

Tuen Mun - Chek Lap Kok Link Northern Connection Sub-sea Tunnel Section Contract No. HY/2012/08

PLAN

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WASTE MANAGEMENT PLAN

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DATE	27 Jan 2014	-1 Jan - 7000	7-1-10	27/1/14	21-12



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(II) **PROJECT DETAILS**

:	HY/2012/08
:	Tuen Mun – Chek Lap Kok Link, Northern Connection Sub-Sea
	Tunnel Section
:	From 31 st July 2013 to 25 th October 2018
:	Government of Hong Kong Special Administration Region -
	Highways Department
er :	AECOM Asia Company Limited
:	Dragages - Bouygues Joint Venture
:	The design and/or construction for the section of TM-CLKL between Tuen Mun Area 40 and the HKBCF, include the following scope of work:
(i)	Design and construction of sub-sea TBM tunnels (two tubes with cross passages) across the Urmston Road, connecting Tuen Mun Area 40 and HKBCF, of approximately 4 km in length with dual 2-lane carriageway;
(ii)	Design and construction of cut-and-cover tunnels (two boxes with cross passages) at both the southern landfall and the northern landfall for construction of approach roads to the sub-sea TBM tunnels, of approximately 1.5km in length;
(iii)	Construction of northern landfall reclamation of approximately 16.5 hectares and about 2.0km long seawalls;
(iv)	Design and construction of ventilation buildings at the southern and northern landfalls;
(v)	Design and construction of at-grade roads at the southern and northern landfalls;
(vi)	Construction of extension of the existing 4-cell box culvert adjacent to RTT;
(vii)	Provision of a temporary pontoon for the affected existing Government berths at RTT;
	: : : : : : (i) (ii) (iii) (iii) (iv) (v) (v) (vi) (vi



- (viii) Design and construction for modification of a section of vertical seawall of approximately 220m in length at the southern landfall to sloping seawall;
- (ix) Design and construction of associated civil, structural, building, geotechnical, marine, environmental protection, drainage and sewerage, waterworks and utility works;
- (x) Design and construction of advance SEM provisions to facilitate installation of E&M, TCSS and other utilities including tunnel ventilation, tunnel lighting, tunnel fire services, mechanical ventilation & air- conditioning, high voltage power supply, low voltage power supply, fire services, plumbing & drainage, central monitoring & control system and implementation of an EM&A programme for the works under this Contract.



(III) SITE LAYOUT PLAN







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1.0 INTRODUCTION

1.1 Requirement

- (i) The Employer's Requirements Part C Appendix 8J and Environmental Permit EP-354/2009/A Condition 2.10 require the Contractor to submit a Waste Management Plan (WMP) to the Supervising Officer's Representative (SOR) at least 1 month before the commencement of the construction of the Project.
- (ii) Condition 2.10(a) of the Environmental Permit refers to the supplementary WMP, which is to be submitted one month prior to the commencement of cut-and-cover tunnel construction in the Southern Landfall. This part of the works is expected to be commenced in three to four years-time.
- (iii) Wastes generated from the construction of the sub-sea tunnels are envisaged to be removed primarily via the Northern Landfall and potentially via the Southern Landfall towards the end of the Project. Waste management aspects will be covered under this WMP and the supplementary WMP.
- (iv) The WMP shall be prepared in accordance with the requirements of ETWB TC (Works) No. 19/2005 "Environmental Management on Construction Sites" and the "Interim Guidance Not on Administration of Environmental Management and Pay for Safety and Environment Scheme for Public Works Contracts"

1.2 Project Description

- (i) The Works in this Contract, Contract No. HY/2012/08, Tuen Mun Chek Lap Kok Link Northern Connection Sub-sea Tunnel Section, is comprised of the following parts:
 - A dual 2-lane sub-sea tunnel approximately 5 km long between Tuen Mun and the Hong Kong Zhuhai Macau Bridge Hong Kong Boundary Crossing Facilities (HKBCF);
 - Reclamation to form land of approximately 16.5 hectares for the tunnel landfall at Tuen Mun;
 - Associated civil, structural, building, geotechnical, marine, water supplies, drainage, sewage, landscaping works and re-provisioning works of affected existing facilities, etc.
- (ii) Construction works began 1 November 2013, starting with marine dredging and reclamation works for the North Landfall. Land-based excavation and construction works will begin progressively, as land is formed over 2014. TBM tunneling works will proceed from the Northern Landfall, once these land-based facilities are ready. The land-works will include the construction of diaphragm walls, shafts and the like. The target completion date of construction works will be at October of 2018.



2.0 WASTE MANAGEMENT POLICY

(i) To demonstrate the Project Team's commitment on the continual improvement of our waste management performance, the project waste management policy has been established as below:

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	Joint Venture Project Waste Policy Statement
It is the comply wenvironm and main to ensure	policy of Dragages – Bouygues Joint Venture (DBJV) to do at all time what is necessary to with the legislation related to the waste management and to strive for the improvement of site neutal and hygiene conditions in all areas under its control. The JV is committed to implement tain an environmental management system that complies with the requirements of ISO 14001 that:
•	avoiding or minimizing the waste generation through optimising the design approach in the project planning, such as material conservation technique;
•	avoiding or minimizing the waste generation through optimising the construction method or sequence in the construction stage;
•	adopting better management practices on site to reduce cross contamination and promote waste segregation, sorting and reduction programme;
•	reusing or recycling waste materials in other construction activities where possible;
•	diverting waste to other construction sites or to public dumps for beneficial use if applicable;
•	installing appropriate facilities for segregation of various typed of wastes; and
•	arranging and facilitating collection of wastes by the appropriate waste recyclers as far as possible.
The Wast necessary project sta understan providers.	e Management Plan (WMP) will be reviewed periodically by the Project Team and revised if to achieve continual improvement. The requirement of this WMP will be communicated to all aff who are required to diligently perform the duties that are assigned to them and to extend the ding and acceptance of waste management policy to the subcontractors, suppliers and service
For Dra g	ages - Bouygues Joint Venture (DBJV)
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Mr. Seve Project D Dragages Date: 6 th	ed ROBIN irector -Bouygues Joint Venture September 2013

(ii) The policy provides a framework in guiding the project team the basic requirement to be achieved in waste management. Good planning and site management practices help to minimize over-ordering or misuse of construction materials, minimize the amount of wastes generated, and reduce the costs of waste handling and disposal.



3.0 WASTE RELEVANT LEGAL GUIDELINES IN HK

- (i) All legislations related to the handling, treatment and disposal of wastes in Hong Kong shall be observed with regard to all wastes generated and requiring disposal due to the construction stage of the Project. The relevant environmental ordinances and regulations are:
 - Waste Disposal (Amendment) Ordinance (Cap. 354)
 - Waste Disposal (Chemical Waste) (General) Regulation
 - Waste Disposal (Charge of Disposal of Construction Waste) Regulation
 - Dumping at Sea Ordinance (Cap. 466)
 - Land (Miscellaneous Provisions) Ordinance (Cap. 28)
 - Public Health and Municipal Services Ordinance (Cap.132)
 - Public Cleansing and Prevention of Nuisances Regulation
- (ii) Other guideline documents include:
 - Waste Disposal Plan for Hong Kong (December 1989)
 - New Disposal Arrangements for Construction Waste (1992)
 - Code of Practice on the Packaging, Labeling and Storage of Chemical Wastes (1992)
 - Works Branch Technical Circular (WBTC) No. 32/92, The Use of Tropical Hard Wood on Construction Site
 - WBTC No. 2/93, Public Dumps
 - WBTC No. 2/93B, Public Filling Facilities
 - WBTC No. 16/96, Wet Soil in Public Dumps
 - WBTC No. 4/98 and 4/98A, Use of Public Fill in Reclamation and Earth Filling Projects
 - Waste Reduction Framework Plan, 1998 to 2007
 - WBTC No. 25/99, 25/99A and 25/99C, Incorporation of Information on Construction and Demolition Material Management in Public Works Subcommittee Papers
 - WBTC No. 12/2000, Fill Management
 - WBTC No. 19/2001, Metallic Site Hoardings and Signboards
 - WBTC No. 6/2002 and 6/2002A, Enhanced Specification for Site Cleanliness and Tidiness
 - WBTC No. 12/2002, Specification Facilitating the Use of Recycled Aggregates
 - ETWBTC No. 33/2002, Management of C&D Material Including Rock
 - ETWBTC No. 34/2002, Management of Dredged / Excavated Sediment
 - ETWBTC No. 31/2004, Trip Ticket System for Disposal of C&D Materials
 - ETWBTC No. 19/2005, Environmental Management for Construction Site
 - DEVBTC No. 6/2010, Trip Ticket System for Disposal of C&D Materials



4.0 WASTE MANAGEMENT HIERARCHY

(i) DBJV will adapt a surplus material management hierarchy throughout the works. The management options can be categorized in terms of preference from an environmental viewpoint. The options considered preferable will have the least impacts and are more sustainable in the long term.



Hierarchical Level	Method	Measures
Level 1 - Preferred	Elimination	Waste reduction has been considered in the pre-tender phases of project development. An optimal level has been achieved, considering the level of technology at hand.
		Further elimination of wastes could be achieved by means of alternative design and methods, proposed by the Contractor.
Level 2	Reduction at Source	Where the amount of wastes cannot be eliminated by design and methodology, wastes may be minimized by means of controlling the production/manufacturing processes at source. For example, pre-casting of concrete segments at factories will be more effective than in-situ concreting methods.
		To achieve this level of achievement, construction methodologies must be planned in advance to enable to utilize preferred component procurement channels. Significant engineering control is needed.



Level 3	Recycling	Further to the elimination and reduction processes, additional engineering and/or subletting approaches will be considered to recycle and reuse materials as far as practicable, without substantial treatment. Waste buyback or return arrangements may be agreed with suppliers. Otherwise, useful materials/commodities may be resold for reprocessing and reuse.
Level 4	Treatment	Where materials cannot be directly recycled or reused, additional engineering methods will be employed to treat waste materials, as far as practicable, so that they may be recycled or reused.For example, slurry treatment plant will allow water and bentonite slurry to be recycled and reused for the TBM tunneling works.
		Also, slurry treatment will stabilize the excavated C&D export materials for disposal, potentially enabling the materials to be reused on site or disposed at public fills, rather than at marine mud pits or landfills.
Level 5 – Not Preferred	Disposal	Only where materials cannot be managed by the above methods, shall they be removed directly to dumping, in accordance with methods compliant with statutory and contract requirements.



5.0 ORGANISATION, DUTIES AND RESPONSIBILITIES

5.1 **Project Environmental Organisation**

(i) The Contractor has established a management team to manage all environmental aspects, inclusive of waste management. The project environmental organization with contact information is presented in Appendix A.

5.2 **Duties and Responsibilities**

5.2.1. Duties

- (i) Pursuant to ER Part 14, Section 25.25 (1), DBJV has appointed the Environmental Officer as the senior staff member fully responsible for implementing and overseeing the operation of the Trip Ticket System (TTS).
- (ii) Site supervision in-charge (e.g. site superintendent, construction managers, foremen, etc.) are responsible for ensuring that the Daily Record Summary (DRS) are properly completed and signed properly before departure of dump trucks. The proforma of the Daily Record Summary is enclosed in Appendix B.
- (iii) The site supervision is assisted by skilled labour(s), one at each site exit to ensure that every truck carrying C&D materials leaving the Site bears a duly completed and signed chit.

5.2.2. Responsibilities

The responsibilities of the site staffs are listed as below:

(i) <u>Project Director/ Project Manager</u>

The Project Director / Project Manager will:

- Ensure the compliances with all applicable legal and contractual waste disposal requirements;
- Reports to the DBJV Management Board for waste management aspects;
- Execution, monitoring and review of waste management system and policy; and
- Ensure that sufficient resources are allocated for the implementation of the trip ticket system and marine dumping operation.

(ii) <u>General Construction Manager / Construction Manager</u>

The General Construction Managers (GCM) / Construction Managers (CM) appointed for the Contract are responsible for the following duties in relation to waste management:

- Ensure the compliances with all applicable legal and contractual waste disposal requirements;
- Ensure that the Daily Record Summary (DRS) are properly completed and signed properly before departure of dump trucks;



- Identify and provide all necessary resources for the implementation of waste disposal measures and trip ticket system;
- Implement the on-site sorting measures of C&D wastes;
- Observe the accumulation of general refuse in the Site, and carry out appropriate responses immediately to remove the refuse;
- Ensure proper treatment and disposal of chemical substances;
- Timely review of the dredging plans and layout plans of the reclamation area, advise the quantity of marine sediment, and ensure proper disposal of marine dumping to the designated area;
- Monitor the usage of timber in the construction of temporary works, and encourage subcontractors to minimize the use of timber; and
- Correct any identified non-conformance relating to the waste management system.

(iii) Safety & Environmental (S&E) Manager

Reporting to the DBJV senior managements, he will

- Monitor the site waste management system;
- Timely advise to the senior managements on waste management matters;
- Supervise the works of the environmental manager /officer and his team,
- Attend site safety and environmental committee (SSEC) meetings, site safety and environmental management committee (SSEMC) meetings and independent audits,
- Review designs of site waste disposal facilities in method statements in relation to waste management.

(iv) Environmental Manager / Officer

The Environmental Manager / Officer works full-time on Site and he is assigned to oversee all waste management matters of the Works. The duties of the Environmental Officer include the followings:

- Prepare, implement and update the waste management plan;
- Advise on measures to be taken in the interest of waste management;
- Liaise on all matters relating to waste monitoring and auditing;
- Monitoring the implementation of waste disposal measures and trip ticket system;
- Establish a record system to register dispatching and returning of chits;
- Complete and submit the updated monthly summary "Waste Flow Table" together with the updated sections of WMP (if any) to the Supervising Officer's Representative by not later than the 15th day of each month,
- Submit the summary table for using timber in the construction of Temporary Works together with the updated sections of Environmental Management Plan (EMP) (if any) to the Officer's Representative by not later than the 15th day of each month.



- Observe the accumulation of general refuse within the Site, and advise appropriate responses to remove the refuse;
- Ensure proper treatment, disposal, and record of chemical substances;
- Apply for marine dumping permit, ensure proper disposal of marine dumping to the designated area; and
- Arrange and provide the site specific toolbox talks about waste management for the staff and workers on the Site.

(v) Assistant Environmental Officer

Assistant Environmental Officers will assist to the Environmental Officer to implement the TTS on site and ensure the effectiveness of site waste management. The duties include:

- Assist the Environmental Officer carrying out his duties in monitoring of waste disposal,
- Carry out daily site environmental inspections, observe the accumulation of waste within the Site, and report to the Environmental Officer/Site Superintendent/General Foreman;
- Co-ordinate with General Foreman and Subcontractors, rectify defects and deficiencies identified during inspections;
- Advise the Environmental Officer on the up-keeping of waste management performance and standards of the Site;
- Monitor the on-site disposal status of C&D waste / general refuse / marine dumping;
- Conduct toolbox talks;
- Supervise and maintain the internal record systems of chits and daily record summaries; and
- Regularly retrieve disposal data from websites of EPD & CEDD.

(vi) <u>Site Superintendent / General Foreman / Foreman</u>

They are responsible for the following environmental duties:

- Undertake daily operation to implement the WMP;
- Ensure all waste is sorted, segregated, recycled or reused when applicable;
- Collaborate with the Assistant Environmental Officer in the implementation of TTS;
- Ensure that each truck carrying C&D materials leaving the Site bears duly completed, signed/stamped CHIT;
- Record the CHIT no., the vehicle registration mark and the departure time of every truck leaving site carrying C&D materials;
- Ensure each truck driver wash their wheels and close the mechanical cover before leaving the Site;
- Supervise and monitor the loading process, ensure the quality of C&D material loaded onto the truck and make sure no overloading,
- Check the C&D material again to ensure the quality;



- Sign the chits and daily record summary sheets;
- For marine disposal, ensure all dredged / excavated sediment are properly sorted in different types, and disposed to the designated area allocated by CEDD;
- Ensure that every dumping vessels collect only <u>one</u> sediment type, and no mixing of the other types of excavated sediment; and
- Conduct environmental toolbox talks to raise waste disposal awareness amongst workers;

(vii) <u>Subcontractors</u>

Subcontractors are responsible for the following duties:

- Observe and undertake WMP;
- Carry out agreed site waste management practices as instructed by the project management and environmental officer(s);
- Ensure that sufficient resources are allocated for maintaining the daily cleaning, housekeeping and site tidiness;
- Report promptly to project management and environmental officer(s) any chemical or marine disposal incident, or any non-compliance of waste management and TTS; and
- Participate in and cooperate with the project management actively to achieve the project waste disposal activities.

(viii) General Employees (Workers)

Workers shall be responsible for the following duties:

- Follow all site environmental practices as instructed by the project management;
- Carry out all waste management measures instructed by their immediate supervisor/ EO/ ES;
- Use suitable personal protective equipment; and
- Maintaining site environmental mitigating measures.

(ix) <u>Environmental Team</u>

- (a) According to the EM&A Manual prepared by the ET, the responsibilities of the ET on the waste management and the TTS implementation are as follows:
 - Conduct regular site environmental inspections to ensure site practices of waste handling in compliance of legislations and guidelines;
 - Review the documentation procedures to ensure proper records being maintained and the procedure in compliance with the WMP.
- (b) The ET may also take the following duties in term of waste management on site:
 - Liaise with other government departments or external parties, including IEC, EPD, regarding any environmental issues arising from the project;



- Investigate public complaints about waste management;
- Advise on suitable mitigation measures in case of waste management deficiencies identified;
- Monitor various environmental parameters as required in the EM&A Manual;
- Prepare reports, as specified in the EM&A Manual, in a timely manner and ensure the proper disposal records on site;
- Ensure the Event/Action Plan as stated in the EM&A report is implemented; and
- Provide advice on any waste control or reduction measures, if necessary.

5.3 Training and Promotion

- (i) Site-specific induction training cover environmental matters, including waste management shall be presented to all staff and workers employed for the Contract, whether in the employment of DBJV or his sub-contractors or in connection with the Contract. The training will be delivered by the Environmental Officer, Environmental Supervisor or assigned person, as applicable as per construction programme. The training content will cover subjects such as environmental management policy, waste management policy, project environmental organization structure, duties and responsibilities, control measures (such as air quality, noise impact, water quality, waste management and etc.), targets, in-house rules and regulations, also with the requirement of construction noise permit and marine dumping permit.
- (ii) Apart from the induction training, toolbox talks shall be provided for workers on general site environmental nuisance abatement and waste management in addition to safety and health. Prior approval will be obtained from the SOR on the frequency and the contents of the toolbox trainings. If further required by the SOR, trainings organized by training institutes or organizations as considered appropriate will be arranged.
- (iii) Method of promoting and maintaining the awareness on environmental aspects and its control measures and waste management amongst all persons on Site include:
 - Display of the company's environmental policy, non-compliance statistics, posters and signs at prominent locations;
 - Talks and campaigns, and distribution of safety/environmental bulletins or newsletters drawing attention to the particular environmental issues; and
 - Procedures for recognition and commending those site personnel, teams or sub-contractors with good performance on environmental control measures and waste management.



6.0 WASTE PRODUCING ACTIVITIES

- (i) C&D Materials or wastes will be generated from the following site activities, though not exclusively, during the works:
 - **Domestic activities on site**: Domestic and municipal wastes will be generated from the human activities in the site offices;
 - **Site clearance**: Site clearance work for establishment of works areas (N6) and site office (WA18);
 - **Dredging works for seawall construction**: Dredged material, including marine mud, will be generated;
 - Site formation from marine reclamation works: As this is primarily a material importing and filling process, no material export is envisaged;
 - **D-wall, shaft excavation and cut-and-cover tunnel excavation on the reclaimed areas**: Excavated materials, including marine mud, will be removed and exported/disposed;
 - **TBM tunneling works**: Excavated materials, including marine mud, will be removed, treated and solidified by use of a slurry treatment plant, then exported or internally used as public fill material;
 - **Broken or abandoned TBM precast segments**: This work is one and a half to two years in the future, so it will be discussed later.
- (ii) Sewage generated in the site offices will be discharged into public sewers, so as to avoid any management issue. Portable chemical toilets will be used for discrete and remote working areas. Sludge accumulated in the portable toilets will be regularly removed by a qualified sewage removal company.



7.0 DISPOSAL PROGRAMME

7.1 Prescribed Disposal Facilities

- (i) Clause 12.7.1.1 of the EIA report recommended that the North Lantau or NWNT refuse transfer stations be used for C&D waste and general refuse disposal, due to the large capacities of 1,200 tonnes per day and 900 tonnes per day respectively.
- (ii) Clause 12.7.1.1 of the EIA report further elaborated that, as the project extends across both Lantau and Tuen Mun areas, it would be preferred to remove the wastes to the closest facilities. For Contract HY/2012/08, located at Pillar Point in Tuen Mun, the closest facility will be WENT.
- (iii) Referring to Clause 12.7.1.2 and Table 12.7 of the EIA report, Tuen Mun Area 38 Fill Bank has been pointed out as the closest facility to the works, for disposal of inert construction materials.
- (iv) DBJV will notify EPD and confirm the disposal locations before the first shipment of materials to the respective disposal sites.

7.2 Monthly Disposal Programme

- (i) The project consists of many stages of works, with varying quantities of C&D materials and wastes generated at any one period. Therefore, quantities will be tracked on a monthly basis. Forecast will be given with consideration of past trends and upcoming works program. If the amount of excavated materials cannot be estimated or forecasted at any one time, the quantity will be reviewed at the next monthly program.
- (ii) The anticipated dredging/filling rate of marine sediment will be submitted to SOR no later than the 7th day of the coming month. All actual dredging / filling volume would be provided by contractor and submitted to ET and IEC/ENPO as in the proforma sample Appendix C on monthly basis, no later than the 7th day of the month after.

7.3 Internal Disposal and Control Measures to Track Movement of Materials

- (i) In the event that C&D materials excavated from one site is to be transported to another part of site of the same Project, internal trip ticket system shall be used to track and record the C&D material movement, just as if shipping the material to the public fill sites. The type of material, quantities, time and date of transport, purposes-of-use and the like shall be scheduled by the construction managers or his delegate engineer(s). They shall inform the SOR in advance of the details of translocation of materials to allow the SOR to attend inspections.
- (ii) Project-internal trip tickets will be distributed to dump truck drivers, and duly completed and signed by foremen or construction managers of the exporting and receiving sites. The monthly



quantities of the internal disposal will be recorded in waste flow tables and be submitted to SOR.

7.4 Alternative Disposal Ground

- (i) If excavated C&D materials cannot be used internally within the same project, DBJV will endeavours to identify alternative receptor construction sites or recycling facility other than public fill facilities. Written agreements between exporting and receptor sites shall be attained and submitted for approval by the SOR. In support of the request for approval, the following information will be provided:
 - A detailed description of the alternative disposal ground, including location, lot number (where appropriate), location plan and photographs of the proposed alternative disposal grounds showing the surrounding environment and land use;
 - Where the alternative disposal ground is a private construction site, a letter from each of the relevant authorities to comment on suitability of the site under their respective purview, and a letter from the Authorized Person of the development to confirm:
 - > The C&D materials for use in the development is acceptable;
 - The land/pond filling in the proposed alternative disposal ground and the use of land so formed by the C&D materials are in conformity with the statutory town plan/ lease conditions; and
 - The SOR staff are allowed to enter the alternative ground to conduct inspections where necessary;
 - Where the alternative disposal is a private recycling facility, it is on the recyclers' list for C&D materials recognized by EPD, as well as a letter from the operator to confirm the SOR's staff to enter the recycling facility to conduct inspections where necessary;
 - Where the alternative disposal ground is a construction site of Government, Hong Kong Housing Authority or Mass Transit Railway Corporation, a written consent from the project office of the alternative disposal ground to use the C&D materials generated from the Site;
 - Where the alternative disposal ground is a government contract quarry, a written consent from the Mines Division of Civil Engineering and Development Department to import the C&D materials generated from the Site;
 - The estimated quantity and type of C&D materials to be used/processed in the alternative disposal ground and the approximate delivery programme, together with the name, post and specimen signature of the competent person to sign disposal ticket; and
 - A system for transmitting disposal records from the alternative disposal ground to the SOR.

7.5 Disposal Grounds of Marine Sediment

(i) The amount of marine sediments excavated from the Works shall be minimised as far as practicable. In events that dredging/excavation of marine sediment are unavoidable, the Contractor shall handle/process such marine sediment in accordance with the procedures given in ETWB TCW No. 34/2002 and the associated amendment versions.



- (ii) In cases that off-site disposal of marine sediment in Hong Kong Water is required, DBJV shall apply for the allocation of a sediment disposal site in the name of Highways Department of the HKSAR, and marine dumping permits under Dumping at Sea Ordinance (Cap. 466) for the disposal of marine sediment at the designated disposal facilities in Hong Kong.
- (iii) DBJV shall apply to the EPD for all necessary permits and licences. Dispose of the marine sediment shall be at the designated disposal facilities as directed by the Director of Environmental Protection and/or the Marine Fill Committee unless otherwise agreed or ordered in writing by the Supervising Officer's Representative.



7.6 Estimated Quantities of C&D Material/ Waste and Dredging Sediment

(i) The estimated amount of waste to be generated from the Contract is listed in the follow table:

Forecast C&D materials to be generated from the Contract	Imported	Generated	Reused in the contract	Estimate Disposal Quantities	Proposed Disposal Outlet
Imported sand (m ³)	520,000	0	0	0	N/A
Imported sorted public fill (m ³)	2,500,000	0	0	0	N/A
Imported Rock (m ³)	1,000,000	0	0	0	N/A
Site clearance waste (vegetation, refuse on land) (m ³)	0	1,000	0	1,000	NWNT refuse transfer stations/ West New Territories Landfill (WENT)
*Inert C&D Waste/ Excavated Materials or Soil Generated (Using TBM method) (m ³)	0	409,000	44,000	300,000	Tuen Mun Area 38 Fill Bank
*Inert C&D Waste/ Excavated Materials or Soil Generated (Using Cut-and-Cover method) (m ³)	0	696,000	196,000	500,000	Tuen Mun Area 38 Fill Bank
General Waste: Food and packaging waste / office waste (m ³)	0	30,000	0	30,000	NWNT refuse transfer stations/ West New Territories Landfill (WENT)
Plastics & Wood (kg)	0	Small Amount	Small Amount	Small Amount	NWNT refuse transfer stations/ West New Territories Landfill (WENT)
Chemical Waste (L)	0	5000	0	5000	To be handled by Registered Contractor on the approved list

*As the design of construction is not yet confirmed, either Cut-and-cover or TBM method will be used in the project. The wastes generated will vary with different method of tunnel construction. Therefore, either one quantity of inert waste ($300,000 \text{ m}^3$ for TBM or $500,000 \text{ m}^3$ for cut-and-cover) will be generated during the excavation of tunnel.

(ii) Section 2.2.1.4 of the EIA Report considers that, due to technological and time constraints, the seawall construction at Portions N-A to N-C and the reclamation works at Portion N-C of the Northern Landfall shall be fully dredged. Section 3.2.5 of the EIA Report considers that



the dredging works at Portions N-A and N-B shall be non-dredged, Refer to Figure 3 of EP-354/2009/A.

(iii) The following table shows the allocated quantities of sediment disposal of different categories (i.e. Category L, M_p and M_f). The quantities will be revised according to the updated work progress.

Marine Sed	liment Disposal Qua	antities Summary T	able (in-situ volum	nes)
	Originally Estimated under SQR (m ³)	MFC Allocation (m ³)	Cumulative for Allocated Disposal Sites (m ³)	Disposal Site
Marine Sediment Category L Type 1 Disposal	387,328	392,000	392,000	Suitable for capping the exhausted Confined Marine Disposal Facility at East of Sha Chau (or South of the Brothers)
Marine Sediment Category M _P Type 1 Disposal (Dedicated Site)	155,022	149,000		Sub-areas to be directed on site within the Mud Pit CMP1 or CMP2 of the Confined Marine Sediment Disposal Facility to
Marine Sediment Category M _F Type 2 Disposal	67,968	143,000	292,000	South of the Brothers or the Mud Pit of the Confined Marine Sediment Disposal Facility at East of Sha Chau.
Total	610,318	684,000	684,000	N.A.

(iv) A variation of the Environmental Permit was submitted to the DEP on 20 January 2014 (Ref. No. VEP-426/2014). Under this variation, the quantities are re-estimated by construction elements (refer to the below diagram for area demarcation).

Constriction Element	Initial Estimated of Quantity Against EP-354/2009/A	Variation under VEP Application (Ref. VEP-426/2014)
Seawall Construction	463,000 m ³	463,000 m ³
Reclamation Filling in Middle	147,318 m ³	$64,870 \text{ m}^3$
TOTAL	610,318 m ³	527,870 m ³





(v) The following table shows the sediment categories breakdown of the construction elements.

		Quantity (m ³)							
		Portic	n N-A	Portio	on N-B	Portic	on N-C		
Dredging at Serawall				2022	00.00				
	Мр								
	Mf	66034.78							
	Sub-Total			4630	00.00				
Dredging in Middle	L	0			47620.48				
	Мр	0			13711.16				
	Mf	0			3538.36				
	Sub-Total				64870.00				

7.7 Notification to truck drivers

- (i) DBJV will notify all truck drivers in written format with the following points regarding the removal of C&D waste:
 - Each truck carrying C&D materials leaving the Site for a disposal ground must bear a duly completed and stamped CHIT, irrespective of the location and nature of the disposal ground;
 - The C&D materials must be disposed to the agreed disposal ground;
 - Truck drivers must bear a valid Dumping Licence that he can apply from the CEDD.
- (ii) The notification to truck driver is attached in Appendix D. This will be distributed to all drivers to ensure that all of them are being notified and understood the legal requirements of dumping operation and in-house waste management rules.



8.0 CHEMICAL WASTE

- (i) The principal chemical waste arising from this project, with the exception of contaminated soil, will be spent oil and other lubricants from servicing and maintenance of the construction plants and marine vessels. These wastes contain chemicals, which may cause pollution or constitute a danger to the health of workers or pose a risk of pollution to the environment.
- (ii) The handling and storage of chemical wastes must comply with the requirements stated in the Code of Practice on the Packaging, Labeling and Storage of Chemical Wastes.
- (iii) Chemical waste containers (i.e. drums, jerry cans, bottles, cans, etc.) for the storage of chemical wastes shall:
 - Have a capacity of less than 450 liters unless approved by EPD;
 - Be suitable for the substance they are holding and securely closed;
 - Be resistant to corrosion;
 - Be maintained in a good condition;
 - Properly labeled in accordance with the instructions prescribed in Schedule 2 of the Waste Disposal (Chemical Waste) (General) Regulation.
- (iv) The storage area for chemical wastes shall:
 - Be enclosed at 3 sides;
 - Be used solely for the storage of chemical wastes;
 - Be clearly and legibly labeled;
 - Have an impermeable floor and bund;
 - Have a capacity enough to accommodate 110% of the volume of the largest container or 20% by volume of the chemical wastes stored in that area;
 - Have adequate ventilation;
 - Be sheltered from rain (rainwater collected in the bund must be tested or disposed of as chemical wastes);
 - Be provided with facilities for separate storage of incompatible materials.
- (v) Arrangements will be made for regular collection and disposal of chemical wastes. Disposal of chemical wastes shall
 - Be via a licensed waste collector, and
 - Be disposed in the Chemical Waste Treatment Facility in Tsing Yi.
- (vi) The monthly quantities of the chemical waste removed off site will be recorded in the waste flow table for monthly submission to the SOR.



- (vii) The proposed location for chemical waste storage is presented in Appendix F and will be modified subject to site conditions.
- (viii) The chemical treatment for the marine spillage will be demonstrated in the Marine Spillage Drill Report.



9.0 GENERAL REFUSE

- (i) The presence of a construction site with workers will result in the generation of a variety of general refuse material requiring disposal. They are:
 - General refuse will be generated largely by food service activities for site workers, however sufficient rubbish bins would be provided for containment prior to disposal of such waste.
 - Aluminium cans, glass and plastic bottles are often recovered from the waste stream by individual collectors if they are segregated or easily accessible, so separate labelled bins for their deposit will be provided wherever feasible.
 - Office wastes will be reduced through recycling of paper and collection of toner and cartridges. DBJV will seek out and join a local collection scheme to collect office waste regularly and this will continue throughout the whole project period.
 - We will encourage environmental awareness and try to reduce waste by:
 - a. Reducing the number of photocopies to a minimum.
 - b. By copying on both sides of paper for internal documents and external documents where appropriate.
- (ii) General refuse generated on-site shall be stored in waste receptacles, enclosed bins or compaction units separate from construction and chemical wastes.
- (iii) A reputable waste collector will be employed by the contractor to remove general refuse from the site, separately from construction and chemical wastes, on daily or every second day basis to minimise odour, pest and litter impacts.
- (iv) No burning of refuse on site will be permitted. General Foreman / Environmental Supervisor will inspect and manage the site condition with respect to the general refuse on-site during the daily site walk.



10.0 SITE PROCEDURES FOR TRIP TICKETS SYSTEM

- (i) A site procedure is presented in flowchart format as in Appendix E, to ensure that each truck load of C&D materials leaving the site will bear a duly completed chit, and that Part of the DRS has been filled in and signed properly before its departure. The flowchart illustrates site procedures to handle C&D materials disposal with chits to be implemented in the DBJV site, and they will be modified to suit the actual site condition, after agreed with the SOR.
- (ii) Where irregularity is observed or where requested by the SOR under special circumstances, DBJV will submit to the SOR within 5 working days after the recorded date of disposal the supporting evidence such as duly stamped chits and/or the transaction record slip to confirm proper completion of the delivery trips in questions, or within 2 working days after the SOR has requested for such evidence, whichever is later.



11.0 WASTE REDUCTION MEASURES

11.1 General

(i) All construction and demolition (C&D) materials arising from or in connection with the Works shall be sorted on Site to recover reusable and/or recyclable materials. Unless otherwise stated, all surplus C&D materials arising from or in connection with the Works shall become the property of DBJV when it is removed from the Site. DBJV will promptly remove all sorted materials arising from or in connection with the Works from the Site to minimize temporary stockpiling on Site.

11.2 On-site Sorting of C&D Materials

- A system for on-site sorting of C&D materials would be devised, including the identification of the source of generation, estimated quantity, arrangement for on-site sorting and/or collection, temporary storage areas, frequency of collection by recycling contractors or frequency of removal off Site, etc.
- (ii) The design of onsite sorting facilities is illustrated in Appendix F. The area is approximately 7m x 10m which is enough for onsite sorting of waste. The proposed onsite sorting facilities will be placed far away from the drainage of surface runoff, to reduce the chance of contamination. It is next to the location of storage area for C&D materials, in order to minimize the environmental effect during the transportation of C&D waste (e.g. dust generation, waterway contamination). The C&D waste will be sorted in inert and non-inert waste, and differentiate with recyclable material. Different waste receptacles will be labelled with suitable logos and provided as in the site layout plan for onsite sorting purpose. The location of on-site sorting facilities is presented in Appendix F.
- (iii) Sorting the materials at source into:
 - hard rock and large broken concrete suitable for reuse on the Site or recycling at a designated location;
 - metals;
 - paper and plastics;
 - chemical waste; and
 - materials suitable for disposal at public fill reception facilities, sorting facilities and landfills/outlying islands transfer facilities. Disposal at the sorting facilities should first be approved by the SOR.
- (iv) Except for those inert C&D materials to be reused on Site, all other C&D materials shall be removed off the Site as soon as practicable in order to optimize the use of the on-site storage space. DBJV shall identify and provide sufficient space for temporary storage of C&D materials to facilitate collection and/or sorting on the Site;



- (v) Arrangements with potential recycling contractors shall be made to facilitate that recyclable materials sorted from the Site are collected with reasonable care;
- (vi) A system shall be established for proper handling and storage of chemical waste generated from the Site, and arrange for the collection and disposal of such chemical waste by specialist contractors. The location of storage of chemical waste is also demonstrated in Appendix F.

11.3 Waste Flow Table (WFT)

- (i) A mechanism to record the quantities of C&D materials generated each month shall be established, using the monthly summary "Waste Flow Table" as in Appendix G. The monthly summary WFT shall be completed by Environmental Officer and submitted to the SOR or his representative together with the updated sections of EMP (if any) by not later than 15th day of each month following the month reported on, or if it is a General Holiday, the day following the General Holiday;
- (ii) The latest estimate of the total amount of C&D materials shall also be submitted including rock, that are expected to be generated by the Works, together with a breakdown of the nature of the materials (i.e. inert C&D materials (public fill), hard rock or concrete, C&D waste, etc.). Such information should be submitted together with the monthly summary "Waste Flow Table" as required above.

11.4 Control of the Use of Timber

- (i) The use of timber in temporary works construction should be avoided, reduced or minimized as far as possible. Where the use of timber for a temporary works construction process/activity with an estimated quantity exceeding 300m³, a method statement should be submitted to the SOR for agreement prior to commencement of the relevant temporary works. The method statement should include the justification for and the measures taken to minimize the use of timber in the said temporary works;
- (ii) In addition, a summary table should be provided containing the description, justification and the estimated quantity for every work process/activity requiring the use of timber for temporary works construction irrespective of the quantity of timber used. It should be updated and submitted to the SOR or his representative together with the monthly summary WFT for monitoring and review by not later than 15th day of each month, or if it is a General Holiday, the day following the General Holiday. DBJV shall draw the attention of the SOR or his representative to those work processes/activities for which the estimated quantities have been revised.

11.5 Recyclable Materials

(i) Control measures would be devised to ensure that the recyclable materials are delivered to a proper recycling outlet for processing, and to avoid such materials being considered as C&D materials for the purposes of the Contract. Trip ticket system is not applicable to recyclable materials. However, the invoice, receipt or disposal records will form parts of the



comprehensive register as described in the previous section to ensure integrity of disposal records. The monthly quantities of the recyclable materials removed off site will be recorded in the waste flow table for monthly submission to the SOR.

- (ii) Specific measures will be implemented to reduce the generation of waste materials, and thus minimize the amount of waste disposal to landfills. The measures will include:
 - sort all excavated materials and recover the inert portion of C&D materials, such as hard rock, soil and broken concrete, for reuse on the Site or, if cannot be used on the Site, disposal to designated outlets for reuse;
 - recover all metallic waste for recycling;
 - recover all cardboard and paper packaging, and properly stockpile them in dry and covered condition to prevent cross contamination; and
 - sort all demolition debris to recover reinforcement bars, mechanical and electrical fittings, hardware and all other fittings/ materials that have established recycling outlets.
- (iii) Materials packaging (i.e. paper and cardboard) will be recovered if possible, properly stockpiled in dry and covered environment to prevent cross contamination by other C&D materials. Attention will also be paid to avoid cross contaminate during the course of paper collection for recycling. Arrangements will be made with recycling contractors to ensure that the recyclable materials sorted from the Site are handled with reasonable care. In addition, DBJV has made agreements with certain suppliers for the collection of packaging wastes to further enhance the management of these materials on site.

11.6 Mitigation Measures in EIA

(i) 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 H.



12.0 WASTE MONITORING AND AUDIT

- (i) The aims and objectives of the waste management audit program are:
 - To ensure that waste generated by the works is handled, stored, collected, transported and disposed of in accordance with the applicable environmental guidelines and regulations;
 - To ensure that the handling, storage, collection and disposal of waste arising from the demolition works complies with the relevant requirements under the Waste Disposal Ordinance and its regulations, and also this WMP;
 - To encourage the reuse and recycling of materials.
- (ii) For monitoring the Contractor's waste management system, ET would audit the waste management practices during the weekly environmental site inspection. This evaluates the overall performance of the implementation of the WMP and ensures the appropriate control measures are properly implemented. The results of the waste management audits will be reported in the monthly EM & A reports.
- (iii) In the event that any Notice of Non-compliance is received with respect to any waste management issues, the initial corrective action should be proposed to SOR. This shall be in accordance with the requirements of the relevant Event Action Plan for non-compliance and complaints as shown in the following table:

Step	Day	Action	DBJV/ ET	SOR	IEC/ ENPO
1	1	A non-compliance (NC) record will be created within one (1) working day after making an observation during the site audit. The ET will send a Notice of Non-Compliance to DBJV, SOR and IEC/ENPO. The NC will include details of the observations, the time and location of the observations and the reasons for the non-compliance.	•	-	_
2	2	DBJV will propose suitable corrective actions to mitigate the non-compliance observed within one (1) working day of receipt of the NC from the ET.	•	-	-
3	3	The SO and IEC/ENPO will review DBJV's proposed corrective actions and make additional recommendations as necessary.	-	•	•
4	-	DBJV will implement the proposed corrective actions once they have been agreed by all parties.	•	-	-
5	-	Check the implementation of the corrective actions at the next site audit. Close the NC record in the recording system if the implementation of the corrective actions is	•	•	•

Table 12.1 Event Action Plan for Non-compliance



Step	Day	Action	DBJV/ ET	SOR	IEC/ ENPO
		satisfactory and reported to SOR.			
6	-	Propose preventive actions within 3 working days after the closure of the NC.	•	-	-

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

Step	Day	Action	DBJV/ ET	SOR	IEC/ ENPO
1	1	The ET will investigate validity of complaint, and assess whether the complaint is due to an onsite activity. If the complaint is valid and due to site activity, the ET will log details of the complaint into a Complaint Record Form (CRF).	•	-	-
2	2	DBJV will assess the CR and propose suitable mitigation measures.	•	-	-
3	3	The ER and IEC/ENPO will review the mitigation measures and agree or propose further mitigation measures if required.	-	•	•
4	-	DBJV will implement the proposed mitigation measures once they have been agreed by all parties.	•	-	-
5	-	The ETL will check the implementation of the mitigation measures at the next site audit. ETL will close the CRF record in the recording system if the implementation of the mitigation measure is satisfactory and reported to SOR.	•	•	•
6	-	Propose preventive actions within three (3) working days after the closure of the CRF.	•	-	-

Table 12.2 Event Action Plan for Complaint

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



13.0 CONCLUSION

(i) Construction & Demolition (C&D) waste, chemical waste, general refuse and marine sediment arising from construction activities shall be managed in accordance with the proposed controls and statutory requirements. Mitigation measure should be applied when the environmental impact occurs. Good site practice should be maintained.

END OF CONTENT



APPENDIX A- ORGANISATION CHART FOR WASTE MANAGEMENT ON SITE





APPENDIX B - SAMPLE OF DAILY RECORD SUMMARY

Dragage	es-Bouygues JV 寶	嘉布依格聯營	6 (I)						No	rthern Conne	ction Sub-sea T	unnel Sec
(1) C	Contract No.	合約編號	imary for the D	HY/2012/	08	rials from	the Site					
2) C	Contract Title	合約名稱	:	Tuen Mur	n – Chek La	p Kok Link	– Northern Co	nnection Sub-	Sea Tunnel Secti	ion		
(3) E	Designated Dispo	sal Ground(s)	: (1)	Tuen Mu	Tuen Mun Area 38 Public Fill Bank (屯門第38區填料庫)							
Ę	合約指定接收設	施	(2)	North West New Territories Landfill (新界西北堆填區)								
			Othe	rs								
(4) A 多	Approved Alterna 另可接受的接收	tive Disposal Gro 設施	ounds :									
(5) E	Date of Disposal	頃倒日期	:									
CHIT 載運入 票編	No. Vehicle registratio no. 車輛登記號	Departure time from site 難開地盤時 碼 間	Approx. vol (e.g. Full/Three Quarter/Half/One Quarter) 大約承載量子力學 例如全, %, 半, %)	C&D material type (e.g. inert or non-inert) 建築廢料種類 (例如惰性或非 惰性)	Actual disposal ground 接收設施	Arrival time at disposal ground 抵達接收 設施時間	Acceptance by designated facility ³ 設施是否 接收/拒絕	CHIT No. 運載紀錄票 編號	Time of facility operator's stamp on CHIT 紀錄票蓋印時 間	Pressure gauge reading 地盤磅橋 重量紀錄	Actual weight of vehicle data from CEDD 接收設施 重量紀錄	Remark: 備註
CHIT 載運入 票編	No. 授 院 就 車輛登記號	Departure time from site 離開地盤時 碼 問	Approx. vol (e.g. Full/Three Quarter/Half/One Quarter) 大約承載量子力學 例如全, %, 半, %)	C&D material type (e.g. inert or non-inert) 建築廢料種類 (例如惰性或非 惰性)	Actual disposal ground 接收設施	Arrival time at disposal ground 抵違接收 設施時間	Acceptance by designated facility ³ 設施是否 接收/拒絕	CHIT No. 運載紀錄票 編號	Time of facility operator's stamp on CHIT 紀錄票蓋印時 間	Pressure gauge reading 地盤磅橋 重量紀錄	Actual weight of vehicle data from CEDD 接收設施 重量紀錄	Remark 備註
CHIT 載運入 票編!	No. 授 定意tratio 的。 車輛登記號	Departure time from site 離開地盤時 問	Approx. vol (e.g. Full/Three Quarter/Half/One Quarter) 大約承載量子力學 例如全, %, 半, %)	C&D material type (e.g. inert or non-inert) 建築廢料植類 (例如帶性或非 惰性)	Actual disposal ground 接收設施	Arrival time at disposal ground 抵達接收 設施時間	Acceptance by designated facility ³ 設施是否 接收/拒絶	CHIT No. 運載紀錄票 編號	Time of facility operator's stamp on CHIT 紀錄票蓋印時 間	Pressure gauge reading 地盤磅橋 重量紀錄	Actual weight of vehicle data from CEDD 接收設施 重量紀錄	Remark 備註
CHIT 載運入 票編!	No. Wehicle registratio no. 車輛登記號	Departure time from site 離開地盤時 問	Approx. vol (e.g. Full/Three Quarter/Half/One Quarter) 大約承載量子力學 例如全, %, 半, %)	C&D material type (e.g. inert or non-inert) 建築廢科種類 (例如懵性或非 惰性)	Actual disposal ground 接收設施	Arrival time at disposal ground 迅速接收 設施時間	Acceptance by designated facility ³ 設施是否 接收/拒絕	CHIT No. 運載紀錄票 編號	Time of facility operator's stamp on CHIT 紀錄原蓋印時 間 Part 2 ²	Pressure gauge reading 地盤磅續 重量紀錄	Actual weight of vehicle data from CEDD 接收設施 重量紀錄	Remarks 備註
CHIT 載運入 票編	No. 使 軟 型 構 登記號 tted by 呈交:	Departure time from site 難問地盤時 問	Approx. vol (e.g. Full/Three Quarter/Half/One Quarter) 大約承載量子力學 例如全, %, 半, %)	C&D material type (e.g. inert or non-inert) 建築廢料種類 (例如槽性或非 惰性) [Name of Contractor Person]	Actual disposal ground 接收設施	Arrival time at disposal ground 抵達接收 設施時間	Acceptance by designated facility ³ 設施是否 接收/拒絕	CHIT No. 運載紀錄票 編號	Time of facility operator's stamp on CHIT 紀錄票蓋印時 問 Part 2 ²	Pressure gauge reading 地盤磅橋 重量紀錄	Actual weight of vehicle data from CEDD 接收設施 重量紀錄	Remark 備註
CHIT 載運入 票編! Submit	No. 嚴 號 中輔登記號 tted by 呈交: ure 簽名:	Departure time from site 離開地盤時 問	Approx. vol (e.g. Full/Three Quarter/Half/One Quarter) 大約承載子力學 例如全, ¾, 半, ¼)	C&D material type (e.g. inert or non-inert) 建築廢料種類 (例如惰性或非 惰性)	Actual disposal ground 接收設施	Arrival time at disposal ground 抵達接收 設施時間 Su Su	Acceptance by designated facility ³ 設施是否 接收/拒絕	CHIT No. 運載紀錄票 編號	Time of facility operator's stamp on CHIT 紀錄票蓋印時 間 四 Part 2 ²	Pressure gauge reading 地盤磅橋 重量紀錄	Actual weight of vehicle data from CEDD 接收設施 重量紀錄	Remark: 備註
CHIT 載運入 票編! Submit Signatu Date [No 酸 如何的 中午 时 时 时 时 时 时 一 时 一 时 一 时 一 时 一 时 时 时 时	Departure time from site 難開地盤時 問	Approx. vol (e.g. Full/Three Quarter/Half/One Quarter) 大約承載量 子力學 例如全, %, 半, %)	C&D material type (e.g. inert or non-inert) 建築應料植類 (例如懵性或非 情性)	Actual disposal ground 接收設施	Arrival time at disposal ground 抵達接收 設施時間 Su Su Su	Acceptance by designated facility ³ 設施是否 接收/拒絶 abmitted by 呈交 gnature 簽名: ate 日期:	CHIT No. 運載紀錄票 編號	Time of facility operator's stamp on CHIT 紀錄原蓋印時 間 Part 2 ²	Pressure gauge reading 地盤磅續 重量紀錄	Actual weight of vehicle data from CEDD 接收設施 重量紀錄	Remark 備註
CHIT 載運入 累編! Submit Signatt Date F Receiv	No. 壞 號 中國登記號 中國登記號 甘田 世 世 世 世 聖 聖 聖 聖 聖 聖 聖 聖 聖 聖 聖 聖 聖	Departure time from site 難開地盤時 問	Approx. vol (e.g. Full/Three Quarter/Half/One Quarter) 大約承載量子力學 例如全, %, 半, %)	C&D material type (e.g. inert or non-inert) 建築勝料種類 (例如帶性或非 惰性) ///////////////////////////////////	Actual disposal ground 接收設施	Arrival time at disposal ground 抵達接收 設施時間 Su Su Su Su	Acceptance by designated facility ³ 設施是否 接收/拒絕 abmitted by 呈交 gnature 簽名: ate 日期: exceived by 接收:	CHIT No. 運載紀錄票 編號	Time of facility operator's stamp on CHIT 紀錄票蓋印時 間 Part 2 ²	Pressure gauge reading 地盤磅橋 重量紀錄	Actual weight of vehicle data from CEDD 接收設施 重量紀錄	Remark 備註

Part 1 – The Contractor shall complete Part 1 and submit it to the Supervising Officer's Representative by the following working day of the disposal trip.
 Part 2 – The Contractor shall complete Part 2 and submit it to the Supervising Officer's Representative within 3 working days of the disposal trip.
 The Contractor shall fill in "Accepted", or "Diversion to alternative facility". If the disposal is diverted to alternative facility, the Contractor shall record details in the "Remarks" column.



<u>APPENDIX C – DREDGING / FILLING VOLUME RECORD FORM</u>

	Resource ID	Resources Name	<u>Unit of</u> <u>Measure</u>	Sub-Total	Sep 2013	Oct 2013	Nov 2013	Dec 2013	Jan 2014
ly									
onth									
N									

Resource	Resources Name	<u>Unit of</u> Measure	<u>Sub-Total</u>	Sep 2013	Oct 2013	Nov 2013	Dec 2013	Jan 2014
		masure						
	Resource ID	Resource Resources Name ID	Resource Resources Name Unit of ID Measure ID Indext Indext Indext	Resource IDResources NameUnit of MeasureSub-Total MeasureIIIIIIIIIIIIIIII	Resource IDResources NameUnit of MeasureSub-TotalSep 2013IDIIIIIIDI	Resource IDResources NameUnit of MeasureSub-TotalSep 2013Oct 2013Image: Control IDImage: Co	Resource IDResources NameUnit of MeasureSub-TotalSep 2013Oct 2013Nov 2013Image: Note of the second sec	Resources NameUnit of MeasureSub-TotalSep 2013Oct 2013Nov 2013Dec 2013Image: Dec 2013

	Resource	Resources Name	<u>Unit of</u>	Sub-Total	Sep 2013	Oct 2013	Nov 2013	Dec 2013	Jan 2014
	<u>ID</u>		<u>Measure</u>						
1									
cum									
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APPENDIX D - NOTICE TO TRUCK DRIVER



Contract No. HY/2012/08 Tuen Mun – Chek Lap Kok Link Northern Connection Sub-sea Tunnel Section

泥頭車司機運載物料及傾倒時需注意及檢查事項

- 泥頭車嚴禁超載
- 司機需持有有效的傾倒執照
- 已用帆布覆蓋整個泥斗及縛穩在車身或機動蓋掩已經蓋上
- 車身及車轆已經徹底清洗乾淨
- 已領取運載入帳票 (緣色)並已填妥票上所有資料
- 到達指定檢查點才可打開帆布或機動蓋掩
- 如泥頭車駛往非指定的地點進行傾倒,或進行非法傾倒,則會構成嚴重
 不當傾倒,可被吊銷傾倒牌照



APPENDIX E – FLOWCHART OF TRIP TICKET SYSTEM



APPENDIX F – LOCATION OF ONSITE SORTING FACILITIES AND SORTING AREA

Contract No. HY/2012/08 Tuen Mun – Chek Lap Kok Link Northern Connection Sub-sea Tunnel Section

<u>APPENDIX G – WASTEFLOW TABLE</u>

Name of Department: <u>HyD</u>

Contract No. / Works Order No.: _____

Monthly Summary Waste Flow Table for [to be submitted not later than the 15th day of each month following reporting month]

(All quantities shall be rounded off to 3 decimal places.)

		Actual Quantities	s of <u>Inert</u> Construction \	Waste Generated N	Ionthly	
	(a)=(b)+(c)+(d)+(e)	(b)	(C)	(d)	(e)	
Month	Total Quantity Generated	Hard Rock and Large Broken Concrete	Reused in the Contract	Reused in other Projects	Disposed of as Public Fill	Imported Fill
	(in `000m ³)	(in `000m ³)	(in `000m ³)	(in `000m ³)	(in `000m ³)	(in `000m ³)
Jan						
Feb						
Mar						
Apr						
Мау						
Jun						
Sub-total						
Jul						
Aug						
Sep						
Oct						
Nov						
Dec						
Total						

			Ac	tual Quanti	ties of <u>Non-ine</u>	ert Construct	ion Waste G	enerated Mo	nthly
Month	Metals		Paper/ cardboard packaging		Plas (see N	Plastics (see Note 3)		al Waste	Others, e.g. General Refuse disposed at Landfill
	(in `00)0kg)	(in `000kg)		(in '000kg)		(in `000kg)		(in `000m ³)
	generated	recycled	generated	recycled	generated	recycled	generated	recycled	generated
Jan									
Feb									
Mar									
Apr									
May									
Jun									
Sub-total									
Jul									
Aug									
Sep									
Oct									
Nov									
Dec									
Total									

		Forecast of	Total Quantitie	es of Construct	tion and Demol	ition Materials	to be Generate	ed from the Cor	itract*	
Total Quantity Generated	Hard Rock and Large Broken Concrete	Reused in the Contract	Reused in other Projects	Disposed of as Public Fill	Imported Fill	Metals	Paper/ cardboard packaging	Plastics (see Note 3)	Chemical Waste	General Refuse disposed of at Landfill
(in `000m ³)	(in `000m ³)	(in '000m ³)	(in `000m ³)	(in `000m ³)	(in `000m ³)	(in `000kg)	(in `000kg)	(in `000kg)	(in `000kg)	(in `000m ³)

Notes:

- (1) The performance targets are given in the **ER Appendix 8J Clause 14** and the EM & A Manual(s).
- (2) The waste flow table shall also include C&D materials to be imported for use at the Site.
- (3) Plastics refer to plastic bottles/containers, plastic sheets/foam from packaging material.
- (4) The Contractor shall also submit the latest forecast of the total amount of C&D materials expected to be generated from the Works, together with a breakdown of the nature where the amount of C&D materials expected to be generated from the Works is equal to or exceeding 50,000 m³. (**ER Part 8 Clause 8.8.5 (d) (ii)** refers).

<u>APPENDIX H – ENVIRONMENTAL MITIGATION IMPLEMENTATION SCHEDULE FOR WASTE MANAGEMENT</u>

EIA Ref.	EM&A Log Ref	Recommended mitigation measures	Objectives of the recommended measures & main concerns to address	Who to implement the measures	Location of the measures	When to implement the measures	What requirements or standards for the measures to achieve?
Waste	Manage	ment (Construction Waste)					
S12.6 of TMCLKL - EIA	WM1	 Construction and Demolition Material The following mitigation measures should be implemented in handling the waste: Maintain temporary stockpiles and reuse excavated fill material for backfilling and reinstatement; Carry out on-site sorting; Make provisions in the Contract documents to allow and promote the use of recycled aggregates where appropriate; Adopt "Selective Demolition" technique to demolish the existing structures and facilities with a view to recovering broken concrete effectively for recycling purpose, where possible; Implement a trip-ticket system for each works contract to ensure that the disposal of C&D materials are properly documented and verified; and Implement an enhanced Waste Management Plan similar to ETWBTC (Works) No. 19/2005 – "Environmental Management on Construction Sites" to encourage on-site sorting of C&D materials and to minimize their generation during the course of construction. In addition, disposal of the C&D materials onto any sensitive locations such as agricultural lands, etc should be avoided. The Contractor shall propose the final disposal sites to the Project Proponent and get its approval before implementation 	Good site practice to minimize the waste generation and recycle the C&D materials as far as practicable as to reduce the amount for final disposal	Contractor	All construction site	Construction stage	 Land (Miscellane ous Provisions) Ordinance Waste Disposal Ordinance ETWB TC 19/2005

S12.6 of TMCLKL - EIA	WM2	 <u>C&D Waste</u> Standard formwork or-pre-fabrication should be used as far as practicable in order to minimize the arising of C&D materials. The use of more durable formwork or plastic facing for the construction works should be considered. Use of wooden hoardings should not be used, as in other projects. Metal hoarding should be used to enhance the possibility of recycling. The purchasing of construction materials will be carefully planned in order to avoid over ordering and wastage. The Contractor should recycle as much of the C&D materials as possible onsite. Public fill and C&D waste should be segregated and stored in different containers or skips to enhance reuse or recycling of materials and their proper disposal. Where practicable, concrete and masonry can be crushed and used as fill. Steel reinforcement bar can be used by scrap steel mills. Different areas of the sites should be considered for such segregation and storage. 	Good site practice to minimize the waste generation and recycle the C&D materials as far as practicable so as to reduce the amount for final disposal	Contractor	All construction site	Construction stage	 Land (Miscellane ous Provisions) Ordinance Waste Disposal Ordinance ETWB TC 19/2005
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S12.6 of TMCLKL - EIA	WM3	 <u>Chemical Waste</u> Chemical waste that is produced, as defined by Schedule 1 of the Waste Disposal (Chemical Waste) (General) Regulation, should be handled in accordance with the Code of Practice on the Packaging, Labelling and Storage of Chemical Wastes. Containers used for the storage of chemical wastes should be suitable for the substance they are holding, resistant to corrosion, maintained in a good condition, and securely closed; have a capacity of less than 450 liters unless the specification has been approved by the EPD; and display a label in English and Chinese in accordance with instructions prescribed in Schedule 2 of the regulation. The storage area for chemical wastes should be clearly labelled and used solely for the storage of chemical waste; enclosed on at least 3 sides; have an impermeable floor and bunding of sufficient capacity to accommodate 110% of the volume of the largest container or 20% of the total volume of waste stored in that area, whichever is the greatest; have adequate ventilation; covered to prevent rainfall entering; and arranged so that incompatible materials are adequately separated. Disposal of chemical waste should be via a licensed waste collector; be to a facility licensed to receive chemical waste, such as the Chemical Waste Treatment Centre which also offers a chemical waste collection service and can supply the necessary storage containers; or be to a re-user of the waste, under approval from the EPD. 	Control the chemical waste and ensure proper storage, handling and disposal	Contractor	All construction site	Construction stage	 Waste Disposal (Chemical Waste) (General) Regulation Code of Practice on the Packaging, Labelling and Storage of Chemical Waste
S12.6 of TMCLKL - EIA	WM4	 Sewage Adequate numbers of portable toilets should be provided for the workers. The portable toilets should be maintained in a state, which will not deter the workers from utilizing these portable toilets. Night soil should be collected by licensed collectors regularly. 	Proper handling of sewage from worker to avoid odour, pest and litter impacts	Contractor	All construction site	Construction stage	- Waste Disposal Ordinance

S12.6 of TMCLKL - EIA	WM5	 <u>General Refuse</u> General refuse generated on-site should be stored in enclosed bins or compaction units separately from construction and chemical wastes A reputable waste collector should be employed by the Contractor to remove general refuse from the site, separately from construction and chemical wastes, on a daily basis to minimize odour, pest and litter impacts. Burning of refuse on construction sites is prohibited by law. Aluminum cans are often recovered from the waste stream by individual collectors if they are segregated and made easily accessible. Separate labelled bins for their deposit should be provided if feasible. Office wastes can be reduced through the recycling of paper if volumes are large enough to warrant collection. Participation in a local collection scheme should be considered by the Contractor. In addition, waste separation facilities for paper, aluminum cans, plastic bottles etc should be provided. Training should be provided to workers about the concepts of site cleanliness and appropriate waste management procedure, including reduction, reuse and recycling of wastes. 	Minimize production of the general refuse and avoid odour, pest and litter impacts	Contractor	All construction site	Construction stage	- Waste Disposal Ordinance