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



**Construction and Demolition Material Management Plan  
for West Kowloon Cultural District (WKCD)**

**Report No. XXXXX-ARP-CIV-REP-0001-TDG-XXX-XF**



Project <b>Museum for Visual Culture in West Kowloon Cultural District</b>	
Client <b>WKCD</b>	Consultant <b>M+ Consultancy JV (MJV)</b>
Element	Other
Discipline <b>Construction and Demolition Material Management Plan</b>	

Rev	Date	Prepared by	Checked by	Approved by	Endorsed by	Description	Status

Internal Review and Approval Table							
XF	20 October 2014	Desmond Wong 	Davis Lee 	Davis Lee 	Davis Lee 	Construction and Demolition Material Management Plan	6 <sup>th</sup> edition
XE	27 August 2014	Desmond Wong	Davis Lee	Davis Lee	Davis Lee	Construction and Demolition Material Management Plan	5 <sup>th</sup> edition
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### **1. Purpose of the Report**

The West Kowloon Cultural District (WKCD) Project includes the underpass road and Austin Road Flyover which is designated projects under the Environmental Impact Assessment Ordinance (EIAO). The Environmental Impact Assessment (EIA) Report of WKCD Project was approved with condition on 18 November 2013 and the Environmental Permit (EP) (permit no. 453/2013/A) was also issued. It is stated in the EP Condition 2.4 that *“Permit Holder shall, no later than one month before the commencement of construction of the Project, submit to the Director for approval four hard copies and one electronic copy of a C&D Material Management Plan. The C&D Material Management Plan shall include measures for minimizing C&D materials being generated and maximizing the re-use of C&D materials in-situ or for other projects. The measures recommended in the C&D Material Management Plan approved under this Condition shall be properly implemented for the Project.”*

The purpose of this C&DMMP is to enable the commencement of designated project construction and introduce measures to minimize C&D materials generation and to maximise reusing the C&D materials generated within the whole WKCD Project, which covers the designated projects.

This C&DMMP was endorsed in principle by Public Fill Committee on 3 October 2014. The letter of endorsement is shown in **Appendix E**.

### **2. Project Background**

The idea and form of developing a site of approximately 40 ha on the northern shore of the magnificent Victoria Harbour of Hong Kong for arts and cultural facilities has had a rich history of discussion in the Hong Kong community. As a result of those discussions, a community consensus has been reached that the vision of Hong Kong should be to develop the area, now called the WKCD, into a world-class integrated arts, cultural, entertainment and commercial district. Those discussions have suggested a list of Core Arts and Cultural Facilities (CACF) including performing arts venues, a cultural institution with museum functions (named “M+”) and an Exhibition Centre (EC). The discussions have also revealed a great deal of expectations and aspirations towards the direction that the development of the WKCD should be directed towards.

The development of the WKCD should adhere to prudent and transparent financing principles ensuring that the arts and cultural facilities are financially sustainable in the sense that a statutory body should have the availability to such sources of revenue as to be able to underpin the operation of the facilities without direct recourse to the Government.

The West Kowloon Cultural District Authority (WKCDA), empowered by the WKCDA Ordinance (Cap. 601), was set up by the Government with the full support of the Legislative Council (LegCo) in October 2008 to take forward the WKCD project.

Under section 21 of the WKCDA Ordinance (Cap. 601), the WKCDA is responsible for the preparation of a comprehensive Development Plan (DP). From 2009 to 2011, the WKCDA prepared the DP in three stages, namely:

- To conduct an exercise to gauge stakeholders’ expectations and aspirations for the DP of the WKCD as well as their views on the design and functional requirements of the CACF;
- To prepare three Conceptual Plan (CP) Options; and
- In the light of public comments on the CP Options collected in a Public Engagement (PE) exercise, select one option out of the three with any modifications as deemed fit by the WKCDA.

The selected option with modifications has been developed into a DP which was submitted to the Town Planning Board (TPB) on 20 December 2011 in accordance with the WKCDA Ordinance (Cap. 601). Deemed as suitable for publication by the TPB, the draft DP (No. S/K20/WKCD/1) was gazetted under section 5 of the Town Planning Ordinance (Cap. 131) on 30 March 2012. On 8 January 2013,



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the Chief Executive in Council, under section 9(1)(a) of the Town Planning Ordinance (Cap. 131), approved the draft DP. The approved DP (No. S/K20/WKCD/2) now serves as the basis for implementation.

In accordance with the approved DP, the project area and project layout of the WKCD development to be taken forward in this C&DMMP is shown in **Figures 1.1 and 1.2**.

The WKCD development project is a Designated Project by virtue of Item 1 of Schedule 3 of the Environmental Impact Assessment Ordinance (EIAO). In addition, a flyover and an underpass in the WKCD development are also designated projects defined under Schedule 2 of the EIAO. An EIA report (application no. EIA-214/2013) was submitted for public inspection and the report was approved with condition on 18 November 2013.

In mid 2012, due to the lack of sufficient available geotechnical investigation (GI) information before the completion of EIA report, only a preliminary C&DMMP was prepared.

As the Phase I GI works in WKCD was completed in January 2014. This C&DMMP is prepared based on the latest available GI information.

### **3. Scope of Project**

#### 3.1. Study Area

The WKCD site is located on the West Kowloon Reclamation south of Austin Road West and the Western Harbour Crossing Toll Plaza. The site is currently zoned as “West Kowloon Cultural District Development Plan Area” under the approved South West Kowloon Outline Zoning Plan (No. S/K20/30) gazetted on 3 October 2014, and comprises approximately 40ha of land bordering the Jordan/Tsim Sha Tsui area.

#### 3.2. Existing Condition

The site reserved for the WKCD development is currently occupied by works sites, local roads, temporary storage / parking facilities, a temporary promenade at the Waterfront and a number of existing infrastructure and utility facilities such as ventilation buildings for the Western Harbour Crossing and the MTR railway line, a sea water pumping station, etc. Parts of the WKCD site are also currently occupied by the Tsim Sha Tsui Fire Station and by the works site and temporary works areas for the Hong Kong Section of the Guangzhou-Shenzhen-Hong Kong Express Rail Link (XRL) project

#### 3.3. Scope of Works

The proposed WKCD development will comprise the following major facilities.

#### Core Arts and Cultural Facilities (CACF)

The CACF will consist of:

- A Mega Performance Venue;
- Exhibition Centre Complex;
- A Great Theatre;
- A Musical Theatre
- A Centre for Contemporary Performance (CCP);
- Thrust Theatre;
- Proscenium Theatre;



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- Outdoor Theatre;
- A Music Centre;
- A Xiqu Centre;
- An enclosed Freespace with Music Box; and
- A museum (M+).

### Other Arts and Cultural Facilities (OACF)

The CACF will be supported by the OACF which include Resident Company Centres, Arts and Craft Studios, Pavilions and Literary Arts Centre.

### Infrastructure and Support Facilities

The WKCD will also involve the following infrastructure and support facilities:

- Government, Institution or Community (GIC) facilities including electricity substation, police post etc.;
- Various retail, dining and entertainment (RDE) facilities; and hotel, office and residential (HOR) developments. All residential buildings inside WKCD will be mixed with commercial components such as RDE and office at lower floors to support the leisure lifestyle and minimize the environmental impacts at residential floors;
- A district cooling system to provide chilled water for WKCD facilities for substantial energy saving, with possible extension to Government, Institution or Community facilities and hotel, office and residential developments subject to technical, financial and implementation mechanisms;
- Local road networks comprising a main underpass of approximately 1400m in length, a flyover bridge of approximately 200m in length across the Western Harbour Crossing toll plaza, at-grade link roads, lay-bys and emergency vehicular access;
- Other accessibility features including possible external footbridge connections from WKCD to Kowloon Park, China Ferry Pier, the International Commerce Centre, Elements mall, and pedestrian links (e.g. subway and landscape deck) to West Kowloon Terminus and Austin Station;
- Park – extensive areas of grass and open space with trees offering shade for open air leisure, recreation, refreshment and walking, allow people to relax and find quiet spaces together;
- Modification of seawalls for the construction of seawater discharges/outfalls and landing steps near south or south-west boundary of the WKCD site; and
- Associated utilities, drainage, sewerage, sewage pump sumps, waterworks, engineering works, landscaping and environmental mitigation measures.

## 4. Implementation Programme

The whole WKCD was divided into different zoning areas (Zones 1, 2A, 2B, 2C, 3A, 3B, 4, 5, Great Park, Public Infrastructure works (PIW) and the underground road in Zone 1) as shown on **Figure 4.1** and the tentative construction periods of each zone are shown in the table below:

Table 4.1 Tentative Construction Programme

Zone	Tentative Construction Period
Zone 1	Oct 2013 – Oct 2017



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Zone	Tentative Construction Period
Zone 2A	Jun 2018 – May 2025
Zone 2B	Jan 2018 – Dec 2024
Zone 2C	Apr 2025 – Mar 2032
Zone 3A	Aug 2014 – May 2018
Zone 3B	May 2015 – Dec 2020
Zone 4	Jun 2018 – Nov 2022
Zone 5	Jul 2018 – Jun 2021
Great Park	Sep 2015 – Jul 2017
PIW	Sep 2015 – Sep 2024
Underground Road in Zone 1	Jul 2028 – Mar 2031

A detailed construction programme is shown in **Appendix A**.

### 5. Development Constraints

#### 5.1. Existing/Planned Railway Lines/Structures

There are several numbers of existing/planned railway lines/structures in the vicinity of WKCD, which are identified below:-

- West Rail Line (WRL)
- Austin Station (AUS)
- Tung Chung Line (TCL)
- Airport Express Line (AEL)
- Kowloon Station (KOW)
- Express Rail Line (XRL) (under construction)
- West Kowloon Terminus (WKT) (under construction)

WRL and AUS are located on the eastern part of WKCD. Direct connections between WKCD and AUS should be provided to enable the pedestrian to travel via WRL or interchange to East Rail Line (ERL) at Hung Hom Station (HUN). The WRL cut through the eastern corner of WKCD which was constructed used cut and cover method supported by diaphragm walls at both sides and foundation below. The width between the diaphragm walls is about 30m while the top slab level and the track level are at approximately -6.8mPD and -14.6mPD respectively. The diaphragm walls extended further upwards and cut at approximately +1.5mPD.

TCL, AEL and KOW are located at the centre part of WKCD. Direct connections between WKCD and KOW should be provided via The Elements to enable the pedestrian to travel via TCL and AEL to the Hong Kong Island, West Kowloon area and to Tung Chung and the Airport. The TCL and AEL cut through the centre part of WKCD without any foundation below. The top level of the combined tunnels of TCL and AEL is approximately +3.7mPD which forms a significant constraint to the WKCD development. The MTRCL Kowloon Ventilation Building, its maintenance access, seawater intakes, cooling system and other utilities also form constraints to the WKCD development.

XRL and WKT currently under construction are located on the western side of the WRL and AUS. Direct connections between WKCD and WKT should be provided to enable the pedestrian to travel to the mainland via XRL. The basement of WKT and overrun tunnels of XRL cut through the WKCD with allowance of loading from WKCD of 20-storeys. The top level of the basement of WKT will terminate



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at +0.6mPD, and there are 2 numbers of ventilation shafts and several numbers of mean of escape (MOE) / mean of access (MOA) required to be extended to the ground level, which form significant constraints to the WKCD development.

### 5.2. Existing/Planned Road Network/Structures

There are several numbers of existing/planned road network/structures in the vicinity of WKCD, which are identified below:-

- Canton Road – bounded the eastern end of the WKCD, planned to be modified under Agreement No. CE 65/2009 (HY) – Proposed Road Improvement Works in West Kowloon Reclamation – Feasibility Study by Highways Department to include an underpass beneath Austin Road / Austin Road West;
- Austin Road West – bounded the northern end at most part of the WKCD, will be modified under the XRL project to include an underpass connecting Austin Road West, Lin Cheung Road and WKCD. Modifications to the existing at-grade traffic are proposed such that direct access to the development will be provided at ground level at strategic locations – the West Gate and the East Gate. Then new U-shaped slip roads are proposed at ground level such that vehicles travelling eastbound along Austin Road West can change to westbound, and vice versa. Part of the underpass will intrude the boundary of WKCD;
- Nga Cheung Road and Nga Cheung Road Flyover – possible accesses to the WKCD development;
- West Kowloon Highway (within the Tunnel Control Zone) – Forms significant constraints for pedestrian travelling from the western end of WKCD to the KOW / The Elements. The existing operator of the Western Harbour Crossing already raised their reservation to construct any flyovers / footbridges within the operation area if the proposed construction commence in during their franchise period, i.e. before the year 2023. Their particular concern is on the piers supporting the flyover have to be installed within their operation area, which will adversely affect their normal operation and commitment to the Government under the conditions of their franchise. The proposed road modification works at West Kowloon Highway under Agreement No. CE 65/2009 (HY) – Proposed Road Improvement Works in West Kowloon Reclamation – Feasibility Study by Highways Department will also constrain the design of roadworks for WKCD development;
- Western Harbour Tunnel – The cut-and-cover tunnel and the associated retaining structure form constraints to any structures to be constructed above. The ventilation building also forms significant constraints to the planning of the WKCD development.

### 5.3. Existing/Planned Utilities and Infrastructure

There is an existing WSD Kowloon South No. 2 pumping station and associated seawater intake, water mains and at the north west corner of the WKCD site. In addition, there is a planned submarine water main adjacent to the existing water main at the northwest corner of the WKCD site being constructed by WSD. The pumping station and associated seawater intake, and the existing water mains with waterworks reserve form constraints to WKCD development.

2 nos. DN600 cooling mains locate at the central portion of the WKCD site connecting between a seawater pump house and Austin Road West. The DN600 cooling mains are currently used for cooling system of the Kowloon Government Office. The above cooling mains will be diverted within the WKCD development.

Another 3 nos. DN800 cooling mains locate to the east of the Airport Express Line and these 3 nos DN800 cooling mains will expand to 4 nos. DN800 cooling mains near Austin Road West. The above





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cooling mains connect to the existing seawater pump house and underground plant room at the seafront and are used for the cooling system of the Elements.

### 5.4. Marine Deposit

Based on the currently available data, it is found that the WKCD is generally underlain by a layer of fill that varies from 8m to 37.4m thick. Marine deposit is found in localized areas and its thickness varies from 2m to 9m.

The marine deposit would not be excavated according to the current WKCD layout. If excavation of marine deposit is required, approval from Marine Fill Committee on excavation/disposal of marine deposit must be obtained before the commencement of works.

## **6. Design Options**

The following options of construction techniques were considered.

### 6.1. Excavation Works

The main excavation works required for the project is for formation of the basement. The basement levels of each zone are various to suit the corresponding function, such as parking, vehicular access and electrical and mechanical (E&M) plant. As the site is adjacent to the harbour, high groundwater levels are anticipated. Other constraints on the excavation works include the composition of the excavated materials and the presence of existing underground utilities and railway facilities.

By the nature of the basement design, the superstructures to be supported aboveground, and the soft ground that comprises the WKCD site, excavation will need to be via open cut method. Two options for open cut excavation are available: open cut with temporary cut slopes, or via excavation lateral support (ELS) system. The temporary cut slope option is the simplest method for open cut excavation, however this requires extensive working space surrounding the excavation to provide stable temporary cut slopes. As the WKCD basement extends close to the site boundary which is bounded by Victoria Harbour to the south and trunk roads to the north and east, this option would not be feasible. The ELS system method is considered appropriate as it allows excavation with vertical sides using lateral support by either diaphragm walls or similar ELS system, which can meet the site constraints.

From management of C&D materials perspective, the ELS system method minimises the excavation area compared with the cut slope option. Excavation via ELS system by bottom-up open cut method is recommended as details of the superstructures above the basement are not available at this stage, hence this construction method would be technically more straightforward than other methods (such as top-down excavation). A permanent diaphragm wall is required to provide lateral support to the ground and limit groundwater inflow during construction. In view of the deep excavation, a stiff lateral support system is required to control the lateral movement as well as prevent potential settlement to adjacent ground, structures and property.

Excavation with ELS system would be adopted as it required less footprint area for the construction of basement. The net C&D material generation of both open cut and excavation with ELS would be similar as the temporary excavated material would be reused as backfilling material in later stage in the open cut method.

### 6.2. Foundation Works

Foundation works are required for formation of the basement structure and for the future WKCD buildings.

The selection of foundation schemes are based on the following criteria:



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- Types of structure to be supported and load carrying capacity required;
- Availability of materials and plants;
- Local experience;
- Site constraints; and
- Construction schedule.

The foundation options that are considered include:

- Option A – Large diameter bored piles;
- Option B – Pre-bored rock socket steel H-piles;
- Option C – Driven Steel H-piles; and
- Option D - Footing

Of the four options for foundation, Option C has a relatively low loading capacity which necessitates a greater number of piles compared to Options A and B, and will also generate the greatest noise and vibration impacts, hence this option is not recommended. The cost and loading capacity of Options A, B and D are different and they would be adopted depended on the loading requirement of the structures.

The excavation quantities of the foundation options for each 8.4m x 8.4m column grid are shown below:

	Option A - Large diameter bored piles	Option B – Pre-bored rock socket steel H-piles	Option C – Driven Steel H-piles	Option D - Footing
Excavation volume per 8.4m x 8.4m column grid (m <sup>3</sup> )	250	150	20	N/A (footing would be adopted for small scale structure in which adopting piled foundation is not cost effective)

### 6.3. Site Formation

The construction methods to be employed for site formation and roadworks are all conventional methods which include site clearance, excavation and filling, construction of access road and utilities laying, and finally the landscape works. For these works, the methods are well established and there are limited alternative options.

For construction of intakes/outfalls for the WKCD drainage and district cooling systems along the harbourfront which involves minor seawall modification, no dredging is required.



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### 6.4. Basement Design

There were 3 conceptual plans prepared by 3 master planning teams in the Public Engagement stage. The excavation volumes for the basement construction in these 3 schemes are as follows:

Conceptual Plan	Approximate In-situ Excavation Volume (m <sup>3</sup> )
<b>City Park</b> (by Foster + Partners)	1.9M
<b>Cultural Connect</b> (by Rocco Design Architects Limited)	2.1M
<b>Project for a New Dimension</b> (by Office for Metropolitan Architecture)	1.0M

In the Public Engagement, the concept of “City Park”, which put the traffic underground and free up the site for cultural use and public enjoyment, was favoured by the people of Hong Kong. This concept is adopted in Development Plan of WKCD which was submitted to Town Planning Board in 2011 and approved by the Chief Executive in Council in early 2013. The Explanatory Statement of the approved Development Plan of WKCD stated that the vehicular access and car parking facilities should be provided at basement level to enable a vehicle-free environment in WKCD at ground level. Therefore it is considered that basement for access road and car parking facilities in WKCD is necessary as it is one of the major planning concepts of this Project.

### 6.5. Superstructures

Construction of the superstructures for buildings will likely take the form of one of the following:

- Conventional in-situ reinforced concrete construction;
- Precast concrete construction; or
- Steelwork construction much of which will be in the form of prefabricated steelwork elements.

In general, the aforementioned superstructure construction options will not present significant differences in terms of management of C&D materials.

### 6.6. Bridges

The WKCD will also contain a vehicular bridge (the proposed Austin Road Bridge over the Western Harbour Crossing) and several pedestrian bridges linking WKCD to external areas such as ‘Elements’ mall and Kowloon Park. For construction of the superstructures for vehicular and pedestrian bridges, the following methods may be adopted:

- Cast in-situ deck – scaffolding/falsework is erected for the placement of formwork before in-situ concreting of deck structure;
- Single span lifting method – the entire span precast deck will be lifted into position;
- Steel truss with concrete deck – this method involves lifting the prefabricated steel truss followed by construction of the concrete deck; and
- Precast segmental method - the bridge deck will be constructed as precast segments (each a few metres long), which are lifted into position and then tied together with pre-stressing cables. This method has been extensively adopted in Hong Kong in the past.



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The pedestrian bridges are generally short and form a relatively small component of the WKCD project, hence the potential impact on C&D materials associated with construction of these bridges, and the difference between construction methods adopted, will have limited significance.

### **7. Management of C&D Materials**

#### 7.1. Types of Fill

C&D materials (divided into two types - inert and non-inert) would be generated from the construction activities of the WKCD development. The excavation works for WKCD basement will be the major source of inert C&D materials. The inert material comprises of rock, soils, debris, rubble, bitumen materials and broken concrete that can be used as fill materials. The C&D material generated from excavation would be considered to be reused in the subsequent stage for backfilling if appropriate.

The non-inert portion of construction waste comprises timber, metal, glass, steel, packaging waste, organic materials and plastic. Some non inert construction waste can be reused or recycled prior to disposal of at landfill. Recyclables include mainly of metals, paper/ cardboard packaging and plastic (plastic bottles/ containers, plastic sheets/ foam from packaging materials). Non-recyclable materials are treated as general refuse requiring landfilling.

#### 7.2. Fill Management Approach

The fill management for the project shall follow the guidance of the following Development Bureau Works Technical Circulars, the CEDD Technical Circulars and the statutory requirement under the EIAO and WDO:

- Development Bureau Technical Circular (Works) No. 09/2011 – Enhanced Control Measures for Management of Public Fill
- Development Bureau Technical Circular (Works) No. 06/2010 – Trip Ticket System for Disposal of Construction & Demolition Materials
- Development Bureau Technical Circular (Works) No. 19/2005 – Environmental Management on Construction Sites
- Development Bureau Technical Circular (Works) No. 12/2000 – Fill Management
- Project Administration Handbook Chapter 4 Section 4.1.3 –Construction and Demolition Materials
- Development Bureau Technical Circular (Works) No. 04/1998A – Use of Public Fill in Reclamation and Earth Filling Projects
- CEDD Technical Circular No. 05/2005 – Management of Construction and Demolition Materials
- Environmental Impact Assessment Ordinance (EIAO) (Cap. 499)
- Waste Disposal (Amendment) Ordinance (WDO) (Cap. 354)

In accordance with government policy, the construction and demolition (C&D) materials should be reduce, reuse and recycle as far as possible and disposal of C&D waste at public fill reception facilities or landfills should be considered as the last resort. For the C&D material to be disposed, it should only be disposed of at designated public fill reception facilities, mud pits or strategic landfills, depending on the type of the C&D materials.

Reclamation or earth filling projects with imported fill requirements of 300,000m<sup>3</sup> or more must consider using public fill for the works according to WBTC No. 4/98A. Dumping licences will be



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issued in accordance with WBTC No. 2/93. They are issued to individuals or companies who deliver public fill to the designated public filling facilities. Individual licences and windscreen stickers are issued for each vehicle involved. Under the conditions attached to the licence, only inert building debris, soil, rock and broken concrete will be accepted. Pieces of rock and broken concrete up to 200mm in size have little effect on subsequent piling operations and can therefore be placed in development areas. Hard material above this size could pose serious restrictions to piling, and should be avoided in building areas. This measure could make sure the imported fill to be free from unsuitable materials, such as household refuse, plastic, industrial and chemical waste etc. Additionally, the quality of public fill materials could also be controlled by visual inspection of supervision staff. Any fill material not complying with the requirement will be rejected.

In view of the limited capacity of these C&D materials receiving facilities, all projects should explore ways to minimise the generation of C&D materials and maximise the reuse of the generated C&D materials within own site and in other projects. CEDD Fill Management Division and EPD are the working departments managing the public fill reception facilities and landfills respectively.

### 7.3. Changes Since the Approval of EIA

It should be noted that the layout of WKCD is fine tuned since the EIA approved in 2013. Therefore there will be a variance of the C&D material generation between the EIA and this C&DMMP. The major changes are as follows:

Table 7.1 Changes from EIA to C&DMMP

EIA		C&DMMP	
Change in Basement			
Zone	Basement Level	Zone	Basement Level
1	-2.1mPD	1	-0.8mPD
2A	-6.5mPD	2A	-3.6mPD
2B	-6.5mPD	2B	-7.5mPD
		2C	-7.2mPD
3	-1.1mPD	3A	-0.3mPD
		3B	-7.7mPD
4	-16.95mPD	4	-16.95mPD
Change in GFA			
Total GFA	730,000m <sup>2</sup>	Total GFA	851,403m <sup>2</sup>

Besides the change in basement layout, the C&D material to be generated from the site clearance is also updated with reference to an aerial photo taken in 2012.

The changes of C&D material generation and requirement are shown in the table below.

Table 7.2 Changes of C&D Material Requirement and Generation

C&D Material	In-situ Volume [Bulk Volume] (m <sup>3</sup> )		
	EIA (A)	C&DMMP (B)	Difference (C) = (B) – (A)
<b>Inert</b>			
-Inert Soft C&D Material	Not Available	2,330,500 [2,586,900]	+2,330,500 [+2,586,900]
-Broken Concrete	Not Available	94,500 [118,125]	+94,500 [+118,125]
-Broken Asphalt	Not Available	5,500 [6,900]	+5,500 [+6,900]
Total Inert C&D Material Generation	1,910,200 [2,120,300]	2,430,500 [2,697,900]	+520,300 [+577,500]
Fill Material Required	557,600 [618,900]	557,600 [618,900]	0



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Non-inert			
-Top Soil	10,830 [12,020]	4,900 [5,439]	-5,930 [-6,580]
-Other Non-inert C&D Waste	Not Available	12,300 [13,650]	+12,300 [+13,650]
Total Non-inert C&D Waste Generation	10,830 [12,020]	17,200 [19,090]	+6,370 [+7,070]

Note:

1. Other non-inert C&D waste generation include packaging material, paper, wood etc
2. In-situ volume is given outside []. Bulk volume is denoted in [].
3. Bulk factor of 1.25 is used for broken concrete and broken asphalt. Bulk factor 1.11 is used for other material including the total of inert/non-inert material.
4. The volume of inert material and non-inert material are rounded to the nearest 100 and 10 respectively.

As advised by Fill Management Division/CEDD on 8 April 2014 that the government's Public Fill Reception Facilities (PFRFs) have no spare capacity to accept the surplus inert C&D material from WKCD project, the surplus inert C&D material will be reused in the concurrent projects in Hong Kong or in Mainland China as presented in the following sections. The non-inert material will be disposed of at landfill which is same as the proposal in the EIA. The method of handling other wastes, including non-inert C&D waste, chemical waste and general refuse will be same as that proposed in the EIA report. The mitigation measures proposed in the EIA report, including good site practices, waste reduction measures, segregating of inert material from the C&D material generated in site clearance, implementing Trip Ticket System, preparing and implementing a Waste Management Plan by Contractor, method of handling chemical waste and general refuse will be adopted.

### 7.4. Quantity of C&D Material Requirement and Generation

The excavation works for WKCD basement (including the underpass road) will be the major source of inert C&D materials (mainly soil) generated by the Project. It is estimated that the total amount of inert C&D materials to be generated in WKCD would be approximately 2,430,500m<sup>3</sup>, which includes about 2,330,500m<sup>3</sup> of inert soft C&D material, 94,500m<sup>3</sup> of broken concrete and 5,500m<sup>3</sup> of broken asphalt. The construction of WKCD will be carried out on a zone-by-zone basis from 2014 to 2032. Based on the tentative construction programme (see **Appendix A**), the amounts of inert C&D materials to be generated in different years have been estimated as summarized in **Table 7.3** and **Appendix C**.

Table 7.3 Estimates of C&D Materials to be Generated by WKCD Project

Year	In-situ Volume [Bulk Volume] (m <sup>3</sup> )			Total
	Inert soft C&D Material	Broken Concrete	Broken Asphalt	
2014	5,300 [5,900]	900 [1,100]	-	6,200 [6,900]
2015	144,800 [160,700]	4,900 [6,100]	300 [400]	150,000 [166,500]
2016	64,000 [71,000]	11,500 [14,400]	1,300 [1,600]	76,800 [85,200]
2017	123,100 [136,600]	9,100 [11,400]	700 [900]	132,900 [147,500]
2018	454,800 [504,800]	7,900 [9,900]	2,600 [3,300]	465,300 [516,500]
2019	952,100 [1,056,800]	11,300 [14,100]	600 [800]	964,000 [1,070,000]
2020	127,200 [141,200]	12,300 [15,400]	-	139,500 [154,800]
2021	-	8,700 [10,900]	-	8,700 [9,700]
2022	100 [100]	4,700 [5,900]	-	4,800 [5,300]
2023	-	3,900 [4,900]	-	3,900 [4,300]
2024	100 [100]	4,000 [5,000]	-	4,100 [4,600]
2025	62,200 [69,000]	3,700 [4,600]	-	65,900 [73,100]
2026	266,200 [295,500]	1,900 [2,400]	-	268,100 [297,600]
2027	130,100 [144,400]	2,600 [3,300]	-	132,700 [147,300]
2028	100 [100]	2,500 [3,100]	-	2,600 [2,900]



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Year	In-situ Volume [Bulk Volume] (m <sup>3</sup> )			Total
	Inert soft C&D Material	Broken Concrete	Broken Asphalt	
2029	200 [200]	1,500 [1,900]	-	1,700 [1,900]
2030	200 [200]	1,500 [1,900]	-	1,700 [1,900]
2031	-	1,400 [1,800]	-	1,400 [1,600]
2032	-	200 [300]	-	200 [200]
<b>Total</b>	<b>2,330,500 [2,586,900]</b>	<b>94,500 [118,100]</b>	<b>5,500 [6,900]</b>	<b>2,430,500 [2,697,900]</b>

Note:

1. In-situ volume is given outside []. Bulk volume is denoted in [].
2. Bulk factor of 1.25 is used for broken concrete and broken asphalt. Bulk factor 1.11 is used for other material including the total of inert material.
3. The volume of inert material is rounded to the nearest 100.
4. According to the GI information, only inert soft C&D material would be excavated during the basement excavation.
5. The broken concrete and broken asphalt would be downsized and mixed with the surplus inert soft C&D material for filling works on-site or off-site.
6. Breakdown of C&D material generation from different works element should be referred to Appendix C.

7.5. On-site reuse inert C&D materials as fill materials

The WKCD development will require fill material for construction of the Park and the materials are proposed to be obtained from reuse of the inert C&D materials generated by the Project as far as practicable.

It is estimated that the WKCD Project would require a total of 557,600 m<sup>3</sup> of fill materials for construction of the Park. It is considered all the fill materials would be supplied by the inert C&D material generated in the basement excavation or superstructure construction, as detailed in **Table 7.4**. Due to the programme mismatch, only 268,800m<sup>3</sup> (242,700 + 23,900 + 2,200m<sup>3</sup>) of inert C&D material could be reused on-site and the remaining 288,800m<sup>3</sup> (557,600 – 268,800m<sup>3</sup>) fill material would be imported from concurrent projects or from Governments Public Fill Reception Facilities.

Table 7.4 Fill Materials Requirement Schedule

Year	In-situ Volume [Bulk Volume] (m <sup>3</sup> )				Required Import Fill
	Fill Requirement	Reused Inert Soft C&D Material	Reused Broken Concrete	Reused Broken Asphalt	
2014	-	-	-	-	-
2015	150,000 [166,500]	144,800 [160,700]	4,900 [6,100]	300 [400]	-
2016	270,000 [299,700]	64,000 [71,000]	11,500 [14,400]	1,300 [1,600]	193,200 [214,500]
2017	137,600 [152,700]	33,900 [37,600]	7,500 [9,400]	600 [800]	95,600 [106,100]
2018	-	-	-	-	-
2019	-	-	-	-	-
2020	-	-	-	-	-
2021	-	-	-	-	-
2022	-	-	-	-	-
2023	-	-	-	-	-
2024	-	-	-	-	-
2025	-	-	-	-	-
2026	-	-	-	-	-



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2027	-	-	-	-	-
2028	-	-	-	-	-
2029	-	-	-	-	-
2030	-	-	-	-	-
2031	-	-	-	-	-
2032	-	-	-	-	-
Total	557,600 [618,900]	242,700 [269,400]	23,900 [29,900]	2,200 [2,800]	288,800 [320,600]

Note:

1. *In-situ volume is given outside []. Bulk volume is denoted in [].*
2. *Bulk factor of 1.25 is used for broken concrete and broken asphalt. Bulk factor 1.11 is used for other material including the total of inert material.*

### 7.6. Off-site reuse and disposal of surplus inert C&D materials

A number of concurrent projects is identified which will potentially have major public fill demand during the construction period (i.e. 2014 to 2023). Those potential projects with major fill demands include (a) Third Runway of Hong Kong International Airport; (b) Shatin Central Link Cross Harbour Section; and (c) Other potential CEDD reclamation project in study stage.

One of the potential major projects is the New Third Runway of Airport Authority (3<sup>rd</sup> runway project). Based on Table 10.3 of the EIA report of the 3<sup>rd</sup> runway project, it is estimated that 8.6-20.7Mm<sup>3</sup> of public fill is required between year 2016 and 2018. As discussed with the consultants of the 3<sup>rd</sup> runway project in mid-2014, it is agreed that the 3<sup>rd</sup> runway project would accept the surplus C&D material from WKCD project (copies of relevant correspondences attached in **Appendix B**). Liaison with the project proponent regarding the detail arrangement of using the inert C&D materials from WKCD Project will be made at a later stage when the programme of the 3<sup>rd</sup> runway project has become clearer. It is considered that the surplus C&D material generated between Q4 2016 and Q3 2018, i.e. about 282,900 m<sup>3</sup> (274,600 m<sup>3</sup> of inert soft C&D material + 6,600 m<sup>3</sup> of broken concrete + 1,700m<sup>3</sup> of broken asphalt) of inert C&D material would be reused in the 3<sup>rd</sup> runway project.

During the detailed design stage, further alternative disposal arrangement (e.g., other potential projects that could receive inert C&D materials from the WKCD Project) shall be continuously explored and identified. If no potential projects in Hong Kong could receive the surplus inert C&D materials after detailed co-ordination with the abovementioned 3 major potential fill demand projects, further investigation on reuse of the remaining inert C&D materials shall be implemented, including concurrent projects in Mainland China.

The amount of inert C&D materials produced from the WKCD Project that would be reused off-site in concurrent projects in Hong Kong or Mainland China would be about 1,878,800 m<sup>3</sup> (2,430,500 – 268,800 – 282,900 m<sup>3</sup>). Hence, the forecast quantities for yearly generation, on-site reuse, off-site reuse are as summarised in **Table 7.5** below.





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Table 7.5 Estimates of Inert C&D materials to be Generated, Reused On-site and Reused Off-site / Disposed

Year	In-situ Volume (m <sup>3</sup> ) [Bulk Volume]											
	Generation			Reused on Site			Reused in 3rd Runway Project			Reused Off-site in HK or in Mainland China		
	Inert soft C&D Material	Broken Concrete	Broken Asphalt	Inert soft C&D Material	Broken Concrete	Broken Asphalt	Inert soft C&D Material	Broken Concrete	Broken Asphalt	Inert soft C&D Material	Broken Concrete	Broken Asphalt
2014	5,300 [5,900]	900 [1,100]	-	-	-	-	-	-	-	5,300 [5,900]	900 [1,100]	-
2015	144,800 [160,700]	4,900 [6,100]	300 [400]	144,800 [160,700]	4,900 [6,100]	300 [400]	-	-	-	-	-	-
2016	64,000 [71,000]	11,500 [14,400]	1,300 [1,600]	64,000 [71,000]	11,500 [14,400]	1,300 [1,600]	-	-	-	-	-	-
2017	123,100 [136,600]	9,100 [11,400]	700 [900]	33,900 [37,600]	7,500 [9,400]	600 [800]	89,200 [99,000]	1,600 [2,000]	100 [100]	-	-	-
2018	454,800 [504,800]	7,900 [9,900]	2,600 [3,300]	-	-	-	185,400 [205,800]	5,000 [6,300]	1,600 [2,000]	269,400 [299,000]	2,900 [3,600]	1,000 [1,300]
2019	952,100 [1,056,800]	11,300 [14,100]	600 [800]	-	-	-	-	-	-	952,100 [1,056,800]	11,300 [14,100]	600 [800]
2020	127,200 [141,200]	12,300 [15,400]	-	-	-	-	-	-	-	127,200 [141,200]	12,300 [15,400]	-
2021	-	8,700 [10,900]	-	-	-	-	-	-	-	-	8,700 [10,900]	-
2022	100 [100]	4,700 [5,900]	-	-	-	-	-	-	-	100 [100]	4,700 [5,900]	-
2023	-	3,900 [4,900]	-	-	-	-	-	-	-	-	3,900 [4,900]	-
2024	100 [100]	4,000 [5,000]	-	-	-	-	-	-	-	100 [100]	4,000 [5,000]	-
2025	62,200 [69,000]	3,700 [4,600]	-	-	-	-	-	-	-	62,200 [69,000]	3,700 [4,600]	-
2026	266,200 [295,500]	1,900 [2,400]	-	-	-	-	-	-	-	266,200 [295,500]	1,900 [2,400]	-
2027	130,100 [144,400]	2,600 [3,300]	-	-	-	-	-	-	-	130,100 [144,400]	2,600 [3,300]	-



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Year	In-situ Volume (m <sup>3</sup> ) [Bulk Volume]											
	Generation			Reused on Site			Reused in 3rd Runway Project			Reused Off-site in HK or in Mainland China		
	Inert soft C&D Material	Broken Concrete	Broken Asphalt	Inert soft C&D Material	Broken Concrete	Broken Asphalt	Inert soft C&D Material	Broken Concrete	Broken Asphalt	Inert soft C&D Material	Broken Concrete	Broken Asphalt
2028	100 [100]	2,500 [3,100]	-	-	-	-	-	-	-	100 [100]	2,500 [3,100]	-
2029	200 [200]	1,500 [1,900]	-	-	-	-	-	-	-	200 [200]	1,500 [1,900]	-
2030	200 [200]	1,500 [1,900]	-	-	-	-	-	-	-	200 [200]	1,500 [1,900]	-
2031	-	1,400 [1,800]	-	-	-	-	-	-	-	-	1,400 [1,800]	-
2032	-	200 [300]	-	-	-	-	-	-	-	-	200 [300]	-
Total	2,330,500 [2,586,900]	94,500 [118,100]	5,500 [6,900]	242,700 [269,400]	23,900 [29,900]	2,200 [2,800]	274,600 [304,800]	6,600 [8,300]	1,700 [2,100]	1,813,200 [2,012,700]	64,000 [80,000]	1,600 [2,000]

Note:

1. In-situ volume is given outside []. Bulk volume is denoted in [].
2. Bulk factor of 1.25 is used for broken concrete and broken asphalt. Bulk factor 1.11 is used for other material including the total of inert/non-inert material.
3. The volume of inert material and non-inert material are rounded to the nearest 100 and 10 respectively.
4. The Three Runway System Project is still in planning stage and its EIA is subject to public review and EPD approval. Further arrangement is needed at a later stage when the programme of the 3rd runway project has become clearer.



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It is proposed that two temporary barging points at the south of the site will be handed over from the XRL project to WKCD for handling the inert C&D materials of this Project by September 2016 the earliest due to delay of XRL project (copies of relevant correspondences attached in **Appendix D**). Dump trucks will be used for removal of inert C&D materials generated from construction site to the barging points. The estimated maximum total handling volume of inert C&D materials at the two barging points will be 4,000 m<sup>3</sup>/day.

Both land and marine access to other projects are subject to capacity limitations, and hence quota and booking systems may be applied in order to ensure the disposal is carried out in controlled manner.

### 7.7. Non-inert C&D Materials Generation

Top soil would be generated in during site clearance and other non-inert C&D waste such as packaging material, paper and wood would be generated during construction. It is consider that 10% of the top soil is not suitable for site formation or landscape use after sorting. These non-inert waste would be disposed to landfill from 2014 to 2032 as summarised in **Table 7.6** below.

Table 7.6 Estimates of Non-inert C&D materials to be Generated and Disposed

Year	In-situ Volume [Bulk Volume] (m <sup>3</sup> )			
	Generation		Disposed of at Landfill	
	Top Soil (after sorting)	Other Non-inert C&D Waste	Top Soil	Other Non-inert C&D Waste
2014	200 [220]	90 [100]	200 [220]	90 [100]
2015	1,000 [1,110]	640 [710]	1,000 [1,110]	640 [710]
2016	1,590 [1,760]	1,510 [1,680]	1,590 [1,760]	1,510 [1,680]
2017	910 [1,010]	1,080 [1,200]	910 [1,010]	1,080 [1,200]
2018	710 [790]	630 [700]	710 [790]	630 [700]
2019	490 [540]	1,550 [1,720]	490 [540]	1,550 [1,720]
2020	-	1,870 [2,080]	-	1,870 [2,080]
2021	-	1,320 [1,470]	-	1,320 [1,470]
2022	-	700 [780]	-	700 [780]
2023	-	580 [640]	-	580 [640]
2024	-	590 [650]	-	590 [650]
2025	-	140 [160]	-	140 [160]
2026	-	200 [220]	-	200 [220]
2027	-	400 [440]	-	400 [440]
2028	-	370 [410]	-	370 [410]
2029	-	190 [210]	-	190 [210]
2030	-	190 [210]	-	190 [210]
2031	-	190 [210]	-	190 [210]
2032	-	60 [70]	-	60 [70]
<b>Total</b>	<b>4,900 [5,439]</b>	<b>12,300 [13,653]</b>	<b>4,900 [5,439]</b>	<b>12,300 [13,653]</b>

Note:

1. Other non-inert C&D waste generation include packaging material, paper, wood etc
2. In-situ volume is given outside []. Bulk volume is denoted in [].
3. Bulk factor 1.11 is used for non-inert material.
4. The volume of non-inert material is rounded to the nearest 10.
5. Assumed 90% of top soil could be reused after sorting



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### 7.8. Minimisation of C&D Materials Generation

#### Reviewing basement design and park design

The basement excavation in the WKCD is the major source of C&D material generation. The basement design will be critically reviewed in the detailed design stage to minimize the amount of C&D material generation.

#### On-site sorting

The material generated in the site clearance should be sorted to minimize the amount of material disposed to landfill. The inert material could be reused for earth filling either on-site or off-site. The suitable top soil could also be used for landscape purposes. Disposing of the unsuitable material to landfill should be the last resort.

### 7.9. Maximisation of Use of Inert C&D Materials

#### Reviewing the Construction Programme of the Park

Due to programme mismatch, some of the required fill material for the park construction should be imported. The park design will be reviewed in the detailed design stage to maximize the required amount of import fill.

### 7.10. Maximisation of Reuse of C&D Materials on Site

#### Reuse of Top Soil

Some of the ground surface of NDAs is currently covered with patchy vegetation. As the soil at the top layer of ground surface may contain tree roots, fertilisers or other organic matters, they are not suitable for direct use as fill material and will be removed. It is assumed that the top most 300mm of the soil surface will be top soil material. In addition, debris material from tree felling will also contribute to the top soil generated.

In order to minimize the disposal off-site, the topsoil is recommended to be used as planting medium at the soft landscape area after removal of any vegetation contained therein. The landscape area in the park and other areas in WKCD are suitable for reusing the top soil.

#### Reuse of Broken Concrete and Broken Asphalt

One of the major C&D material generation sources is the broken concrete and broken asphalt generated during site clearance and construction.

All the construction and demolition materials shall be sorted on-site and be separated into different groups according to DEVB TC(W) No. 6/2010 for Trip Ticket System for Disposal of Construction & Demolition Materials. The inert portion (e.g. rock, concrete, etc.) will be reused as fill materials (termed public fill) to minimize the need for imported fill materials. The remaining portion (e.g. timber, steel sheeting, etc.) regarded as the non-inert portion of C&D materials will be removed off-site and disposed of at recycling facilities or landfill in accordance with WBTC 4/98A.

Inert broken concrete and asphalt will be downsized and mixed with excavated inert soft C&D material and will be reused on-site as backfilling material.

### 7.11. Interface between CEDD and WKCDA

On 28 June 2013, the Chief Secretary for Administration announced that the Government would take up the implementation of the integrated basement for WKCD. As such, the basement construction in



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Zone 2A, 2B & 2C, PIW and the underground road in Zone 1 would be implemented by CEDD. The extent of works to be implemented by CEDD is shown in the **Figure 4.1**. The remaining works, including Zone 1, 3A, 3B, 4, 5, the Park and the superstructure of Zone 2A, 2B & 2C, will be implemented by WKCD.

The estimated quantities of inert and non-inert C&D material generated by CEDD are listed in **Table 7.7** below and in **Appendix C**.

Table 7.7 Estimates of C&D materials to be Generated, Reused On-site, and Disposed by CEDD

	In-situ Volume [Bulk Volume] (m3)				
	Generation	Reused on Site	Reused in 3rd Runway Project	Reused Off-site in HK or in Mainland China	Disposal to Landfill
<b>Inert</b>					
-Soft Inert C&D Material	1,365,500 [1,515,700]	76,000 [84,400]	268,100 [297,600]	1,021,400 [1,133,800]	-
-Broken Concrete	22,400 [28,000]	2,100 [2,600]	3,500 [4,400]	16,800 [21,000]	-
-Broken Asphalt	4,400 [5,500]	1,100 [1,400]	1,700 [2,100]	1,600 [2,000]	-
<b>Total Inert C&amp;D Material</b>	<b>1,392,300</b> <b>[1,545,500]</b>	<b>79,200</b> <b>[87,900]</b>	<b>273,300</b> <b>[303,400]</b>	<b>1,039,800</b> <b>[1,154,200]</b>	-
<b>Non-inert</b>					
-Top Soil	-	-	-	-	-
-Other non-inert waste	2,900 [3,220]	-	-	-	2,900 [3,220]
<b>Total Non-inert C&amp;D Material</b>	<b>2,900</b> <b>[3,220]</b>	-	-	-	<b>2,900</b> <b>[3,220]</b>

Note:

1. Other non-inert C&D waste generation include packaging material, paper, wood etc
2. In-situ volume is given outside []. Bulk volume is denoted in [].
3. Bulk factor of 1.25 is used for broken concrete and broken asphalt. Bulk factor 1.11 is used for other material including the total of inert/non-inert material.
4. The volume of inert material and non-inert material are rounded to the nearest 100 and 10 respectively.

It is estimated that the quantity of inert and non-inert C&D material generated by the works funded by WKCD are listed in the **Table 7.8** below.

Table 7.8 Estimates of C&D materials to be Generated, Reused On-site, and Disposed by WKCD

	In-situ Volume [Bulk Volume] (m3)				
	Generation	Reused on Site	Reused in 3rd Runway Project	Reused Off-site in HK or in Mainland China	Disposal to Landfill
<b>Inert</b>					
-Soft Inert C&D Material	965,000 [1,071,200]	166,700 [185,000]	6,500 [7,200]	791,800 [878,900]	-
-Broken Concrete	72,100 [90,100]	21,800 [27,300]	3,100 [3,900]	47,200 [59,000]	-
-Broken Asphalt	1,100 [1,400]	1,100 [1,400]	-	-	-
<b>Total Inert C&amp;D Material</b>	<b>1,038,200</b> <b>[1,152,400]</b>	<b>189,600</b> <b>[210,500]</b>	<b>9,600</b> <b>[10,700]</b>	<b>839,000</b> <b>[931,300]</b>	-



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	In-situ Volume [Bulk Volume] (m3)				
	Generation	Reused on Site	Reused in 3rd Runway Project	Reused Off-site in HK or in Mainland China	Disposal to Landfill
<b>Non-inert</b>					
-Top Soil	4,900 [5,440]	-	-	-	4,900 [5,440]
-Other non-inert waste	9,400 [10,430]	-	-	-	9,400 [10,430]
<b>Total Non-inert C&amp;D Material</b>	<b>14,300</b> <b>[15,870]</b>	-	-	-	<b>14,300</b> <b>[15,870]</b>

Note:

1. Other non-inert C&D waste generation include packaging material, paper, wood etc
2. In-situ volume is given outside []. Bulk volume is denoted in [].
3. Bulk factor of 1.25 is used for broken concrete and broken asphalt. Bulk factor 1.11 is used for other material including the total of inert/non-inert material.
4. The volume of inert material and non-inert material are rounded to the nearest 100 and 10 respectively.

## 8. Conclusion and Recommendation

### 8.1. Conclusion

This C&DMMP presents the estimated quantities of C&D materials produced and the fill materials required. Their respective volumes are summarized in the following **Table 8.1** and **Table 8.2**.

Table 8.1 Summary of C&D Material Generation

	In-situ Volume [Bulk Volume] (m3)				
	Generation	Reused on Site	Reused in 3rd Runway Project	Reused Off-site in HK or in Mainland China	Disposal to Landfill
<b>Inert</b>					
-Soft Inert C&D Material	2,330,500 [2,586,900]	242,700 [269,400]	274,600 [304,800]	1,813,200 [2,012,700]	-
-Broken Concrete	94,500 [118,100]	23,900 [29,900]	6,600 [8,300]	64,000 [80,000]	-
-Broken Asphalt	5,500 [6,900]	2,200 [2,800]	1,700 [2,100]	1,600 [2,000]	-
<b>Total Inert C&amp;D Material</b>	<b>2,430,500</b> <b>[2,697,900]</b>	<b>268,800</b> <b>[298,400]</b>	<b>282,900</b> <b>[314,000]</b>	<b>1,878,800</b> <b>[2,085,500]</b>	-
<b>Non-inert</b>					
-Top Soil	4,900 [5,440]	-	-	-	4,900 [5,440]
-Other Non-inert Waste	12,300 [13,650]	-	-	-	12,300 [13,650]
<b>Total Non-inert C&amp;D Material</b>	<b>17,200</b> <b>[19,090]</b>	-	-	-	<b>17,200</b> <b>[19,090]</b>

Note:

1. Other non-inert C&D waste generation include packaging material, paper, wood etc
2. In-situ volume is given outside []. Bulk volume is denoted in [].
3. Bulk factor of 1.25 is used for broken concrete and broken asphalt. Bulk factor 1.11 is used for other material including the total of inert/non-inert material.



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4. The volume of inert material and non-inert material are rounded to the nearest 100 and 10 respectively.
5. The Three Runway System Project is still in planning stage and its EIA is subject to public review and EPD approval. Further arrangement is needed at a later stage when the programme of the 3rd runway project has become clearer.

Table 8.2 Summary of Fill Materials to be Required

	In-situ Volume [Bulk Volume] (m3)				
	Fill Requirement	Reused Inert Soft C&D Material	Reused Broken Concrete	Reused Broken Asphalt	Required Import Fill
Fill Material	557,600 [618,900]	242,200 [268,800]	23,800 [29,800]	2,100 [2,600]	289,500 [321,300]

Note:

1. In-situ volume is given outside []. Bulk volume is denoted in [].
2. Bulk factor of 1.25 is used for broken concrete and broken asphalt. Bulk factor 1.11 is used for other material including the total of inert material.

Various means to minimize the C&D materials generated and to maximize the reuse of the C&D materials have been considered, as discussed in Section 7 above, and concluded that the surplus excavated materials will be disposed of as follows: -

The project proponent will continue liaison with other concurrent projects to explore the possibility to deliver the surplus fill material to these projects for beneficial reuse. Reusing the surplus C&D material in Mainland China will be considered as the last resort.

8.2. Recommendations

This report provides the estimated volume of surplus C&D materials that would be generated from this site formation project and the disposal strategy to be adopted. To this, the following actions are recommended:

This C&DMMP shall be regularly reviewed and updated during the Detailed Design and Construction Phase. The detailed designer of the site formation work should be fully aware of this plan and take into consideration maximisation of reuse of C&D material when formulating the detailed design and contractual arrangement.

Close liaison with Public Fill Committee will continue to identify the appropriate public fill source from the fill bank or from other concurrent project.

The project proponent will continue liaison with other concurrent projects to explore the possibility to deliver the surplus fill material to these projects for beneficial reuse.

## **Appendix A**

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Tentative Construction  
Programme







## **Appendix B**

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Relevant Correspondences with  
Potential Project

**Desmond Wong**

---

**From:** Wong, Harry <Harry.Wong@atkinsglobal.com>  
**Sent:** 23 June 2014 14:12  
**To:** Desmond Wong  
**Cc:** Simon Pickard; Davis Lee; Sam Tsoi; Brian Tam (brian.tam@wkcd.hk)  
**Subject:** RE: Possibility of Reusing C&D Materials to be Generated from WKCD Project in the 3rd Runway Project

Dear Desmond,

Thanks for your reply. The maximum size would likely be in the order of 250mm, to be confirmed during the detailed design stage.

At this stage we have no objection in principle accepting the C&D materials from your project provided you will control the size of the C&D materials. However, please be advised that the Three Runway System project (3RS) is now in the process of EIA inspection and no Environmental Permit (EP) is available yet. Therefore we cannot give confirmation at this stage. In the event that the EP is available by the end of this year, we expect the earliest time we can receive your C&D materials would be around end of 2016/early 2017. Would there be any stockpile areas on your site that could hold the C&D materials temporarily please? We would update you on the status of our project and organize a meeting with you to discuss the details after we have secured the EP.

Regards,  
Harry

---

**From:** Desmond Wong [mailto:desmond.wong@arup.com]  
**Sent:** 23 June 2014 12:18  
**To:** Wong, Harry  
**Cc:** Simon Pickard; Davis Lee; Sam Tsoi; Brian Tam (brian.tam@wkcd.hk)  
**Subject:** RE: Possibility of Reusing C&D Materials to be Generated from WKCD Project in the 3rd Runway Project

Dear Harry,

1. Please advise the maximum allowable size of the fill material for the 3<sup>rd</sup> runway project.
2. Contaminated C&D material would NOT be exported to the 3<sup>rd</sup> runway project.

Thanks

Regards,  
Desmond

---

**From:** Wong, Harry [mailto:Harry.Wong@atkinsglobal.com]  
**Sent:** 20 June 2014 17:20  
**To:** Desmond Wong  
**Cc:** Simon Pickard; Davis Lee; Sam Tsoi  
**Subject:** RE: Possibility of Reusing C&D Materials to be Generated from WKCD Project in the 3rd Runway Project

Dear Desmond,

We have the following two queries on the C&D materials that are available from the WKCD site please:

- (1) Would the C&D materials be sorted (to remove over-sized materials) and the unsuitable materials removed before leaving site?

(2) We understand some portion of the WKCD site is being used by the XRL Contract 810A contractor as plant maintenance area and workshop, would your contractor check for contamination in the soil to confirm the materials are not contaminated before leaving site?

Regards,  
Harry

---

**From:** Wong, Harry  
**Sent:** 20 June 2014 08:57  
**To:** 'Desmond Wong'  
**Cc:** Simon Pickard; Davis Lee; Sam Tsoi  
**Subject:** RE: Possibility of Reusing C&D Materials to be Generated from WKCD Project in the 3rd Runway Project

Dear Desmond,

Thanks for your enquiry. We'll get back to you as soon as we can.

Regards,  
Harry

---

**From:** Desmond Wong [<mailto:desmond.wong@arup.com>]  
**Sent:** 19 June 2014 15:18  
**To:** Wong, Harry  
**Cc:** Simon Pickard; Davis Lee; Sam Tsoi  
**Subject:** Possibility of Reusing C&D Materials to be Generated from WKCD Project in the 3rd Runway Project

Dear Mr. Wong,

We are the Consultants engaged by the West Kowloon Cultural District (WKCD) Authority for preparation of the Construction and Demolition Material Management Plan (C&DMMP) for the WKCD Project. The Project Area is shown in Figure 1 as attached.

As discussed on 18 June 2014, there would be about 1.9Mm<sup>3</sup> of C&D material (mainly fill material) generated under the WKCD project and 0.5Mm<sup>3</sup> of the material would be reused on-site. The remaining 1.4Mm<sup>3</sup> of surplus C&D material would be generated from mid-2014 to 2020, and the amounts of surplus C&D material generated in different years are summarized below:

Year	In-situ Volume of Surplus C&D Material Generation (m <sup>3</sup> )
2014	62,300
2015	78,900
2016	280,300
2017	734,100
2018	157,100
2019	10,300
2020	9,700
2021	8,000
2022	8,000
2023	1,300

I understand that importing fill material is required for the Third Runway Reclamation for Hong Kong International Airport (3<sup>rd</sup> Runway Project) to be commenced in year 2016. I should be grateful if you could advise the possibility of receiving the C&D material generated under the WKCD project in the 3<sup>rd</sup> Runway Project.

Regards,  
**Desmond Wong**  
Engineer

**Arup**

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## **Appendix C**

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### C&D Material Generation and Requirement

**Appendix C1- C&D Material Generation and Requirement (Insitu Volume [Bulk Volume])**

Zone	Site Area (m2)	Site Clearance (m3) <sup>1</sup>			Excavation (Inert Soft C&D Material) (m3)			GFA (m2)	Basement Area (m2)	Inert C&D Material Generation from Basement and Superstructure Construction (Broken Concrete) (m3) <sup>2,3</sup>		Other non-inert C&D Waste Generation from Basement and Superstructure Construction (m3) <sup>2,3,4</sup>		Total Required Fill (m3)	Total Inert Material Generation (m3)			Total Non-inert Material Generation (m3)	
		Top Soil	Broken Concrete	Broken Asphalt	Piling	Pile Cap	Others (including basement)			From Superstructure	From Basement	From Superstructure	From Basement		Inert Soft C&D Material	Broken Concrete	Broken Asphalt	Top Soil	Other non-inert C&D Waste
1A (xiqu)	7,378	-	700 [900]	-	5,300 [5,900]	2,200 [2,400]	38,000 [42,200]	59,915	14,756	4,200 [5,300]	1,000 [1,300]	600 [670]	200 [220]	-	45,500 [50,500]	5,900 [7,500]	-	-	800 [890]
2A	25,402	-	2,000 [2,500]	1,600 [2,000]	32,100 [35,600]	5,600 [6,200]	219,800 [244,000]	180,904	49,804	12,300 [15,400]	3,300 [4,100]	1,800 [2,000]	600 [670]	-	257,500 [285,800]	17,600 [22,000]	1,600 [2,000]	-	2,400 [2,670]
2B	20,210	-	1,600 [2,000]	1,500 [1,900]	21,600 [24,000]	3,800 [4,200]	245,800 [272,800]	121,472	40,420	7,900 [9,900]	2,700 [3,400]	1,200 [1,330]	400 [440]	-	271,200 [301,000]	12,200 [15,300]	1,500 [1,900]	-	1,600 [1,770]
2C	34,051	-	3,400 [4,300]	-	22,100 [24,500]	3,900 [4,300]	432,500 [480,100]	124,568	68,102	7,000 [8,800]	3,800 [4,800]	1,000 [1,110]	600 [670]	-	458,500 [508,900]	14,200 [17,900]	-	-	1,600 [1,780]
3A (Excluding Underground Road)	20,141	500 [600]	400 [500]	-	14,300 [15,900]	2,500 [2,800]	95,500 [106,000]	80,470	20,141	5,600 [7,000]	1,400 [1,800]	800 [890]	200 [220]	-	112,300 [124,700]	7,400 [9,300]	-	500 [600]	1,000 [1,110]
3A (Underground Road)	2,025	100 [100]	-	-	6,100 [6,800]	1,000 [1,100]	-	-	2,025	-	200 [300]	-	-	-	7,100 [7,900]	200 [300]	-	100 [100]	-
3B	30,078	500 [600]	1,400 [1,800]	-	50,800 [56,400]	2,500 [2,800]	315,900 [350,600]	86,861	60,156	4,500 [5,600]	3,100 [3,900]	700 [780]	400 [440]	-	369,200 [409,800]	9,000 [11,300]	-	500 [600]	1,100 [1,220]
4	37,793	800 [900]	1,000 [1,300]	-	14,000 [15,500]	2,400 [2,700]	758,900 [842,400]	78,609	113,379	2,800 [3,500]	4,000 [5,000]	400 [440]	600 [670]	-	775,300 [860,600]	7,800 [9,800]	-	800 [900]	1,000 [1,110]
5	13,785	400 [400]	-	-	15,100 [16,800]	2,600 [2,900]	-	84,790	-	7,400 [9,300]	-	1,100 [1,220]	-	-	17,700 [19,700]	7,400 [9,300]	-	400 [400]	1,100 [1,220]
Park	176,348	2,600 [2,900]	8,800 [11,000]	1,100 [1,400]	6,000 [6,700]	1,100 [1,200]	-	33,813	-	2,900 [3,600]	-	400 [440]	-	557,600 [618,900]	7,100 [7,900]	11,700 [14,600]	1,100 [1,400]	2,600 [2,900]	400 [440]
PIW-Austin Pedestrian Linkage Systems	-	-	-	100 [100]	-	-	800 [900]	-	-	-	-	100 [110]	-	-	800 [900]	-	100 [100]	-	100 [110]
PIW-Artist Square Bridge	-	-	-	-	-	-	100 [100]	-	-	-	-	-	-	-	100 [100]	-	-	-	-
PIW-China Ferry Bridge and Kowloon Park Bridge	-	-	-	-	-	-	100 [100]	-	-	-	-	-	-	-	100 [100]	-	-	-	-
PIW-Drainage, Seawall Modification for Drainage Outfall & Sewerage	-	-	300 [400]	400 [500]	-	-	2,400 [2,700]	-	-	-	-	400 [440]	-	-	2,400 [2,700]	300 [400]	400 [500]	-	400 [440]
PIW-Fresh & Salt Water Supply	-	-	400 [500]	600 [800]	-	-	3,900 [4,300]	-	-	-	-	600 [670]	-	-	3,900 [4,300]	400 [500]	600 [800]	-	600 [670]
PIW-Diversion of Cooling Mains	-	-	100 [100]	100 [100]	-	-	500 [600]	-	-	-	-	100 [110]	-	-	500 [600]	100 [100]	100 [100]	-	100 [110]
PIW-Roadworks (At Grade Road and Lay-by)	-	-	100 [100]	100 [100]	-	-	700 [800]	-	-	-	-	100 [110]	-	-	700 [800]	100 [100]	100 [100]	-	100 [110]
PIW-Flyover	-	-	-	-	-	-	100 [100]	-	-	-	-	-	-	-	100 [100]	-	-	-	-
Underground Road in Zone 1	-	-	100 [100]	-	-	-	500 [600]	-	1,000	-	100 [100]	-	-	-	500 [600]	200 [200]	-	-	-
<b>Total</b>	<b>367,211</b>	<b>4,900 [5,400]</b>	<b>20,300 [25,400]</b>	<b>5,500 [6,900]</b>	<b>187,400 [208,000]</b>	<b>27,600 [30,600]</b>	<b>2,115,500 [2,348,200]</b>	<b>851,403</b>	<b>369,783</b>	<b>54,600 [68,300]</b>	<b>19,600 [24,500]</b>	<b>9,300 [10,320]</b>	<b>3,000 [3,330]</b>	<b>557,600 [618,900]</b>	<b>2,330,500 [2,586,800]</b>	<b>94,500 [118,200]</b>	<b>5,500 [6,900]</b>	<b>4,900 [5,400]</b>	<b>12,300 [13,650]</b>

Note:

- 1 Estimated based on the aerial photo taken on 22 October 2012
- 2 Based on the generation rate of 0.1m3 per 1m2 of GFA (Source: Hong Kong Polytechnic University, 1993. Reduction of Construction Waste Final Report)
- 3 Based on Monitoring of Solid Waste in Hong Kong 2007, Environmental Protection Department, it is estimated that around 87% of the C&D material generated will be categorized as public fill and the remaining 13% as C&D Waste.
- 4 Other non-inert C&D waste generated in construction include packaging material, paper, wood etc
- 5 In-situ volume is given outside []. Bulk volume is denoted in [].
- 6 Bulk factor of 1.25 is used for broken concrete and broken asphalt. Bulk factor 1.11 is used for other material including the total of inert/non-inert material.
- 7 The works carried out by CEDD is highlighted in YELLOW. The remaining works is carried out by WKCD.





**Appendix C2 - C&D Material Generation and Requirement Schedule (In-situ Volume)**

Inert C&D Material Generation and Requirement																																
Zone	Activity	Start	End	Duration (mth)	Quantity (m3)	Type of C&D material	In-situ Volume of C&D Material Generation/Required (m3)																									
							2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033					
PIW	Austin Pedestrian Linkage Systems	01/01/2016	30/04/2018	28	-	Broken Concrete	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-					
	Austin Pedestrian Linkage Systems	01/01/2016	30/04/2018	28	100	Broken Asphalt	-	-	-	-	100	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-					
	Austin Pedestrian Linkage Systems	01/01/2016	30/04/2018	28	800	Soft C&D Material	-	-	-	300	300	200	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-					
	Artist Square Bridge	01/01/2016	31/01/2018	25	-	Broken Concrete	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-					
	Artist Square Bridge	01/01/2016	31/01/2018	25	-	Broken Asphalt	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-					
	Artist Square Bridge	01/01/2016	31/01/2018	25	100	Soft C&D Material	-	-	-	-	100	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-					
	China Ferry Bridge and	01/01/2019	31/12/2022	48	-	Broken Concrete	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-					
	China Ferry Bridge and	01/01/2019	31/12/2022	48	-	Broken Asphalt	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-					
	China Ferry Bridge and	01/01/2019	31/12/2022	48	100	Soft C&D Material	-	-	-	-	-	-	-	-	-	100	-	-	-	-	-	-	-	-	-	-	-					
	Drainage , Seawall Modification for Drainage Outfall & Sewerage	01/01/2016	30/04/2018	28	300	Broken Concrete	-	-	-	100	100	100	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-					
	Drainage , Seawall Modification for Drainage Outfall & Sewerage	01/01/2016	30/04/2018	28	400	Broken Asphalt	-	-	-	200	200	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-					
	Drainage , Seawall Modification for Drainage Outfall & Sewerage	01/01/2016	30/04/2018	28	2,400	Soft C&D Material	-	-	-	1,000	1,000	400	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-					
	Fresh & Salt Water Supply	01/09/2015	31/05/2017	21	400	Broken Concrete	-	-	-	100	200	100	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-					
	Fresh & Salt Water Supply	01/09/2015	31/05/2017	21	600	Broken Asphalt	-	-	-	100	300	200	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-					
	Fresh & Salt Water Supply	01/09/2015	31/05/2017	21	3,900	Soft C&D Material	-	-	-	700	2,200	1,000	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-					
	Diversion of Cooling Mains	01/09/2015	31/07/2017	23	100	Broken Concrete	-	-	-	-	100	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-					
	Diversion of Cooling Mains	01/09/2015	31/07/2017	23	100	Broken Asphalt	-	-	-	-	100	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-					
	Diversion of Cooling Mains	01/09/2015	31/07/2017	23	500	Soft C&D Material	-	-	-	100	300	100	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-					
	Roadworks (At Grade Road and Lay-bys)	01/09/2015	31/05/2017	21	100	Broken Concrete	-	-	-	-	100	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-					
	Roadworks (At Grade Road and Lay-bys)	01/09/2015	31/05/2017	21	100	Broken Asphalt	-	-	-	-	100	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-					
	Roadworks (At Grade Road and Lay-bys)	01/09/2015	31/05/2017	21	700	Soft C&D Material	-	-	-	100	400	200	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-					
	Flyover	01/07/2023	30/09/2024	15	-	Broken Concrete	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-					
	Flyover	01/07/2023	30/09/2024	15	-	Broken Asphalt	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-					
	Flyover	01/07/2023	30/09/2024	15	100	Soft C&D Material	-	-	-	-	-	-	-	-	-	-	-	100	-	-	-	-	-	-	-	-	-					
Others	Underground Road in Zone 1	01/07/2028	31/03/2031	33	200	Broken Concrete	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	100	100	-					
	Underground Road in Zone 1	01/07/2028	31/03/2031	33	-	Broken Asphalt	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-					
	Underground Road in Zone 1	01/07/2028	31/03/2031	33	500	Soft C&D Material	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	100	200	200	-					
	<b>Total</b>				<b>10,700</b>					<b>1,100</b>	<b>5,400</b>	<b>3,200</b>	<b>900</b>					<b>100</b>														
<b>Total</b>	<b>Soft C&amp;D Material</b>				<b>2,330,500</b>	<b>Soft C&amp;D Material</b>				<b>5,300</b>	<b>144,800</b>	<b>64,000</b>	<b>123,100</b>	<b>454,800</b>	<b>952,100</b>	<b>127,200</b>	<b>-</b>	<b>100</b>		<b>100</b>	<b>62,200</b>	<b>266,200</b>	<b>130,100</b>	<b>100</b>	<b>200</b>	<b>200</b>						
	<b>Broken Concrete</b>				<b>94,500</b>	<b>Broken Concrete</b>				<b>900</b>	<b>4,900</b>	<b>11,500</b>	<b>9,100</b>	<b>7,900</b>	<b>11,300</b>	<b>12,300</b>	<b>8,700</b>	<b>4,700</b>	<b>3,900</b>	<b>4,000</b>	<b>3,700</b>	<b>1,900</b>	<b>2,600</b>	<b>2,500</b>	<b>1,500</b>	<b>1,500</b>	<b>1,400</b>	<b>200</b>				
	<b>Broken Asphalt</b>				<b>5,500</b>	<b>Broken Asphalt</b>				<b>-</b>	<b>300</b>	<b>1,300</b>	<b>700</b>	<b>2,600</b>	<b>600</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>					
	<b>Required General Fill</b>				<b>557,600</b>	<b>Required General Fill</b>				<b>-</b>	<b>150,000</b>	<b>270,000</b>	<b>137,600</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>					
	<b>Surplus Material</b>				<b>2,161,700</b>	<b>General Fill</b>				<b>6,200</b>	<b>-</b>	<b>-</b>	<b>90,900</b>	<b>465,300</b>	<b>964,000</b>	<b>139,500</b>	<b>8,700</b>	<b>4,800</b>	<b>3,900</b>	<b>4,100</b>	<b>65,900</b>	<b>268,100</b>	<b>132,700</b>	<b>2,600</b>	<b>1,700</b>	<b>1,700</b>	<b>1,400</b>	<b>200</b>				
	<b>Required Import Fill</b>				<b>288,800</b>	<b>General Fill</b>				<b>-</b>	<b>-</b>	<b>193,200</b>	<b>95,600</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>					

Note:  
 1 The works carried out by CEDD is highlighted in YELLOW. The remaining works is carried out by WKCD. A.  
 2 The inert C&D material volume is rounded to the nearest 100m3







Appendix C3 - C&D Material Generation and Requirement Schedule (Bulk Volume)

Inert C&D Material Generation and Requirement																									
Zone	Activity	Start	End	Duration (mth)	Quantity (m3)	Type of C&D material	In-situ Volume of C&D Material Generation/Required (m3)																		
							2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031
PIW	Austin Pedestrian Linkage Systems	01/01/2016	30/04/2018	28	-	Broken Concrete	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Austin Pedestrian Linkage Systems	01/01/2016	30/04/2018	28	130	Broken Asphalt	-	-	-	-	130	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Austin Pedestrian Linkage Systems	01/01/2016	30/04/2018	28	890	Soft C&D Material	-	-	-	330	330	220	-	-	-	-	-	-	-	-	-	-	-	-	-
	Artist Square Bridge	01/01/2016	31/01/2018	25	-	Broken Concrete	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Artist Square Bridge	01/01/2016	31/01/2018	25	-	Broken Asphalt	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Artist Square Bridge	01/01/2016	31/01/2018	25	110	Soft C&D Material	-	-	-	-	110	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	China Ferry Bridge and	01/01/2019	31/12/2022	48	-	Broken Concrete	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	China Ferry Bridge and	01/01/2019	31/12/2022	48	-	Broken Asphalt	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	China Ferry Bridge and	01/01/2019	31/12/2022	48	110	Soft C&D Material	-	-	-	-	-	-	-	-	110	-	-	-	-	-	-	-	-	-	-
	Drainage , Seawall Modification for Drainage Outfall & Sewerage	01/01/2016	30/04/2018	28	380	Broken Concrete	-	-	-	130	130	130	-	-	-	-	-	-	-	-	-	-	-	-	-
	Drainage , Seawall Modification for Drainage Outfall & Sewerage	01/01/2016	30/04/2018	28	500	Broken Asphalt	-	-	-	250	250	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Drainage , Seawall Modification for Drainage Outfall & Sewerage	01/01/2016	30/04/2018	28	2,660	Soft C&D Material	-	-	-	1,110	1,110	440	-	-	-	-	-	-	-	-	-	-	-	-	-
	Fresh & Salt Water Supply	01/09/2015	31/05/2017	21	500	Broken Concrete	-	-	-	130	250	130	-	-	-	-	-	-	-	-	-	-	-	-	-
	Fresh & Salt Water Supply	01/09/2015	31/05/2017	21	750	Broken Asphalt	-	-	-	130	380	250	-	-	-	-	-	-	-	-	-	-	-	-	-
	Fresh & Salt Water Supply	01/09/2015	31/05/2017	21	4,330	Soft C&D Material	-	-	-	780	2,440	1,110	-	-	-	-	-	-	-	-	-	-	-	-	-
	Diversion of Cooling Mains	01/09/2015	31/07/2017	23	130	Broken Concrete	-	-	-	-	130	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Diversion of Cooling Mains	01/09/2015	31/07/2017	23	130	Broken Asphalt	-	-	-	-	130	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Diversion of Cooling Mains	01/09/2015	31/07/2017	23	560	Soft C&D Material	-	-	-	110	330	110	-	-	-	-	-	-	-	-	-	-	-	-	-
	Roadworks (At Grade Road and Lay-bys)	01/09/2015	31/05/2017	21	130	Broken Concrete	-	-	-	130	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Roadworks (At Grade Road and Lay-bys)	01/09/2015	31/05/2017	21	130	Broken Asphalt	-	-	-	130	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Roadworks (At Grade Road and Lay-bys)	01/09/2015	31/05/2017	21	780	Soft C&D Material	-	-	-	110	440	220	-	-	-	-	-	-	-	-	-	-	-	-	-
	Flyover	01/07/2023	30/09/2024	15	-	Broken Concrete	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Flyover	01/07/2023	30/09/2024	15	-	Broken Asphalt	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Flyover	01/07/2023	30/09/2024	15	110	Soft C&D Material	-	-	-	-	-	-	-	-	-	-	110	-	-	-	-	-	-	-	-
Others	Underground Road in Zone 1	01/07/2028	31/03/2031	33	250	Broken Concrete	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	130	130	-	-
	Underground Road in Zone 1	01/07/2028	31/03/2031	33	-	Broken Asphalt	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Underground Road in Zone 1	01/07/2028	31/03/2031	33	560	Soft C&D Material	-	-	-	-	-	-	-	-	-	-	-	-	-	-	110	220	220	-	-
	<b>Total</b>				11,880		-	-	1,220	5,990	3,550	1,000	-	-	-	110	-	-	-	-	-	110	220	220	-
							-	-	-	-	-	-	-	-	220	-	110	-	-	-	-	110	350	350	-
<b>Total</b>	<b>Soft C&amp;D Material</b>				2,586,860	Soft C&D Material	-	5,880	160,730	71,040	136,640	504,830	1,056,830	141,190	-	110	-	110	69,040	295,480	144,410	110	220	220	-
	Broken Concrete				118,130	Broken Concrete	-	1,130	6,130	14,380	11,380	9,880	14,130	15,380	10,880	5,880	4,880	5,000	4,630	2,380	3,250	3,130	1,880	1,880	1,750
	Broken Asphalt				6,880	Broken Asphalt	-	-	380	1,630	880	3,250	750	-	-	-	-	-	-	-	-	-	-	-	-
	Required General Fill				618,940	Required General Fill	-	-	166,500	299,700	152,740	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	<b>Surplus Material</b>				2,399,490	<b>General Filling Material</b>	-	6,880	-	-	100,900	516,480	1,070,040	154,850	9,660	5,330	4,330	4,550	73,150	297,590	147,300	2,890	1,890	1,890	1,550
	<b>Required Import Fill</b>				320,570	<b>General Filling Material</b>	-	-	-	214,450	106,120	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Note:  
 1 The works carried out by CEDD is highlighted in YELLOW. The remaining works is carried out by WKCD. A.  
 2 The inert C&D material volume is rounded to the nearest 100m3  
 3 Bulk factor 1.25 is used for broken concrete and broken asphalt. Bulk factor 1.11 is used for other C&D material, including total of inert C&D material.



**Appendix C3 - C&D Material Generation and Requirement Schedule (Bulk Volume)**

**Total C&D Material Generation and Requirement from the Works by WKEDA and CEDD**

Zone	Activity	Start	End	Duration (mth)	Quantity (m3)	Type of C&D material	In-situ Volume of C&D Material Generation/Required (m3)																				
							2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033
							Works by WKEDA	Inert Material Generation				1,071,200	Soft C&D Material	-	5,900	142,300	40,300	2,400	152,100	728,200	-	-	-	-	-	-	-
			90,100	Broken Concrete	-	1,100			5,500	13,000	10,400	3,400	9,800	12,600	8,800	5,900	4,900	5,000	1,100	-	1,500	1,800	1,800	1,800	1,800	300	-
			1,400	Broken Asphalt	-	-			300	800	400	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Inert Material Reused On-site				185,000	Soft C&D Material	-		-	142,300	40,300	2,400	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
				27,300	Broken Concrete	-		-	5,500	13,000	8,800	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Inert Material Reused in 3rd Runway Project				1,400	Broken Asphalt	-		-	300	800	400	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
				7,200	Soft C&D Material	-		-	-	-	-	7,200	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Inert Reused Off-site in HK or in Mainland China				878,900	Soft C&D Material	-	5,900	-	-	-	144,900	728,200	-	-	-	-	-	-	-	-	-	-	-	-	-		
				59,000	Broken Concrete	-	1,100	-	-	-	1,100	9,800	12,600	8,800	5,900	4,900	5,000	1,100	-	1,500	1,800	1,800	1,800	1,800	300	-	
Required General Fill				618,900	Required General Fill	-	-	166,500	299,700	152,700	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
				320,600	General Fill	-	-	-	214,500	106,100	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
Non-inert Material Generation and Disposed to Landfill				5,440	Top Soil	-	220	1,110	1,760	1,010	790	540	-	-	-	-	-	-	-	-	-	-	-	-	-		
				10,430	Other non-inert waste	-	100	460	880	830	650	1,380	1,670	1,130	780	640	650	160	-	200	210	210	210	210	70	-	
Works by CEDD	Inert Material Generation				1,515,700	Soft C&D Material	-	-	18,400	30,700	134,200	352,800	328,700	141,200	-	100	-	100	69,000	295,500	144,400	100	200	200	-	-	
					28,900	Broken Concrete	-	-	600	1,400	1,000	6,500	4,400	2,800	2,100	-	-	-	3,500	2,400	1,800	1,400	100	100	-	-	
					5,500	Broken Asphalt	-	-	100	900	500	3,300	800	-	-	-	-	-	-	-	-	-	-	-	-	-	
	Inert Material Reused On-site				84,400	Soft C&D Material	-	-	18,400	30,700	35,200	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
					2,600	Broken Concrete	-	-	600	1,400	600	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
	Inert Material Reused in 3rd Runway Project				1,400	Broken Asphalt	-	-	100	900	400	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
					297,600	Soft C&D Material	-	-	-	-	99,000	198,600	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Inert Reused Off-site in HK or in Mainland China				4,400	Broken Concrete	-	-	-	400	4,000	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
				2,100	Broken Asphalt	-	-	-	100	2,000	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
Non-inert Material Generation and Disposed to Landfill				1,133,800	Soft C&D Material	-	-	-	-	-	154,200	328,700	141,200	-	100	-	100	69,000	295,500	144,400	100	200	200	-	-		
				21,000	Broken Concrete	-	-	-	-	2,500	4,400	2,800	2,100	-	-	-	3,500	2,400	1,800	1,400	100	100	-	-	-		
			2,000	Broken Asphalt	-	-	-	-	-	1,300	800	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
			3,220	Other non-inert waste	-	-	260	800	370	40	340	410	330	-	-	-	220	240	200	-	-	-	-	-	-		
Total	Inert Material Generation				2,586,900	Soft C&D Material	-	5,900	160,700	71,000	136,600	504,800	1,056,800	141,200	-	100	-	100	69,000	295,500	144,400	100	200	200	-	-	
					118,100	Broken Concrete	-	1,100	6,100	14,400	11,400	9,900	14,100	15,400	10,900	5,900	4,900	5,000	4,600	2,400	3,300	3,100	1,900	1,900	1,800	300	-
					6,900	Broken Asphalt	-	-	400	1,600	900	3,300	800	-	-	-	-	-	-	-	-	-	-	-	-	-	
	Inert Material Reused On-site				269,400	Soft C&D Material	-	-	160,700	71,000	37,600	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
					29,900	Broken Concrete	-	-	6,100	14,400	9,400	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
	Inert Material Reused in 3rd Runway Project				2,800	Broken Asphalt	-	-	400	1,600	800	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
					304,800	Soft C&D Material	-	-	-	-	99,000	205,800	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Inert Reused Off-site in HK or in Mainland China				8,300	Broken Concrete	-	-	-	2,000	6,300	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
				2,100	Broken Asphalt	-	-	-	100	2,000	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
Required General Fill				2,012,700	Soft C&D Material	-	5,900	-	-	-	299,000	1,056,800	141,200	-	100	-	100	69,000	295,500	144,400	100	200	200	-	-		
				80,000	Broken Concrete	-	1,100	-	-	-	3,600	14,100	15,400	10,900	5,900	4,900	5,000	4,600	2,400	3,300	3,100	1,900	1,900	1,800	300	-	
Non-inert Material Generation and Disposed to Landfill				2,000	Broken Asphalt	-	-	-	-	-	1,300	800	-	-	-	-	-	-	-	-	-	-	-	-	-		
				618,900	Required General Fill	-	-	166,500	299,700	152,700	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
			320,600	General Fill	-	-	-	214,500	106,100	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
			5,440	Top Soil	-	220	1,110	1,760	1,010	790	540	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
			13,650	Other non-inert waste	-	100	710	1,680	1,200	700	1,720	2,080	1,470	780	640	650	160	220	440	410	210	210	210	70	-		

- Note:
- 1 Other non inert waste includes paper, timber, packaging, etc
  - 2 The works carried out by CEDD is highlighted in YELLOW. The remaining works is carried out by WKEDA.
  - 3 The inert and non-inert C&D material volume is rounded to the nearest 100 and 10m3 respectively.
  - 4 Bulk factor 1.25 is used for broken concrete and broken asphalt. Bulk factor 1.11 is used for other inert and non-inert C&D material, including total of inert/non-inert C&D material.



## **Appendix D**

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Relevant Correspondences with  
MTRC

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**Subject:** RE: Follow-up to Ad-hoc Interface Meeting with RDO/MTRCL - M+ / Lyric and Zone 2A

**From:** LOMAS Mark Gowan (盧家榮) [<mailto:MGLOMAS@mtr.com.hk>]

**Sent:** Tuesday, May 27, 2014 5:22 PM

**To:** YC Ng

**Cc:** CHAN Christina Yung Yung (陳容蓉); MA Alex Kwok Ki (馬國基)

**Subject:** Follow-up to Ad-hoc Interface Meeting with RDO/MTRCL - M+ / Lyric and Zone 2A

YC, this is one the draft responses that we need to clear via RDO, as a follow-up to the meeting last week. 1 of 2, the Xiqu to follow.

Regards,

Mark

Ir Mark G Lomas  
Project Manager – XRL Terminus (Planning & Controls)

[mglomas@mtr.com.hk](mailto:mglomas@mtr.com.hk)

t: 2926 9005

m: 9683 9211

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**From:** CHAN Christina Yung Yung (陳容蓉)

**Sent:** Friday, 23 May, 2014 20:22

**To:** 'Leung Jason (RDO/sexr11) ([sexr11.rdo@hyd.gov.hk](mailto:sexr11.rdo@hyd.gov.hk)) ([sexr11.rdo@hyd.gov.hk](mailto:sexr11.rdo@hyd.gov.hk))'

**Cc:** LOMAS Mark Gowan (盧家榮); MA Alex Kwok Ki (馬國基); MAK William Chi Kei (麥志基); CHIU Winson Wing Sang (趙永生); CHENG Eric Ka Hei (鄭嘉曦); 'ricky ([exr19.rdo@hyd.gov.hk](mailto:exr19.rdo@hyd.gov.hk))'; 'exr11.rdo@hyd.gov.hk'; YIP Lute Lai Yee (葉麗儀); WOO Gloria Ting Ka (胡定嘉); FUNG WC Wai Chung (馮偉聰)

**Subject:** RE: Follow-up to Ad-hoc Interface Meeting with RDO/MTRCL - Xiqu

Dear Jason,

Further to the coordination of XRL at Xiqu Centre, the following two locations are clarified as below:

- M+ and Lyric Theatre
- Zone 2A

The situation of the M+ and Lyric Theatres in WKCD Basement Zone 3B is stated herein:

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#### Locations of XRL Facilities and M+ and Lyric Theatres Layout

- The indicative layout of M+, Lyric Theatre and the cofferdam wall layout of WKCD basement Zone 3B provided by WKCDA are shown in Sketch 3 (SK3)
- The relative locations of the XRL facilities in the vicinity are also shown in Sketch 3 (SK3)
- The indicative foundation piling layout of Lyric Theatre basement is shown in Sketch 4 (SK4)

#### Construction time Frame

##### XRL Construction

- The west part of TGLA-10 (4,640 sqm & 2,020 sqm offshore) on the southwest of M+ theatre was handed over on 20 Sep 2011.

- The works area 9 as shown on SK3 – the east part of TGLA-10 (8,700 sqm & 5,360 sqm offshore) on the south of M+ Theatre was handed over on 17 Apr 2014 as per previously agreed with WKCDA.
- The works area 16B as shown on SK3 – TGLA-30 on the east of Lyric Theatre basement will be handed over by end Oct 2014 as agreed with WKCDA before.
- The works areas 3A and 2 as shown on SK3 are WKT barging facilities in which approx. 4,000 sqm (hatch area) falls within the south part of the Lyric Theatre basement. These works areas are required until 3Q 2016.

**M+ Theatre**

- All the XRL works areas required for M+ Theatre construction were handed over up to April 2014 as mentioned in the first two bullets of XRL construction.

**Lyric Theatre**

- The foundation tender will go out by end Jun 2014.
- The piling works for WKCD Zone 3B (where Lyric Theatre is located at) is planned to commence in Jan/ Feb 2015 for 20 months.
- The OP is scheduled in 2019.

Solutions

- The total linear length of the proposed cofferdam wall of WKCD Zone 3B is approx. 840m in which about 18% (approx. 150m) falls within the WKT barging point works area.
- According to the indicative foundation piling layout plan (SK4), there are about 40 nos. socketed piles and 260 nos. bored piles within the proposed cofferdam wall. About 18% of piles (approx. 17 socketed piles and 37 bored piles) fall within the WKT barging point works area.
- WKCDA could commence foundation works for the majority of area to the north of WKT barging point area. MTR is coordinating with WKCDA to work out the phased handover of that works area.
- The conflict should be resolvable, through barging point modifications and phased handover of site in order not to impact the current programme of Lyric Theatre advised by WKCDA.

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The situation of the Centre for Contemporary Performance (CCP) and Medium Theatre II (MT2) in WKCD Basement Zone 2A is stated herein:

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Locations of XRL Facilities and CCP and MT2 Layout

- The CCP and MT2 are located right above the southern part of WKT (the south of the Austin Road West) in sketch 5 (SK5)
- The relative location of the WKT basement footprint is also shown in Sketch 5 (SK5)
- The relative location of the indicative alignment of TTMS for Austin Road West (AURW) is shown in Sketch 6 (SK6)

Construction time Frame

**XRL Construction**

- Southern part of WKT (810B) is targeted to complete the WKCDA ground floor slabs and all the agreed entrustment / enabling works such as B1T in 2015 so CCP and MT2 can start construction in 2016.

- Before the opening of the Austin Road underpass scheduled in Apr 2017, TTMS of AURW will be in place at ground level outside the footprint of CCP and MT2 as shown in SK6.

WKCD Zone 2A

- CCP and MT2 are planned to get OP in 2020.
- There is currently no deliverable programme for HOR sites around CCP and MT2 in Zone 2A as advised by WKCDA in meeting held on 20 May 2014.
- The programme of the integrated basement for CCP and MT2 is subject to CEDD. The integrated basement for CCP and MT2 could be started in 2016 by using site access on ground level.
- Note the 810A Concrete Batching Plant (SE corner of Zone 2A) will still be in operation through 3Q16, so this GLA-TK 625 (TGLA No.11) and the haul road (south of Zone 2A) from the barging point would remain, but this does not affect the area of the CCP or MT2.

Solutions

- As the footprint of the CCP and MT2 would be available for WKCDA to commence construction in 2016 as per previously agreed with WKCDA, WKT should have no impact on the current programme of CCP and MT2.
- The integrated basement could be constructed in phases to support the opening of CCP and MT2. Coordination between MTR and CEDD on the phased handed over of works areas around the WKT footprint is feasible to complete the part of basement required for CCP and MT2 to match current programme envisaged by WKCDA.
- The AURW eastern at grade loop road is targeted to complete by 4Q 2015 based on the current roadwork design under XRL. A design consultancy on the Public Infrastructure Works (PIW) including the study on modification of the AURW eastern loop road levelling and utilities arrangement is carrying out by WKCDA to suit the Xiqu Centre design. It is feasible that part of PIW for the AURW eastern loop road could be entrusted from CEDD/ WKCDA to RDO/ MTR under XRL construction. The construction programme of AURW loop road is needed to be reviewed and subject to the availability and complexity of the PIW design and working drawings.

=====

Regards,  
Christina

Linear length of the whole  
cofferdam wall = approx. 840m

Length of cofferdam wall in  
WKT works area = approx.  
150m (about 18% of the whole  
cofferdam wall length)

WKDA PROPOSED PIPE  
PILE WALL FOR  
BASEMENT

M+ PHASE 1

LYRIC  
THEATRE

GREAT  
THEATRE

AREA=3950m<sup>2</sup>  
approx. 4,000 m<sup>2</sup>

VACATED TO WKDA  
BY APR 2014

~110m

~40m

SEAFRONT AGGREGATE  
RECEIVING HOPPER

BARGING RAMP

### SKETCH 3 - Locations of XRL Facilities and M+ and Lyric Theatres Layout



CN JOB REF. : J14-N700  
DRAWING NO. : N700X01  
ISSUE NO. : 00  
SCALE : 1:500 @A1  
DATE : 21MAY2014  
CADD FILENAME : N700X01A.DGN  
REVISION : A

Plot File: D:\CAD\Plot\Driver\N700X01.dwg  
Model Name: N700X01.dwg  
Element: N700X01.dwg

## **Appendix E**

Letter of Endorsement from PFC

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□



**土木工程拓展署**  
**Civil Engineering and Development Department**

土木工程處  
Civil Engineering Office

Web site 網址 : http://www.cedd.gov.hk  
E-mail 電子郵件 : petermok@cedd.gov.hk  
Telephone 電話 : 2762 5555  
Facsimile 傳真 : 2714 0113  
Our reference 本署檔號 : (1615N-01) in FM PF/CDM/00 PL  
Your reference 來函檔號 : PD/251/2

香港九龍公主道 101 號  
土木工程拓展署大樓  
Civil Engineering and Development Building,  
101 Princess Margaret Road,  
Kowloon, Hong Kong

**By FAX: 2895 0016**

West Kowloon Cultural District Authority  
29/F, Tower 6,  
The Gateway,  
9 Canton Road,  
Tsim Sha Tsui,  
Kowloon,  
Hong Kong

3 October 2014

(Attention: Dr. CHAN Man-wai )

Dear Sirs,

**Public Fill Committee**

**PFC Paper No. 4/2014**

**Construction and Demolition Material Management Plan (C&DMMP) for the West Kowloon Cultural District (WKCD) Project**

I refer to your submission of the proposed C&DMMP for the WKCD Project.

I am pleased to advise you that, in accordance with the Project Administration Handbook Chapter 4 Section 4.1.3, the C&DMMP for the WKCD Project attached in PFC Paper No. 4/2014 has been endorsed in principle by the PFC on the conditions that the project proponent shall:

- (a) conduct fill matching exercise and explore receptor sites on the Mainland to absorb the surplus public fill;
- (b) adopt re-usable non-timber formwork and precast concrete construction as far as practicable;
- (c) deliver all surplus public fill to concurrent projects in Hong Kong or Mainland for reuse;
- (d) closely liaise with Airport Authority Hong Kong to confirm the arrangement on reuse of surplus public fill in the 3<sup>rd</sup> Runway Project;
- (e) closely liaise with Fill Management Division on the arrangement of the proposal of import public fill from the fill banks;

Civil Engineering Department			
Date: 08 OCT 2014			
Urgent			
File	Action	Info	File
CPD	✓		
CPD			
CPFC		✓	
CTS	✓		
ICPM		✓	
Bilan	✓		
Enc	✓		

*Bilan, Please advise all Project Co-ordinators*

*MW 8/10*

- 2 -

- (f) set up effective control procedures to ensure the traceability of disposal and reuse of the C&D materials; and
- (g) report the progress of the above works in the form of quarterly situation reports to be submitted to the Secretary of PFC.

Yours faithfully,



(Peter P C MOK)

Secretary, Public Fill Committee

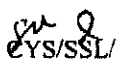
Civil Engineering and Development Department

<u>c.c.</u>		Fax
DH(PEM)	(Attn: Mr. IP Kwai-hang)	2714 1572
DEP	(Attn: Mr Samson LAI / Mr Eddie LEUNG)	3121 5754
DEP	(Attn: Mr Lawrence M C LAU)	2872 0376
SDEV	(Attn: Mr C L WONG)	2801 5034
CGE/M, GEO, CEDD	(Attn: Dr WOODROW Lome K R )	2714 0193
AD(T), CEDD	(Attn: Mr K C LAM)	3107 0050
GE/RD(2), HyD	(Attn: Mr TAM Hon-choi)	2714 5297
AD/P&D, DSD	(Attn: Mr CHENG Hung-leung)	2802 9006
AD/NW, WSD	(Attn: Mr W L LEUNG)	2824 0578
AD(SE), Arch SD	(Attn: Mr K T LEUNG)	2523 4693
D of H	(Attn: Mr David K K LO)	2628 9060

Internal

SE/S2

E/S1


 EYS/SSL/



## **Figures**

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834000 E

834500 E

835000 E

818500 N

818000 N

817500 N

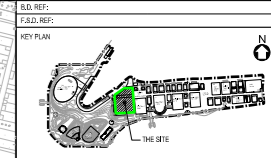
\*\*\*\*\*  
NEW KOWLOON  
TYPHOON SHELTER

### WEST KOWLOON CULTURAL DISTRICT

\*\*\*\*\*  
VICTORIA HARBOUR

\*\*\*\*\*  
VICTORIA HARBOUR

\*\*\*\*\*  
VICTORIA HARBOUR



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ENGINEERING CONSULTANT

**ARUP**  
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M+V SUBCONSULTANT

AUTHORITY'S CONSULTANT  
QUANTITY SURVEYOR  
**Landscape**  
LANDSCAPE ARCHITECT

JOB TITLE  
**MUSEUM PLUS (M+) OF THE WEST KOWLOON CULTURAL DISTRICT**

DRAWING TITLE  
**PROJECT AREA**

SCALE 1 : 1500 PRINTED 11.12.2013

CHECKED XXX DATE 18.03.2014

APPROVED XXX DATE 18.03.2014

PRODUCED BY ARP DATE 18.03.2014

AUTHOR ARP

DISCIPLINE CIV

PHASE P40-XXXX

DRAWING NO. FIGURE 1.1

CAD FILE NAME: P40MISDF-P40.DWG

AUTHORITY





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835000 E

818500 N

818000 N

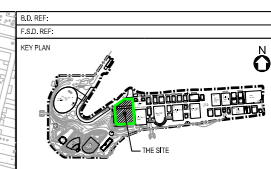
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M+V SUBCONSULTANT

AUTHORITY'S CONSULTANT  
QUANTITY SURVEYOR  
**Lam Tong Sang**  
LAM TONG SANG CONSULTANTS

JOB TITLE  
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DRAWING TITLE  
PROJECT LAYOUT

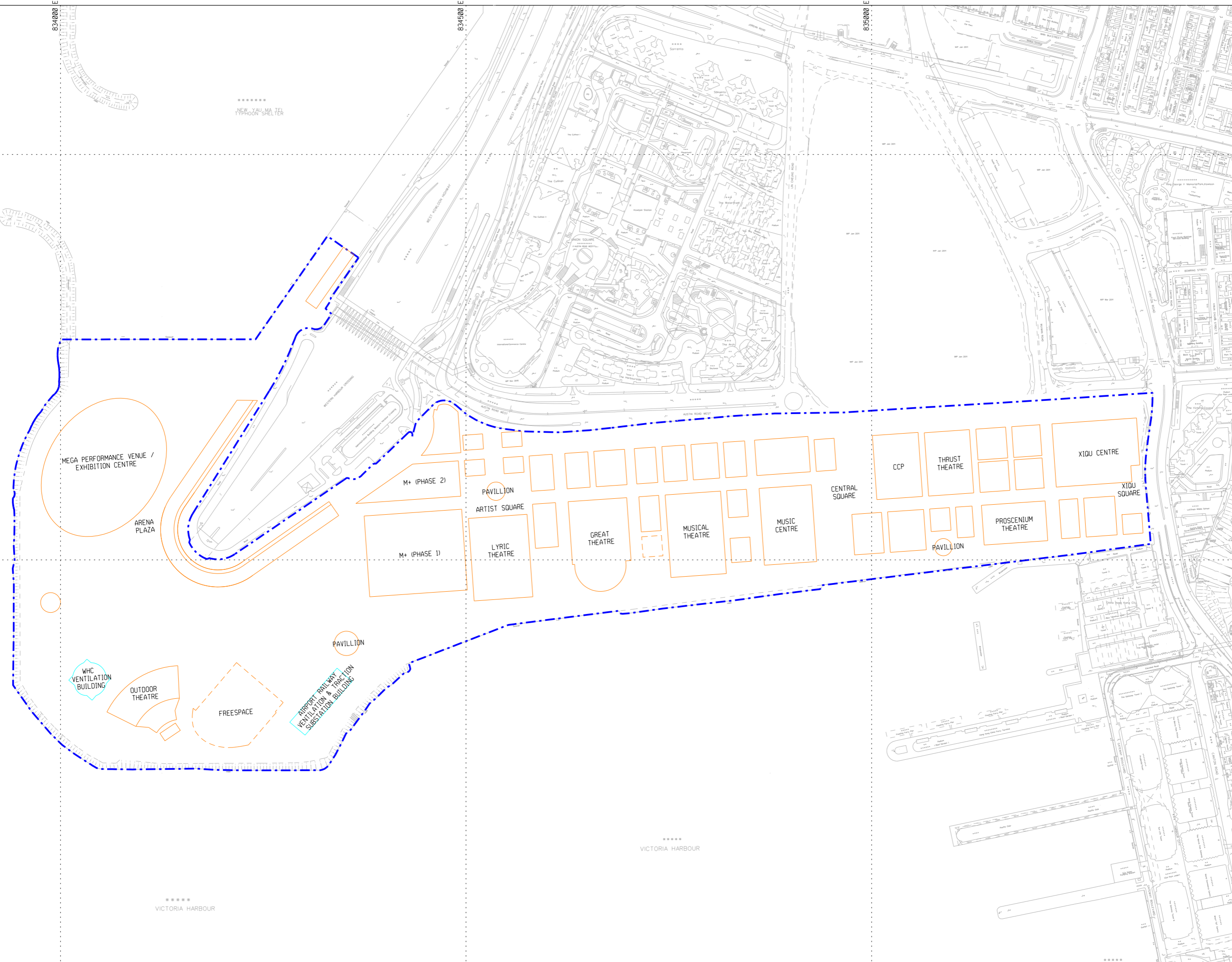
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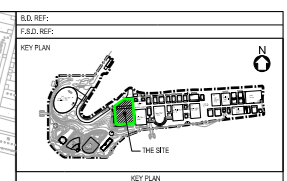
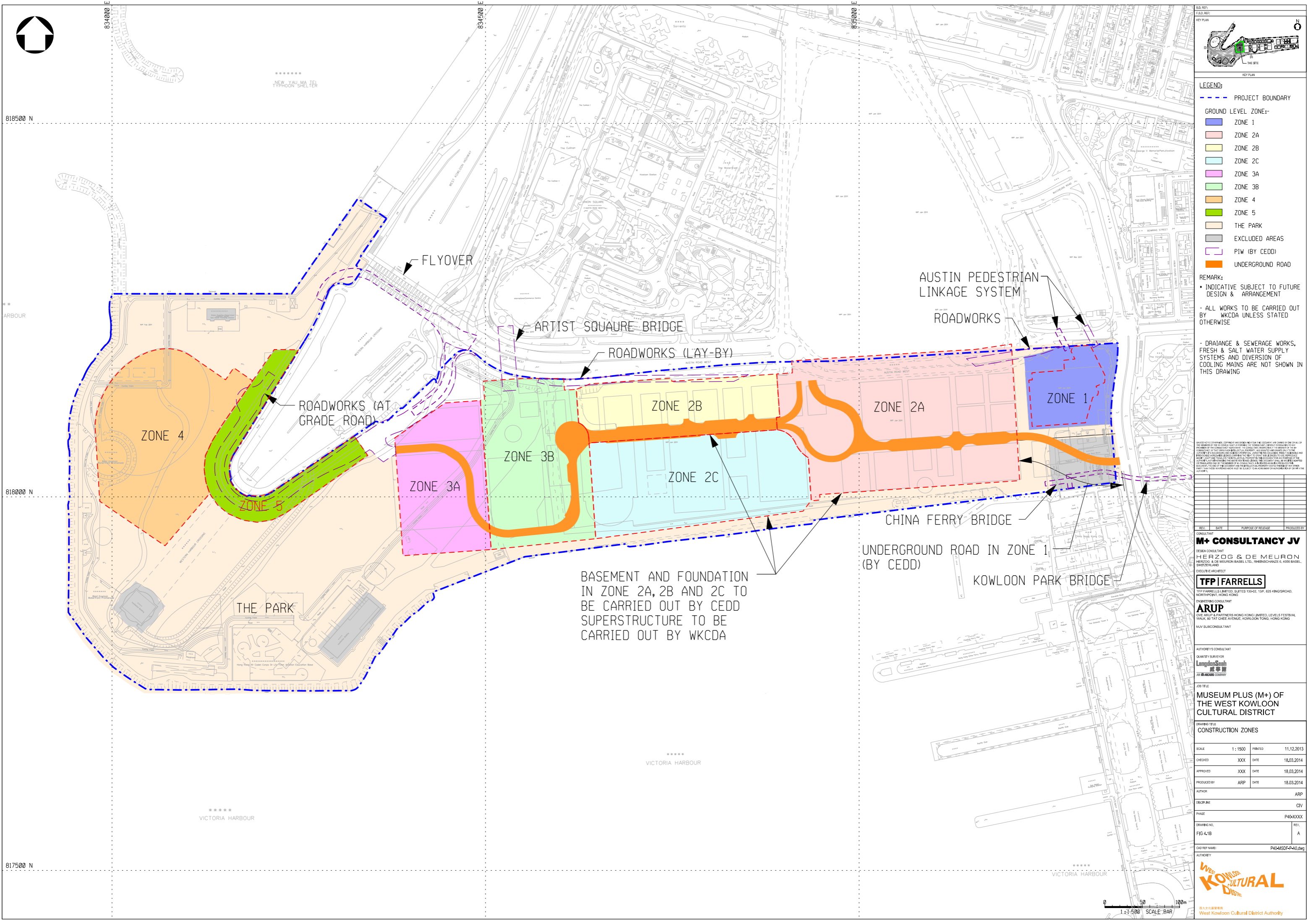
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PRODUCED BY ARP DATE 18.03.2014

AUTHORITY  
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West Kowloon Cultural District Authority





- LEGEND:**
- PROJECT BOUNDARY
  - GROUND LEVEL ZONE:
    - ZONE 1
    - ZONE 2A
    - ZONE 2B
    - ZONE 2C
    - ZONE 3A
    - ZONE 3B
    - ZONE 4
    - ZONE 5
    - THE PARK
    - EXCLUDED AREAS
    - PIW (BY CEDD)
    - UNDERGROUND ROAD
- REMARK:**
- INDICATIVE SUBJECT TO FUTURE DESIGN & ARRANGEMENT
  - ALL WORKS TO BE CARRIED OUT BY WKCD/A UNLESS STATED OTHERWISE
  - DRAINAGE & SEWERAGE WORKS, FRESH & SALT WATER SUPPLY SYSTEMS AND DIVERSION OF COOLING MAINS ARE NOT SHOWN IN THIS DRAWING

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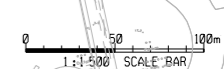
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**CONSTRUCTION ZONES**

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AUTHOR	ARP		
DISCIPLINE	CIV		
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BASEMENT AND FOUNDATION IN ZONE 2A, 2B AND 2C TO BE CARRIED OUT BY CEDD  
 SUPERSTRUCTURE TO BE CARRIED OUT BY WKCD/A





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