or other designated recycling facilities as notified by the SOR or the Public Fill Committee (Port Works Division of CED);
- (b) A disposal recording system is operating satisfactorily for recording C&D materials removed from the Site;
- (c) On-site sorting of C&D materials is properly carried out to recover inert C&D materials and reusable and/or recyclable materials before disposal;
- (d) Paper/cardboard packaging, and metals including aluminium cans are recovered and collected; and
- (e) Plastic bottles/containers or plastic sheets/foam from packaging are collected as far as possible for recycling.

GCL may arrange the weekly inspection on waste management performance to be carried out along with the weekly safety walks for safety or other site inspections.

GCL shall prepare and agree with the SOR a comprehensive checklist for use during weekly inspections on waste management. The defects or deficiencies identified during the weekly inspection on waste management together with their respective locations and the corresponding due dates for rectification as set by the SOR nominated site representative should be entered in a summary table of follow-up actions similar to the one established for weekly safety walks for monitoring of the rectification progress. GCL may need to prepare more than one comprehensive checklist to suit the variety of works at various portions of the Site. It is recommended that items covered in the checklist should primarily address:-

- (a) the physical conditions of the Site (e.g. housekeeping, site tidiness and cleanliness, etc.);
- (b) the adequacy of measures applied to each category of waste; and
- (c) the availability/accessibility/maintenance of waste management facilities.

Immediately after the weekly inspection, the summary table of follow-up actions shall be agreed and signed by both the assigned person and the SOR and a copy should be kept by the SOR for monitoring of the progress of rectification and for payment. GCL shall take prompt action to rectify the deficiencies identified and shall report the status of action taken before the forthcoming weekly inspection.

Should deficiency with regard to waste management affairs persists, the Event Contingency Plan as detailed below shall be triggered. Non-compliance shall include the following situations:

- Infringement of legal requirements with respect to waste issues.
- Persistent outstanding of control measures stated in the WMP as identified during the site inspection or audit.
- Overloading of dump truck

Table 9.1 Action Plan for Non-Compliance

Step	Day	Action	GCL	SOR
1.	1	Create a new non-compliance record within 1 working day after making an observation during a site audit accompanied by Environmental Officer or his delegate. Environmental Officer sends a Notice of Non-Compliance (NNC) to the Project Manager / Site Agent. The NNC would include the observations and the reasons for non-compliance.	■	
2.	2	Propose corrective actions within 1 working day after the receipt of the NNC.	■	□
3.	2	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.	■	□



Action party

Comments on the non-compliance record where applicable.

ET shall check whether GCL has followed the relevant contract specifications and the procedures specified under the laws of Hong Kong. In addition to the site inspections, the ET shall review the documentation procedures prepared by the GCL once a week to ensure proper records are being maintained and procedures undertaken in accordance with the Waste Management Plan. The checklist is given in below Table 9.2:

Table 9.2 Waste Management Checklist

Activities	Timing	Monitoring Frequency	If non-compliance, Action Required
All necessary waste disposal permits or licences have been obtained	Before the commencement of demolition works	Once	Apply for the necessary permits/licences prior to disposal of the waste. The ET shall ensure that corrective action has been taken.
Only licensed waste haulier are used for waste collection.	Throughout the works	Weekly	The ET shall inform the ER and IEC of the noncompliance. The ER shall instruct the Contractor to use a licensed waste haulier. The Contractor shall temporarily suspend waste collection of that particular waste until a licensed waste haulier is used. Corrective action shall be undertaken within 48 hours.
Records of quantities of wastes	Throughout the	Weekly	The Contractor shall estimate the

Activities	Timing	Monitoring Frequency	If non-compliance, Action Required
generated, recycled and disposed are properly kept. For demolition material/waste, the number of loads for each day shall be recorded (quantity of waste can then be estimated based on average truck load. Should landfill charging be implemented, the receipts of the charge could be used for estimating the quantity).	works		missing data based on previous records and the activities carried out. The ET shall audit the results and forward to the ER and IEC for approval.
Wastes are removed from site in a timely manner. General refuse is collected on a daily basis.	Throughout the works	Weekly	The ET shall inform the ER and IEC of the noncompliance. The ER shall instruct the Contractor to remove waste accordingly.
Waste storage areas are properly cleaned and do not cause windblown litter and dust nuisance.	Throughout the works	Weekly	The ET shall inform the ER and IEC of the noncompliance. The ER shall instruct the Contractor to clean the storage area and/or cover the waste.
Different types of waste are segregated in different containers or skip to enhance recycling of material and proper disposal of waste.	Throughout the works	Weekly	The ET shall inform the ER and IEC of the noncompliance. The ER shall instruct the Contractor to provide separate skips/containers. The Contractor shall ensure the workers place the waste in the appropriate containers.
Chemical wastes are stored, handled and disposed of in accordance with the Code of Practice on the Packaging, Handling and Storage of Chemical Wastes, published by the EPD.	Throughout the works	Weekly	The ET shall inform the ER and IEC of the noncompliance. The ER shall instruct the Contractor to rectify the problems immediately. Warning shall be given to the Contractor if corrective actions are not taken within 24 hrs and the Waste Control Group of the EPD shall be identified.
Demolition material/waste in dump trucks are properly covered before leaving the site.	Throughout the works	Weekly	The ET shall inform the ER and IEC of the noncompliance. The ER shall instruct the Contractor to comply. The Contractor shall prevent trucks shall leaving the site until the waste are properly covered.
Wastes are disposal of at licensed sites.	Throughout the works	Weekly	The ET shall inform the ER and IEC of the noncompliance. The ER shall warn the Contractor and instruct the Contractor to ensure the wastes are disposed of at the licensed sites. Should it involve chemical waste, the Waste Control Group of EPD shall be notified.

9.3 Record Keeping and Reporting

GCL shall keep adequate and proper records such as delivery dockets and measurement records relating to the implementation of the WMP. The records shall include trip-ticket, completed inspection checklists and training records.

9.3.1 Daily Record Summary

Daily Record Summary (DRS) shall be filled by designated persons to record every truck for delivery of C&D materials. The sample of DRS is given in **Appendix L**.

9.3.2 Monthly Summary Waste Flow Table

As part of the WMP, a mechanism shall be established to record the quantities of C&D materials generated each month, using the monthly summary "Waste Flow Table" (WFT) as given in **Appendix E**.

9.3.3 Yearly Summary Waste Flow Table

Estimated quantities of C&D materials that will be generated each year from the site the GCL should also be provided, using the yearly summary WFT as given in **Appendix D**. The yearly summary WFT covering the whole construction period shall be included in the WMP and updated on yearly basis, 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.

9.3.4 Performance Monitoring

To ensure the effectiveness of the Trip-Ticket System, the following item will be discussed at every Site Safety and Environmental Management Committee meeting, and Site Safety and Environmental Committee meeting or ad-hoc meetings on as-needed basis:

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

10 TRAINING

The Environmental Officer and other site personnel (if they have not attended similar course before) shall be arranged to attend training on waste management organised by training institutes or organisations as considered appropriate.

The Environmental Officer shall arrange and provide training on waste management in the site-specific induction and its refresher training for all persons employed by the GCL or his subcontractor on the Works or in connection with the Contract. The training should cover the waste management policy, targets, measures for on-site sorting of C&D materials and measurement on waste management performance on the Site. According to ER requirement, induction training shall be carried out within first 2 days of the employment and refreshment training shall be carried out by every 6 months.

The Environmental Officer is allowed to develop and provide toolbox talks for the topic on on-site sorting of C&D materials to promote the workers' awareness on

handling, sorting, reuse and recycling of C&D materials. Training material for environmental toolbox talks with regard to waste management shall be prepared by the Environmental Officer and disseminated to supervisor/foremen and subcontractor's representatives for conducting tool-box talks to all workers or labourers at regular intervals.

11 MITIGATION MEASURES IN EIA

The Section 12.6 of the EIA Report gives recommendations on mitigation measures of waste management. The recommendations were extracted to form an implementation schedule particularly for waste management during construction phase and the schedule is shown in **Appendix M**.

12 MITIGATION MEASURES IN EM&A MANUAL

The Section 8.1.2 of the EM&A Manual gives recommendations on mitigation measures of waste management, which are:

- The waste management hierarchy below should be strictly followed. This hierarchy should be adopted to evaluate the waste management options in order to maximise the extent of waste reduction and cost reduction. The records of quantities of waste generated, recycled and disposed (locations) should be properly documented.
- A trip-ticket system should be established in accordance with DEVB TC(W) No. 6/2010 and Waste Disposal (Charges for Disposal of Construction Waste) Regulation to monitor the disposal of public fill and solid wastes at public filling facilities and landfills, and to control fly-tipping. A trip-ticket system would be included as one of the contractual requirements for the Contractor to strictly implement. The Engineer would also regularly audit the effectiveness of the system.
- A recording system for the amount of waste generated, recycled and disposed (locations) should be established. The future Contractor should also provide proper training to workers regarding the appropriate concepts of site cleanliness and waste management procedures, e.g. waste reduction, reuse and recycling all the time.
- The CEDD should be timely notified of the estimated spoil volumes to be generated and the Public Fill Committee should be notified and agreement sort on the disposal of surplus inert C&D materials e.g. good quality rock during detailed design of the TM-CLKL project. Wherever practicable, C&D materials should be segregated from other wastes to avoid contamination and to ensure acceptability at public filling areas or reclamation sites.
- The extent of cutting operation should be optimised where possible. Earth retaining structures and bored pile walls should be proposed to minimise the extent of cutting.
- Inert C&D materials from slopes and road pavement will be reused for construction of the raised platform for the toll plaza.
- C&D materials generated by construction of cut slopes along NLH at North Lantau shall be reused in reclamation works where possible.
- The surplus surcharge should be transferred to a fill bank.
- Rock armour from the existing seawall should be reused on the new sloping seawall as far as possible.
- The site and surroundings shall be kept tidy and litter free.
- No waste shall be burnt on site.

- Make provisions in contract documents to allow and promote the use of recycled aggregates where appropriate.
- Prohibit the Contractor to dispose of C&D materials at any sensitive locations e.g. natural habitat, etc. The Contractor should propose the final disposal sites in the EMP and WMP for approval before implementation.
- Stockpiled material shall be covered by tarpaulin and /or watered as appropriate to prevent windblown dust and surface run off.
- Excavated material in trucks shall be covered by tarpaulins to reduce the potential for spillage and dust generation.
- Wheel washing facilities shall be used by all trucks leaving the site to prevent transfer of mud onto public roads.
- Dredged marine mud shall be disposed of in a gazetted marine disposal ground under the requirements of the Dumping at Seas Ordinance.
- Standard formwork or pre-fabrication should be used as far as practicable so as to minimise the C&D materials arising. The use of more durable formwork or plastic facing for construction works should also be considered. The use of wooden hoardings should be avoided and metal hoarding should be used to facilitate recycling. Purchasing of construction materials should be carefully planned in order to avoid over-ordering and wastage.
- The Contractor should recycle as many C&D materials (this is a waste section) as possible on-site. The public fill and C&D waste should be segregated and stored in separate containers or skips to facilitate the reuse or recycling of materials and proper disposal. Where practicable, the concrete and masonry should be crushed and used as fill materials. Steel reinforcement bar should be collected for use by scrap steel mills. Different areas of the sites should be considered for segregation and storage activities.
- All falsework will be steel instead of wood, as far as possible.
- Chemical waste producers should register with the EPD. Chemical waste should be handled in accordance with the Code of Practice on the Packaging, Handling and Storage of Chemical Wastes as follows:
 - Suitable for the substance to be held, resistant to corrosion, maintained in good conditions and securely closed;
 - Having a capacity of <450L unless the specifications have been approved by the EPD; and
 - Displaying a label in English and Chinese according to the instructions prescribed in Schedule 2 of the Regulations.
 - Clearly labelled and used solely for the storage of chemical wastes;
 - Enclosed with at least 3 sides;
 - Impermeable floor and bund with capacity to accommodate 110% of the volume of the largest container or 20% by volume of the chemical waste stored in the area, whichever is greatest;
 - Adequate ventilation;
 - Sufficiently covered to prevent rainfall entering (water collected within the bund must be tested and disposed of as chemical waste, if necessary); and
 - Incompatible materials are adequately separated.
- Waste oils, chemicals or solvents shall not be disposed of to drain;
- Adequate numbers of portable toilets should be provided for on-site workers. Portable toilets should be maintained in reasonable states, which will not deter the workers from utilising them. Night soil should be regularly collected by licensed collectors.
- General refuse arising on-site should be stored in enclosed bins or compaction units separately from C&D and chemical wastes. Sufficient dustbins shall be provided for storage of waste as required under the Public Cleansing and

Prevention of Nuisances By-laws. In addition, general refuse shall be cleared daily and shall be disposed of to the nearest licensed landfill or refuse transfer station. Burning of refuse on construction sites is prohibited.

- All waste containers shall be in a secure area on hard standing; Aluminium cans are usually collected and recovered from the waste stream by individual collectors if they are segregated and easily accessible. Separately labelled bins for their deposition should be provided as far as practicable.
- Office wastes can be reduced by recycling of paper if such volume is sufficiently large to warrant collection. Participation in a local collection scheme by the Contractor should be advocated. Waste separation facilities for paper, aluminium cans, plastic bottles, etc. should be provided on-site.
- Training shall be provided to workers about the concepts of site cleanliness and appropriate waste management procedure, including waste reduction, reuse and recycling.

APPENDIX A

Gammon's Health, Safety and Environmental Policy

Policy on Health, Safety and Environment

We are committed to become World Class in Health, Safety and the Environment and treat this as a business necessity.

Our approach will be structured and risk based at every stage of planning and service delivery, such that we must be satisfied that work will be incident, accident and environmental occurrence free. We believe that Quality, Safety, Efficiency and Good Value are interrelated aspects of the excellent engineering upon which the Gammon business is based. However, safety will always take priority over all other business considerations.

This approach is founded upon the following four principles:

From the Excom, Divisional Directors and their senior teams the commitment to health, safety and environment will be constant, consistent, highly visible and under regular review.

Strong and Visible Leadership

- Leaders will be mindful of risks and informed as to how these are being addressed.
- They will maintain a fair and just culture that allows all of our stakeholders to engage in the delivery of this policy yet holds everyone accountable for their actions.

A Structured and Risk Based Approach

- In planning our operations we will identify the specific risks relevant to each task.
- Practical and resilient methods will be developed to fully control these risks, including the allocation of sufficient resources, otherwise work will not proceed.
- Methods will be based upon best practice and the Layers of Protection of Design and Engineering, Plant and Equipment, Process and People.
- Wherever the circumstances of any operation change, methods will be reassessed.

Effective Implementation and Supervision

- Frontline staff and managers are responsible for the implementation of agreed methods.
- Compliance with legislation, contractual requirements and other requirements to which Gammon subscribes is a fundamental minimum requirement.
- The Gammon HSE management system procedures, OCP's and The Book of Safety Standards define our minimum requirements; all staff will make themselves familiar with these requirements including their duties and responsibilities and training will be provided.



-
- We will maintain clean and tidy workfronts, clear access to all locations and effective emergency response processes.
 - Should any operation depart from the requirements of this policy, managers must stop work and institute rectification and improvement measures.
 - Senior managers will regularly monitor and support their staff to ensure that all operations are being conducted in accordance with this policy and that objectives and targets set are being achieved and reviewed.

Engagement and Communication

We will :

- Engage with our industry and stakeholders and challenge ourselves to continually “raise the bar” by improving standards for health, safety and environmental performance;
- Frequently engage with local communities to find ways in which we can minimize impacts and add value to the quality of life of those affected by our operations;
- Seek continual improvement through regular performance monitoring, systematic audits and reviews, and by setting challenging objectives and targets.

This policy will be issued and explained to all staff through departmental briefings. It will be displayed on company notice boards and available on our intranet. It will be reviewed together with our management system at least annually and updated as appropriate.



Thomas Ho
Chief Executive
Gammon Construction Limited

November 2012

健康，安全和環保政策

我們致力在健康，安全及環境方面達致世界級水平，並視之為企業不可缺少的一部份。

我們會採取結構化的方法，關注到每個規劃和服務環節所面對的風險，杜絕工程的意外，事故和影響環境的問題，符合企業的要求。我們相信品質、安全性、效率和良好的價值是相互關連的，這亦是金門業務的核心價值所在，能夠提升金門工程的質量。然而，安全始終凌駕於其他的業務考慮。

我們採取的方法主要依據下列四項原則：

從行政委員會至部門董事及其高層管理團隊都一直致力營造健康及安全的環境，確保企業上下一致清晰了解，並定期進行檢討。

強而有力的領導

- 領導人員會考慮各種風險，並知道如何處理這些風險。
- 他們將維持公平及公正的企業文化，使我們所有的利益相關者都可參與推行這個政策，並使每個人都為自己的行為負責。

結構化和按風險進行方法

- 在規劃工程運作時，我們會確定每項工作的特定風險。
- 發展實用和彈性的方法來全面控制這些風險，包括分配足夠的資源，否則不會開展工作。
- 施工方案建基於最佳實踐做法，設計和工程、機械及設備、施工程序及人員的多重保護。
- 只要運作環境出現任何改變，都會重新評估施工方法。

有效執行和監督

- 前線員工和管理人員會負責執行既定的方法。
- 遵守法律及合同的規定，以及金門規定的最低基本要求。
- 金門的HSE管理系統程序，OCP和安全標準小冊子將列明公司的最低要求；所有員工須熟悉這些要求，包括其職責，並會獲提供培訓。
- 我們會維持乾淨整潔的工作環境，保持通往所有位置的通道暢通及有效的緊急應變程序。
- 如果任何工作程序偏離這一政策要求，管理人員必須暫停工程，並制定改善措施。
- 高級管理人員將定期進行監察及為工作人員提供支援，以確保所有工作程序都可按照本政策，其目的和指標來推行，並會定期檢討這些目的和指標。

參與及溝通

我們會：

- 鼓勵業界和利益相關者共同參與，接受挑戰及不斷「提升標準」，改善健康，安全和環保各方面的表現；
- 經常與本地社區保持溝通，尋找方法盡量減低工程帶來的影響，並提升受工程影響人士的生活質素；
- 通過定期的表現監控，系統審計和審查，不斷尋求改進方法，並不斷制定具有挑戰性的目標和指標。

本政策將會透過部門簡介會發佈，並同時張貼在公司告示板及內聯網，加深員工對政策的認識。我們會為本政策及企業的管理系統進行至少每年一次的檢討，並適時作出更新。

何安誠

金門建築有限公司

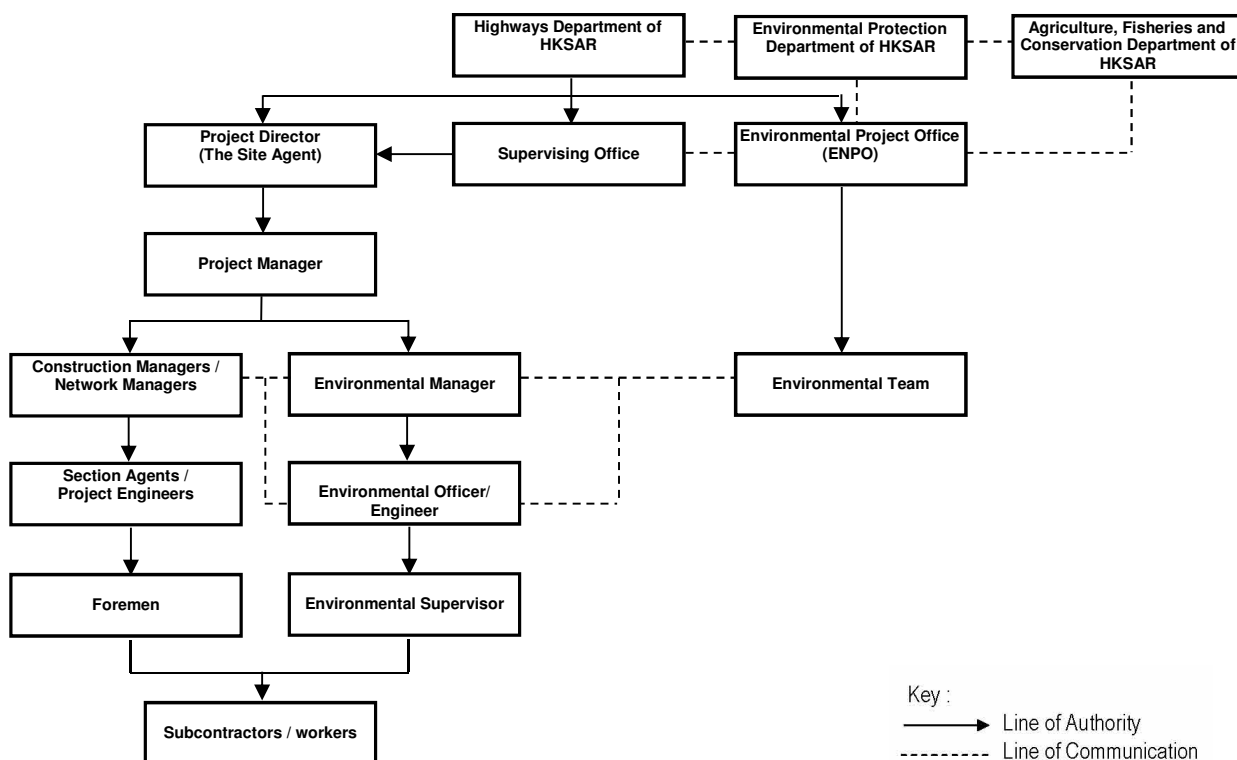
總裁

何安誠

二零一二年十一月

APPENDIX B

Organisation Structure for Environnemental Management



APPENDIX C

Contact List

Contact List**Telephone No.**

Project Proponent – Highway Department HZMB Office	
Employer's Rep. – Mr. Johnny CHAN	2762 4976
Environmental Team - Environmental Resources Management	
Project Director – Mr. Craig A REID	2271 3179
ET Leader – Mr. Jovy TAM	2271 3113
Gammon Construction Ltd.	
Project Director – Mr. Andrew VENESS	2750 0278
Deputy Project Director – Mr. Chris MA	2750 0183
Engineering Director – Mr. John CLARK	2750 0178
Senior Construction Manager – Mr. Nigel KING	2750 0183
Construction Manager – Mr. Hans SUNDSTROM	9300 7636
Construction Manager – Mr. W.T. HO	6111 2176
Construction Manager – Mr. Wing LAW	9655 0672
Project Manager – Mr. Patrick CHAN	9488 2979
Project Manager – Mr. K.M. CHAING	9360 0586
Safety Manager – Mr. C.Y. LAU	9022 1273
Environmental Manager – Mr. Brian KAM	9456 9541
Environmental Officer – Mr. Roy LEUNG	6468 7650
Environmental Protection Department	
EPO-RS(52) – Ms. Connie WONG	2516 1782

APPENDIX D

Proforma of Yearly Summary Waste Flow Table

Contract No. : HY/2012/07
Tuen Mun-Chek Lap Kok Link – Southern Connection Viaduct Section
Yearly Summary Waste Flow Table Estimation

Year	Estimated (Est.) Annual Quantities of Inert C&D Materials						Estimated (Est.) Annual Quantities of C&D Wastes					Estimated (Est.) Annual Quantities of Recyclables		
	(a)=(b)+(c)+(d)+(e) Total Quantity Generated	(b) Hard Rock & Broken Concrete (see Note 3)	(c) Reused in the Contract	(d) Reused in other Projects	(e) Disposed as Public Fill (see Note 6)	(f) Import Fill	(g) Marine Sediment			(h) Chemical Waste	(i) Others, e.g. general refuse disposed at Landfill	(j) Metals	(k) Paper/ cardboard packaging	(l) Plastics (see Note 2)
							Cat. L	Cat. Mp	Cat. Mf					
	(in '000m ³)	(in '000m ³)	(in '000m ³)	(in '000m ³)	(in '000m ³)	(in '000m ³)	(in '000m ³)	(in '000m ³)	(in '000m ³)	(in '000kg)	(in '000kg)	(in '000 kg)	(in '000kg)	(in '000kg)
	Est.	Est..	Est.	Est..	Est.	Est.	Est.	Est.	Est.	Est.	Est.	Est.	Est.	Est.
2013	53.108	26.554	26.554	--	--	--	--	--	--	--	1,000	--	2	--
2014	41.144	12.711	15.723	12.711	--	--	9.524	2.381	1.429	0.1	1,800	--	10	3
2015	58.021	1.63	56.114	0.277	--	--	10.476	2.619	1.571	0.1	1,800	--	10	3
2016	30.615	--	30.615	--	--	1.249	--	--	--	0.1	1,000	--	5	3
Grand Total	182.888	40.895	129.006	12.988	--	1.249	20.0	5.0	3.0	0.3	5,600	--	27	9

- Notes:
- (1) The waste flow table shall also include C&D materials that are specified in the Contract to be imported for use at the Site.
 - (2) Plastic refer to plastic bottles/containers, plastic sheets/foam from packaging material
 - (3) Broken concrete for recycling into aggregates
 - (4) The Yearly Waste Flow Table will be updated if there is any changed.
 - (5) Highlighted in yellow for any updated
 - (6) GCL would maximize reusing C&D material as far as possible. Public fill is a fall back option for unsuitable material disposal, if any.

APPENDIX E

Proforma of Monthly Summary Waste Flow Table

Contract No. : HY/2012/07

Tuen Mun-Chek Lap Kok Link – Southern Connection Viaduct Section

Monthly Summary Waste Flow Table for _____ (Year)

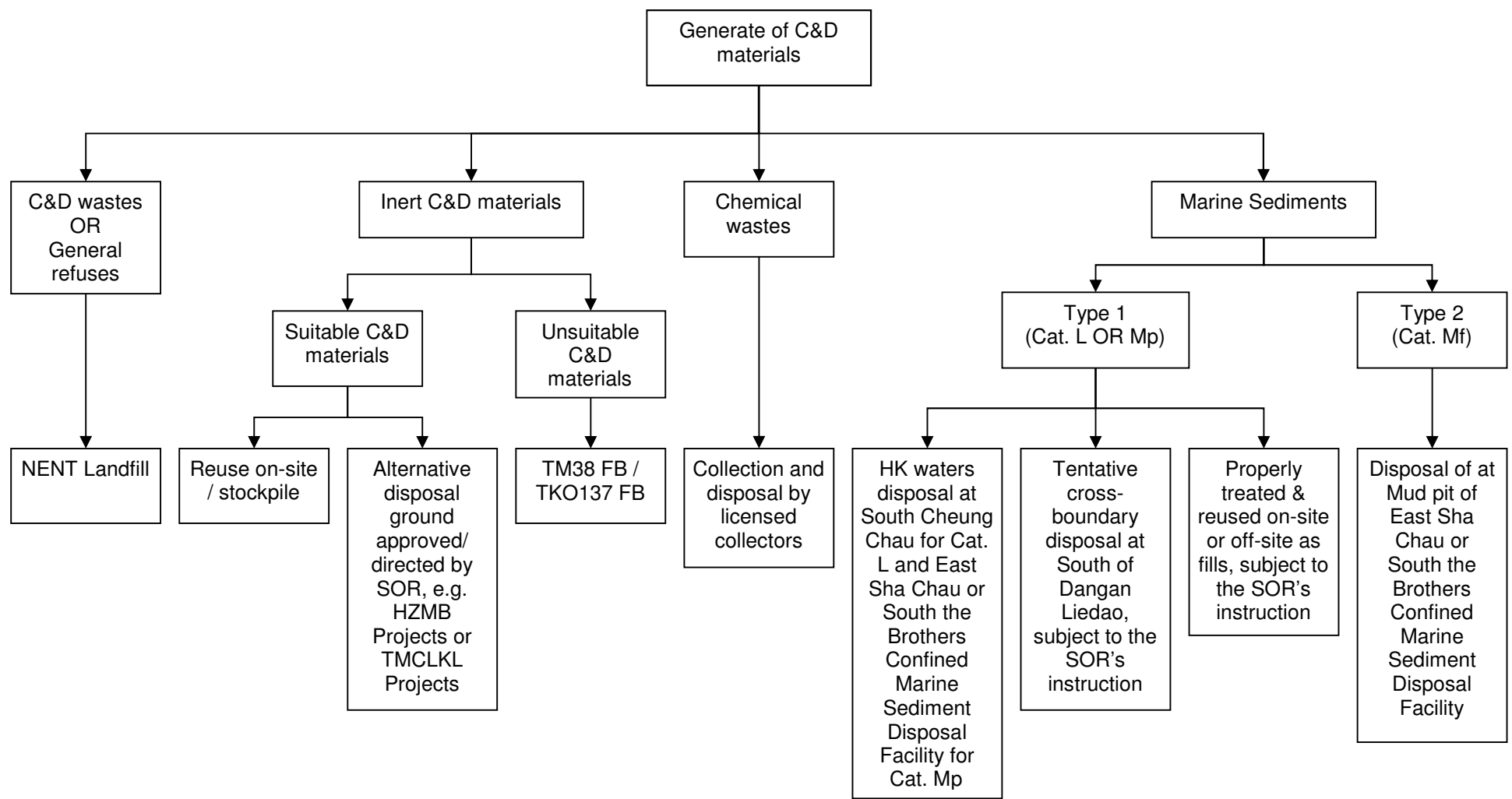
Month\Material	Actual Quantities of Inert C&D Materials Generation						Actual Quantities of C&D wastes Generation					Actual Quantities of Recyclables Generation		
	Total Quantity Generated	Hard Rock and Large Broken Concrete	Reused in the Contract	Reused in other Projects	Disposed as Public Fills	Imported Fill	Marine Sediment, Cat. L	Marine Sediment, Cat. Mp	Marine Sediment, Cat. Mf	Chemical Waste	General Refuse	Metals	Paper/ cardboard packaging	Plastics
Unit	('000m ³)	('000m ³)	('000m ³)	('000m ³)	('000m ³)	('000m ³)	('000m ³)	('000m ³)	('000m ³)	('000Kg)	('000Kg)	('000Kg)	('000Kg)	('000Kg)
Jan														
Feb														
Mar														
Apr														
May														
Jun														
SUB-TOTAL														
Jul														
Aug														
Sep														
Oct														
Nov														
Dec														
TOTAL														

Notes:

- 1 - The waste flow table shall also include C&D materials that are specified in the Contract to be imported for use at the Site.
- 2 - Plastics refer to plastic bottles/containers, plastic sheets/foam from packaging material.
- 3 - Broken concrete for recycling into aggregates.

APPENDIX F

Disposal Scenario and Transportation Models



(By CHIT form)

(By Internal
Material
Transfer Form
(IMTF))

(By Material
Delivery Form
(MDF))

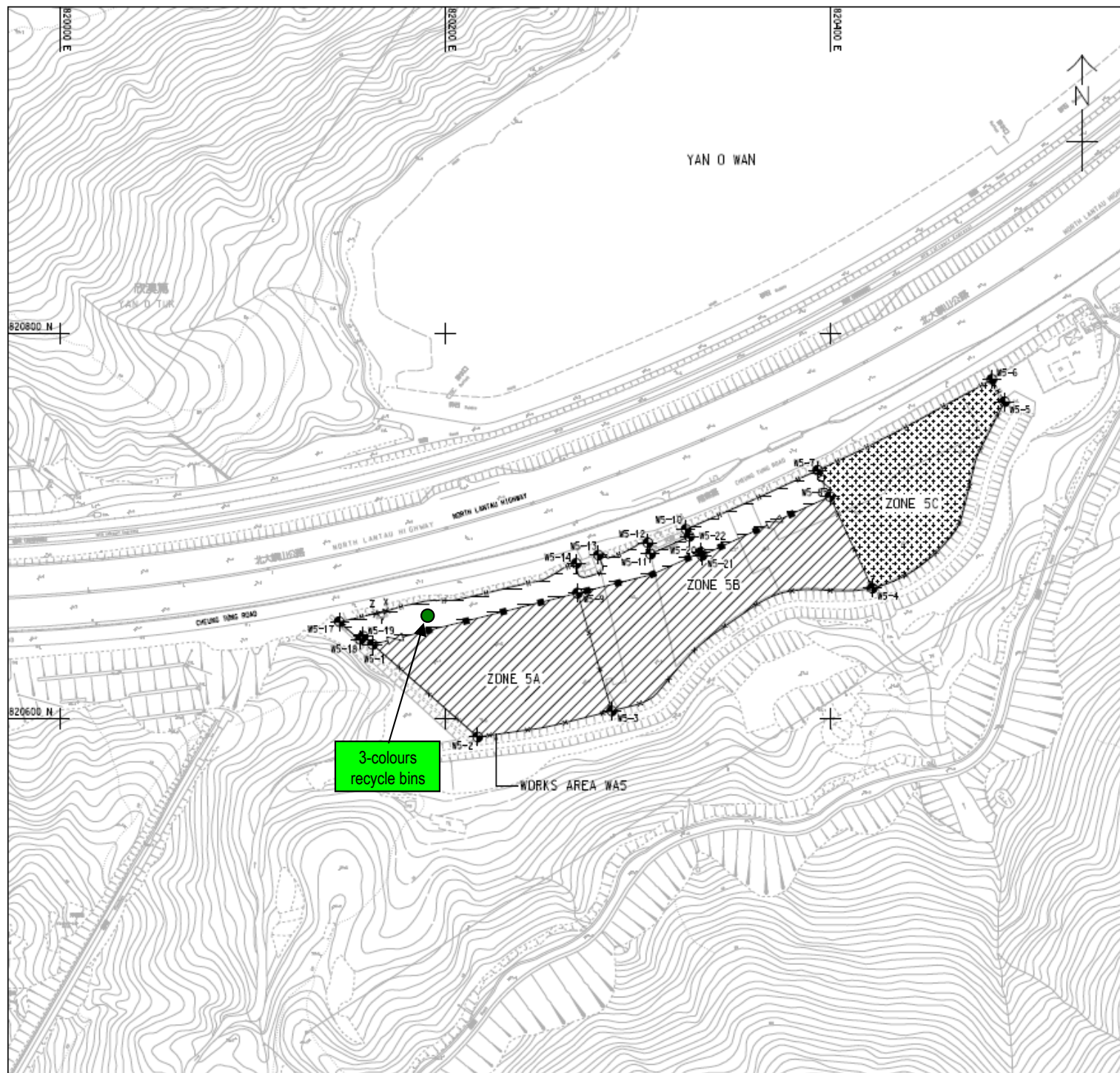
(By CHIT form /
vessel CHIT)

(TTS provided
by the licensed
collector)

(Follow the direction from the dumping
permit issued by the Authority)

APPENDIX G

Proposed Temporary Storage and Sorting Area for C&D Materials



Rev	Description	Date	By	Chk	App
1	ENTER SUBMISSION	01/02/13	XXX	XXX	XXX



AECOM

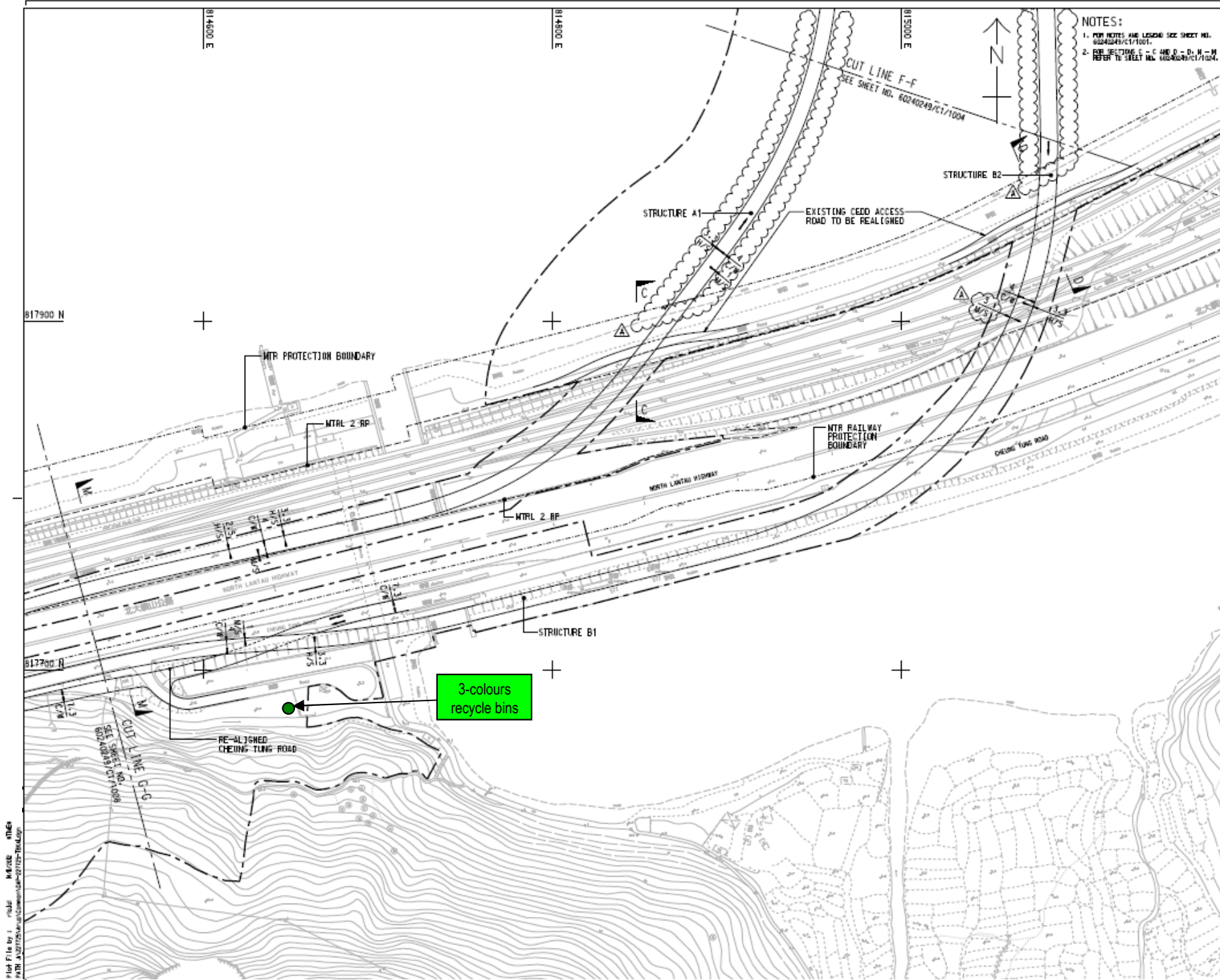
CONTRACT NO. HY3012/07
 TUN MUN - CHEK LAP KOK LINK
 SOUTHERN CONNECTION
 VIADUCT SECTION



Temporary Storage Area

Drawn	XXX	Scale	1 : XXX @A1
Designed	XXX		1 : XXX @A3
Checked	XXX	Notes	
Approved	XXX		
Drawn by		For SUBMISSION	

Appendix G



NOTES:
 1. FOR NOTES AND LEGEND SEE SHEET NO. 60240249/C1/1001.
 2. FOR SECTIONS E - C AND D - D, M - M REFER TO SHEET NO. 60240249/C1/1004.

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Rev	Description	Date	By	Chk	App
1	ENTER SUBMISSION	01/02/13	XXX	XXX	XXX

香港路政署
HIGHWAYS DEPARTMENT
 香港跨境基建工程處
 Hong Kong - Zhuhai - Macao Bridge
 Hong Kong Project Management Office

AECOM

Contract No. HY301207
 TUEN MUN - CHEK LAP KOK LINK
 SOUTHERN CONNECTION
 VIADUCT SECTION

Gammon
 Consultant

ARUP
LAMBETH

Temporary Storage Area

Drawn	XXX	Scale	1 : XXX (A1)
Checked	XXX		1 : XXX (A3)
Checked	XXX	Notes	
Approved	XXX		

FOR SUBMISSION

Appendix G

Plot File by 1. 00000 14.000 07.000
 Path: C:\Users\14020754\Documents\14020754\14020754.dwg

APPENDIX H

**Memo from Marine Fill Committee of
CEDD**

□

MEMOFrom Secretary, Marine Fill Committee, CEDDRef. (0ZYC8-01) in FM 4/1C/70ATel. No. 2762 5539Fax No. 2714 0113Date 13 September 2013To PM/HZMB, HyD(Attn: Mr. Jason C S CHUNG)

Your Ref. _____ in _____

dated _____ Fax No. 3188 6614

Total Pages _____ 1+ Encl.

Tuen Mun – Chek Lap Kok Link (TM-CLKL)**Allocation of Sediment Disposal Site**

We refer to your memo ref. (1SUE) in HyD HZMB/10-3/8/2 dated 21 August 2013 and the 23rd Marine Fill Committee Meeting held on 10 September 2013.

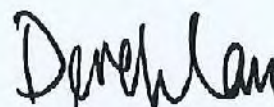
2. We hereby cancel the allocation in our memo ref. (0W8B0-01) in the same series dated 7 January 2013 and allocate the following sediment disposal space for the respective categories of sediment arising from the above project.

Category of Sediment	In-situ Volume of Sediment	Sediment Disposal Space
Category L	392,000 m ³	Suitable for capping the exhausted Confined Marine Disposal Facility at East of Sha Chau (or South of The Brothers)
Category M _p Sediment (i.e. Category M Sediment passing biological test)	149,000 m ³	Subareas to be directed on site within the Mud Pit CMP1 (or CMP2) of the Confined Marine Sediment Disposal Facility to South of The Brothers or the Mud Pit of the Confined Marine Sediment Disposal Facility at East of Sha Chau
Category M _f Sediment (i.e. Category M Sediment failing biological test)	143,000 m ³	

3. The allocation is subject to the attached "General Allocation Conditions for Marine Disposal Sites" and "Special Allocation Conditions". Please note that it is the responsibility of the Allocatee to identify the appropriate party to implement the above Conditions.

- 2 -

4. You are reminded to submit the information indicated in Clauses 5, 6, 10 and 11 of the "General Allocation Conditions" when they are available,



(Derek Lau)
for Secretary, Marine Fill Committee
Civil Engineering and Development Department *Chiao*

c.c. (w/e)

EPD

(Attn. Mr. Jackson W. C. LING)

Fax: 2305 0453

AECOM

(Attn: Mr. Conrad Ng/Pius Lam)

Fax: 3922 9797

Internal

FM 4/1C/65

E/S4 (with the first 2 pages of allocation only)

FWL/

File: I30911.HyD.TMCLKL(ESC Capping, SB 31-12-2016)

ALLOCATION OF MARINE DISPOSAL SPACE
Under ETWB TCW 34/2002 (or PNAP ADV-21 for Private Projects)

Allocation Number	Refer to referenced number of the allocation letter		
Contract /Project Name	Tuen Mun – Chek Lap Kok Link		
Location and Details of the Works involving Dredging	Dredging Works for Tuen Mun – Chek Lap Kok Link		
Project Proponent (Allocatee)	HyD		
Dredging Rationale Approval Date	18 October 2012	Sediment Quality Report Approval Date	28 June 2013

In accordance with ETWB TCW 34/2002 (or PNAP ADV-21 for private projects), hereinafter called the Circular, we hereby allocate to the above Allocatee the following marine disposal space for the respective categories of sediments arising from the above dredging works subject to due compliance and execution of the attached General Allocation Conditions and the following Special Conditions:

Category of Sediment	In-situ Volume of Sediment	Sediment Disposal Space
Category L	392,000 m ³	Suitable for capping the exhausted Confined Marine Disposal Facility at East of Sha Chau (or South of The Brothers)
Category M _p Sediment (i.e. Category M Sediment passing biological test)	149,000 m ³	Subareas to be directed on site within the Mud Pit CMP1 (or CMP2) of the Confined Marine Sediment Disposal Facility to South of The Brothers or the Mud Pit of the Confined Marine Sediment Disposal Facility at East of Sha Chau
Category M _f Sediment (i.e. Category M Sediment failing biological test)	143,000 m ³	

Special Conditions

1. “In-situ volume of the sediment” means the volume of such sediment in its original place before it is dredged/excavated. Disposal of the sediment in excess of the above specified volume is not permitted.
2. The sediment dumped has to be kept below the levels specified by the DASO permits. If sediment was found to be dumped above these levels within the concerned disposal space, the Allocatee shall propose remedial measures and rectify the situation to the satisfaction of all the parties concerned.
3. While the seabeds in some areas of the allocated marine disposal space may be less than 1.0 m below the maximum levels above, extreme care should be exercised to avoid the sediment being dumped above these levels.

4. The Allocatee will be required to carry out bathymetric surveys at the allocated disposal area.

5. For Category L sediment suitable for capping the exhausted Confined Marine Disposal Facility, the Resident Engineer of the project office shall ensure that his contractor disposes of the uncontaminated mud evenly in the contaminated mud pit as directed by the Management Team of the Confined Marine Disposal Facility. (Layouts of the Contaminated Mud Pits at East of Sha Chau and South of The Brothers are attached as Figures A and B respectively). The required fill-up levels are as follows :

CMP	Required fill-up level
CMP IVc at East of Sha Chau	-7.0 mCD to -6.0 mCD
CMP Va at East of Sha Chau	-8.0 mCD to -7.0 mCD
CMP 1 at South of The Brothers	-9.0 mCD to -4.0 mCD
CMP 2 at South of The Brothers	-5.0 mCD to -3.0 mCD

In case of non-compliance, the Resident Engineer of the project office shall request his contractor to rectify those high spots arising from excessive dumping at the contractor's own cost.

6. The allocation shall expire on 31 December 2016.

Marine Fill Committee Secretariat
Civil Engineering and Development Department
September 2013

GENERAL ALLOCATION CONDITIONS FOR MARINE DISPOSAL SPACE

Obligations of the Allocatee

1. Allocations of marine disposal space are made to a project proponent (the Allocatee), and it is the project proponent's responsibility to ensure that these Conditions are implemented. For simplicity, these Conditions refer variously to the "Contractor", the "Engineer of the Contract" and "the Authorized Person", but it is the project proponent's responsibility to identify the appropriate party to implement the Conditions.

Allocation of Sediment Disposal Space

2. The Open Sea Disposal Areas (hereinafter called ODAs) are located at South of Cheung Chau (hereinafter called SCC), East of Ninepin (hereinafter called ENP) and other empty marine borrow pits, if any, as specified in the Special Conditions. The Confined Marine Disposal Facility (hereinafter called CMF) in operation is situated at the South of The Brothers (hereinafter called SB) and any other CMF as specified in the Special Conditions. The SCC-ODA and SB-CMF receive sediment throughout a year and ENP-ODA only receives sediment from 16 March to 30 September of a year (both dates inclusive).

3. For any Category M_p Sediment, the disposal arrangement at CMF is on a temporary basis. It may be changed to other disposal arrangements whenever available to be notified by the Secretary of the Marine Fill Committee (MFC).

4. For any Category H_r Sediment, the disposal at CMF would not be allowed unless the Allocatee has identified and sought the agreement from EPD the most appropriate treatment on such Sediment rendering it suitable for Confined Marine Disposal.

Disposal Programme

5. Prior to the commencement of marine disposal of the sediment, the Engineer shall submit to the Director of Environmental Protection (DEP) and the MFC Secretary an estimated programme for the marine disposal of sediment at the respective ODAs and CMFs during the progress of works of the Contract. This programme shall be resubmitted whenever significant changes occur.

Notification before Commencement and after Completion of Sediment Disposal

6. The Allocatee shall notify the MFC Secretary, in writing, of the actual date of commencement and the actual date of completion of the marine disposal within one week of the occurrence of the events.

Centralized Management and Monitoring System for the ODA

7. The Fill Management Division (FMD) of the Civil Engineering and Development Department (CEDD) has been implementing a Centralized Management and Monitoring System (CMMS) for overseeing the ODAs through conducting monthly water quality monitoring, regular bathymetric surveys and ecological surveys for the ODAs, as well as

planning and assigning subareas in the ODAs for marine disposal.

8. As a management measure of the disposal activities, the Allocatee shall arrange the disposal within the assigned subareas of the ODA as shown on the relevant drawing to be attached to the allocation. Disposal activities outside the subareas are strictly prohibited.

9. If there are discrepancies between the location of the assigned subarea marked on the drawing and its coordinates stated on the drawing, the Allocatee shall clarify the location with the MFC Secretary before proceeding with disposal in the ODAs. The MFC Secretary shall not be responsible for any liabilities nor offences if the dumping operator has delayed the works or dumped the sediment outside the gazetted dumping area for whatever reasons.

Sediment Disposal Monthly Records and Forecasts

10. The Allocatee shall submit to the DEP and the MFC Secretary daily records of the barge loads at the ODAs and CMFs of a month by using the attached form in **Appendix A** – “Daily Record of Sediment Disposal Activities”. An estimate of the volume of sediment to be dumped in the following month shall also be provided. The disposal records above shall be checked and certified correct by the Engineer of the Contract (or AP/RSE/RGE for private projects). Within eight weeks of each bathymetric survey on the dredging site, the dredged volume based on the survey shall be reconciled with the disposal records and reported to the MFC Secretary.

11. At least one week prior to the commencement of the dredging works, the Allocatee shall submit to the MFC Secretary a table of forecast showing the volume of sediment to be dredged per month. Thereafter, the Allocatee shall submit a revised forecast on a monthly basis, taking into account the volume disposed of during the preceding month.

Permits under the Dumping at Sea Ordinance (DASO Permit)

12. The DEP controls dumping at sea by means of issuing permits under the Dumping at Sea Ordinance Cap. 466 (or called DASO permits) to the contractors or other parties responsible for the disposal of dredged/excavated sediment. The Contractor who will be undertaking the works must make a formal application to DEP for a DASO permit, and if the permit is granted, it will be the Contractor's responsibility to ensure that the permit conditions are met to DEP's satisfaction.

Disposal Procedures and Operations at the SB

13. The disposal activities at SB-CMF are managed and controlled by a site team of FMD. Access to the SB is on a non-exclusive basis and the Allocatee shall ensure that the Contractors should follow the disposal procedures in accordance with **Appendix B** – “Disposal Procedures and Operations at the South of The Brothers Confined Marine Disposal Facility”.

Miscellaneous

14. Trailer suction hopper dredgers disposing of sediment at South of The Brothers must use a down-a-pipe disposal method, the design of which must be approved in advance

by the Director of Civil Engineering and Development. The dredging contractor must provide equipment for such disposal.

15. The allocation of disposal space may carry a requirement for the project proponent to arrange for chemical analysis of the sediment sampled from 5% of the vessels en route to the disposal site. For Category M and certain Category H sediment, the chemical tests will be augmented by biological tests. Vessel sampling will normally entail mixing five samples to form a composite sample from the vessel and undertaking laboratory tests on this composite sample.

16. According to ETWB Technical Circular (Works) No. 34/2002, exceptionally large allocations might require some additional disposal site monitoring. These will be stipulated in the Special Conditions when appropriate.

Charges for allocations of marine disposal space to Private Projects

17. For allocations of marine disposal space to private projects, there will be a charge per cubic metre as measured *in situ* at the dredging site and as certified by the AP/RSE/RGE (authorized persons, registered structural engineers or registered geotechnical engineers) in accordance with paragraph 14 of the Practice Note for Authorized Persons and Registered Structural Engineers 252 (PNAP 252) issued by the Buildings Department.

18. The prescribed charge rates for sediment disposal at the respective ODAs and CMFs are specified in the Special Conditions. The methods of measurement and charging procedures are stipulated in Appendix C.

Assessment of Disposal Costs for private works entrusted to Government Contracts

19. For Government projects, the Allocatee shall check whether there are any private project works entrusted by others to be carried out in association with the concerned works. The Allocatee shall assess and reimburse the portion of marine disposal cost to be borne by the private parties and arrange the settlement sum to be transferred to the General Revenue.

- END -

Appendix A**Daily Record of Sediment Disposal Activities**

Project or Contract Name: _____

Contract No.: _____

Project Proponent: _____

Contractor: _____

Marine Dumping Permit Holder: _____

Marine Dumping Permit No.: _____

Location of Disposal: _____

Summary of Disposal Activities			
Date of Disposal:			Page _____ of _____
Time of Disposal	Name of Vessel	Maximum Hopper Capacity (m ³)	Estimated Bulk Volume of Sediment on the Barge (m ³)

Recorded by the marine dumping permit holder:	Checked and certified correct by the Engineer for the Contract (or AP/RSE/RGE for private projects):
Signature: _____	Signature: _____
Name: _____	Name: _____
Post: _____	Post: _____

Note:

This form shall be used for recording the daily disposal activities of the project concerned. The records shall be submitted, on a monthly basis, before the 10th day of the next month to the Secretary of the Marine Fill Committee at 5/F., Civil Engineering and Development Building, 101 Princess Margaret Road, Homantin, Kowloon. No return is required.

Appendix B (Sheet 1 of 4)**Disposal Procedures and Operations at the South of The Brothers
Confined Marine Disposal Facility (CMF)**

The Contaminated Mud Pit Management Scheme is administered by the Chief Engineer/Fill Management of the Civil Engineering and Development Department (CEDD). Users are required to comply with the following: -

1. Notification of disposal

- (a) When a barge or a trailer suction hopper dredger (TSHD) is filled up with contaminated mud and ready to depart from the site to the Contaminated Mud Pit (CMP) at South of The Brothers (CMP), the site supervisory staff shall notify the CMP Management Team at telephone number 9308 6312 with the following details:
- (i) project title;
 - (ii) Dumping Permit number;
 - (iii) numbers / names of the tug boat and hopper barge;
 - (iv) time of leaving the dredging site and the anticipated time of arrival at CMP; and
 - (v) estimated volume of mud inside the hopper of the barge or TSHD.

In addition, the above information shall be entered into the standard notification form (as attached) which shall be duly signed by the supervising engineer or his/her delegate (with name and post shown) for subsequent submission to the Management Team. For barges, the duly completed notification form shall be handed to the staff of the Management Team during reporting at the Office Barge. For TSHDs, the duly completed notification form shall be submitted to the Fill Management Division of CEDD by fax (2714 0113) on a daily basis.

- (b) The Permit Holders shall note that telephone notification does not constitute a reservation of time slot for disposal. Instead, the disposal priority along the relevant queue as referred to in para. 3 will be conducted only when the vessels arrive at the South of The Brothers.

2. Reporting to Management Team

- (a) When a barge arrives at the Reporting Area at the South of The Brothers (Figure 1, as attached), a representative of the barge shall report to the Management Team at the Office Barge and hand in the completed notification form to the staff of the Management Team. The Management Team will record the arrival time. A note will be given to the representative of the barge showing the arrival time of the subject barge, the possible time that disposal can be conducted and the registration number of the barge or TSHD queuing before the subject barge.
- (b) When a TSHD arrives at the Reporting Area at the South of The Brothers (Figure 1, as attached), the representative of the TSHD shall report to the Management Team at telephone number 9308 6312. The Management Team will record the arrival time and inform the representative of the TSHD of the possible time and location within CMP that disposal can be conducted and the registration number of the barge or TSHD queuing before the subject TSHD.

(Remark: - Barges with valid Dumping Permit but arriving without prior notification or without

Appendix B (Sheet 2 of 4)

completed notification form as required in para. 1 shall wait until all relevant details are verified by their relevant supervising engineer or his staff.)

3. **On-site Queuing Arrangement**

- (a) The disposal volume in any rolling 24-hour period is to be kept within 26,700 m³. For barges, the disposal volume shall be the bulk volume of mud contained in the hopper. For TSHD, the disposal volume shall be the bulk volume of mud contained in the hopper times a factor of 0.65.
- (b) The Management Team will compile a spreadsheet record for queuing with details of actual disposal. Barges/TSHDs reported arrival will be received on a first-come, first-served basis. The barges/TSHDs have to follow the queue and wait for instructions from the Management Team to dispose of the contaminated mud. Any barge/TSHD not ready to proceed with mud disposal when called upon by the Management Team shall lose their turn for disposal. The concerned representative of the barge/TSHD needs to report again to the Office Barge as if newly arrived and queue again after other arrived barges/TSHDs following the relevant queue and wait again for instructions to dispose of mud.
- (c) In queuing for the disposal, the barges and tug boats need to stay outside the Reporting Area and distant from the nearby fairway. The TSHD, barges and tug boats shall strictly observe the marine safety requirements and follow instructions from the Marine Police and Marine Department.

4. **Disposal** – After receipt of permission from the Management Team to proceed with disposal, the tug boat/barge operator shall, with the aid of instructions given by the guide boat of the Management Team, manoeuvre the barge into the target dumping area in CMP1 (Figure 2, as attached). The tug boat operator shall cut off the power and allow their barge to drift along the water current during the discharge of mud. The barge shall continue to drift for at least 3 minutes after discharging mud. The tug boat operator shall strictly follow the instructions from the Management Team for disposal. The tug boat/barge operator shall not let his tug boat/barge move astern, except in an emergency situation, within the pit area during and after disposal of contaminated mud. It should be noted that it is a Marine Department requirement that the tug boat should display the “Not Under Command” signals while it is drifting. For TSHD, no guiding service will be provided by the Management Team. The TSHD shall start the disposal after receipt of permission from the Management Team and shall report to the Management Team after the completion of the disposal. The tug boat/barge operator shall contact the Management Team at telephone number 9308 6312 when there are difficulties in communication.

5. **Illegal disposal** – If any vessel is found to disobey instructions and proceed with illegal disposal and/or any irregularities spotted during disposal, its details will be recorded. The Environmental Protection Department, Marine Police or Marine Department will take action as appropriate. The resident engineer shall keep a running tally of the volume dumped under both the permit and the allocation. If either the permitted or allocated volume is reached, he shall notify the Management Team and stop sending the barge to the disposal ground.

6. **Leaving the Pit** – After discharging, the tug boat/barge/TSHD operator shall inform the Management Team of completion of disposal before leaving the pit. The tug boat/barge shall sail

Appendix B (Sheet 3 of 4)

slowly away from the disposal site until leaving the pit.

7. Closure of Pit – The contaminated mud disposal at the South of The Brothers Mud Pits will be suspended and the CMP will be closed during the hoisting of Typhoon Signal No. 3 or higher or in other conditions, e.g. adverse weather, when the Management Team considers that its management duties cannot be discharged safely and properly. The CMP would be closed from 6:00am on the Lunar New Year (LNY) Eve until 3:00pm on LNY Day Four when it would be reopened. There is no guarantee that prior notice will be given. Arrived barges or TSHD shall leave the disposal area immediately if the pit has been closed. For enquiries relating to the closure of the Pit, please contact the Management Team at telephone number 9308 6312.
8. Safety Matters
 - (a) All barges' representatives boarding/disembarking the Office Barge shall wear non-slippery shoes and life jackets. Any barge's representative not complying with this requirement will not be permitted to board /disembark from the Office Barge. Any non-compliance will be reported to the relevant Permit Holder and project management office.
 - (b) All TSHDs, tug boats and barges shall turn on their lights while working in the vicinity of Mud Pits in dark or when the visibility is poor. Any non-compliance will be reported to relevant Permit Holder, project management office, the Marine Police and Marine Department.
 - (c) Any barge while waiting in the vicinity of the Mud Pits to queue up for disposal, shall be served/looked after by a tug boat. Any non-compliance will be reported to the relevant project management office, the Marine Police and Marine Department.

Appendix B (Sheet 4 of 4)Notification of Dumping of Contaminated Mud at the South of The Brothers

From:

Contract No.:

Contract Title:

To: Management Team/South of The Brothers

Contract Tel. No.:

Fax No.

EPD Dumping Permit No. (Allocation Volume m ³)	Dredging Location	Tug Boat Name/No.	Hopper Barge Name/No.	Quantity ¹ (m ³)	Time leaving dredging site	Accumulated Quantity (m ³)	Anticipated arrival time at the South of The Brothers

Official Use
Arrival date/time
Remarks

Signature of Resident Engineer/Authorized Supervisor:

Name of Resident Engineer
/Authorized Supervisor (in block letters):

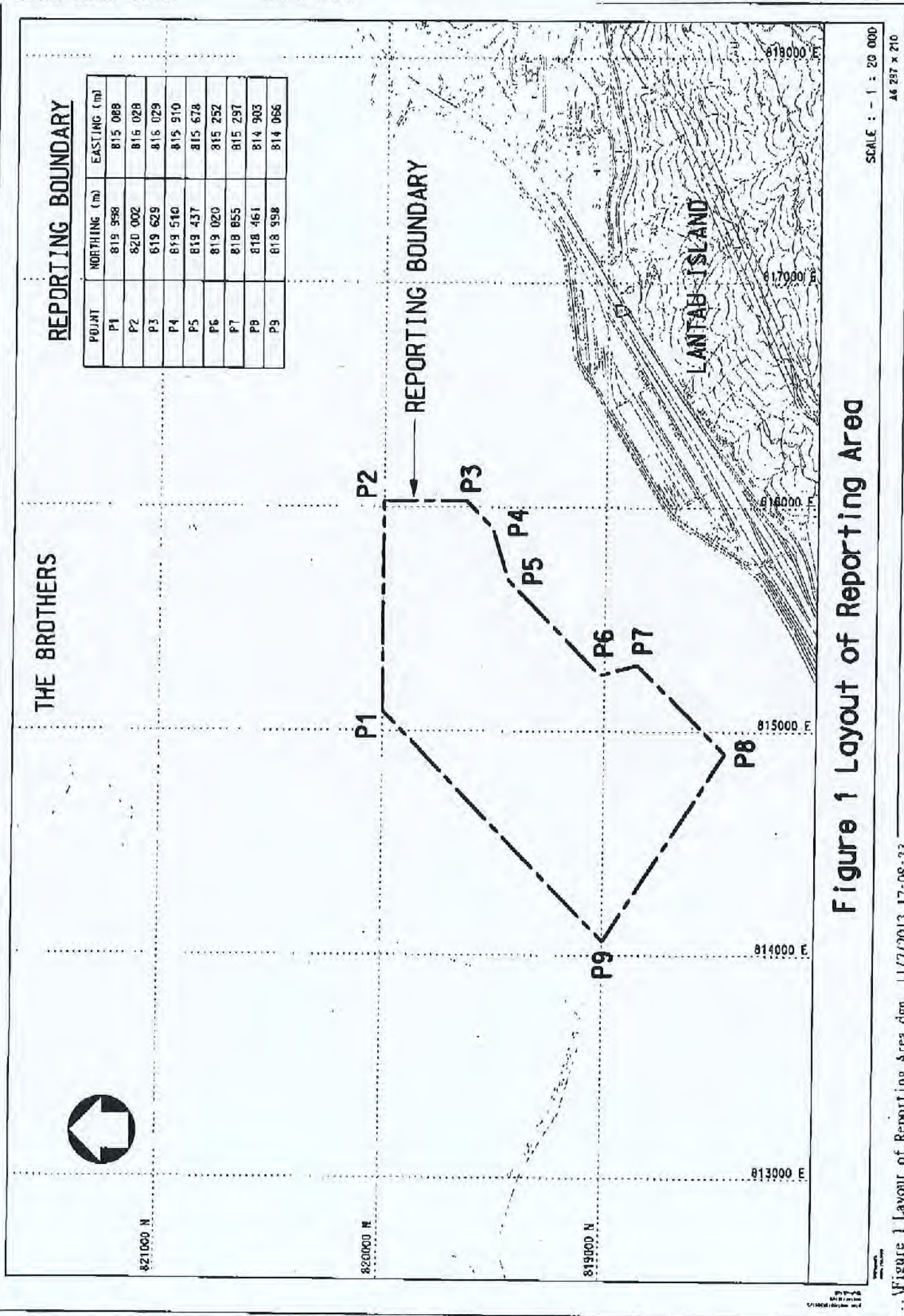
(post:)

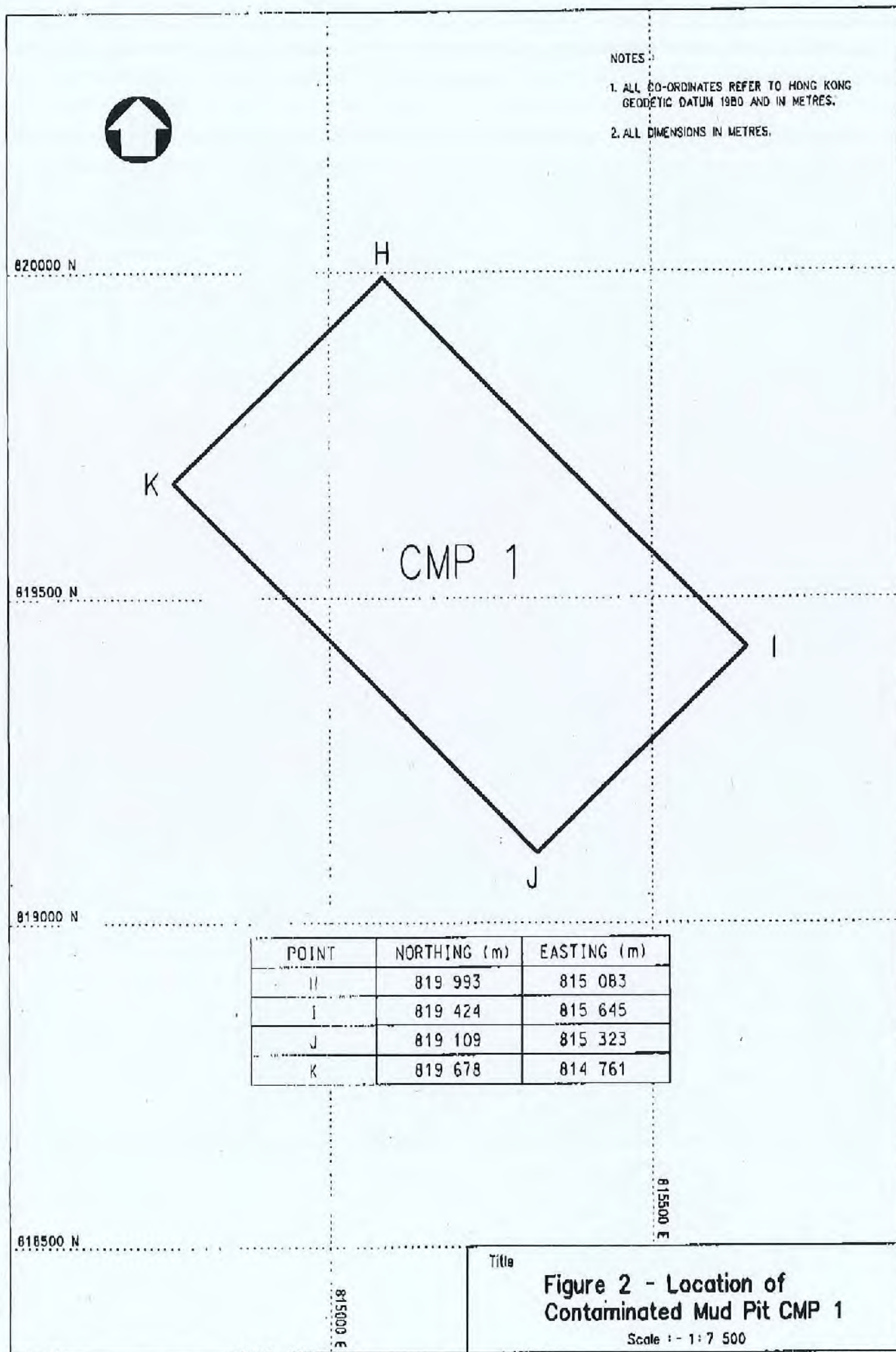
(contact tel:)

Date/Time:

- Note: -
1. The quantity entered shall have allowed for bulking after dredging.
 2. The permit holder shall provide contact telephone number for verification/providing details when the barge arrived at the South of The Brothers.
 3. This form shall be submitted to the Management Team by fax (2714 0113) within the period between 1 and 3 hours before anticipated arrival time for TSHDs.
 4. The permit holder shall notify the Management Team by phone before the barge leaves the site.
 5. The representative of the barge shall submit a copy of Dumping Permit to the Management Team when requested.

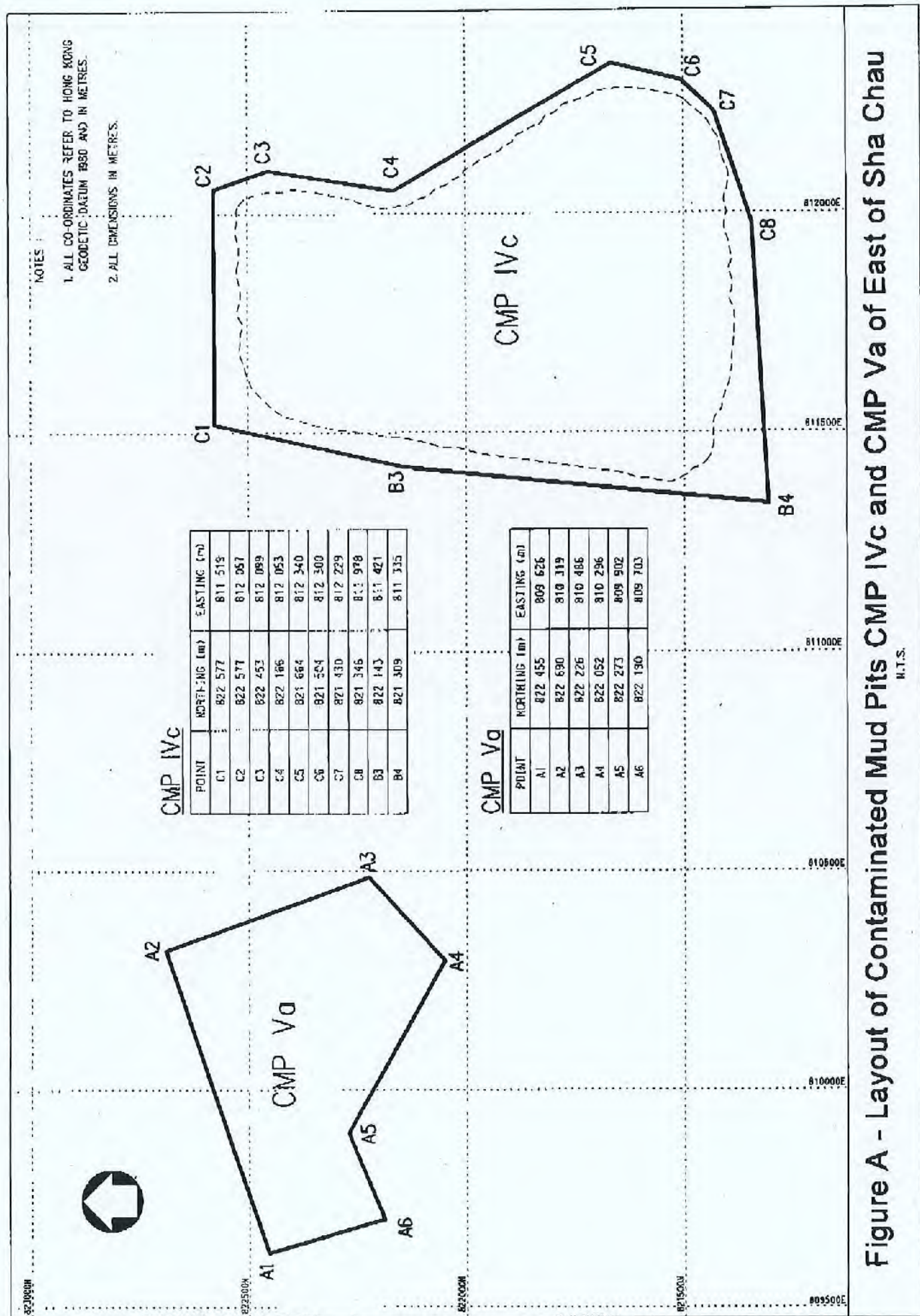
Appendix B to General Allocation ConditionsVersion (August 2013)

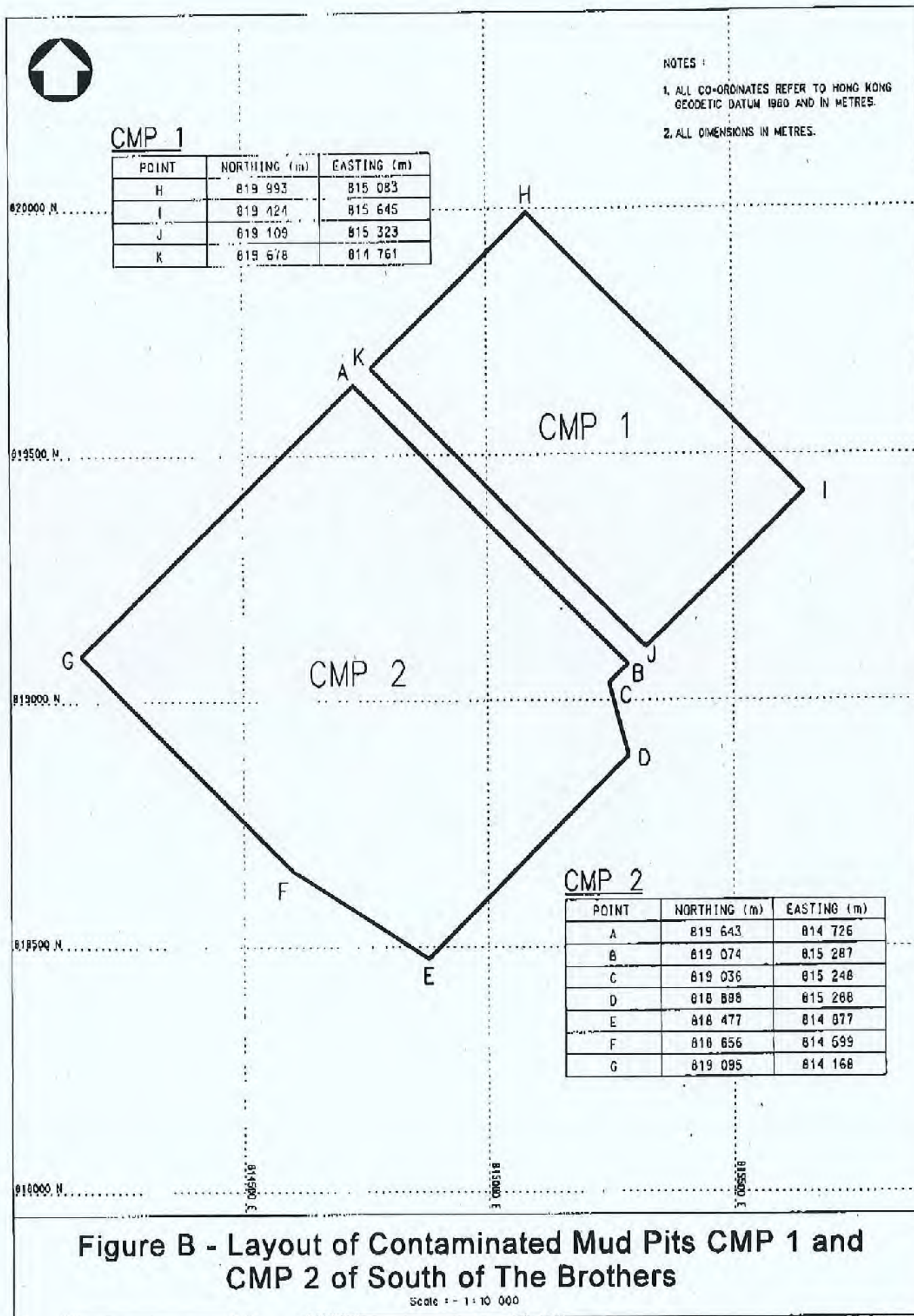




...\\Figure 2 Location of Contaminated Mud Pit CMP 1.dgn 11/7/2013 15:30:44

A4 297 x 210





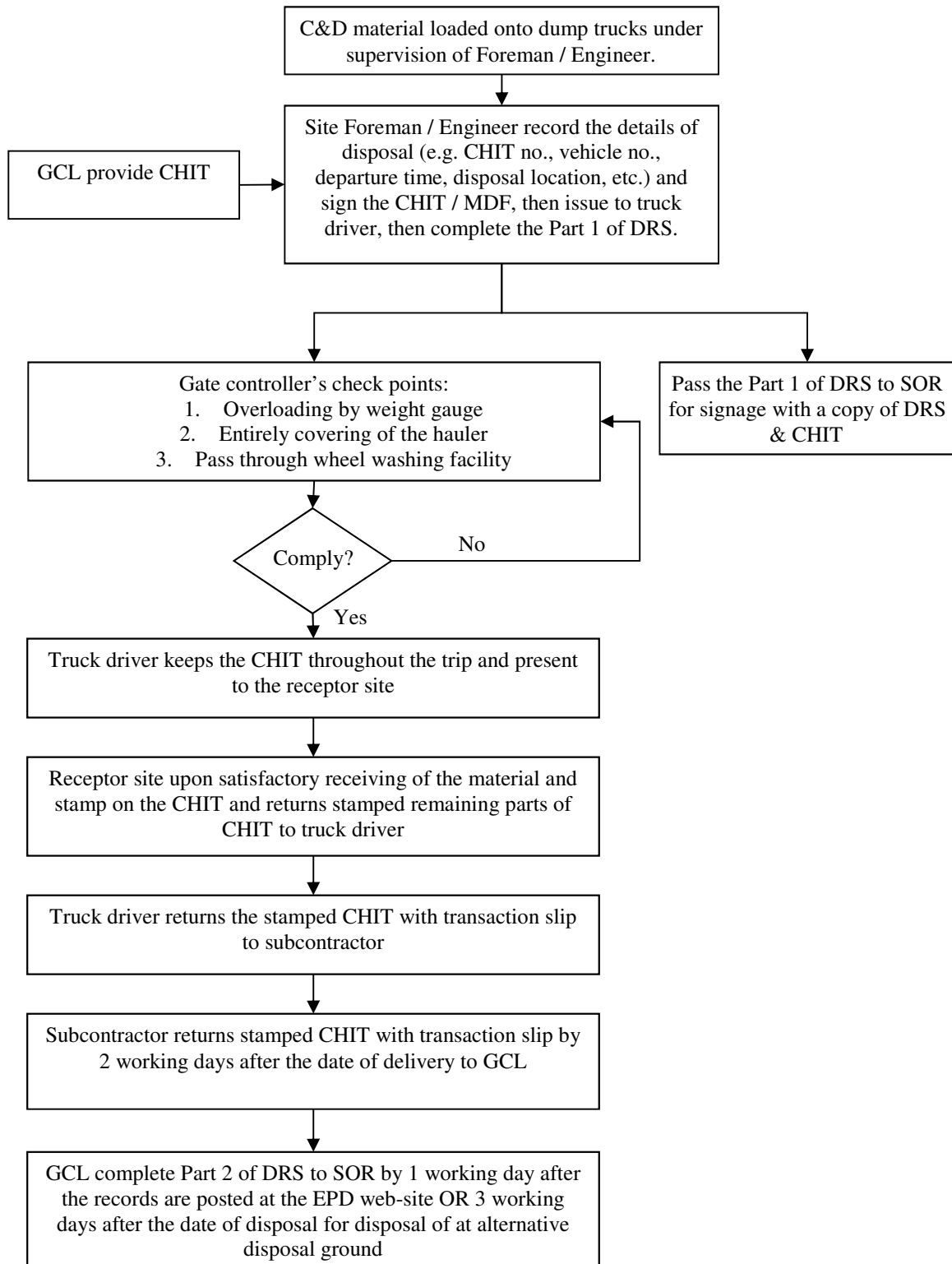
A4 210 x 297

...\\Figure B - Layout of Contaminated Mud Pits CMP 1 and 2 of South of The Brothers.dgn 31/7/2013 16:46:09

APPENDIX I

Control Procedures on Off-Site Disposal of C&D Materials

CONTROL PROCEDURES ON OFF-SITE DISPOSAL OF C&D MATERIALS



APPENDIX J

Sample of CHIT Form

E 199279

入帳票編號:
Chit No.: _____

選擇「✓」一個認可設施:

Tick (✓) One Prescribed Facility:

☐ 堆填區 ☐ 篩選分類設施
Landfills ☐ Sorting Facilities

☐ 公眾填料接收設施
Public Fill Reception Facilities

☐ 離島廢物轉運設施
Outlying Islands Transfer Facilities

車牌號碼 Vehicle Registration Mark: _____

使用日期:

Date of Use: _____

簽發人:

Issued by: _____

建築廢物產生地點:

Construction Waste Generated Site: _____

帳戶編號:

Account No.: _____

甲部份: 由帳戶戶主保留

Part A: retained by Account-holder

入帳票編號:

Chit No.: _____

選擇「✓」一個認可設施:

Tick (✓) One Prescribed Facility:

☐ 堆填區 ☐ 篩選分類設施
Landfills ☐ Sorting Facilities

☐ 公眾填料接收設施
Public Fill Reception Facilities

☐ 離島廢物轉運設施
Outlying Islands Transfer Facilities

車牌號碼 Vehicle Registration Mark: _____

使用日期:

Date of Use: _____

簽發人:

Issued by: _____

帳戶名稱:

Name of the Account-holder: _____

帳戶編號:

Account No.: _____

乙部份: 由廢物運輸商保留

Part B: retained by Waste Handler

香港法例第354章廢物處置條例

廢物處置(建築廢物處置收費)規例

Waste Disposal Ordinance (Chapter 354)

Waste Disposal (Charges for Disposal of Construction Waste) Regulation

載運入帳票

CHIT

車牌號碼:

Vehicle Registration Mark: _____

有效期至:

Valid Until: _____

建築、物產生地點:

Construction Waste Generated Site: _____

帳戶名稱:

Name of the Account-holder: _____



康樂及文化事務署
Civil Engineering and
Development Department



環境衛生署
Environmental
Protection
Department

丙部份: 由政府保留

Part C: retained by Government

APPENDIX K

Protocol of Guidelines to Dump Truck Drivers

合約編號 HY/2012/07
屯門至赤鱗角連接路 - 南面連接路高架道路段
泥車離開地盤環保要點

運泥車於離開地盤前，司機需注意事項：

1. 運泥車上的建築廢物已經篩選分類；
2. 離開地盤範圍前必須確保機動蓋掩或使用帆布完全蓋好車斗。否則需卸下物料並離開地盤；
3. 離開地盤範圍前檢查磅錶，切勿超越負荷；
4. 離開地盤範圍前必先沖洗車轆；
5. 已填好運載記錄票上的所有資料；及
6. 必須將運載記錄票上的第一聯交給駐地盤監工人士，方可離開。

本人明白上述環保要點，並會遵守。

簽名：

司機姓名：

公司名稱：

車牌：

日期：

APPENDIX L

Sample of Daily Record Summary

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

- (1) Contract no. & title: HY/2012/07 - Tuen Mun Chek Lap Kok Link – Southern Connection Viaduct Section
- (2) Date of disposal: _____
- (3) Designated disposal ground(s): (a) _____
(b) _____
others _____
- (4) Approved alternative disposal grounds: _____

CHIT / DDF Serial 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 GCL's Designated person before departure	Departure time from site	Signature & Name of the SO's staff before departure or other time as agreed between Engineer's Representative and the GCL ¹	Actual disposal ground	Arrival time at disposal ground	Remark

←-----Part 1²-----→ ←-----Part 2³-----→

Submitted by: _____ Name of GCL's Designated Person
Signature: _____
Date: _____
Received by: _____ Name and Signature of the SOR
Post: _____
Date & Time: _____

Remark:

- For the term contract, if there are no full time site supervisory staff, the Supervising Officer's Representative should spot check and then sign as appropriate in accordance with paragraph 25 of DEVB TC(W) 6/2010.
- Part 1 - The GCL shall complete Part 1 in duplicate and a copy should be kept by the Supervising Officer's Representative.
- Part 2 - The GCL shall complete Part 2 and submit the whole summary to the Supervising Officer's Representative within 1 working days after the records are posted at the EPD website.

APPENDIX M

Environmental Mitigation Implementation Schedule for Waste Management

Agreement No. CE 52/2007 (HY)
TUEN MUN – CHEK LAP KOK LINK
INVESTIGATION

ENVIRONMENTAL MITIGATION IMPLEMENTATION SCHEDULE

Waste

EIA Reference	EM&A Manual Reference	Environmental Protection Measures	Location/ Timing	Implementation Agent	Relevant Standard or Requirement	Implementation Stages			Maintenance Agency
						D	C	O	
12.6		The Contractor shall identify a coordinator for the management of waste.	Contract mobilisation	Contractor	TMEIA		Y		n/a
12.6		The Contractor shall prepare and implement a Waste Management Plan which specifies procedures such as a ticketing system, to facilitate tracking of loads and to ensure that illegal disposal of wastes does not occur, and protocols for the maintenance of records of the quantities of wastes generated, recycled and disposed. A recording system for the amount of waste generated, recycled and disposed (locations) should be established.	Contract mobilisation	Contractor	TMEIA, Works Branch Technical Circular No. 5/99 for the Trip-ticket System for Disposal of Construction and Demolition Material		Y		n/a
12.6		The Contractor shall apply for and obtain the appropriate licenses for the disposal of public fill, chemical waste and effluent discharges.	Contract mobilisation	Contractor	TMEIA, Land (Miscellaneous Provisions) Ordinance (Cap 28); Waste Disposal Ordinance (Cap 354); Dumping at Sea Ordinance (Cap 466); Water Pollution Control Ordinance.		Y		n/a
12.6	8.1	Training shall be provided to workers	Contract Mobilisation	Contractor	TMEIA		Y		n/a

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						D	C	O	
		about the concepts of site cleanliness and appropriate waste management procedures including waste reduction, reuse and recycling							
12.6	8.1	The extent of cutting operation should be optimised where possible. Earth retaining structures and bored pile walls should be proposed to minimise the extent of cutting.	All areas / throughout construction period	Contractor	TMEIA		Y		n/a
12.6	8.1	Inert C&D materials from the toll plaza cut slopes shall be reused for construction of the raised platform for the toll plaza where possible.	Tol Plaza / toll plaza construction period	Contractor	TMEIA		Y		n/a
12.6	8.1	C&D materials generated by construction of cut slopes along NLH at North Lantau shall be reused in reclamation works where possible.	NLH slope works / throughout construction period	Contractor	TMEIA		Y		n/a
12.6	8.1	The surplus surcharge should be transferred to a fill bank	Reclamation areas / after surcharge works	Contractor	TMEIA		Y		n/a
12.6	8.1	Rock armour from the existing seawall should be reused on the new sloping seawall as far as possible	All areas / throughout construction period	Contractor	TMEIA		Y		n/a

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						D	C	O	
12.6	8.1	TMB generated alluvium and CDG material should be treated at a slurry treatment plant prior to transfer to a fill bank.	TMB works area / during TBM works	Contractor	TMEIA		Y		n/a
12.6	8.1	The site and surroundings shall be kept tidy and litter free.	All areas / throughout construction period	Contractor	TMEIA		Y		n/a
12.6	8.1	No waste shall be burnt on site.	All areas / throughout construction period	Contractor	TMEIA		Y		n/a
12.6	8.1	Provisions to be made in contract documents to allow and promote the use of recycled aggregates where appropriate.	Detailed Design	Design Consultant	TMEIA	Y			n/a
12.6	8.1	The Contractor shall be prohibited from disposing of C&D materials at any sensitive locations. The Contractor should propose the final disposal sites in the EMP and WMP for approval before implementation.	All areas / throughout construction period	Contractor	TMEIA		Y		n/a
12.6	8.1	Stockpiled material shall be covered by tarpaulin and /or watered as appropriate to prevent windblown dust/ surface run off.	All areas / throughout construction period	Contractor	TMEIA		Y		n/a

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						D	C	O	
12.6	8.1	Excavated material in trucks shall be covered by tarpaulins to reduce the potential for spillage and dust generation.	All areas / throughout construction period	Contractor	TMEIA		Y		n/a
12.6	8.1	Wheel washing facilities shall be used by all trucks leaving the site to prevent transfer of mud onto public roads.	All areas / throughout construction period	Contractor	TMEIA		Y		n/a
12.6	8.1	Dredged marine mud shall be disposed of in a gazetted marine disposal ground under the requirements of the Dumping at Seas Ordinance.	Reclamation areas / throughout dredging works	Contractor	TMEIA		Y		n/a
12.6	8.1	Standard formwork or pre-fabrication should be used as far as practicable so as to minimise the C&D materials arising. The use of more durable formwork/plastic facing for construction works should be considered. The use of wooden hoardings should be avoided and metal hoarding should be used to facilitate recycling. Purchasing of construction materials should avoid over-ordering and wastage.	All areas / throughout construction period	Contractor	TMEIA		Y		n/a
12.6	8.1	The Contractor should recycle as many C&D materials (this is a waste section) as possible on-site. The public fill and C&D	All areas / throughout construction period	Contractor	TMEIA		Y		n/a

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						D	C	O	
		waste should be segregated and stored in separate containers or skips to facilitate the reuse or recycling of materials and proper disposal. Where practicable, the concrete and masonry should be crushed and used as fill materials. Steel reinforcement bar should be collected for use by scrap steel mills. Different areas of the sites should be considered for segregation and storage activities.							
12.6	8.1	All falsework will be steel instead of wood.	All areas / throughout construction period	Contractor	TMEIA		Y		n/a
12.6	8.1	Chemical waste producers should register with the EPD. Chemical waste should be handled in accordance with the Code of Practice on the Packaging, Handling and Storage of Chemical Wastes as follows: <ul style="list-style-type: none"> ▪ suitable for the substance to be held, resistant to corrosion, maintained in good conditions and securely closed; ▪ Having a capacity of <450L unless the specifications have been approved by the EPD; and 	All areas / throughout construction period	Contractor	TMEIA		Y		n/a

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						D	C	O	
		<ul style="list-style-type: none"> ▪ Displaying a label in English and Chinese according to the instructions prescribed in Schedule 2 of the Regulations. ▪ Clearly labelled and used solely for the storage of chemical wastes; ▪ Enclosed with at least 3 sides; ▪ Impermeable floor and bund with capacity to accommodate 110% of the volume of the largest container or 20% by volume of the chemical waste stored in the area, whichever is greatest; ▪ Adequate ventilation; ▪ Sufficiently covered to prevent rainfall entering (water collected within the bund must be tested and disposed of as chemical waste, if necessary); and ▪ Incompatible materials are adequately separated. 							
12.6	8.1	Waste oils, chemicals or solvents shall not be disposed of to drain,	All areas / throughout construction period	Contractor	TMEIA		Y		n/a
12.6	8.1	Adequate numbers of portable toilets should be provided for on-site workers.	All areas / throughout construction period	Contractor	TMEIA		Y		n/a

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		Portable toilets should be maintained in reasonable states, which will not deter the workers from utilising them.							
12.6	8.1	Night soil should be regularly collected by licensed collectors.	All areas / throughout construction period	Contractor	TMEIA		Y		n/a
12.6	8.1	General refuse arising on-site should be stored in enclosed bins or compaction units separately from C&D and chemical wastes. Sufficient dustbins shall be provided for storage of waste as required under the Public Cleansing and Prevention of Nuisances By-laws. In addition, general refuse shall be cleared daily and shall be disposed of to the nearest licensed landfill or refuse transfer station. Burning of refuse on construction sites is prohibited.	All areas / throughout construction period	Contractor	TMEIA		Y		n/a
12.6	8.1	All waste containers shall be in a secure area on hardstanding;	All areas / throughout construction period	Contractor	TMEIA		Y		n/a
12.6	8.1	Training shall be provided to workers about the concepts of site cleanliness and appropriate waste management procedure, including waste reduction, reuse and recycling.	All areas / throughout construction period	Contractor	TMEIA		Y		n/a

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12.6	8.1	Office wastes can be reduced by recycling of paper if such volume is sufficiently large to warrant collection. Participation in a local collection scheme by the Contractor should be advocated. Waste separation facilities for paper, aluminium cans, plastic bottles, etc should be provided on-site.	Site Offices/ throughout construction period	Contractor	TMEIA		Y		n/a
12.6	Section 8	EM&A of waste handling, storage, transportation, disposal procedures and documentation through the site audit programme shall be undertaken.	All areas / throughout construction period	Contractor	EM&A Manual		Y		n/a

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