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Attention: Miss Winnie WC KWOK (Env Protection Offr (Metro Assessment) 24)

10 July 2018

Dear Miss Kwok

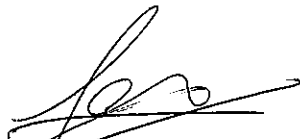
**Contract No. CM 4/2017**

**Independent Environmental Checker for Construction of Dry Weather Flow  
Interceptor at Cherry Street Box Culvert  
Submission of Monthly Environmental Audit Report No.6**

In accordance with Clause 2.1 of the Environmental Permit for Proposed Sewage Pumping Station and Dry Weather Flow Interceptor at Cherry Street Box Culvert (No. EP-523/2016), we are pleased to submit herewith four hard copies and one electronic copy of the Monthly Environmental Audit Report No.6 for your perusal.

If you require any further information, please do not hesitate to contact Mr. Sam Tsoi or the undersigned at 2268-3212.

Yours sincerely



Lawrence Kan  
Independent Environmental Checker

Enc

cc. DSD  
Black & Veatch Hong Kong Limited  
CMGC-TECEL Joint Venture

Mr. C K Fung (by Fax: 2827 8700)  
Mr. Quentin Yau (one hardcopy)  
Mr. Benson Yau (one hardcopy)

Drainage Services Department  
**Contract No. CM 4/2017**  
**Independent Environmental**  
**Checker for Construction of Dry**  
**Weather Flow Interceptor at**  
**Cherry Street Box Culvert**

Monthly Environmental Audit  
Report No.6 (June 2018)

Second version | July 2018

This report takes into account the particular instructions and requirements of our client.

It is not intended for and should not be relied upon by any third party and no responsibility is undertaken to any third party.

Job number 258952

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**ARUP**

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# 1 INTRODUCTION

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## 1.1 Background

The existing Cherry Street Box Culvert (CSBC) is a reinforced concrete 8-cell stormwater box culvert; each cell is 4.8 m wide and 3.5 m high. The CSBC collects run-off from three upstream box culverts underneath Palm Street, Cheung Wong Road and a section of West Kowloon Corridor West and ultimately discharges into the New Yau Ma Tei Typhoon Shelter (NYMTTS).

At present, the water quality at NYMTTS and the odour associated with it remains unsatisfactory. It is believed that polluted flow, including those from the expedient connections, cross-connections between the foul water sewerage and the stormwater drainage system in the area found their way into the CSBC and in turn discharges into NYMTTS. Measures have to be taken to improve the present conditions at the CSBC.

In 2010, Environmental Protection Department (EPD) completed a West Kowloon and Tsuen Wan Sewerage Master Plans Study Review and recommended to construct a dry weather flow interceptor (DWF) at the outfall of the CSBC. Upon commissioning of the DWF system, the intercepted flow would be discharged to the existing sewerage system via proposed discharge sewerage.

The proposed DWF system will comprise construction of a DWF at the CSBC to intercept the dry weather flow (DWF) inside the box culvert and construction of a sewage pumping station to pump the intercepted DWF to the existing sewerage network via proposed twin rising mains.

The Project titled “Construction of dry weather flow interceptor at Cherry Street box culvert” mainly comprises the construction of (i) an underground DWF with automatic penstocks at CSBC; (ii) a pumping station; (iii) an underground stormwater bypass box culvert; and (iv) about 270 metres of underground twin rising main from the pumping station in (ii) above to an existing sewer at Lin Cheung Road. The Project will be implemented under PWP Item No. 4380DS. The Project location is shown in **Figure 1**.

The Project is classified as a designated project under item F.3(b) (i), Part 1 of the Schedule 2 of the Environmental Impact Assessment Ordinance (Cap. 499) (EIAO), since the proposed sewage pumping station has an installed capacity (average dry weather flow) of more than 2,000m<sup>3</sup> per day and its boundary is less than 150 m from an existing residential area.

A project profile (Register No. PP-527/2015) (“Project Profile”) entitled “Proposed Sewage Pumping Station and Dry Weather Flow Interceptor at Cherry Street Box Culvert” was submitted to Environmental Protection Department (EPD) under Application No. DIR241/2015. Permission to apply directly for environmental permit was granted by EPD in September 2015. An Environmental Permit (EP-

523/2016) (“EP”) to construct and operate the Designated Project was issued to Drainage Services Department (DSD) on 23 December 2016.

According to the EP, DSD shall employ an Independent Environmental Checker (“IEC”) to audit the implementation of all mitigation measures recommended in the Project Profile and required under the EP, and certify in writing in the monthly audit report full implementation of the mitigation measures during the construction phase of the Project

Arup was commissioned by DSD to conduct the IEC in accordance with the conditions stipulated in the EP (EP-523/2016) for a period of 64 months from 8 January 2018.

## 1.2 Scope of the Assignment

Scope of work of this Assignment includes:

- (i) Provide the continual services of an IEC as stipulated in the Project Profile and the EP and reporting the findings to the Employer and the Engineer. The role of the IEC shall be independent from the Contractors;
- (ii) Conduct monthly site audits on the implementation of all mitigation measures recommended in the Project Profile and the EP and reporting the findings to the Employer and the Engineer;
- (iii) Advise the Engineer and the Employer on environmental issues related to the implementation of environmental mitigation measures under Contract No. DC/2017/01;
- (iv) Provide comments on the environmental aspects of the works programme, method statements and other relevant submissions by the Contractors;
- (v) Attend the monthly Site Safety and Environmental Management Committee (SSEMC) meetings;
- (vi) Report the findings of the site inspection and other environmental performance reviews to the Engineer and the Employer; and
- (vii) Submit monthly audit reports to EPD and confirming in writing in the report full implementation of the mitigation measures as recommended in the Project Profile and EP during and upon completion of the construction works under Contract No. DC/2017/01.

## 2 Project Organization

### 2.1 Project Organization and Management Structure

The project organization and contacts of key personnel of the Project are shown in **Appendix A**.

### 2.2 Construction Activities in the Reporting Period

The construction activities carried out by the Contractor during the reporting period included the following:

- Erection of site hoarding was partially completed;
- Desilting works in Cell 6 to 8 was completed; and
- Piling works were in progress.

## 3 Concise Overview of Assignment Progress

Site preparation works, desilting works for 3 cells and piling works were carried out by the Contractor within the construction site, and the environmental performance was considered acceptable during the assignment period from 1 June 2018 to 30 June 2018.

## 4 Status on Implementation of Environmental Mitigation Measures

The potential environmental impacts and proposed mitigation measures to be incorporated into the design and construction of the Project are summarised in **Table 4.1** below.

**Table 4.1** Summary of potential environmental impacts and proposed environmental mitigation measures

Mitigation Measures	Implementation Agent	Status
Dust nuisance		
1. Adopt dust control and suppression measures as stipulated in the Air Pollution Control (Construction Dust) Regulation.	Contractor (Construction Phase)	Implemented
2. Water spraying on exposed area and during excavation.		N/A for the reporting month and shall be implemented in the latter months
3. Provide wheel-washing facilities.		N/A for the reporting month and shall be implemented in the latter months

Mitigation Measures	Implementation Agent	Status
4. Cover stockpile of dusty materials by impervious sheets.		Implemented
5. Provide hoarding of not less than 2.4m high from ground level along the site boundary adjoining Hoi Fai Road.		Being Implemented
6. Cover dusty load on trucks before they leave the construction site.		N/A for the reporting month and shall be implemented in the latter months
7. Avoid concurrent excavation activities for construction of underground DWFI, underground emergency stormwater bypass culvert and CSBCSPS.		N/A for the reporting month and shall be implemented in the latter months
8. Minimize area involving dusty construction activities by arrangement of construction activities and methods.		Implemented
<b>Odour</b>		
1. Locate the inlet chamber, screen chamber, valve chamber and wet well of the sewage pumping station underground and enclose them by a reinforced concrete structure.	Contractor (Construction Phase)	N/A for the reporting month and shall be implemented in the latter months
2. Install and properly maintain a deodorizer with a forced ventilation system and an odour removal efficiency of at least 99.5%.	DSD (Operation Phase)	N/A for the reporting month and shall be implemented in the latter months
<b>Water Quality</b>		
1. Control construction surface run-off according to ProPECC PN1/94, EPD's Practice Note for Professional Persons, Construction Site Drainage.	Contractor (Construction Phase)  DSD (Operation Phase)	Implemented
2. All chemical tanks and storage areas will be provided with locks and placed on sealed areas, within bunds of a capacity equal to 110% of the storage capacity of the largest tank.		N/A for the reporting month and shall be implemented in the latter months
3. Install and properly maintain a standby pump and dual power supply.		N/A for the reporting month and shall be implemented in the latter months
4. Provide a telemetry system to transmit signals showing irregularity or operational problem of the sewage pumping station and the dry weather flow interceptor to the Stonecutters Island Sewage Treatment Works.		N/A for the reporting month and shall be implemented in the latter months
<b>Noise</b>		
1. Adoption of standard control measures such	Contractor	Implemented

Mitigation Measures	Implementation Agent	Status
as adopting quiet mechanical equipment, temporary noise barriers and good site practices etc.	(Construction Phase)	
2. Construction Noise Permit is required for construction work during restricted hours as defined under the Noise Control Ordinance.		N/A for the reporting month and shall be implemented in the latter months
3. Locate the pumps and screening facilities of the sewage pumping station underground and enclose them by a reinforced concrete structure.		N/A for the reporting month and shall be implemented in the latter months
4. Install all outlets of the extraction fans with acoustic louvers.		N/A for the reporting month and shall be implemented in the latter months
<b>Waste Management</b>		
1. Standard waste management measures and good site practices in waste handling, disposal and transportation will be implemented.	Contractor (Construction Phase)	N/A for the reporting month and shall be implemented in the latter months
2. The Contractor will be required to sort all C&D materials and general refuse into different categories for reuse on site, recycling and disposal at designated public fill reception facilities or landfills. Disposal of C&D materials will be managed through the trip-ticket system as stipulated in DEVB TC(W) No. 6/2010.		N/A for the reporting month and shall be implemented in the latter months
3. All chemical wastes due to maintenance of equipment will be handled, stored and disposed of in accordance with the requirements of the Waste Disposal (Chemical Waste) (Chemical) Regulation.		N/A for the reporting month and shall be implemented in the latter months
4. General refuse will be stored and disposed of separately from general construction waste and chemical waste. The storage bins for general refuse will be provided with lids, which should be kept closed to avoid odour nuisance and wind blown litter. General refuse will be removed regularly and disposed of to landfills.		Implemented
<b>Landscape and Visual</b>		
1. Erect site hoarding with decorative features that are compatible with the surrounding environment;	Contractor (Construction Phase)	Implemented
2. Maintain site cleanliness and tidiness;		Implemented
3. Properly manage construction waste in the		Implemented



Mitigation Measures	Implementation Agent	Status
works area;	DSD (Operation Phase)	
4. Reinstate all temporary works areas to its original conditions upon completion of works.		N/A for the reporting month and shall be implemented in the latter months
5. Implement and properly maintain the landscape and visual mitigation measures (e.g. rooftop greening, grasscrete, paving lock, vertical greening, permanent shrub planter, removable shrub planter, bench with shelter, and removable planter with trees) as shown in Figure 2 of the EP.		N/A for the reporting month and shall be implemented in the latter months

## 5 Major Accomplishment

### 5.1 Deliverables

Deliverables completed in the reporting period is summarised in **Table 5.1**.

**Table 5.1** Completed deliverables

Description	Submitted by IEC
Monthly Environmental Audit Report No. 5 (May 2018)	14 June 2018

Planned deliverables to be completed in the coming reporting period is summarised in **Table 5.2**.

**Table 5.2** Planned deliverables

Description	Planned Submission Date	Status
Monthly Environmental Audit Report No. 6 (June 2018)	10 July 2018	On schedule

### 5.2 Meetings

An interface meeting with EPD (Regional Office (East)) was held in the reporting period and details of the meeting is summarised in **Table 5.3**.

Description	Topic Discussed	Date of Meeting	Parties Attended
Interfacing meeting with EPD (Regional Office (East))	<ul style="list-style-type: none"> <li>Description of Project</li> <li>Construction Programme</li> <li>Implementation of Environmental Measures</li> <li>EP Conditions</li> </ul>	7 June 2018	EPD (Regional Office (East)), DSD, Arup -IEC

### 5.3 Summary of Work Done

Upon commencement of the Assignment, accumulated numbers IEC monthly environmental audit report submission and various kinds of meetings are summarized in **Table 5.4**.

**Table 5.4** Summary of work done

Work	Number
IEC Monthly Environmental Audit Report	5
IEC monthly site inspection	2
Project related meeting	1

### 5.4 IEC Site Audit

IEC site audit was conducted on 29 June 2018 (Fri) with the presence of DSD, Resident Site Engineer, Contractor and IEC. Site observations were listed as below.

- Site hoarding erection was partially completed;
- Top slabs for Cells 6 to 8 were opened and covered by canvas;
- Outfall of each cell of the box culvert was covered by canvas;
- Piling works were in progress; and
- Most of the open-excavation area was covered by canvas.

### 5.5 EPD Joint Site Visit

A joint site visit was conducted on 29 June 2018 (Fri) with the presence of EPD (Regional Office (East)), DSD, Resident Site Engineer, Contractor and IEC. EPD (Regional Office (East))'s recommendations/reminders are listed below:

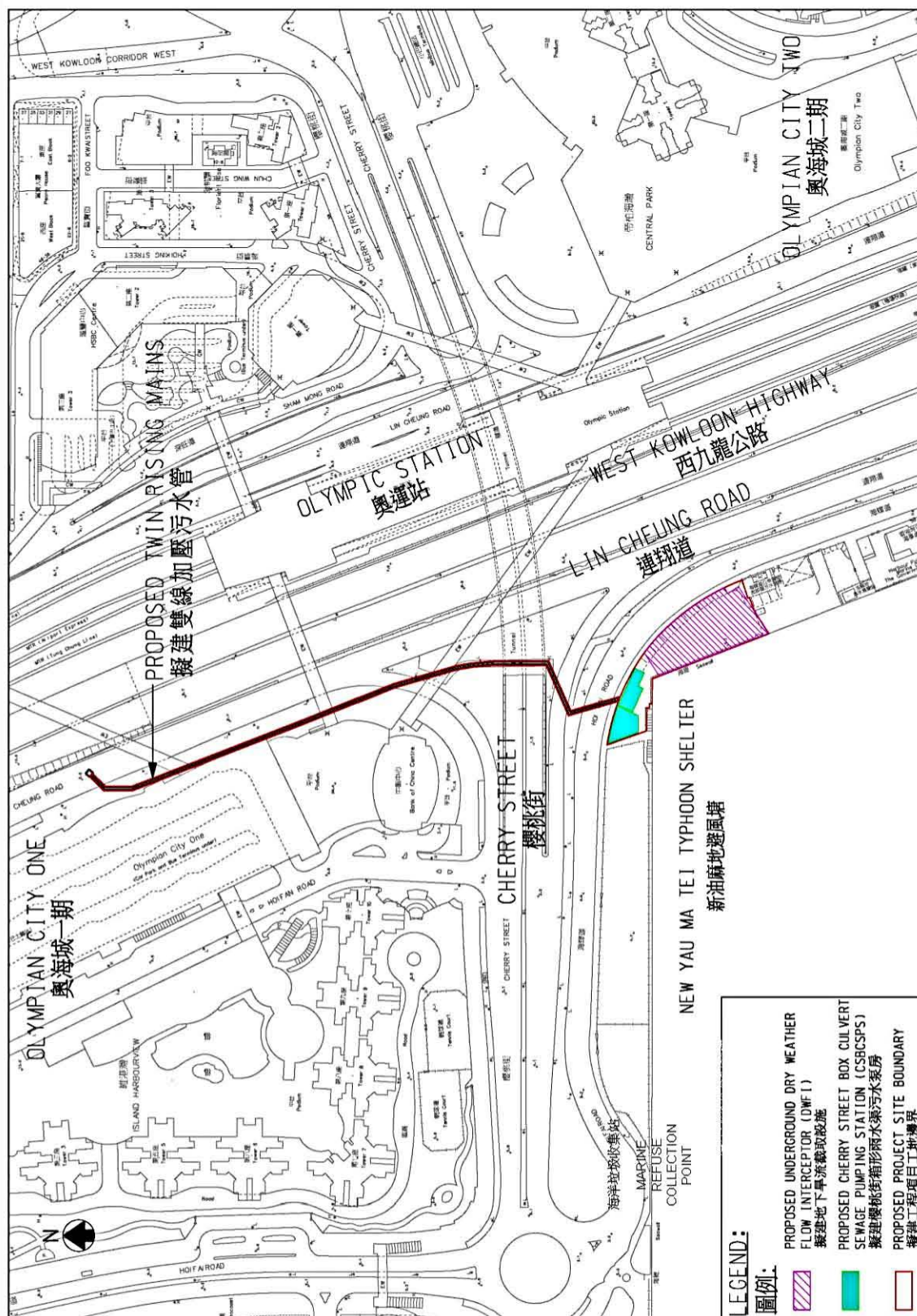
- Install the silt curtain before the desilting works;
- Pay attention to the canvas covering the box culvert outlet as it was sometimes blown up by wind and could not serve its purpose; and

- Consider the possibility of alternative methods, such as the use of suction method instead of dredging, to minimize the odorous material from exposing to air and avoid malodour problem generated from desilting works.

The Contractor was reminded to take actions to the first 2 items after the joint site visit. For the 3<sup>rd</sup> item, DSD expressed that suction method is not applicable in this Project based on DSD's experiences on desilting works for box culverts in other districts.

## **Figure 1**

**Project Location**



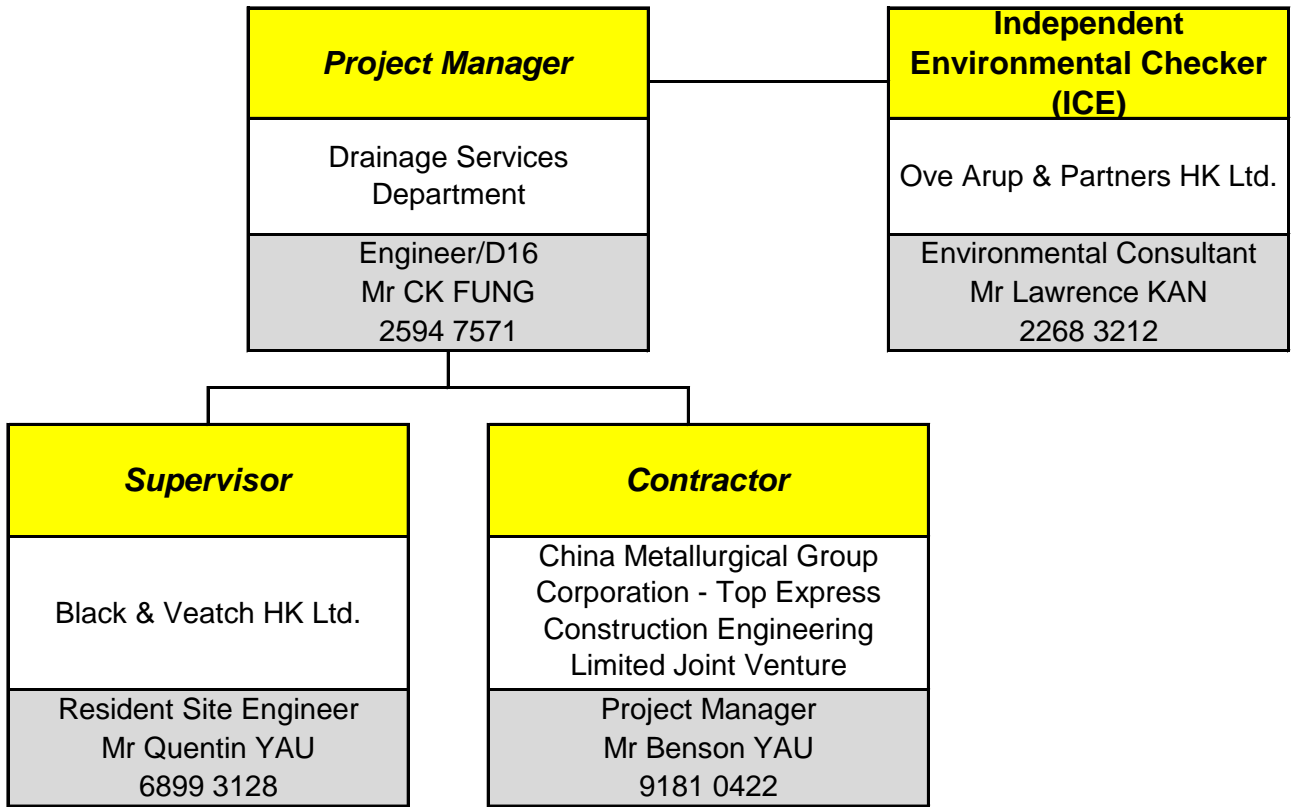
**Project Title** - Proposed Sewage Pumping Station and Dry Weather Flow Interceptor at Cherry Street Box Culvert  
**工程項目名稱** - 櫻桃街箱形雨水渠擬建污水泵房及旱流截取設施

**Environmental Permit No.:** EP-523/2016  
**環境許可證編號:** EP-523/2016

**Figure 1 - Project Location Plan**  
**圖 1 - 工程項目位置圖**

## **Appendix A**

### **Project Organization and Contacts of Key Personnel**



———— Contractual Relationship