ARUP

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9 June 2023

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.65

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.65 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. Jason Cheung (one hardcopy) Mr. Joseph Ho (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.65 (May 2023)

Month Environmental Audit Report

First version | May 2023

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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Figure 1	Project Location

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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- 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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Project Organization 2

Project Organization and Management Structure 2.1

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

Concise Overview of Assignment Period 3

Construction Activities in the Reporting Period 3.1

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

Defect rectification works was in progress.

The environmental performance was considered acceptable during the assignment period from 1 May 2023 to 31 May 2023.

Status on Implementation of Environmental 4 **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.		Implemented
2. Water spraying on exposed area and during excavation.	Contractor (Construction	Implemented
3. Provide wheel-washing facilities.	Phase)	Implemented
4. Cover stockpile of dusty materials by impervious sheets.		Implemented

Mitigation Measures	Implementation Agent	Status	
5. Provide hoarding of not less than 2.4m high from ground level along the site boundary adjoining Hoi Fai Road.		N/A due to site constraint. (Contractor will increase the watering frequency as mitigation measures.)	
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			
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	Implemented	
2. 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.		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.	ovided with locks and placed on l areas, within bunds of a capacity to 110% of the storage capacity of		

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Mitigation Measures	Implementation Agent	Status		
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.	em to transmit regularity or f the sewage ry weather flow ecutters Island			
Noise		·		
1. Adoption of standard control measures such as adopting quiet mechanical equipment, temporary noise barriers and good site practices etc.		Implemented		
2. 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		
Waste Management				
 Standard waste management measures and good site practices in waste handling, disposal and transportation will be implemented. 	Contractor (Construction Phase)	Implemented		

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Mitigation Measures	Implementation Agent	Status
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.		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.		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		I
1. Erect site hoarding with decorative features that are compatible with the surrounding environment;		Implemented
2. Maintain site cleanliness and tidiness;		Implemented
3. Properly manage construction waste in the works area;	_	Implemented
 Reinstate all temporary works areas to its original conditions upon completion of works. 	Contractor (Construction Phase) DSD (Operational Phase)	N/A for the reporting month and shall be implemented in the later 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 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. 64	10 May 2023
(Apr 2023)	

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. 65 (May 2023)	9 June 2023	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

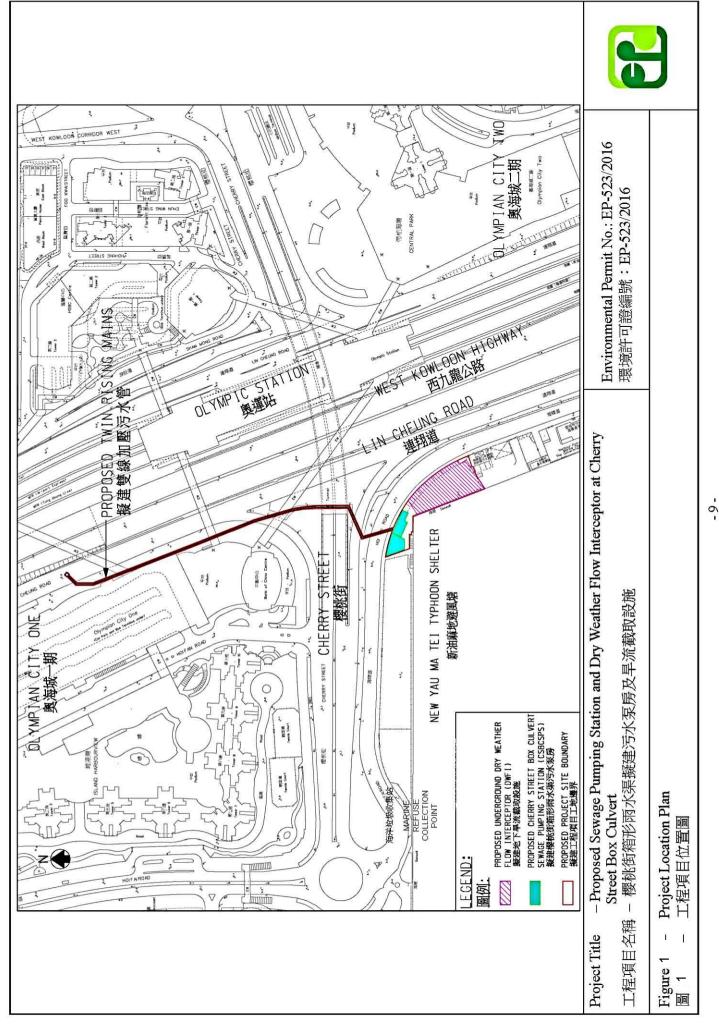
Work	Number
Reports	
IEC Monthly Environmental Audit Report	65
Meeting	
IEC monthly site inspection with DSD, Engineer Representative and Contractor	61
Project related meeting with DSD and EPD	1

5.4 IEC Site Audit

IEC site audit was conducted on 24 May 2023 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.

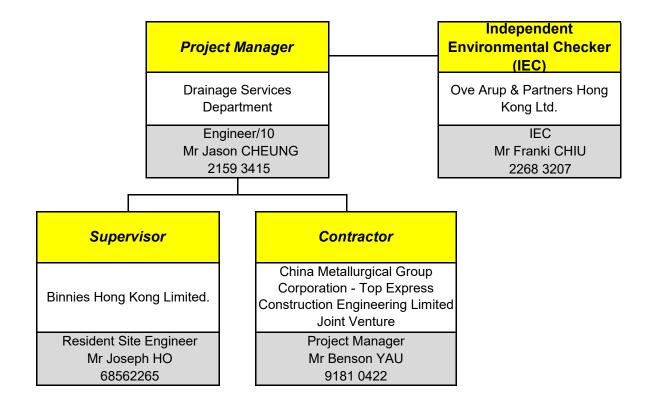
Figure 1

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 Contract No. Inspected By		treet Box Cu Hilto . : Rep.:			IEC Client Contractor Engineer Inspection Date Time Period		Drainage China M Top Exp Black & C	e Servic etallurg ress Cc Veatch -05	1 1 9 10 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	irtment up Corpo on Engin	oration - eering Limited	JV
	Condition	\$unny	Fine	Overcast	\$torm	Rain	Driz	zle	Ha	izy			
		Calm	Moderate	Wo w Breeze	\$trong		-	Tempera	ature			29 °C	
No.		Water Quality		ge			1	N/A N/C) Yes	Rdr Ob	s N/C	Photos / Rer	marks
1	Is drainage sys												
2	ls drainage sys											-	
3 4	Is drainage sys Are there dyke	Contract contract of the product of the contract				ction?			V /				
5	Are there perir	neter channe	els at site bo	oundaries to i	ntercept sto	rm							
6	runoff from out Are sediment of												
6 7	Are there temp		750 550			•							
,	watercourse?	orary anone		aloonargo int	o appropriat	0						-	
8	Are these temp	porary ditche	s with silt re	tention and r	emoval faci	lities?							
9a	Do permanent	drainage cha	annels have	e: sedime	entation basir	1?		ØD					
9b				1.00	and baffles?			$\nabla \Box$					
10 11	Is site runoff p Is groundwate					charged							
11	via sedimental					shargeu			ď				
12	Are there sedi	An International Article And Article And Article		ng runoff prid	or to disposa	al?			́ п				
13a	Are the sedime				100 N. 100 No. 10								
13b			with ade	equate capacit	y?								
13c				n silt and sedi					$^{\square}$				
14	Are there neut			_	-	harge?						14 10 10 10 10 10 10 10 10 10 10 10 10 10	
15 16	Is the discharg					edimentation							
10	tanks before d	isposal?			one dup of o	camonation							
17	Are there oil in	and a second state of the second second			1.00								
18 19	Are oil and gre Is there any by				1.5.6	heavy rain?							
20	Are vehicles a		·		and the second second								
20	leaving the site	• • • • • • • • • • • • • • • • • • •		.,					/				
21	Is a wheel was	shing bay pro	vided at ev	ery site exit?				\Box / Q'					
22a	Is the wheel w	ashing bay w	N 99 99 99 99 99 99 99 99 99 99 99 99 99	uate design?									
22b				uate settling &									
22c 22d				d access road ss road sufficie									
22e				I wash bay?					Ξ,		41		
23	ls exposed ea	rth stabilized	after compl	etion of earth	works?				Ø,				
24	Are exposed s		and successive the second second		or other mea	ins)?		0,0	$\overline{\mathbf{v}}$				
25	Are open stoc			avy rain?				Ø.					
26 27	Are manholes Are accessed			hed stones o	r gravels?								
28	Are toilets con		•		· · · ·	?							
29	Are debris and							ΞZ	đ				
30	ls wastewater	discharge lic	ence availa	ble for inspe	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/C) Yes Rd	r Obs	N/C	Photos / Remarks
1		elling within speed limit of 10 km/h?						
2		confined to designated haul roads?		$\nabla \Box$	\Box / \Box			
3	Is the public road around the	e site entrance kept clean and free from dust?			$\overline{\mathbb{V}}/\mathbb{D}$			
4	Are areas of site with regula	r traffic movement have hard surface?		\Box / \Box				
5	Are the haul roads watered	regularly to avoid dust disturbance?		D D				
6	Are unpaved areas watered	regularly to avoid dust disturbance?						
7	Does the water spraying true			άđ	d d			
8	Is working area of excavatio	n or earth moving operation sprayed with						
	water to maintain the entire			1				
9		yed with water during transfer operation?			\Box / \Box			
10		wheel wash at the site exits?			\Box / \Box			
11	Does the wheel wash work e	· · · · · · · · · · · · · · · · · · ·			\Box / \Box	/ 🗆		
12	Are hoarding not less than 2 public access?	.4m tall provided beside roads or areas with			άď			Rdr
13		and least the set 1. One talk was vide of in the southline and		1,11 - A., ¹				
15		not less than 1.8m tall provided in the public are	а		\square			
14	affected by exhaust fumes o				_	_	_	
15	Is dark smoke emission avo			\square				
	Are dusty materials properly		н н.,					
16 17		re than 20) covered entirely?						
		dropped at minimum practical height?						
18	enclosed?	n windboards, transfer points and hoppers		MU				
19		als stored in closed silos fitted with high level						
	alarm indicator?							
20	Are air vents on cements sile	os fitted with fabric filters?						
21	Are weigh hoppers vented to	o suitable filters?						
22	Are there enclosures around	the main dust-generating activities?						
23	Are completed earthworks s	ealed 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 lev	el within the side and tail boards?						
27	Are materials transported by	dump trucks with mechanical cover?						
28	Do the truck covers work eff	ectively?						-
29	Does ULSD used in the cons	struction activities?						
30	Observable dust sources	Vind erosion		/ehicle/e	equipment mov	ements		
		Loading/unloading of materials	,	Others		C	Onst	wction
				r'				
No.	Part IV Construction	Noise Impact		N/A N/C	Yes Rd	r Obs	N/C	Photos / Remarks
1a		eduled to minimize airborne noise nuisance?						
1b		groundborne noise nuisance?						
2a	Are the works or equipment site	ed to minimize airbrone noise nuisance?						
2b		groundbrone noise nuisance?						
3	Are all plant and equipment	well maintained and in good operating condition	1?					
4	Are idling equipment throttle	d down or turned off?						
5	Are powered mechanical equ	uipment covered or shielded by appropriate			a D			
	acoustic materials?				_/_	_		
6	Are silenced equipment used				₫/□			
7	Are noise enclosure, noise b where necessary?	arrier, or portable noise barrier used			Q D			
8	and what any second the second the	er than or equal to 10kg) have valid noise label	s?					
9		ical Equipments (QPME) have valid hoise labe						
10	Do air compressors have va	Contraction of the second						
11	Do compressors operate with							-
12	Are Construction Noise Pern							
13	Major noise source(s)							
		Construction activities outside of site			tion activities in	ISIDE OF SI	ue	
				Others		-		

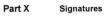
Construction of Dry Weather Flow Interceptor at Cherry Street Box Culvert Independent Environmental Checker Environmental Site Inspection Checklist



No.	Part V Waste Management and Contamination	/	Photos / Remarks
1a	General refuse: Is accumulation avoided?		
1b 1c	Is receptacles (e.g. rubbish bins) available?		
2a	Is there regular and proper disposal? Construction waste: Is there avoidance or minimization of construction		
24	waste generation (e.g. use of steel formwork)?		
2b	Is there on site segregation as far as practicable		
2.0	for reuse and recycle?		
2c	Is construction waste reused where practicable?		
2d	Is construction waste disposed at public dumping		
	area or public landfill?		
2e	Are trip tickets available for inspection?		
3a	Chemical waste/waste oil: Is there designated storage area?		
Зb	Is chemical waste/waste oil stored properly?		
3c	Is there proper disposal?		
3d	Are trip tickets available for inspection?		
3e	Is chemical waste license available for		
	inspection?		
4a	Excavated material: Does excavated material appear uncontaminated		
	(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	$\nabla \rho \circ $	
~	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?		
No.	Part VI Landscape & Visual Impact and Ecology	N/A ₂ 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)?		
No.	Part VII Others	N/A N/O Yes Rdr Obs N/C	1 77 7
1	ls 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?		Obs The I

Part VIII Follow-up for the Pervious Site Audit

Part IX Remarks	
Obs 1:	Contractor was remained to display EP at vehicular entrances.
Rdr :	Hoarding along this Fai Road has height that bes than 2.4 m due to sole constraints. Contractor was reminded to increase the water spray drequency to avoid dust disturbance.



IEC's Representative Th (Name: Hilton Tak) Engineer's Representative (Name: 10)

Client's Representative

(Name:) Contractor's Representative (Name) U.H. HAN

Notes: N/A - Not Applicable; N/O - Not Observed; Yes - Compliance; Rdr - Reminder; Obs - Observation; and N/C - Non Compliance Page 4 of 4