ARUP

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11 Apr 2022

Dear Mr. Wong

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.51

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.51 for your perusal.

If you require any further information, please do not hesitate to contact the undersigned.

Yours sincerely

ranki Chiu

Franki Chiu Independent Environmental Checker

Enc

cc. DSD Black & Veatch Hong Kong Limited CMGC-TECEL Joint Venture Mr. Bernard Chan (one hardcopy) 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.51 (Mar 2022)

Month Environmental Audit Report

First version | Mar 2022

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

Ove Arup & Partners Hong Kong Ltd Level 5 Festival Walk 80 Tat Chee Avenue Kowloon Tong Kowloon Hong Kong www.arup.com



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1 INTRODUCTION

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 (DWFI) at the outfall of the CSBC. Upon commissioning of the DWFI system, the intercepted flow would be discharged to the existing sewerage system via proposed discharge sewerage.

The proposed DWFI system will comprise construction of a DWFI 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 DWFI 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 2,000m³ 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-

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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 as 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.

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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**.

3 Concise Overview of Assignment Period

3.1 Construction Activities in the Reporting Period

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

- Installation of E&M equipment in sewage pumping station and Maintenance Corridor was in progress.
- Installation of penstock and stoplog in Cell 1 of DWFI was completed.
- Installation of DN1000mm incoming pipe in Cell 1 DWFI was in progress.
- Sealing of existing joints in the box culvert was in progress.
- Construction of partition walls at the Maintenance Corridor was in progress.
- Installation of multi-part covers above Wet Well and Screen Chamber of SPS was completed.
- Installation of boundary fencing near Cell 9 of DWFI was in progress.

The environmental performance was considered acceptable during the assignment period from 1 Mar 2022 to 31 Mar 2022.

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.

Mitigation Measures	Implementation	Status
C	Agent	
Dust nuisance1. Adopt dust control and suppression measures as stipulated in the Air Pollution Control (Construction Dust) Regulation.		Implemented
2. Water spraying on exposed area and during excavation.		Implemented
3. Provide wheel-washing facilities.		Implemented
4. Cover stockpile of dusty materials by impervious sheets.	Contractor	Implemented
5. Provide hoarding of not less than 2.4m high from ground level along the site boundary adjoining Hoi Fai Road.	(Construction Phase)	Implemented
6. Cover dusty load on trucks before they leave the construction site.		Implemented
7. Avoid concurrent excavation activities for construction of underground DWFI, underground emergency stormwater bypass culvert and CSBCSPS.		Implemented
8. Minimize area involving dusty construction activities by arrangement of construction activities and methods.		Implemented
Odour	Γ	1
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)	Implemented
 Install and properly maintain a deodorizer with a forced ventilation system and an odour removal efficiency of at least 99.5%. 	DSD (Operational Phase)	N/A for the reporting month and shall be implemented in the later months
Water Quality		
1. Control construction surface run-off according to ProPECC PN1/94, EPD's Practice Note for Professional Persons, Construction Site Drainage.	Contractor (Construction Phase)	Implemented

Table 4.1 Summary of potential environmental impacts and proposedenvironmental mitigation measures

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Mitigation Measures	Implementation Agent	Status
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.		Implemented
3. Install and properly maintain a standby pump and dual power supply.	Contractor (Construction	Implemented
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.	Phase) DSD (Operational Phase)	N/A for the reporting month and shall be implemented in the later months
Noise		
1. Adoption of standard control measures such as adopting quiet mechanical equipment, temporary noise barriers and good site practices etc.		Implemented
 Construction Noise Permit is required for construction work during restricted hours as defined under the Noise Control Ordinance. 	Contractor	Implemented
3. Locate the pumps and screening facilities of the sewage pumping station underground and enclose them by a reinforced concrete structure.	(Construction Phase)	Implemented
4. Install all outlets of the extraction fans with acoustic louvers.		Implemented

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Mitigation Measures	Implementation Agent	Status
Waste Management		
1. Standard waste management measures and good site practices in waste handling, disposal and transportation will be implemented.		Implemented
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.	Contractor (Construction	Implemented
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.	Phase)	Implemented
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 windblown litter. General refuse will be removed regularly and disposed of to landfills.		Implemented
Landscape and Visual		1
1. Erect site hoarding with decorative features that are compatible with the surrounding environment;		Implemented
2. Maintain site cleanliness and tidiness;	Contractor (Construction Phase)	Implemented
3. Properly manage construction waste in the works area;		Implemented
 Reinstate all temporary works areas to its original conditions upon completion of works. 	DSD (Operational Phase)	N/A for the reporting month and shall be implemented in the later months

Mitigation Measures	Implementation Agent	Status
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 later months

5 Major Accomplishment

5.1 Deliverables

Deliverables completed in the reporting period are summarised in Table 5.1.

 Table 5.1 Completed deliverables

Description	Submitted by IEC
Monthly Environmental Audit Report No. 50	10 Mar 2022
(Feb 2022)	

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. 51 (Mar 2022)	11 Apr 2022	On schedule

5.2 Meetings

No meeting was held in the reporting month.

5.3 Summary of Work Done

Upon commencement of the Assignment, accumulated numbers of IEC monthly environmental audit report submission and various kinds of meetings are summarized in **Table 5.3**.

Table 5.3 Summary of work done

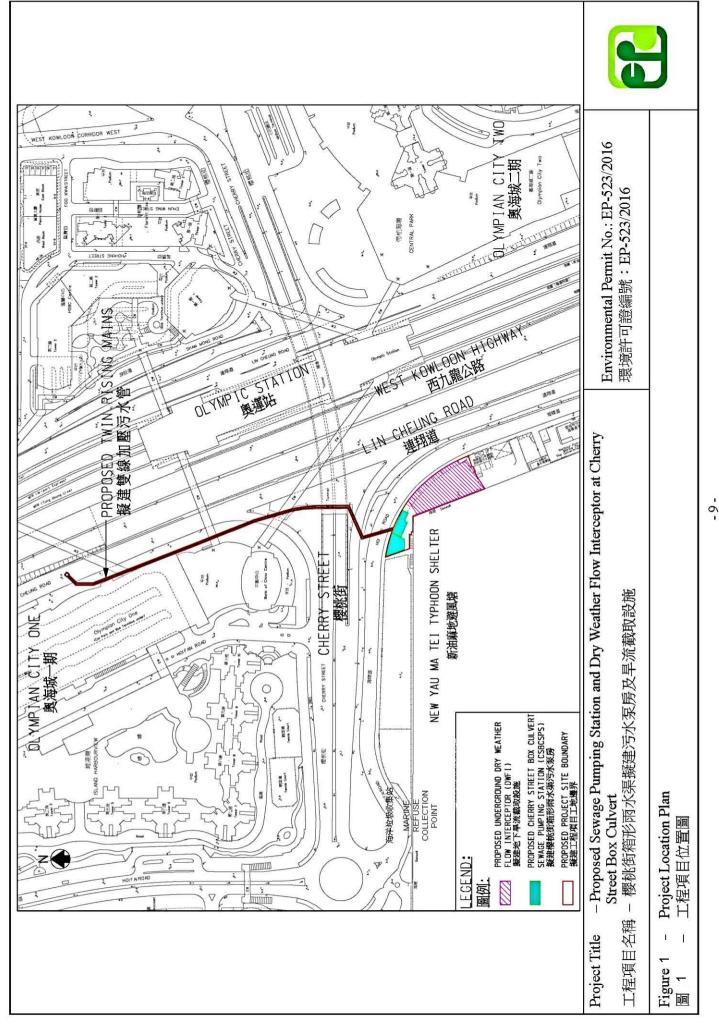
Work	Number
Reports	
IEC Monthly Environmental Audit Report	51
Meeting	
IEC monthly site inspection with DSD, Engineer Representative and Contractor	47
Project related meeting with DSD and EPD	1

5.4 IEC Site Audit

IEC site audit was conducted on 25 Mar 2022 with the presence of DSD, Resident Site Engineer, Contractor and IEC. No major site defect was observed in the reporting month. The IEC site audit checklist is given in Appendix B.

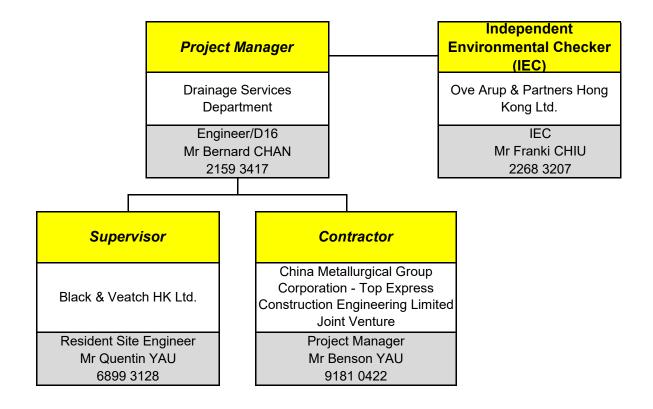
Figure 1

Project Location



Appendix A

Project Organization and Contacts of Key Personnel



— Contractual Relationship

Appendix B

IEC Site Audit Checklist

Construction of Dry Weather Flow Interceptor at Cherry Street Box Culvert Independent Environmental Checker Environmental Site Inspection Checklist

	Ref. No.									
	Project	Constructio	on of dry weat	her flow interc	ceptor	IEC	Ove A	rup & Partn	ers Hong Kor	ng Ltd.
		at Cherry	Street Box Cu	lvert		Client			Department	
	Contract No.	CM 4/2017	7			Contractor	China	Metallurgica	al Group Cor	poration -
	Inspected By	IEC's Rep.	: <u>4</u> 3t	on Taw	<u> </u>		Top E	xpress Cons	struction Engi	ineering Limited JV
		Cilent's Re			·	Engineer	Black	& Veatch H	< Ltd.	
		Engineer's				Inspection Date	·		<u>3-202</u>	
		Contractor	's Rep. :			Time Period	-	4:30	~ 17:0	0
	Part I	Weather								
	Condition	\$unny	ine	vercast	\$ torm	i kain	Drizzle	Hazy		
	Humidity	D Bah	foderate	low	,					٦ (
	Wind	Caim .	light	Breeze	trong		Temp	erature		<u> </u>
No.	Part II	Water Qualit	y and Draina	ge			N/A N	1/O Yes, R	dr Obs N/C	Photos / Remarks
1	Is drainage s							ב על ב		
2	ls drainage s							」 Ø, ⊏		
3	Is drainage s	• •] []//□		
4	Are there dyk				•					
5	Are there per runoff from or				•		Q / (
6	Are sediment						MA			
7	Are there terr		es for runoff o	discharge int	o appropriat	e				
	watercourse?			4		W 0	_/			
8 9a	Are these ten Do permaner				emoval racil entation basir					
9b	Do permaner	it urainage ci	ianneis nave		and baffles?	17				
10	Is site runoff	prohitated fro	m enterina ti	•				/,_		
11	ls groundwate		-			charged				
	via sedimenta							/		
12	Are there sed									
13a 13b	Are the sedim	ientation tank		-		I Cells?				
13D				quate capacity o silt and sediu	•					
14	Are there neu	tralisation tar				harge?				
15		utralisation tanks for concrete batching/mixing discharge? rge diverted to and treated in neutralisation tanks?								
16	Is the discharge from neutralisation tanks routed to silt trap or sedimentation									
17	Are there oil i	-	n drainage sy	/stem?			17/5			
18	Are oil and gr	ease remove	d regularly (at least week	(ly)?					
19	ls there any b	ypass for oil	to prevent flu	ushing during	periods of l	neavy rain?	• /	<u> </u>		
20	Are vehicles a leaving the si	•	aned of earth	, mud and de	ebris before					
21	Is a wheel wa		ovided at eve	erv site exit?						
22a	Is the wheel v	vashing bay v	with: adequ	ate design?			-			
22b			adequ	ate settling &	removal of sa	and/silt?				
22c			pavec	access road	leading to exi	t?] ⊠⁄⊂		
22d				s road sufficie	ently backfill to	oward] 🗘 🗆		
22e				wash bay?				. /.		
23 24	Is exposed ea Are exposed					ne\?				
24 25	Are open stor		•	• •	n outer mea	10) 1				
26	Are manholes	•	-							
27	Are accessed			ned stones or	r gravels?					
28	Are toilets con	nnected to for	ul sewer or c	hemical toile	ts provided?	>		1.		
29	Are debris an			•	• •	ly?				
30	ls wastewater	r discharge lic	cence availa	ble for inspec	ction?					

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Construction of Dry Weather Flow Interceptor at Cherry Street Box Culvert Independent Environmental Checker Environmental Site Inspection Checklist



No.	Part III Air Quality	N/A _/ N/O Yes Rdr Obs N/C Photos / Remarks
1	Are vehicles in the site travelling within speed limit of 10 km/h?	
2	Are site vehicle movement confined to designated haul roads?	_/
3	Is the public road around the site entrance kept clean and free from dust?	
4	Are areas of site with regular traffic movement have hard surface?	
5	Are the haul roads watered regularly to avoid dust disturbance?	
6	Are unpaved areas watered regularly to avoid dust disturbance?	
7	Does the water spraying truck work effectively?	
8	Is working area of excavation or earth moving operation sprayed with	
	water to maintain the entire surface wet?	/
9	Are the dusty materials sprayed with water during transfer operation?	
10	Do the site vehicles use the wheel wash at the site exits?	
11	Does the wheel wash work effectively?	
12	Are hoarding not less than 2.4m tall provided beside roads or areas with public access?	
13	Are incombustible screens not less than 1.8m tall provided in the public area	
	affected by exhaust fumes or smoke emission?	
14 15	Is dark smoke emission avoided?	
15 16	Are dusty materials properly covered?	_,
16 17	Are the bags of cement (more than 20) covered entirely? Are the excavated materials dropped at minimum practical height?	_/
17 18	Are the excavated materials dropped at minimum practical height? Are conveyor belts fitted with windboards, transfer points and hoppers	
	enclosed?	
19	Are bulk fine grained materials stored in closed silos fitted with high level alarm indicator?	
20	Are air vents on cements silos fitted with fabric filters?	
21	Are weigh hoppers vented to suitable filters?	
22	Are there enclosures around the main dust-generating activities?	
23	Are completed earthworks sealed and hydroseeded and planted as soon as practicable?	
24	Is open burning avoided?	
25	Are vehicles and equipment switched off while not in use?	
26	Are all trucks loaded to a level within the side and tail boards?	
27	Are materials transported by dump trucks with mechanical cover?	
28	Do the truck covers work effectively?	
29	Does ULSD used in the construction activities?	
30	Observable dust sources	vebicle/equipment movements
	Coding/unloading of materials	others <u>construction</u>
No.	Part IV Construction Noise Impact	N/A N/O Yes, Rdr Obs N/C Photos / Remarks
1a	Are the construction works scheduled to minimize airborne noise nuisance?	
1b	groundborne noise nuisance?	
2a	Are the works or equipment sited to minimize airbrone noise nuisance?	
2b	groundbrone noise nuisance?	
3	Are all plant and equipment well maintained and in good operating condition?	
4	Are idling equipment throttled down or turned off?	
5	Are powered mechanical equipment covered or shielded by appropriate acoustic materials?	
6	Are silenced equipment used where practicable?	
7	Are noise enclosure, noise barrier, or portable noise barrier used	
0	where necessary? Do hand-held breakers (larger than or equal to 10kg) have valid noise labels?	
8 0	Do Quality Powered Mechanical Equipments (QPME) have valid noise labels?	
9 10	Do air compressors have valid noise labels?	
10 11	Do compressors operate with doors closed?	
11 12	Are Construction Noise Permits available for inspection?	_/
12 13	· · ·	Construction activities inside of site
13		
	Construction activities outside of site	Others

No.	Part V Waste Management and Contamination	N/A N/O Yes, Rdr Obs N/C Photos / Remarks
1a	General refuse: Is accumulation avoided?	
1b	Is receptacles (e.g. rubbish bins) available?	
1c	Is there regular and proper disposal?	
2a	Construction waste: Is there avoidance or minimization of construction	
	waste generation (e.g. use of steel formwork)?	
2b	Is there on site segregation as far as practicable for reuse and recycle?	
2c	Is construction waste reused where practicable?	
2d	Is construction waste disposed at public dumping	
0-	area or public landfill?	_/
2e	Are trip tickets available for inspection?	
3a	Chemical waste/waste oil: Is there designated storage area?	
3b	Is chemical waste/waste oil stored properly?	
3c 24	Is there proper disposal?	
3d	Are trip tickets available for inspection?	
3e	Is chemical waste license available for	
4a	inspection? Excavated material: Does excavated material appear uncontaminated	
- 1 a	(colour, odour)?	
4b	If contamination is suspected, is appropriate procedure	
	followed?	· ·
4c	Are trip tickets available for inspection?	
5a	Chemical/fuel: Is chemical/fuel stored in bunded area?	
5b	Is bund capacity adequate (>110% of the largest tank)?	
5c	Are storage areas provided with locks and located on sealed area?	
6	Are relevant license/permit for disposal of construction waste or excavated	
	materials available for inspection?	······································
7	Is foam, oil, grease or other objectionable matters in water of nearby drains or sewer avoided?	000000 Rdr I
No.	Part VI Landscape & Visual Impact and Ecology	N/A/N/O Yes Rdr Obs N/C
1	is stripped top soil stored for re-use?	
2	Are retained trees protected from damage?	
3	Are compensatory trees planted and properly maintained?	
4	For trees identified for transplant in EP:	
4a	sufficient buffer zone allowed prior to transplant?	
4b	properly maintained following transplant?	
5	Is night-time lighting controlled to minimise glare to sensitive receivers?	
6	Is the screen hoarding compatible with the surrounding setting?	
7	Do the site clearance and tree felling works at the existing ardeid night roost	
	only be carried out at wintering season (November to March inclusive)?	• <u></u>
	,	
No.	Part VII Others	N/A N/O Yes Rdr Obs N/C
1	Is a copy of the relevant permits/licences/registrations displayed	
	on the Project site at all vehicular site entrances/exits or at a convenient location for public information all times?	

Part VIII Follow-up for the Pervious Site Audit

Part IX Remarks

R dr : Silt curtain chall be well-wantimed to prevent pollutiont many into sea. Contamination leakage,

Obs :NIL

Part X Signatures ient's Rep IEC's Representative 1AL (Name: Jasy (Name: Halton 771)) Ch Contractor's Representative -Engineer's Representative (Name: S. K Konh) (Name: W. M. Lor

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