# Shatin to Central Link – Hung Hom to Admiralty Section

# Construction Noise Mitigation Measures Plan (CNMMP)

(October 2019)

Verified by	y: <u>Fredrick Leong</u>	Ar.
Position: <u>I</u>	ndependent Environme	ental Checker
Date:	24,10,2019	

# Shatin to Central Link – Hung Hom to Admiralty Section

# Construction Noise Mitigation Measures Plan (CNMMP)

(October 2019)

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Position: <u>Env</u>	ironmental Team Leader	
Date:	24.10.2019	

# **Shatin to Central Link - Hung Hom to Admiralty Section**

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#### 1 INTRODUCTION

### 1.1 Background

- 1.1.1 The Shatin to Central Link (SCL) is a 17km extension of the existing Ma On Shan Line (MOL) and East Rail Line (EAL) comprising (i) The East-West Corridor which extends the MOL from Tai Wai to Hung Hom via East Kowloon to connect with the West Rail Line (WRL) at Hung Hom Station (HUH) and Stabling Sidings at Hung Hom Freight Yard (HHS); and (ii) The North-South Corridor which is an extension of the East Rail Line (EAL) at Hung Hom across the harbour to Admiralty Station (ADM).
- 1.1.2 Shatin to Central Link Hung Hom to Admiralty Section [SCL (HUH ADM)] (hereafter referred to as "the Project") is part of the SCL.
- 1.1.3 The Environmental Impact Assessment (EIA) Reports for SCL (HUH-ADM) (Register No.: AEIAR-166/2012) was approved on 17 February 2012 under the Environmental Impact Assessment Ordinance (EIAO). Following the approval of the EIA Report, an Environmental Permit (EP) (EP No.: EP-436/2012) was granted on 22 March 2012 for construction and operation. Variations of environmental permit (VEP) was subsequently applied for EP-436/2012 and the latest Environmental Permit (EP No: EP-436/2012/F) was issued by Director of Environmental Protection (DEP) on 23 January 2019.
- 1.1.4 As per Condition 2.7 of EP-436/2012/F, Construction Noise Mitigation Measures Plan (CNMMP) for the Project is required to be updated and submitted to EPD before commencement of the construction of the Project.

#### 1.2 Purpose of this Construction Noise Mitigation Measures Plan

- 1.2.1 This CNMMP is submitted to fulfil the requirements under Condition 2.7 of EP-436/2012/F pertaining to further reduce the air-borne construction noise impacts on the noise sensitive receives (NSR) as predicted in the EIA Report (i.e. Causeway Centre, Block A) with exceedance after mitigation as predicted in the approved SCL (HUH-ADM) EIA Report.
- 1.2.2 To fulfil the requirements of above-mentioned EP Conditions, the following information has been included in the CNMMP for individual Contracts as prepared by the respective Contractors:
  - Schedule of construction works to be carried out at the works areas of the Project within 300m from the NSR;
  - Updated construction methodology of the construction works;
  - Updated powered mechanical equipment (PME) list for the construction works;
  - Updated proposal of air-borne construction mitigation measures for the NSR, including the provision of noise barriers and enclosures, if applicable; and
  - Updated prediction of noise levels in accordance with the above updated information and mitigation proposals in place.

### 2 CONSTRUCTION NOISE MITIGATION MEASURES PLAN

2.1.1 The construction of SCL has been divided into different civil construction works contracts. The works area of SCL Works Contracts as listed in table below would be located within 300m from the NSR as mentioned in EP-436/2012/F Condition 2.7 (i.e. Causeway Centre, Block A). As such, updated CNMMP would be required to be prepared under these Works Contracts as per EP Condition.

<b>Works Contract</b>	Contract Title
1123	Exhibition Station and Western Approach Tunnel
1126	Reprovisioning of Harbour Road Sports Center and Wan Chai Swimming Pool

- 2.1.2 The updated CNMMP for Works Contract 1126 and 1123 have been prepared by the respective Contractor's ET based on updated construction methodology, powered mechanical equipment (PME) and construction programme, and is provided in **Appendix A** and **Appendix B**. **Table 2.1** summarises a comparison of the mitigated air-borne noise levels at the NSR mentioned in Condition 2.7 of EP-436/2012/F predicted in the updated CNMMP for individual Contracts with those predicted in the approved SCL (HUH-ADM) EIA Report.
- 2.1.3 According to the updated CNMMP, the noise mitigation measure proposed in the approved SCL (HUH-ADM) EIA Report remains valid. With the updated information, the mitigated air-borne construction noise impacts predicted in the CNMMP would be reduced, in terms of exceedance and duration, compared to those in the approved EIA Report.

Table 2.1 Summary of Updated Mitigation Air-borne Construction Noise Impact

				Air-borne Construction Noise Impact (Mitigated)							
						SCL (HUH-ADM) EIA					
				Updated	d CNMMP	Re	eport				
NSR ID	Description	Uses	Criteria / dB(A)	Predicted Max Noise Level / dB(A)	Exceedance Duration / Month	Predicted Max Noise Level / dB(A)	Exceedance Duration / Month				
				0.2 (7.1)	1-4 dB(A)	a=(; ;)	1-4 dB(A)				
Contra	act No. 1126 &	1123									
EX1	Causeway Centre, Block A	Residential	75	75	-	76	2				

# Appendix A

Construction Noise Mitigation Measures Plan for Contract No. 1126 – Reprovisioning of Harbour Road Sports Centre and Wan Chai Swimming Pool

# **Kaden-Leader Joint Venture**

# Shatin to Central Link -

# Contract 1126 Reprovisioning of Harbour Road Sports Centre and Wan Chai Swimming Pool

# **Construction Noise Mitigation Measures Plan**

**(Version 3.0)** 

**March 2014** 

Approved By

(Contractor's Environmental Team Leader)

#### REMARKS:

The information supplied and contained within this report is, to the best of our knowledge, correct at the time of printing.

CINOTECH accepts no responsibility for changes made to this report by third parties.

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Construction Noise Mitigation Measures Plan

## 1 INTRODUCTION

# **Background**

- 1.1 The Shatin to Central Link Hung Hom to Admiralty Section (hereafter referred to as SCL (HUH-ADM)) is an approximately 6km extension of the East Rail Line including a rail harbor crossing from Hung Hom across the harbor to Admiralty on Hong Kong Island. It is a Designated Project under the Environmental Impact Assessment Ordinance (Cap. 499) (EIAO).
- 1.2 The Environmental Impact Assessment (EIA) Report of the SCL (HUH-ADM) (Register No. AEIAR-166/2012) was approved by the Environmental Protection Department (EPD) under the EIAO on 17 February 2012. An Environmental Permit (EP-436/2012) has been issued on 22 March 2012.
- 1.3 The construction of the SCL (HUH-ADM) has been divided into a series of civil construction Works Contracts and this Works Contract 1126 comprises of the Demolition Works of Wan Chai Sports Ground (WCSG). This construction contract was awarded to Kaden-Leader Joint Venture (KLJV) in January 2014.

### **Purpose of this Construction Noise Mitigation Measures Plan**

- 1.4 According to Condition 2.7 of the EP-436/2012, to further reduce the air-borne construction noise impacts on the Noise Sensitive Receivers (NSRs) with exceedance after mitigation as predicted in the SCL (HUH-ADM) EIA Report (Register No. AEIAR-166/2012), (i.e. Causeway Centre, Block A), the Permit Holder shall, no later than one month before the commencement of construction of the Project, submit to the Director of Environmental Protection (DEP) for approval four hard copies and one electronic copy of an updated Construction Noise Mitigation Measures Plan (CNMMP) and other initiatives proposed by the Permit Holder. The CNMMP shall include:
  - a schedule of construction works to be carried out at the works areas of the Project within 300m from the NSRs;
  - an updated construction methodology of the proposed construction works;
  - an updated powered mechanical equipment (PME) list for the proposed construction works;
  - an updated proposal of air-borne noise mitigation measures for the NSR, including the provision of noise barriers, enclosures, if applicable; and
  - an updated prediction of noise levels in accordance with the above updated information and mitigation proposals in place.
- 1.5 Before submission to the DEP, the CNMMP will be certified by the Environmental Team (ET) Leader and verified by the Independent Environmental Checker (IEC) as conforming to the relevant information and recommendations contained in the approved SCL (HUH-ADM) EIA Report (Register No. AEIAR-166/2012). All measures recommended in the approved CNMMP will be fully and properly implemented during construction.
- 1.6 The identified NSR with exceedance after mitigation as predicted in the EIA Report, (i.e. Causeway Centre, Block A), is relevant to Works Contract 1126. The location of

this NSR covered in this CNMMP is shown in Appendix C.

1.7 This CNMMP is prepared to comply with the above-mentioned requirements.

### 2 DESCRIPTION OF CONSTRUCTION WORKS IN THE STUDY AREA

### **Noise Sensitive Receivers**

2.1 The predicted residual construction noise impact of the identified NSR is shown in **Table 2.1**. The location of this NSR, the layout plan of Works Contract 1126 worksites and the notional distance to the relevant works areas within the 300m study area are shown in **Appendix C**.

Table 2.1 NSRs with Predicted Residual Air-borne Construction Noise Impacts (Extracted from Table 9.20 of the SCL (HUH-ADM) EIA Report)

NSR ID	NSR Description	Uses <sup>[1]</sup>	Criterion dB(A)	Predicted Maximum Noise Level dB(A)	Predicted Residual Noise Impact dB(A)
EX1	Causeway Centre, Block A	R	75	76	1

Notes:

[1] R – Residential

# **Construction Methodology**

- 2.2 The proposed construction methodology would generally follow those presented in Section 3 of the approved SCL (HUH-ADM) EIA Report. During construction of EXH, a portion of the grandstand at Wan Chai Sports Ground will be affected. Temporary reprovisioning of the grandstand and other facilities will be required during the construction period and possible full reinstatement subsequent to completion of railway development works.
- 2.3 A breakdown of the major construction activities in sequence to be carried out under the contract are provided in **Appendix A**.

## **Updated Preliminary Construction Programme**

2.4 The updated preliminary construction programme prepared by KLJV has been used in this CNMMP and has been presented on a monthly basis for the duration of the construction works in corresponding worksites. The construction schedule has been updated based on the latest information submitted under the SCL(HUH-ADM) EP and adjusted such that to minimise concurrent construction works to be carried out in the vicinity as far as practicable. The updated preliminary construction programme for Works Contract 1126 is provided in **Appendix A**.

### **Updated Powered Mechanical Equipment List**

2.5 The updated Powered Mechanical Equipment (PME) list for the construction works is provided in **Table 3.1**. The Sound Power Levels (SWL) for the PMEs have been adopted from EPD's Technical Memorandum on Noise from Construction Work Other than Percussive Piling (GW-TM), list of SWLs of other commonly used PME(1) or

British Standard BS 5228-1:2009(2). It should be noted that the PMEs proposed are commonly available in the Hong Kong market. The PMEs to be adopted for individual construction activities for Works Contract 1126 are provided in Appendix B.

<sup>(1) &</sup>quot;Sound power levels of other commonly used PME" prepared by the Noise Control Authority (http://www.epd.gov.hk/epd/english/application\_for\_licences/guidance/files/OtherSWLe.pdf)

# 3 NOISE ASSESSMENT AND PROPOSED MITIGATION MEASURES

# **Assessment Methodology and Assumptions**

- 3.1 The construction noise assessment has been carried out in accordance with the methodology used in the approved SCL (HUH-ADM) EIA Report (Register No. AEIAR-166/2012). Demarcation of the sub-works areas and notional source distances adopted in the calculations mainly follows those presented in the SCL(HUH-ADM) EIA Report and updated based on latest engineering information, which are presented in **Appendix C**.
- 3.2 The percentage on-time for each PME has been estimated individually for each construction activity to ensure practicality.
- 3.3 KLJV has confirmed that both programme and plant inventory in approved EIA for SCL (HUH-ADM) are reasonable and practicable for completing the Works Contract 1126 within the scheduled timeframe.
- 3.4 Mitigation measures and their effectiveness proposed in the SCL (HUH-ADM) EIA Report including the use of temporary movable noise barrier and quiet plant have been considered in this CNMMP, as shown in **Table 3.1**. Details of proposed mitigation measures for this Project are presented in **Appendix B**.

Table 3.1 PME List with Proposed Mitigation Measures Adopted under Works Contract 1126 for Works at WCSG

PME	TM Ref. /Other Ref. (1) /BS5228 Ref. (2)	SWL/ Item, dB(A)	Mitigation Measures Proposed <sup>(3)</sup>	Barrier Correction, dB(A) (3)
Air Compressor	CNP002	102	Movable Barrier	-10
Asphalt paver	BS D8/24	101	Movable Barrier	-5
Breaker, hand-held, mass > 35 kg	CNP026	114	Movable Barrier	-5
Concrete Lorry Mixer	BS D6/33	96	/	0
Crane Mobile	BS D7/101	94	/	0
Drill, percussive, hand-held	CNP064	103	/	0
Dump Truck	BS D9/24	104	/	0
Excavator	BS D3/35	106	Movable Barrier	-5
Lorry	BS D9/19	102	/	0
Poker, Vibratory, Hand Held	BS D6/40	98	/	0
Roller, vibratory	BS D8/30	101	/	0
Saw, Concrete	CNP203	115	Movable Barrier	-10

<sup>(1) &</sup>quot;Sound power levels of other commonly used PME" prepared by the Noise Control Authority (http://www.epd.gov.hk/epd/english/application\_for\_licences/guidance/files/OtherSWLe.pdf)

<sup>(2)</sup> British Standard BS 5228:2009, Part 1 - Noise and Vibration Control on Construction and Open Sites

<sup>(3)</sup> Table 9.17 - Noise Mitigation Measures for Certain PME during Construction Phase and Appendix 9.8, approved EIA for SCL (HUH-ADM).

Construction Noise Mitigation Measures Plan

# **Proposed Mitigation Strategy and Noise Assessment Results**

- 3.5 The air-borne construction noise impacts for the construction activities under Works Contract 1126 have been assessed and summarized in **Table 3.2**. The detailed assessment result for Works Contract 1126 is presented in **Appendix B**. The proposed mitigation measures described above are included in the assessment and, as such, only the mitigated scenario has been presented.
- 3.6 With the implementation of quiet plant, temporary movable noise barrier for the PMEs, and scheduling of PMEs at worksite as far as possible, no exceedances of noise criteria at the identified NSR is predicted. Residual impact is therefore not expected to be anticipated.

Table 3.2 Updated Mitigated Construction Noise Impact at Identified NSR

	Noise	SCL (HUH-ADM	) EIA Prediction <sup>(1)</sup>	CNMMP Prediction <sup>(2)</sup>						
NSR	Criteria dB(A)	Max Noise Level, dB(A)	Exceedance Duration (Month)	Max Noise Level, dB(A)	Exceedance Duration (Month)					
EX1	75	76	2	75	0					

#### Notes:

- (1) Extracted from Table 9.21 of SCL (HUH-ADM) EIA Cumulative Residual Construction Noise Impact
- (2) Cumulative impact arisen from other projects including WDII and CWB is considered.

Shatin to Central Link – Contract 1126 Reprovisioning of Harbour Road Sports Centre and Wan Chai Swimming Pool Construction Noise Mitigation Measures Plan

## 4 CONCLUSION

- 4.1 With the implementation of the proposed noise mitigation measures, updated construction programme and PME list, construction noise impacts at the identified NSR would comply with the noise criterion of 75 dB(A) for residential premise..
- 4.2 Where necessary, further review and update will be performed during the construction phase and liaison with affected parties is recommended to minimise the construction noise impacts as far as practicable.

APPENDIX A UPDATED PRELIMINARY CONSTRUCTION PROGRAMME OF WORKS CONTRACT 1126

#### Appendix A :SCL Contract 1126 - Preliminary Construction Programme

No.	lo. Activity Description		2014									20	15							20	)16							2017			
NO.	Activity description	1 2	3	4 5	6	7 8	9 10	11 12	2 1	2	3 4 5	6	7 8	9	10 11	12	1 2	3	4	5 6	7	8 9 10	11	12	1 2	3 4	5	6 7	8	9 10	11 12
	Daytime Period																														=
	Sayumo i cirou																														$\pm$
	Work site 204a																														
1	Hoarding Erection at Wan Chai Sports Ground			Х																											
2	Demolition of grandstand					X >	X X																								
	Work site 204b																														
3	Temporary Reprovisioning Works at Wan Chai Sports Ground				Х	X >	X																								
	Work site 208																														
4	Temporary PTI Construction					)	X X	ХХ	C																						

Remark:

x - indicates construction works in progress

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APPENDIX B PROPOSED MITIGATION MEASURES AND DETAILED NOISE ASSESSMENT

# Appendix B1 : SCL Contract 1126 Construction Plant Inventory (With Mitigation)

#### Work site 204a

No.	Activities	Name of PME (TM Ref./Other Ref.[1])	No. of PME	On Time %	SWL/ Item, dB(A)	SWL, dB(A)	Mitigation Measures Proposed [3]	Barrier correction [3]	Total SWL, dB(A) [2]
1	Hoarding Erection at Wan Chai Sports Ground	Breaker, hand-held, mass > 35 kg (CNP 026)	1	30	114	109	Movable Barrier	-5	106
		Crane lorry, mobile (BS D7/101)	1	50	94	91	/	0	
		Drump truck (BS D9/24)	1	30	104	99	/	0	
		Poker, vibrator, hand-held (BS D6/40)	2	30	98	96	/	0	
		Air Compressor (CNP 002)	1	30	102	97	Movable Barrier	-10	
		Concrete lorry mixer (BS D6/33)	1	30	96	91	/	0	
		Lorry (BS D9/19)	1	30	102	97	/	0	
2	Demolition of grandstand	Saw, concrete (CNP 203)	2	50	115	115	Movable Barrier	-10	107
		Excavator (BS D3/35)	1	50	106	103	Movable Barrier	-5	
		Dump Truck (BS D9/24)	1	30	104	99	/	0	

#### Work site 204b

No.	Activities	Name of PME (TM Ref./Other Ref.[1])	No. of PME	On Time %	SWL/ Item, dB(A)	SWL, dB(A)	Mitigation Measures Proposed	Barrier correction [3]	Total SWL, dB(A) [2]
3	Temporary Reprovisioning Works at Wan Chai Sports Ground	Drill, percussive, hand-held (CNP 064)	1	50	103	100	/	0	103
		Excavator (BS D3/35)	1	50	106	103	Movable Barrier	-5	
		Crane lorry, mobile (BS D7/101)	1	50	94	91	/	0	
		Lorry (BS D9/19)	1	30	102	97	/	0	

#### Note:

[1] BS - British Standard BS 5228:2009, Part 1 Noise and Vibration Control on Construction and Open Sites Other Ref. - SWLs refer to other PME documented by the Noise Control Authority (EPD/PME/no.) (http://www.epd.gov.hk/epd/english/application\_for\_licences/)

- [2] The figures are rounded-up to a whole number.
- [3] With reference to the approved SCL(HUH-ADM) EIA Report (Register No. AEIAR-166/2012)

# Appendix B1 : SCL Contract 1126 Construction Plant Inventory (With Mitigation)

#### Work site 208

No.	Activities	Name of PME (TM Ref./Other Ref.[1])	No. of PME	On Time %	SWL/ Item, dB(A)	SWL, dB(A)	Mitigation Measures Proposed [3]	Barrier correction [3]	Total SWL, dB(A) [2]
4	Temporary PTI Construction	Asphalt paver (BS D8/24)	1	60	101	99	Movable Barrier	-5	101
		Roller, vibratory (BS D8/30)	1	80	101	100	/	0	

#### Note:

[1] BS - British Standard BS 5228:2009, Part 1 Noise and Vibration Control on Construction and Open Sites Other Ref. - SWLs refer to other PME documented by the Noise Control Authority (EPD/PME/no.) (http://www.epd.gov.hk/epd/english/application\_for\_licences/)

- [2] The figures are rounded-up to a whole number.
- [3] With reference to the approved SCL(HUH-ADM) EIA Report (Register No. AEIAR-166/2012)

#### Appendix B2 :Noise Contribution from Works Contract 1126

#### Table B2.1 - Noise Contribution from Works Contract 1126

	B2.1 - Noise Contribution from Works Contract 1120																														
No.	Astivity Description			2	2014						2	2015								2016									017		
NO.	Activity Description	1 2	2 3	4 5 6	7	8 9 10	11	12 1	2	3 4	5 6	7	8 9	10 1	1 12	1	2	3 4	5	6 7	7 8	9 1	10 1	1 12	1	2 3	4	5 6	7 8	9 1	10 11 12
	<u>Daytime Period</u>																														
	Work site 204a																														
1	Hoarding Erection at Wan Chai Sports Ground			106 106																											
2	Demolition of grandstand				107	107 107 10	7																								
	Total SWL from Work site 204a			106 106	107	107 107 10	7																								
	Work site 204b																														
3	Temporary Reprovisioning Works at Wan Chai Sports Ground			10	3 103	103 103																									
	Total SWL from Work site 204b			10	3 103	103 103																									
	Work site 208																														
4	Temporary PTI Construction					101 101 10	1 101	101																							
	Total SWL from Work site 208					101 101 10	1 101	101																							

Remark:

- indicates construction works in progress
- indicates construction works in progress but not considered in the noise assessment
- indicates construction works in progress but not considered in the noise assessment
- Noise source at more than 300 m from the sensitive receiver (Causeway Centre, Block A) are not considered in this noise assessment due to large distance attenuation effect.

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#### Appendix B3 :Noise Contribution from Concurrent Contracts

Table B3.1 - Noise Contribution from Concurrent SCL Contract 1123

Activity Description				201								2015								16								2017		
Activity Description	1 2	3 4	5	6	7 8	9	10 11	12	1 2	3 4	5	6 7	8	9 10	11 1	12 1	2 3	4 5	6	7 8	9	10 1	1 12	1	2 3	4	5 6	7 8	9 1	0 11
Daytime Period																						+			+				+	+
Work site 201																														
Site Hoarding Erection																				109										
Diaphragm Wall Construction																					107	107 1	07 10	7 107						
Roof Slab Construction																								1	05 105	105				$\top$
Total SWL from Work site 201																				109	107	107 1	07 10	7 107 1	05 105	105				
Work site 202																									\					
Diaphragm Wall Construction								1	07 107	107 107	107	107 107																		
Roof Slab Construction													105	105 105	105 1	05 105	105 105	105 10	105	105										
Excavation																		1	5 115	115 115	115	115 1	15 11	5						
Construction of Internal Structures of Box Station																								115 1	15 115	115	115			
Construction of Entrance and Vent Shafts																										106	106 10	6 106		
Construction of Station Box Roof Slab																											10	05 105 10	5 105	
Total SWL from Work site 202								1	07 107	107 107	107	107 107	105	105 105	105 1	05 105	105 105	105 1	5 115	115 115	115	115 1	15 11	5 115 1	15 115	116	116 10	19 109 10	5 105	
Work site 203																														
Diaphragm Wall Construction																								107 1	07 107	107				
Excavation																											115 11	15 115 11	5 115	
Construction of Internal Structures of Box Station																													17	15 115 1
Construction of Station Box Roof Slab																														_   <u> </u>
Construction of Entrance and Vent Shafts																														
Backfilling and Reinstatement																														
Total SWL from Work site 203																								107 1	07 107	107	115 11	15 115 11	5 115 11	15 115 1
Work site 204a																														
Diaphragm Wall Construction						Ш			102	102 102	102	102 102	102																	
King Post Construction														108 108																
Excavation																	113 113													
Total SWL from Work site 204a									102	102 102	102	102 102	102	108 108	108 1	13 113	113 113													
Work site 211																														
Spoil Removal								1	11 111	111 111	111	111 111	111	111 111	111 1	11 111	111 111	111 1	1 111	111 111	111	111 1	11 11	1 111 1	11					
Total SWL from Work site 211								1	11 111	111 111	111	111 111	111	111 111	111 1	11 111	111 111	111 1	1 111	111 111	111	111 1	11 11	1 111 1	11				4	

Table B3.2 - Noise Contribution from Concurrent Works

Activity Description					201	4							2	015								20	16								2	2017			
Activity Description	1	2	3 4	. 5	6	7 8	9	10 1	1 12	2 1	2 3	4	5 6	7	8 9	10	11 12	2 1	2	3	4	5 6	7	8 9	10	11	12	1 2	3	4	5 6	7	8 9	10	11 1
Daytime Period																											1	$\top$	$\forall$			+		+	
Work site 203																																			
Demolition of Harbour Road Sports Centre																	11	2 112	<u>*</u>																
Installing Hoarding																								104						.					
Pile Removal																											1	16 116	T						
Total SWL from Work site 203																	11	2 112	2				- 1	104			1	116 116							
Work site 205a																																			
ELS Works and Substructure for Wan Chai Swimming Pool	1	109 1	09 109	9 109	109																														
Superstructure for Wan Chai Swimming Pool				104	1 104 1	04 104	104	104 1	04 104	104	104 10	4 104																							
Total SWL from Work site 205a	1	109 1	09 109	9 110	110 1	04 104	104	104 1	04 104	104	104 10	4 104																		7					
Work site 205b																																			
Site Hoarding Erection for Harbour Road Sports Centre															106																				
Demolition of Wan Chai Swimming Pool and filtration plant room															107	7 107	107 10	7																	
Piling works for Harbour Road Sports Centre																	10	9 109	109	109	109 1	09 109	109												
Superstructure for Harbour Road Sports Centre																						102	102	102 10	2 102	102	102 1	02 102	. 1						
Total SWL from Work site 205b															106 107	7 107	107 11	1 109	109	109 1	109 1	09 110	110	102 10	102	102	102 1	02 102							

Remark

x - indicates construction works in progress

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#### Appendix B4: Accumulated Noise Contribution from each Worksite from Works Contract 1126 + Contract 1123

Table B4.1 - Accumlated Noise Contribution from each Worksite from Works Contract 1126 + Contract 1123 + Concurrent Works

Washa Assa Tatal OWI (4D(A))						201	4											20	15											201	6											20	17					П
Works Area/Total SWL (dB(A))	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9 1	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12
Worksite 201	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	109	107 1	107	107	107	107	105	105	105	0	0	0	0	0	0	0	0
Worksite 202	0	0	0	0	0	0	0	0	0	0	0	0	107	107	107	107	107	107	107	105	105	105	105	105	105	105	105	105	115	115	115	115	115 1	115	115	115	115	115	115	116	116	109	109	105	105	0	0	0
Worksite 203	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	112	112	0	0	0	0	0	0	104	0	0	0	0	117	117	107	107	115	115	115	115	115	115 1	115	15
Worksite 204a	0	0	0	106	106	0	107	107 1	07 1	107	0	0	0	102	102	102	102	102	102	102	108	108	108	113	113	113	113	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Worksite 204b	0	0	0	0	0	103	103	103 1	03	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Worksite 205a	0	109	109	109	110	110	104	104 1	04 1	104	104	104	104	104	104	104	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Worksite 205b	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	106	107	107	107	111	109	109	109	109	109	110	110	102	102 1	102	102	102	102	102	0	0	0	0	0	0	0	0	0	0
Worksite 208	0	0	0	0	0	0	0	101 1	01 1	101	101	101	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Worksite 211	0	0	0	0	0	0	0	0	0	0	0	0	111	111	111	111	111	111	111	111	111	111	111	111	111	111	111	111	111	111	111	111	111 1	111	111 1	111	111	111	0	0	0	0	0	0	0	0	0	0

#### Appendix B5 : Accumulated Noise Level on NSR

Table B5.1 Accumulated Noise Levels from Construction of Contract 1126 + Contract 1123 + Concurrent Works + WDII/CWB

ID	NSR Description	Distance, m	Corr. for Distance, dE (A)	Facade Correction, dB(A)	Total Correction, dB(A)					2014									20	)15									2016										2017					4
						1 2	2 3	4	5	6	8	9	10	11	12 1	2	3	4 5	6	7	8	9 10	11	12	1 2	2 3	4	5	6 7	8	9	10	11	12 1	2	3	4	5 €	3 7	8	9	10	11 1	12
-	Causeway Centre, block A																																	T				$\Box$	П			T	$\Box$	П
	Worksite 201	249	-55.9	3	-52.9	0 (	0 0	0	0	0 0	0	0	0	0	0 0	0	0	0 0	0	0	0	0	0	0	0 0	0	0	0	0 0	56	54	54	54 5	4 54	4 52	52	52	0 0	) 0	0	0	0	0 (	0
	Worksite 202	126	-50.0	3	-47.0	0 (	0 0	0	0	0 0	0	0	0	0	0 60	60	60	60 60	60	60	58 5	8 58	58	58 5	58 58	3 58	58	68 6	68 68	68	68	68	68 6	8 68	8 68	68	69	69 62	2 62	58	58	0	0 (	0
Ī	Worksite 203	97	-47.7	3	-44.7	0 (	0 0	0	0	0 0	0	0	0	0	0 0	0	0	0 0	0	0	0	0	0	67 6	67 0	0	0	0	0 0	59	0	0	0	0 72	2 72	62	62	70 7/	0 70	70	70	70	70 7	71
	Worksite 204a	127	-50.1	3	-47.1	0 (	0 0	59	59	0 6	60	60	60	0	0 0	55	55	55 55	55	55	55 6	1 61	61	66 6	66 66	66	0	0	0 0	0	0	0	0	0 0	0	0	0	0 0	) 0	0	0	0	0 (	0
	Worksite 204b	202	-54.1	3	-51.1	0 (	0 0	0	0	52 5	52	52	0	0	0 0	0	0	0 0	0	0	0	0	0	0	0 0	0	0	0	0 0	0	0	0	0	0 0	0	0	0	0 0	) 0	0	0	0	0 (	0
	Worksite 205a	54	-42.6	3	-39.6	0 6	9 69	69	71	71 6	64	64	64	64	64	64	64	64 0	0	0	0	0	0	0	0 0	0	0	0	0 0	0	0	0	0	0 0	0	0	0	0 0	) 0	0	0	0	0 (	0
	Worksite 205b	77	-45.7	3	-42.7	0 (	0 0	0	0	0 0	0	0	0	0	0 0	0	0	0 0	0	0	63 E	4 64	64	68 6	66 66	66	66	66 6	67 67	59	59	59	59 5	9 59	9 59	0	0	0 0	) 0	0	0	0	0 (	0
	Worksite 208	257	-56.2	3	-53.2	0 (	0 0	0	0	0 0	48	48	48	48	18 0	0	0	0 0	0	0	0	0	0	0	0 0	0	0	0	0 0	0	0	0	0	0 0	0	0	0	0 0	) 0	0	0	0	0 (	0
	Worksite 211	270	-56.6	3	-53.6	0 (	0 0	0	0	0 0	0	0	0	0	0 57	57	57	57 57	57	57	57 5	7 57	57	57 5	57 57	7 57	57	57 5	57 57	57	57	57	57 5	7 57	7 57	0	0	0 0	) 0	0	0	0	0 (	0
١	Works Area under WDII/CWB [1]					67 7	2 73	73	73	73 7	68	66	66	65	65	65	69	69 67	67	67	67 6	7 72	72	71 7	71 71	1 71	71	71 7	71 71	71	71	65	65	0 0	0	0	0	0 0	0 ر	0	0	0	0 (	0
		•	Predicte	d Noise Level	at NSR (dB(A))	67 7	4 75	75	75	75 7	1 70	69	69	68 6	8 69	69	71	71 68	68	68	69 7	0 73	73	75 7	4 73	3 73	73	74 7	74 74	73	73	70	70 E	9 74	4 74	69	70	73 71	1 71	71	71	70 1	70 7	/1

Note 1: Figure extracted from Appendix 9.11 of EIA Report (HUH-ADM)

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#### Appendix B6 :Summary of Predicted Cumulative Noise Levels from Construction at NSR

Table B6.1 Predicted Cumulative Noise Levels from Construction of Contract 1126 + Contract 1123 + WDII/CWB

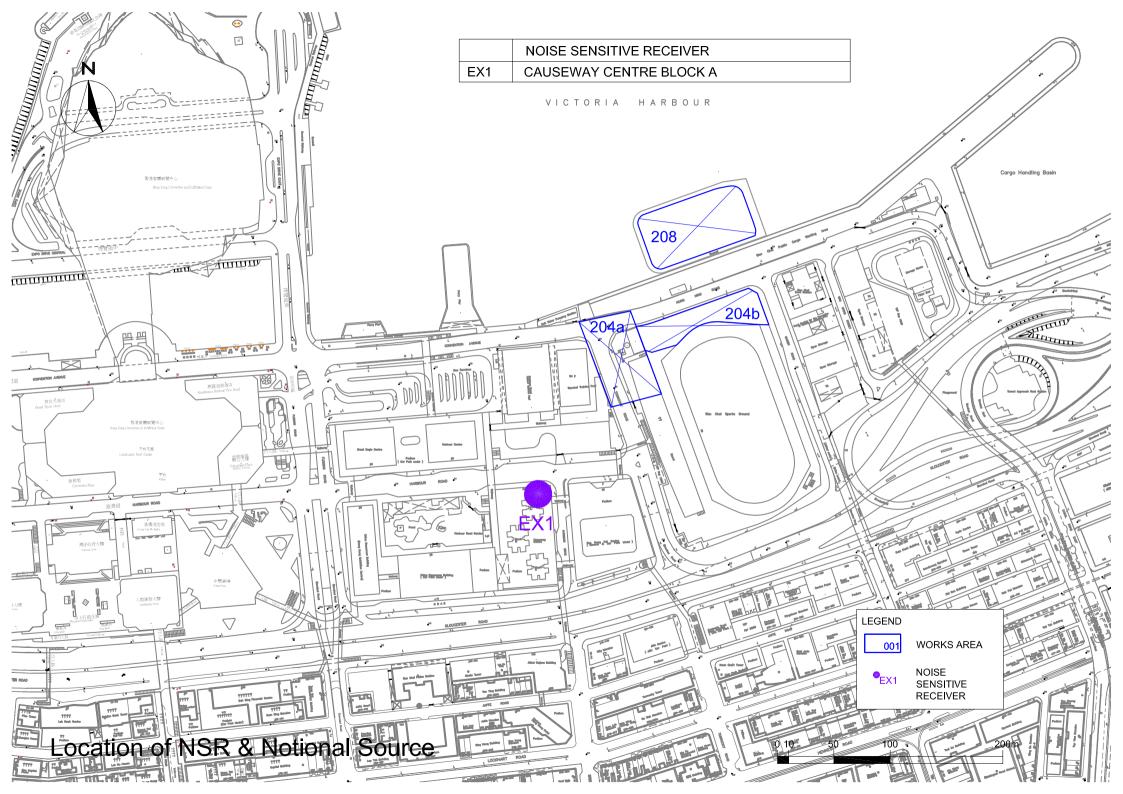
						2	2014										20	15										20	)16										2	2017					
NSR Location [NSR ID]	<b>EIAO-TM Noise</b>																																												
Non Location [Non ID]	Criteria, dB (A)	1	2	3	4 5	5 6	7	8	9	10	11	12	1 2	2 3	4	5	6	7	8	9	10	11 1	2 1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4 5	6	3 7	8	9	10	11	12
Causeway Centre, block A [EX1]	75	67	74	75 7	'5 7	5 7	5 74	70	69	69	68	68	6 6	9 71	71	68	68	68	69	70	73	73 7	5 7	4 73	73	73	74	74	74	73	73	70	70	69	74 7	74 6	39	0 7	3 7	1 7	1 71	71	70	70	71

APPENDIX C LOCATION PLAN OF WORKSITES OF WORKS CONTRACT 1126 AND NOTIONAL DISTANCE FROM WORKS AREAS OF NSR EX1

# **Appendix C – Notional Distance from Works Areas of NSR**

# **Notional Distance from Construction Sites to NSRs (in meter)**

	SCL W	orks Contrac	ct 1126
NSR/Work Site	204a	204b	208
Causeway Centre, Block A [EX1]	127	202	257



# Appendix B

Construction Noise Mitigation Measures Plan for Contract No. 1123 – Exhibition Station and Western Approach Tunnel

# Shatin to Central Link – Hung Hom to Admiralty Section

# Construction Noise Mitigation Measures Plan (CNMMP)

(June 2018)

Verified by:	Y W Fung	
Position: <u>Envir</u>	onmental Team Leader	
Date:	1 June 2018	

# Leighton - China State Joint Venture

# Shatin to Central Link Works Contract 1123 Exhibition Station and Western Approach Tunnel

# **Construction Noise Mitigation Measures Plan**

June 2018

	Name	Signature
Prepared & Checked:	Joanne Tsoi	1.3
Reviewed & Approved:	Y W Fung	1

Version: F	Date:	1 June 2018	

## Disclaimer

This Plan is prepared for Leighton – China State Joint Venture and is given for its sole benefit in relation to and pursuant to SCL1123 and may not be disclosed to, quoted to or relied upon by any person other than Leighton – China State Joint Venture without our prior written consent. No person (other than Leighton – China State Joint Venture into whose possession a copy of this plan comes may rely on this plan without our express written consent and Leighton – China State Joint Venture may not rely on it for any purpose other than as described above.

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#### 1 INTRODUCTION

# 1.1 Project Description

- 1.1.1 Shatin to Central (SCL) is 17 km of new urban railway line that stretches from Tai Wai to Admiralty, connecting several existing railway lines and passing through multiple districts in Hong Kong.
- 1.1.2 The Environmental Impact Assessment (EIA) Report for SCL Hung Hom to Admiralty Section [SCL (HUH-ADM)] (Register No.: AEIAR-166/2012) was approved on 17 February 2012 under the Environmental Impact Assessment Ordinance (EIAO). Following the approval of the EIA Report, an Environmental Permit (EP) was granted on 22 March 2012 (EP No.: EP-436/2012) for the construction and operation. Variation of EP (VEP) (VEP-490/2016) was applied on 13 January 2016, and the latest EP (EP-436/2012/E) was issued by the Director of Environmental Protection (DEP) on 26 November 2016.
- 1.1.3 The construction of the SCL had been divided into different civil construction works contracts. Works Contract 1123 involves the construction of an underground station (Exhibition Station) and 300 m of cut and cover tunnel (Western Approach Tunnel) along Convention Avenue (hereafter referred to as "the Project"). This Works Contract was awarded to Leighton China State Joint Venture (the Contractor).
- 1.1.4 As per EP Condition 2.7, a Construction Noise Mitigation Measures Plan (CNMMP) is required before the commencement of the Project.

## 1.2 Purpose of this Construction Noise Mitigation Plan

- 1.2.1 Condition 2.7 of EP No.: EP-436/2012/E for SCL(HUH-ADM) stipulated that to further reduce the air-borne construction noise impacts on the noise sensitive receiver (NSR) (i.e. Causeway Centre, Block A) with exceedance after mitigation as predicted in the approved SCL(HUH-ADM) EIA Report, the Permit Holder shall, no later than one month before the commencement of construction of the Project, submit to the Director for approval an updated CNMMP and other initiatives proposed by the Permit Holder. The plan shall include:
  - (a) a schedule of construction works to be carried out at the works areas of the Project within 300 m from the NSR:
  - (b) an updated construction methodology of the construction works;
  - (c) an updated powered mechanical equipment (PME) list for the construction works;
  - (d) an updated proposal of air-borne construction noise mitigation measures for the NSR, including the provision of noise barriers and enclosures, if applicable; and
  - (e) an updated prediction of noise levels in accordance with the above updated information and mitigation proposals in place.
- 1.2.2 AECOM Asia Co. Ltd. was commissioned by the Contractor, Leighton China State Joint Venture, to prepare the CNMMP for the Project.
- 1.2.3 Works area of the Project and location of the NSR are shown in **Figure 1**.

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#### 2 CONSTRUCTION WORKS OF THE PROJECT

### 2.1 Construction Methodology

- 2.1.1 The proposed construction methodology for the Project generally follows those presented in the approved SCL (HUH-ADM) EIA Report and the Supporting Document for Application of Variation of Environmental Permit for Works Contract 1123 EXH and Western Approach Tunnel Blasting Study for Zone 2 (Final) dated 1 Nov 2016 (the Supporting Document) as described below. **Table 2.1** summarises the major construction tasks and construction methods to be carried out under Works Contract 1123.
- Exhibition Station (EXH) is proposed to be located within a site currently occupied by the 2.1.2 Harbour Road Sports Centre and Wan Chai Swimming Pool (IGH/TP). The reprovisioning of the IGH/TP will be undertaken in sequence so that existing operations at IGH/TP will continue until the new IGH/TP is provided. Based on the EIA Report, cut and cover (C&C) construction sequences are proposed for the station which is expected to involve a repeated procedure of dewatering, excavation and strut installation until the final excavation level is reached. Temporary king posts will be cut off once the station structures are completed. By adopting this method, the G/F top slab of station where constructed first would act as a temporary shield/barrier to minimise construction noise and dust impacting on the surrounding environment during construction of the basement floors. Due to the constraints imposed by the existing structures above Zone 2 including Harbour Road Sports Centre ground investigation could not be conducted until all those buildings are demolished. Hence, the rock profile of Zone 2 is highly uncertain. Drill-and-blast combined with mechanical excavation was proposed at Zone 2 in the Supporting Document as an alternative construction method to C&C method in order to allow for more flexibilities for the construction team to streamline the construction programme. The proposed drill-and-blast combined with mechanical excavation involve two main types of construction activities, namely mechanical excavation and drill-and-blast. For the mechanical excavation part, the construction works involved would be the same as C&C method. The exact construction method, either C&C or drill-and-blast combined with mechanical excavation, to be adopted at Zone 2 would be subject to various considerations, including but not limited to site conditions in the future, etc. The construction noise levels for both options were considered in this CNMMP.
- 2.1.3 During construction of EXH, a portion of the grandstand at Wan Chai Sports Ground and other associated foot bridges will be affected. Temporary reprovisioning of the grandstand and other facilities will be required during the construction period and possible full reinstatement subsequent to completion of railway development works.

Table 2.1 Summary of Construction Tasks and Construction Method for the Works

Item	Construction Task	Construction Method		
		Approved EIA	Contract 1123	
1	Construction of the underground EXH within the works area except Zone 2	C&C method	C&C method	
2	Construction of the underground EXH at Zone 2	C&C method	Option 1: C&C method Option 2: Drill-and- blast combined with mechanical excavation	
3	Construction of the Western Approach Tunnel (WAT) along Convention Avenue	C&C method	C&C method	

### 2.2 Construction Programme

2.2.1 The construction works commenced in the second quarter of 2015 and are expected to complete in 2020. For the works at Zone 2, according to the Supporting Document, it is anticipated that the construction period for drill-and-blast combined with mechanical excavation

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would be approximately 4-5 weeks less than the C&C method. Updated construction programmes for the Project prepared by Leighton – China State Joint Venture for both options are shown in **Appendices A1 and A2**. The construction programmes present the construction activities to be undertaken and the tentative timeframe for each construction activity in corresponding worksites.

## 2.3 Plant Inventory

- 2.3.1 As recommended in the approved EIA Reports, quiet Powered Mechanical Equipment (PME) should be adopted for the construction works to minimise the noise impact on the NSR. Based on the EIA Reports, a list of quiet Powered Mechanical Equipment (PME) to be adopted for the construction works of the Project are shown in **Table 3.3**.
- 2.3.2 According to the Supporting Document, and confirmed with the Construction Team and the engineer of the MTRCL, the plant inventory for construction activity in Zone 2 associated with the proposed drill-and-blast works combined with mechanical excavation would be similar to the C&C method. For at-grade construction activities, the type, number and percentage of operation time of PME would be the same for both methods. For the underground construction activities, the type of PME to be utilized would be the same for both methods. The number of rock drills required for C&C method would be 2 with on-time percentage of 50%, while for drilland-blast works combined with mechanical excavation, the number of rock drills required would be 3 with on-time percentage of 60%. The number of breakers required for both methods would be the same, but the on-time percentage required would be 50% for C&C method and 30% for drill-and-blast works combined with mechanical excavation. For ventilation fans, the number required for both methods would be the same, but the on-time percentage required would be 50% for C&C method and 75% for drill-and-blast works combined with mechanical excavation. The comparison of the plant inventory for C&C method and drill-and-blast works combined with mechanical excavation at Zone 2 is summarized in Table 2.2.

Table 2.2 Comparison of Construction Plant Inventory Of (1) C&C Method, and (2) Drill-and-Blast Works Combined with Mechanical Excavation for Zone 2

PME	(1) C&C Method		(2) Drill-and-Blast Works Combined with Mechanical Excavation			
	No. of Items	On- time %	No. of Items	On- time %		
At surface						
Crawler crane	2	50%	2	50%		
Crane lorry	1	60%	1	60%		
Dump truck	1	50%	1	50%		
Excavator	1	50%	1	50%		
Concrete mixing truck	1	50%	1	50%		
Underground (partially covered by decking)						
Rock drill	2	50%	3	60%		
Breaker, excavator mounted (hydraulic)	4	50%	4	30%		
Welding set	2	60%	2	60%		
Water Pump, submersible (electric)	2	100%	2	100%		
Ventilation fans	2	50%	2	75%		

2.3.3 Detailed plant inventories for individual construction activities for C&C method and drill-andblast works combined with mechanical excavation at Zone 2 under Works Contract 1123 which has been confirmed to be reasonable and practicable by the Engineer and the Contractor are presented in **Appendices B1** and **B2**, respectively.

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### 3 AIRBORNE CONSTRUCTION NOISE ASSESSMENT

### 3.1 Noise Sensitive Receiver

3.1.1 According to the EP (No.: EP-436/2012/E) for SCL (HUH-ADM), Causeway Centre, Block A (EX1) has been identified as the NSR for the purpose of this assessment. Location of the NSR is shown in **Figure 1**. Details of the NSR with the predicted noise results in the approved EIA Report are presented in **Table 3.1**.

Table 3.1 Summary of Predicted Cumulative Noise Level in the Approved SCL(HUH-ADM) EIA Report

NSR ID	NSR Description	Use	Noise Criterion, L <sub>eq (30-min)</sub> , dB(A)	Predicted Noise Level, Leq (30-min), dB(A)[1]	Exceedance L <sub>eq (30-min)</sub> , dB(A)	Duration of Exceedance, month
EX1	Causeway Centre, Block A	Residential	75	57 - <b>76</b>	1	2

Note:

### 3.2 Assessment Criteria

3.2.1 Noise impacts generated by the construction of this Project have been assessed in accordance with the criteria given in the Technical Memorandum on Environmental Impact Assessment Process (EIAO-TM). The construction noise standards are presented in **Table 3.2**.

Table 3.2 Daytime Construction Noise Criteria

Use	Noise Level in L <sub>eq (30-min)</sub> , dB(A)
Residential	75
Educational Institute (examination period)	70 (65)

### 3.3 Assessment Methodology

- 3.3.1 The construction noise assessment has been conducted following the same methodology used in the approved EIA Report for SCL (HUH-ADM) based on the updated construction programme and plant inventory provided by Leighton China State Joint Venture.
- 3.3.2 Noise impacts generated by the construction of this Project are assessed in accordance with the methodology given in the *Technical Memorandum on Noise from Construction Work Other Than Percussive Piling* (GW-TM) under the Noise Control Ordinance.
- 3.3.3 Sound power levels (SWLs) of the equipment have been made reference from Table 3 of GW-TM. Where no relevant SWL is found in the GW-TM, reference has been made to EPD's Quality Powered Mechanical Equipment (QPME) labels, *British Standard 5228: Part 1:2009 Noise Control on Construction and Open Sites*, SWL noise measurement reports and approved EIA Reports.
- 3.3.4 It is assumed that all PME items required for a particular construction activity would be located at the notional source position which is a position mid-way between the approximate geographical centre of each phase construction work site and its boundary nearest to the NSR.
- 3.3.5 To predict the noise level, PME items has been divided into groups required for each discrete construction task. The objective is to identify the worst case scenario representing those items of PME that would be in use concurrently at any given time. The sound pressure level (SPL) of each construction task at the NSR is calculated based on the number of plant and the notional distance from the noise assessment points. The notional distances of the works area to the NSR are presented in **Appendix C**. If there are concurrent construction tasks, the noise levels

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<sup>[1]</sup> The bolded noise level exceeds the noise criterion.

- at representative noise assessment points are predicted by adding up the SPL of all concurrent construction tasks.
- 3.3.6 A positive 3 dB(A) façade correction has been added to the predicted noise levels in order to account for the façade effect at each noise assessment point. Noise impact at the worst affected sensitive façade of the NSR to the noise source is assessed.
- 3.3.7 Based on latest information, the proposed works under Works Contract 1123 would be conducted concurrently with Wan Chai Development Phase II (WDII), and construction works in Works Site 205b (Construction of Harbour Road Sports Centre). Cumulative impact assessment has been conducted taken into account these concurrent projects/works within 300m Study Area of the NSR.
- 3.3.8 For the assessment of cumulative impact from WDII, the maximum mitigated noise level predicted at EX1 in the approved EIA Report for "Wan Chai Development Phase II and Central-Wan Chai Bypass" (WDII&CWB EIA Report) (Register No.: AEIAR-125/2008) was adopted as the worst case scenario. Based on the EM&A reports of WDII&CWB project, the construction works has been divided into various contracts, in which only two contracts, CEDD Contract Nos. HK/2009/01 and HK/2009/02 are partially within 300m Study Area of the NSR. According to the information on WDII&CWB project website, the major construction activities for CEDD Contract No. HK/2009/01 was substantially completed in May 2016, and the construction activities for CEDD Contract No. HK/2009/02 are estimated to be completed in the third quarter of 2018. Based on the programme of HK/2009/02, major noisy activities within 300m boundary of EX1 ended in May 2017, and the works till the third quarter of 2018 will include mainly minor works and landscaping / tree maintenance works only. The information is extracted from the latest available monthly EM&A report of WDII&CWB (September 2017) and appended in **Appendix**
- 3.3.9 Construction of Harbour Road Sports Centre is another concurrent works of Works Contract 1123. The construction noise impact from this construction activity was also taken into account in the CNMMP for Works Contract 1126 (1126 CNMMP) as a concurrent works. According to the project proponent of construction of Harbour Road Sports Centre, the construction noise predictions and programme for this activity presented in the 1126 CNMMP are still valid. For the purpose of the CNMMP for Works Contract 1123, the cumulative noise impact from these construction works has been assessed based on the information in 1126 CNMMP. The relevant information for these activities extracted from 1126 CNMMP is presented in Appendix D. According to Monthly EM&A Report No.11 of Works Contract 1126 (May 2015), all construction activities under Works Contract 1126 were completed in May 2015, such that no cumulative impact is anticipated from it.
- 3.3.10 The noise mitigation measures proposed in the approved EIA Report have been taken into account in this CNMMP, as shown in **Table 3.3** and **Table 3.4** below. Considering the noise reduction performance, other than conventional movable barrier and fabric, sound proof sheet is recommended for breaker, excavator mounted (hydraulic) for underground works without noise cover. According to the test report, the sound proof sheet can reduce up to 16 dB(A). As a conservative approach, only 10 dB(A) reduction is adopted in this assessment. The sound proof sheets should be placed at a position that completely block the line of sight between the breaker, excavator mounted (hydraulic) and the NSR. There should be no opening or gaps at the joints of the sound proof sheets. The details of the sound proof sheet is appended in **Appendix F**. Taking into account the latest construction programme and PME inventory provided by the Contractor as well as the quieter PME available in Hong Kong, the number of quieter PME proposed at this stage is reduced comparing to the Approved EIA Report. The reference code and SWL of some quieter PME adjusted in consideration of the type and SWL of quieter PME available in Hong Kong. The quieter PME as listed in **Table 3.3** could be found in Hong Kong.

Table 3.3 Quiet PME Recommended for Adoption during Construction Phase

Quiet PME Items	Reference	SWL, dB(A)
Concrete mixing truck	BS D6/33	96
Crane, mobile	EPD-01239	109

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Quiet PME Items	Reference	SWL, dB(A)
Crawler crane	EPD-00467	102
Crawler crane with grab	EPD-00467	102
Crawler crane, mobile	EPD-00467	102
Excavator	EPD-02341	105
Rock drill	[1]	108

Note:

Table 3.4 Noise Mitigation Measures for Certain PME during Construction Phase

PME	Mitigation Measures Proposed	Noise Reduction, dB(A) <sup>[1]</sup>
Air compressor	Movable Barrier	10
Breaker, excavator mounted (hydraulic)	Sound Proof Sheet [2]	10
Concrete pump	Movable Barrier	10
Crane, mobile	Movable Barrier	5
Desander	Movable Barrier	10
Dump truck	Movable Barrier	5
Excavator	Movable Barrier	5
Filter Press	Movable Barrier	10
Generator	Movable Barrier	10
Hand held pneumatic breaker	Movable Barrier	5
Piling Rig	Fabric	10
Piling, large diameter bored, oscillator	Fabric	10
Rock drill	Movable Barrier	5
Rock drill - excavator mounted (pneumatic)	Movable Barrier	5
Saw, concrete	Movable Barrier	10
Welding set	Movable Barrier	10

Note:

3.3.11 The optional use of drill-and-blast combined with mechanical excavation construction method in Zone 2 only involves changing the construction method of Zone 2 without changing its design and will not significantly change the location and size of the excavation area. The blasting activities would be enclosed with construction deck (steel deck with approximately 15mm thickness) or noise panel to reduce noise nuisance. There would be openings at the top of the blasting area and these openings would be covered during blasting. The noise panel / construction deck should have minimum noise performance of 10dB(A) reduction. A preliminary schematic design drawing of the blasting area is shown in **Appendix G**.

### 3.4 Noise Assessment Results

3.4.1 The airborne construction noise impacts for the construction works under Works Contract 1123 have been assessed based on the updated construction programme and plant inventory and are summarised in **Table 3.5**. Detailed assessment results are provided in **Appendices E1** and **E2**, respectively for C&C method and drill-and-blast works combined with mechanical excavation at Zone 2. The proposed mitigation measures described in **Section 3.3** have been included in the assessment and hence only the mitigated scenario is presented.

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<sup>[1]</sup> The SWL of rock drill was referenced to the approved Tsim Sha Tsui Station Northern Subway EIA Report (Register No.: AEIAR-127/2008).

<sup>[1]</sup> Noise level reduction of 5 dB(A) and 10 dB(A) was adopted for movable barrier for mobile plant and stationary plant respectively.

<sup>[2]</sup> Sound proof sheet is proposed for breaker, excavator mounted (hydraulic) for underground works only. It will be placed at and attached to the surface where breaking operation is carried out and the noise generating parts of the PME respectively to ensure no direct line of sight from nearby NSRs to the noise sources associated with the breaker.

Table 3.5 Summary of Noise Assessment Result (SCL1123 only)

NSR ID	NSR	Predicted Noise Level, Leq (30-min), dB(A)	Noise Criteria, Leq (30-min), dB(A)	Exceedance, Leq (30-min), dB(A)	Duration, month (Period of exceedance)
(1) C&	C Method				
EX1	Causeway Centre, Block A	67 - 75	75	0	N/A
(2) Dril	I-and-Blast Works C	ombined with Me	chanical Excavati	on	
EX1	Causeway Centre, Block A	67 - 75	75	0	N/A

Note:

N/A - Not applicable

3.4.2 Table 3.6 presents the cumulative noise level at the identified NSR and details of the calculation are given in Appendices E1 and E2, respectively for the two construction methods at Zone 2. After taking the cumulative impact from concurrent projects into account, no excessive residual impacts have been predicted at the NSR with the implementation of all above mentioned mitigation measures.

Table 3.6 Summary of Noise Assessment Result (Cumulative)

NSR ID	NSR	Predicted Noise Level, L <sub>eq (30-min)</sub> , dB(A) <sup>[1]</sup>	Noise Criteria, L <sub>eq</sub> (30-min), dB(A)	Exceedance, L <sub>eq (30-min)</sub> , dB(A)	Duration, month (Period of exceedance)
(1) C&	C Method				
EX1	Causeway Centre, Block A	68 - 75	75	0	N/A
(3) Dril	II-and-Blast Works C	ombined with Me	chanical Excavati	on	
EX1	Causeway Centre, Block A	67 - 75	75	0	N/A

Note:

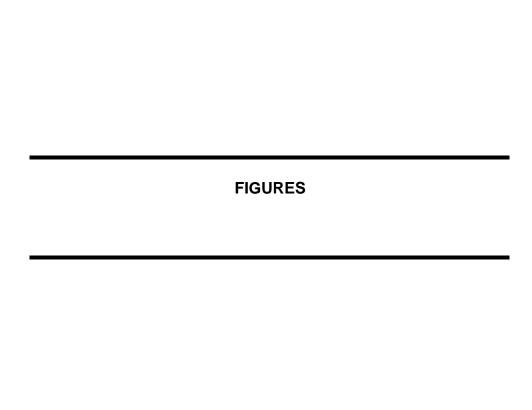
N/A - Not applicable

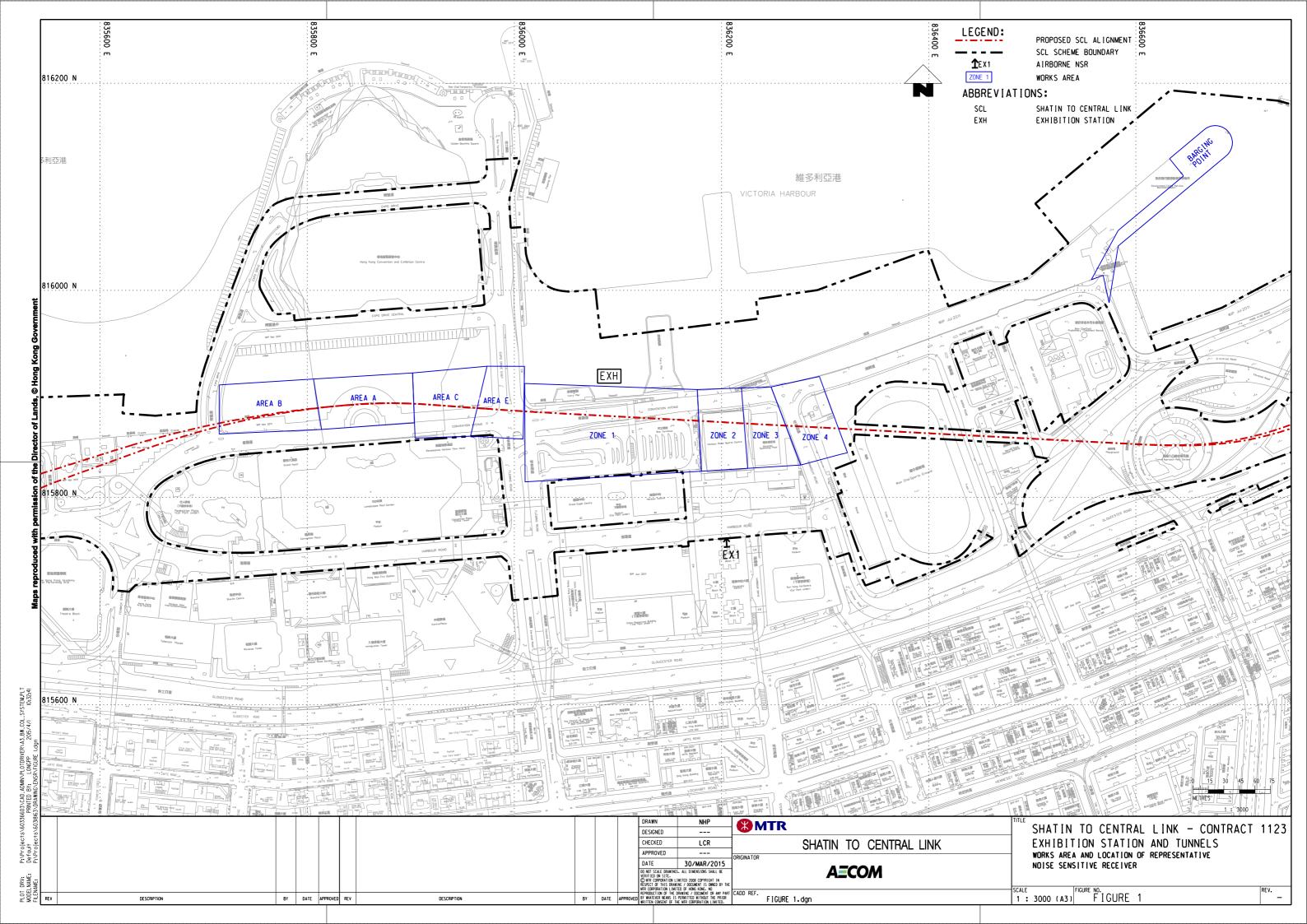
3.4.3 Comparing to the SCL(HUH-ADM) EIA Report, the maximum predicted noise level at Causeway Centre, Block A reduces from 76 to 75 dB(A), for both construction methods at Zone 2. No exceedance is anticipated with the implementation of mitigation measures.

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### 4 CONCLUSION

- 4.1.1 This CNMMP has predicted the construction noise impact from Works Contract 1123 to the identified NSR. This plan has taken into account the updated information on PMEs and works programme which would be adopted by the Contractor. With the implementation of mitigation measures in form of quiet plants, barriers and acoustic fabrics, the construction noise impact has been predicted to reduce from 76 dB(A) as the prediction in the EIA Report to 75 dB(A). No exceedance is anticipated throughout the construction period.
- 4.1.2 Where necessary, further review and update will be performed during the construction phase and liaison with affected parties is recommended to minimise the construction noise impacts as far as practicable.





## Appendix A1 Construction Programme for C&C Method at Zone 2

Appendix A1 - Construction Programme for C&C Method at Zone 2

			Construction	<u> </u>	24		00	2015		_	04	<u> </u>	04			016	03			- 04		2017			
Package	Area / Zone	Construction Activity	Period	Jan F	<b>Q1</b> eb	Mar Apr 3 4	Q2 May 5	Jun J	<b>Q3</b>  ul Aug Se  7 8 9	Oct	Q4   Nov Dec   11   12	Jan F	<b>Q1</b> Feb M 14 1	lar Apr	<b>Q2</b> May Jun 17 18	Jul 1	Q3 Aug Sep Oc 20 21 22	Q4 t Nov	Dec 24	Q1           Jan         Feb         Mar           25         26         27	Apr 28	Q2           May         Jun         Jul           29         30         31	Q3 Aug 32	Sep 33	Q4           Oct         Nov         D           34         35         3
7 EXH		EXH Structure			_					1.0	1 1			0 1.0					1	20 20 2:		1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	102	00	0.10010
	Area E	(a) Site Hoarding Erection	(06/2016)																						
	Area E	(b) Roof Slab Construction	(01/2018 - 02/2018)																					$\perp \perp$	
	Area E	(c) Excavation	(05/2018 - 10/2018)																					$\perp \perp$	
	Area E	(d) Construction of Internal Structures of Box Station	(11/2018 - 04/2019)		_																			$\vdash$	
	Area C	(e) Construction of Entrance and Vent Shafts	(01/2019 - 02/2019)	$\vdash$	_							$\vdash$	_											$\vdash$	$\rightarrow$
	Area C	(f) Construction of Station Box Roof Slab (h) Utility diversion	(03/2019 - 04/2019)		_																			$\vdash$	
	Area E	(i) Pipe Pile Construction	(07/2016 - 10/2016)		_																		+	$\vdash$	
	Area E	Stage 1	(10/2016 - 12/2016)	$\vdash$	+																		+	$\vdash$	-
	Area E	> Stage 2	(04/2017 - 08/2017)																					$\vdash$	-
EXH to	Alea L	Tunnel at West to EXH	(04/2017 - 06/2017)		+																		+-	$\vdash$	-
aft		(a) Site Formation																					+-	$\vdash$	
	Areas A & B	> Areas A & B	(06/2015)																				+-	$\vdash$	
	Area A	> Areas A	(09/2015)																						
	Area C	> Area C - 1	(01/2016)																						
	Area C	> Area C - 2	(07/2016)																						
	Areas A & B	(b) Site Hoarding Erection	(06/2015)																						
	Areas A & B	(c) Excavation inside SCL tunnels protection works	(06/2016 - 10/2017)																						
		(d) Tunnel Box Structure Construction		$\Box$	$\Box$					$\perp$		$\Box$									$\Box$		$oldsymbol{ol}}}}}}}}}}}}}}}}$	ШΤ	
	Area A	> Area A	(11/2017 - 11/2018)	$\Box$	T							$\Box$				$\Box$							$\perp$	oxdot	
	Area B	> Area B	(11/2017 - 12/2019)										_			$\perp \perp$		_			_		<u> </u>	$\sqcup$	
	l	(e) Diaphragm Wall Construction		$\vdash$					$\perp$							$\sqcup$	$\perp$	_						$\sqcup$	$\perp$
	Area A	> Area A	(10/2015 - 04/2016)	$\vdash$	_				$\perp$														4	$\sqcup$	-
	Area C	> Area C	(03/2016 - 05/2017)		_																				
	Area C	(f) Excavation	(06/2017 - 05/2018)	$\vdash$	$\perp$				$\perp$			$\vdash$	_			-		-							
	Area C	(g) Tunnel Box Structure Construction	(06/2018 - 02/2019)	$\vdash$	_	_			+			$\vdash$	_			+	+	-					+	$\vdash$	+
	A O	(h) Backfilling and Superstructure	(00/0040 00/0000)		_																		-	$\vdash$	
	Area C Area C	> Stage 1 > Stage 2	(02/2019 - 02/2020)		_													-					+		-
rging	Barging Point	Stage 2  Barging Point at Wan Chai Ex-PCWA	(06/2019 - 08/2019)	+																	-		+	$\vdash$	_
nt	barging Point	Construction/Set up	(09/2016 - 07/2017)	$\vdash$	+																			$\vdash$	-
		Spoil Disposal	(08/2017 - 12/2020)		_																		1		
	Zone 1	Wan Chai PTI Area	(00/2017 - 12/2020)	++	_																		_		
	20110 1	Site clearance, Site Hoarding Erection and utility diversion	(06/2015 - 07/2015)																				+	$\vdash$	
		Demolition of existing Wan Chai Ferry Pier footbridge	(00/2010 01/2010)																				+-	$\vdash$	
		> Stage 1	(06/2015 - 06/2016)																				+		
		> Stage 2	(01/2017)																						
		Construction of temporary Wan Chai Ferry Pier footbridge	(09/2015 - 12/2016)																						
		Construction of Permanent Wan Chai Ferry Pier footbridge (Superstructure)	(08/2019)																						
		Demolition of Temporary Wan Chai Ferry Pier footbridge	(09/2019 - 12/2019)																						
		Piling works (PPW and H-piles)																							
		> Stage 1 (TTM Stage 2)	(07/2015 - 04/2016)																						
		> Stage 2 (TTM Stage 3a & 3b)	(06/2016 - 10/2016)																						
		> Stage 3 (TTM Stage 3C)	(12/2016 - 04/2017)																						
		Diaphragm wall construction																						$\perp \perp \perp$	
		> Stage 1 (TTM Stage 2)	(08/2015 - 01/2016)																					$\perp \perp \downarrow$	
		> Stage 2 (TTM Stage 3a/3b/3c & 5)	(02/2016 - 03/2017)																						
		Excavation & ELS installation	(03/2017 - 05/2018)	$\vdash$	4				+	-		$\vdash$	$\perp$			$\vdash$	$\perp$	-							
		Construction of Internal Structure of Box Station	(06/2018 - 02/2019)	$\vdash$	_	_			+			$\vdash$	_			+	+	-					+	$\vdash$	$\rightarrow$
	Zono 2	Construction of Entrances and Structure	(03/2019 - 08/2019)	+ +	+					+	+ + -	$\vdash$	+			$\vdash$		-			-	+ + -	+	$\vdash$	$\rightarrow$
	Zone 2	Harbour Road Sports Centre Area  Demolition of Harbour Road Sports Centre (HRSC)	(06/2017 00/2017)	$\vdash$	+	_					+ + -	$\vdash$	_			-					-				+
		Site Hoarding Erection & Pile Removal	(06/2017 - 09/2017) (10/2017)	$\vdash$	+	-			+	+	+ +	$\vdash$	-+			+ +		+			1				
		Piling works (PPW and H-piles)	(10/2017)	$\vdash$	+				+	+	+ +	$\vdash$				+		+				+ + + -	+	$\vdash$	
		Excavation & ELS installation (C&C Method)	(03/2018 - 02/2019)	$\vdash$	+					+		$\vdash$	_			+		+				<del>                                     </del>	+	$\vdash$	
		Construction of Internal Structure of Box Station	(03/2019 - 11/2019)	<del></del>	+			$\vdash$		+		$\vdash$	+			+		+			1	+ + +	+	$\vdash$	+
		Construction of Internal Structure of Box Station	(12/2019 - 02/2020)	<del>     </del>	$\dashv$					+		+	+			+		+					+	$\vdash$	$\overline{}$
	Zone 3	Wan Chai Swimming Pool Area	(.2,2010 02/2020)	+ +	$\dashv$					+		$\vdash$	+					+				<del>                                     </del>	+-	$\vdash$	-
		Demolition of Wan Chai Swimming Pool	(12/2015 - 03/2016)	<del>     </del>	+																	<del>                                     </del>	+	$\Box$	+
		Site Hoarding Erection & Pile Removal	(08/2016 - 09/2016)																						
		Piling works (H-piles)	(03/2016 - 04/2016)																						
		Diaphragm wall construction	(05/2016 - 07/2017)		$\neg$																				
		Excavation & ELS installation	(08/2017 - 08/2018)																						
		Construction of Internal Structure of Box Station	(09/2018 - 03/2019)																						
		Construction of Vent Shaft and Ground structure	(04/2019 - 09/2019)															$\perp$							
	Zone 4	Wan Chai Sports Ground Area																						oxdot	
		Piling works (H-piles) - Wan Chai Sports Ground (WCSG)	(08/2016)																					$oxed{\Box}$	
		Diaphragm wall construction - Phase 1 WCSG	(12/2015 - 07/2016)																					igsquare	
		Piling works (PPW and H-piles) - Tonnochy Road	(12/2016 - 06/2017)																					$oxed{\Box}$	
		Excavation & ELS installation																						igsquare	
		> Underground (no noise cover)	(06/2017 - 07/2018)																						
		> Underground (with full noise cover over Tonnochy Road)	(08/2018 - 04/2019)																					igsquare	
		> At surface	(08/2018 - 04/2019)																					igsquare	$\Box$
		Construction of Internal Structure of Box Station	(10/2018 - 04/2019)										_								_		<u> </u>	$\sqcup$	
	ĺ	Reprovision of WCSG grandstand	(05/2019 - 09/2020)								<u>                                     </u>		1										1 '	1	

Appendix A1 - Construction Programme for C&C Method at Zone 2

			000000000000000000000000000000000000000					2018							,	201								202			
Package	Area / Zone	Construction Activity	Construction		Q1		Q2		Q3	3	Q4	ļ		Q1	Q2		Q	3	Q4		Q	1	Q2		Q:	3	Q4
		••••••••••••••••••••••••••••••••••••••	Period	Jan	Feb N	Mar Apr	May J	Jun J	Jul Aug	g Sep	Oct Nov	/ Dec	Jan I	Feb Mar	Apr May 52 53	Jun	Jul Au	g Sep C	ot Nov	Dec J	an Fe	b Mar A	pr May	Jun	Jul Au	g Sep Oc	t Nov
' EXH	<u> </u>	EXH Structure	<u> </u>	3/	38 .	39   40	41   4	42   4	43   44	45	46   47	48	49	50   51	52   53	54	55   5	5   5/   5	8   59	60   6	01   62	2   63   6	4   65	66	67   68	6   69   70	)   /1
ЕЛП		(a) Site Hoarding Erection	(06/2016)	$\vdash$		-				+ +	_						_										+ +
		(b) Roof Slab Construction	(01/2018 - 02/2018)							+ +																	
		(c) Excavation	(05/2018 - 10/2018)																								
		(d) Construction of Internal Structures of Box Station	(11/2018 - 04/2019)																								
		(e) Construction of Entrance and Vent Shafts	(01/2019 - 02/2019)																								
		(f) Construction of Station Box Roof Slab	(03/2019 - 04/2019)																								
	Area E	(h) Utility diversion	(07/2016 - 10/2016)																								
		(i) Pipe Pile Construction																									
	Area E	> Stage 1	(10/2016 - 12/2016)																								
	Area E	> Stage 2	(04/2017 - 08/2017)																								
EXH to		Tunnel at West to EXH																									
aft		(a) Site Formation																									
		> Areas A & B	(06/2015)																								
		> Areas A	(09/2015)																								
		> Area C - 1	(01/2016)	$\vdash$																							
		> Area C - 2	(07/2016)	$\vdash$																							
		(b) Site Hoarding Erection	(06/2015)	$\vdash$						+ +																	
		(c) Excavation inside SCL tunnels protection works	(06/2016 - 10/2017)			_				+ +	_						_						-				
		(d) Tunnel Box Structure Construction	(11/2017 14/2040)										$\vdash$				-	+	-	$\vdash$	+	+ +	-			+ -	+
		> Area R	(11/2017 - 11/2018)							+											-	++		+			+
		> Area B	(11/2017 - 12/2019)																		+	++					+
		(e) Diaphragm Wall Construction > Area A	(10/2015 - 04/2016)	$\vdash$			+	-	-	+			$\vdash$				_	++		$\vdash$	-	++		+			+
		> Area A > Area C	(03/2016 - 05/2017)	$\vdash$		-	-	-+	-	+	-		$\vdash$	-			+	+	_	$\vdash$	+	+		+	_	+ +	+
		> Area C (f) Excavation	(03/2016 - 05/2017)					-		+ +			$\vdash$				_	+ +		<del>                                     </del>	-						+ +
		(I) Excavation (g) Tunnel Box Structure Construction	(06/2017 - 05/2018)														_	+ +		<del>                                     </del>	-						+ +
		(h) Backfilling and Superstructure	(00/2010 - 02/2019)																								+
	Area C	> Stage 1	(02/2019 - 02/2020)	$\vdash$						+ +																	
		> Stage 2	(06/2019 - 08/2019)							+ +																	
rging		Barging Point at Wan Chai Ex-PCWA	(00/2010 00/2010)	1 1																							
int		Construction/Set up	(09/2016 - 07/2017)																								
		Spoil Disposal	(08/2017 - 12/2020)																								
		Wan Chai PTI Area	(00/2011 12/2020)																								
		Site clearance, Site Hoarding Erection and utility diversion	(06/2015 - 07/2015)																								
		Demolition of existing Wan Chai Ferry Pier footbridge	, ,																								
		> Stage 1	(06/2015 - 06/2016)																								
		> Stage 2	(01/2017)																								
		Construction of temporary Wan Chai Ferry Pier footbridge	(09/2015 - 12/2016)																								
		Construction of Permanent Wan Chai Ferry Pier footbridge (Superstructure)	(08/2019)																								
		Demolition of Temporary Wan Chai Ferry Pier footbridge	(09/2019 - 12/2019)																								
		Piling works (PPW and H-piles)																									
		> Stage 1 (TTM Stage 2)	(07/2015 - 04/2016)																								
		> Stage 2 (TTM Stage 3a & 3b)	(06/2016 - 10/2016)																								
		> Stage 3 (TTM Stage 3C)	(12/2016 - 04/2017)																								
		Diaphragm wall construction																									
		> Stage 1 (TTM Stage 2)	(08/2015 - 01/2016)																								
		> Stage 2 (TTM Stage 3a/3b/3c & 5)	(02/2016 - 03/2017)							$\perp$			$\sqcup$					$\perp$		$\vdash \vdash$		$\perp$					$\perp$
		Excavation & ELS installation	(03/2017 - 05/2018)							$\perp$							$\perp$	+		$\vdash \vdash$		+	_	$\vdash$			+
		Construction of Internal Structure of Box Station	(06/2018 - 02/2019)	$\vdash$															_	$\perp \perp$	$\perp$	$\perp$	_	$\Box$			+
		Construction of Entrances and Structure	(03/2019 - 08/2019)	+		-	$\vdash$		_	+	-	_	$\vdash$					++	_	$\vdash$	_	++	_	+	-	+	+
		Harbour Road Sports Centre Area  Demolition of Harbour Road Sports Centre (HRSC)	(06/2017 00/2017)	$\vdash$			$\vdash$	-		+	_		$\vdash$				-	+		$\vdash$	_						+
		Demolition of Harbour Road Sports Centre (HRSC) Site Hoarding Erection & Pile Removal	(06/2017 - 09/2017)	$\vdash$			+	-	-	+			$\vdash$				_	++		$\vdash$	-	++		+			+
			(10/2017)				$\vdash$	-		+			$\vdash$				_	++		$\vdash$		++					+
		Piling works (PPW and H-piles) Excavation & ELS installation (C&C Method)	(11/2017 - 02/2018) (03/2018 - 02/2019)															++		$\vdash$	-	++		+			+
		Construction of Internal Structure of Box Station	(03/2019 - 02/2019)	$\vdash$																<del>                                     </del>	+	++					+
		Construction of Internal Structure of Box Station  Construction of Entrances and Ground structure	(12/2019 - 11/2019)	H			++		-	+	_															+ +	+
		Wan Chai Swimming Pool Area	(12/2013 - 02/2020)	+		_		-	+	+			<del>   </del>	_		-+	+	++	+				+	+		++-	+
		Demolition of Wan Chai Swimming Pool	(12/2015 - 03/2016)	H				-		+	-		$\vdash$			$\vdash$	-	+ +	+	$\vdash$	+	++	_		+	+ +	
		Site Hoarding Erection & Pile Removal	(08/2016 - 09/2016)	$\Box$				-		+ +	_						-	+ +									+ +
		Piling works (H-piles)	(03/2016 - 04/2016)					-		+ +	_						-	+ +									
		Diaphragm wall construction	(05/2016 - 07/2017)	H				-		+							-	+			+						
		Excavation & ELS installation	(08/2017 - 08/2018)														-	+									
		Construction of Internal Structure of Box Station	(09/2018 - 03/2019)															+ +									
		Construction of Vent Shaft and Ground structure	(04/2019 - 09/2019)																								
		Wan Chai Sports Ground Area	1																								
		Piling works (H-piles) - Wan Chai Sports Ground (WCSG)	(08/2016)							$\top$																	
		Diaphragm wall construction - Phase 1 WCSG	(12/2015 - 07/2016)																								
		Piling works (PPW and H-piles) - Tonnochy Road	(12/2016 - 06/2017)							+																	
		Excavation & ELS installation																									
		> Underground (no noise cover)	(06/2017 - 07/2018)							1 1																	
		> Underground (with full noise cover over Tonnochy Road)	(08/2018 - 04/2019)															1									
		> At surface	(08/2018 - 04/2019)																								
		Construction of Internal Structure of Box Station	(10/2018 - 04/2019)																								1 1
		Reprovision of WCSG grandstand	(05/2019 - 09/2020)			_																					

# Appendix A2 Construction Programme for Drill-and-Blast Works Combined with Mechanical Excavation at Zone 2

Appendix A2 - Construction Programme for Drill-and-Blast Works Combined with Mechanical Excavation at Zone 2

			Construction	<u></u>					015			<u> </u>					2016		-	_				_		2017	
Package	Area / Zone	Construction Activity	Construction Period	Jan	Q1 Feb	Mar	Apr May	<b>2</b> IV Jun	Jul Au	3 Sep	Oct	Q4 Nov D	Dec Jan	Q1 Feb	Mar Apr	Q2 May J	un Jul	Q3 Aua S	Sep O	Q4 Oct No	V Dec	Jan F	eb Ma	ar Apr	Q2 May Ju	n Jul	Q3 Aua S
			1 01100	1	2	3	4 5	6	Jul Aug	9	10	11 '	12 13	14	15 16	17 1	8 19	20 2	21 2	2 23	3 24	25 2	6 27	7 28	29 3	31	32
EXH		EXH Structure																									
	Area E	(a) Site Hoarding Erection	(06/2016)																								
	Area E	(b) Roof Slab Construction	(01/2018 - 02/2018)																								
	Area E	(c) Excavation	(05/2018 - 10/2018)																								
	Area E	(d) Construction of Internal Structures of Box Station	(11/2018 - 04/2019)										_														
	Area C	(e) Construction of Entrance and Vent Shafts	(01/2019 - 02/2019)																								
	Area C	(f) Construction of Station Box Roof Slab	(03/2019 - 04/2019)																								
	Area E	(h) Utility diversion	(07/2016 - 10/2016)		-					-																	
	A F	(i) Pipe Pile Construction	(40/2040 42/2040)		-					-																	
	Area E Area E	> Stage 1 > Stage 2	(10/2016 - 12/2016) (04/2017 - 08/2017)		+ +																						
EXH to	Alea E	Tunnel at West to EXH	(04/2017 - 06/2017)	+	+ +								_														
aft		(a) Site Formation																									
uit	Areas A & B	> Areas A & B	(06/2015)																								
	Area A	> Areas A	(09/2015)																								
	Area C	> Area C - 1	(01/2016)																								
	Area C	> Area C - 2	(07/2016)																								
	Areas A & B	(b) Site Hoarding Erection	(06/2015)																								
	Areas A & B	(c) Excavation inside SCL tunnels protection works	(06/2016 - 10/2017)																								
		(d) Tunnel Box Structure Construction	(							+																	
	Area A	> Area A	(11/2017 - 11/2018)									_							_								+
	Area B	> Area B	(11/2017 - 12/2019)									_							_								+
	=	(e) Diaphragm Wall Construction								+									-								
	Area A	> Area A	(10/2015 - 04/2016)																_								
	Area C	> Area C	(03/2016 - 05/2017)																								
	Area C	(f) Excavation	(06/2017 - 05/2018)							+																	
	Area C	(g) Tunnel Box Structure Construction	(06/2018 - 02/2019)							+														1			
		(h) Backfilling and Superstructure	(00,000 00,000)																								
	Area C	> Stage 1	(02/2019 - 02/2020)																								
	Area C	> Stage 2	(06/2019 - 08/2019)																								
rging	Barging Point	Barging Point at Wan Chai Ex-PCWA	(00/2010 00/2010)																								
nt	gg	Construction/Set up	(09/2016 - 07/2017)																								
		Spoil Disposal	(08/2017 - 12/2020)																								
	Zone 1	Wan Chai PTI Area	(00/2011 12/2020)																								
		Site clearance, Site Hoarding Erection and utility diversion	(06/2015 - 07/2015)																								
		Demolition of existing Wan Chai Ferry Pier footbridge	(																								
		> Stage 1	(06/2015 - 06/2016)																								
		> Stage 2	(01/2017)																								
		Construction of temporary Wan Chai Ferry Pier footbridge	(09/2015 - 12/2016)																								
		Construction of Permanent Wan Chai Ferry Pier footbridge (Superstructure)	(08/2019)																								
		Demolition of Temporary Wan Chai Ferry Pier footbridge	(09/2019 - 12/2019)																								
		Piling works (PPW and H-piles)	(**************************************																								
		> Stage 1 (TTM Stage 2)	(07/2015 - 04/2016)																								
		> Stage 2 (TTM Stage 3a & 3b)	(06/2016 - 10/2016)																								
		> Stage 3 (TTM Stage 3C)	(12/2016 - 04/2017)																								
		Diaphragm wall construction	, ,																								
		> Stage 1 (TTM Stage 2)	(08/2015 - 01/2016)																								
		> Stage 2 (TTM Stage 3a/3b/3c & 5)	(02/2016 - 03/2017)																								
		Excavation & ELS installation	(03/2017 - 05/2018)																								
		Construction of Internal Structure of Box Station	(06/2018 - 02/2019)																								
		Construction of Entrances and Structure	(03/2019 - 08/2019)																								
	Zone 2	Harbour Road Sports Centre Area																									
		Demolition of Harbour Road Sports Centre (HRSC)	(06/2017 - 09/2017)		oxdot									╙													
		Site Hoarding Erection & Pile Removal	(10/2017)											$\perp$													
		Piling works (PPW and H-piles)	(11/2017 - 02/2018)											$\perp$													
		Excavation & ELS installation (drill-and-blast works with mechanical excavation)	(03/2018 - 01/2019)											$\perp$													
		Construction of Internal Structure of Box Station	(02/2019 - 10/2019)																								
		Construction of Entrances and Ground structure	(11/2019 - 01/2020)											$\perp$													
	Zone 3	Wan Chai Swimming Pool Area																									
		Demolition of Wan Chai Swimming Pool	(12/2015 - 03/2016)																								
		Site Hoarding Erection & Pile Removal	(08/2016 - 09/2016)		$\perp$					$\perp$				$\perp$													
		Piling works (H-piles)	(03/2016 - 04/2016)							$\perp$				$\sqcup$													
		Diaphragm wall construction	(05/2016 - 07/2017)		$\perp$					$\perp$				$\sqcup$													
		Excavation & ELS installation	(08/2017 - 08/2018)							$\perp$				$\sqcup$												_	
		Construction of Internal Structure of Box Station	(09/2018 - 03/2019)		$\perp$					$\perp$				$\sqcup$													$\sqcup$
		Construction of Vent Shaft and Ground structure	(04/2019 - 09/2019)	1						$\perp$				$\perp$													$\sqcup \sqcup$
	Zone 4	Wan Chai Sports Ground Area												$\perp$													
		Piling works (H-piles) - Wan Chai Sports Ground (WCSG)	(08/2016)																								
		Diaphragm wall construction - Phase 1 WCSG	(12/2015 - 07/2016)		oxdot																						Ш
		Piling works (PPW and H-piles) - Tonnochy Road	(12/2016 - 06/2017)			-																					
		Excavation & ELS installation			Ш													$\Box$									
		> Underground (no noise cover)	(06/2017 - 07/2018)																								
		> Underground (with full noise cover over Tonnochy Road)	(08/2018 - 04/2019)																								
	1	> At surface	(08/2018 - 04/2019)																								
																			-		_						
		Construction of Internal Structure of Box Station	(10/2018 - 04/2019)	1											- 1												

Appendix A2 - Construction Programme for Drill-and-Blast Works Combined with Mechanical Excavation at

				$\overline{}$	$\neg$			20	018				20	019		$\overline{}$		20	020	
Dackago	Area / Zone	Construction Activity	Construction	Q4	+	Q1	C	22	Q3	$\Box$	Q4	Q1	Q2	Q3	Q4	Q	1	Q2	Q3	Q4
Package	Area / Zone	Construction Activity	Period	Oct Nov	Dec Ja	an Feb M	Mar Apr M	ay Jun	Jul Aug	Sep Oct	Nov Dec	Jan Feb M	Mar Apr May Jun 51 52 53 54	Jul Aug S€	p Oct Nov D	ec Jan Fe	b Mar /	Apr May Jun	Jul Aug Se	p Oct Nov
07 FVII		EVII Chanadrina		34   35	36   3	37   38   3	39   40   4	1 42	43   44	45   46	47   48	49   50   5	51   52   53   54	55   56   5	7   58   59   6	<u> 50   61   62</u>	2 63	64   65   66	67   68   69	9 70 71
07 EXH		EXH Structure (a) Site Hoarding Erection	(06/2016)	$\vdash$	-	+	+	+	+		<del></del> '				+		+++		+	
	Area E	(b) Roof Slab Construction	(01/2018 - 02/2018)		_	++	+	+	+++		++-	$\vdash$		+	+	++	+			+++
		(c) Excavation	(05/2018 - 10/2018)		-									+++		+	+			+
	Area E	(d) Construction of Internal Structures of Box Station	(11/2018 - 04/2019)																	
	Area C	(e) Construction of Entrance and Vent Shafts	(01/2019 - 02/2019)																	
	Area C	(f) Construction of Station Box Roof Slab	(03/2019 - 04/2019)					$\perp$	$\perp$		'			$\perp$						
	Area E	(h) Utility diversion	(07/2016 - 10/2016)	$\vdash$				$\perp$	+		<del></del> '	++	+	+++	+++	+			+++	+
	Aroo E	(i) Pipe Pile Construction	(10/2016 12/2016)	$\vdash$	-	+	++	+	+		<del></del> '	+++	-	+++-	+	++	+		+	+
	Area E Area E	> Stage 1 > Stage 2	(10/2016 - 12/2016) (04/2017 - 08/2017)	$\vdash$	-+	+	+	+	+	_	+		<del></del>	+++	+++	++	+		++-	+
06 EXH to		Tunnel at West to EXH	(04/2017 00/2017)	+++	-	$\overline{}$	$\overline{}$	+	+++	$\overline{}$	+-		<del></del>	++-	+	+	+			+
Shaft		(a) Site Formation						+												
	Areas A & B	> Areas A & B	(06/2015)																	
		> Areas A	(09/2015)					$\perp$	$\perp$		'	$\Box$		$\perp$						
		> Area C - 1	(01/2016)			$\rightarrow$	$\rightarrow$	$\perp$	$\longrightarrow$		<del></del> '	+		$\perp \perp \perp \perp$	$\perp$					
		> Area C - 2 (b) Site Hoarding Erection	(07/2016)	$\vdash$	-	+	++	+	+		<del></del> '	+++	-	+++-	+	++	+		+	+
		(c) Excavation inside SCL tunnels protection works	(06/2015) (06/2016 - 10/2017)		-+	++	++	+	+	-	+'	++	-	+++	+++	++	++		++-	+
		(d) Tunnel Box Structure Construction	(00/2010 10/2017)		-	+	++	+	+++	-	+-		$\overline{}$	+++	+	++	+		++-	+
		> Area A	(11/2017 - 11/2018)										+++		+++	++	++			+++
		> Area B	(11/2017 - 12/2019)																	
		(e) Diaphragm Wall Construction	,																	
		> Area A	(10/2015 - 04/2016)	$\sqcup \sqcup$			$\perp \perp \perp$	$\perp \!\!\! \perp \!\!\! \perp$	$\perp \perp \perp$		'	$\sqcup \sqcup \sqcup$	$\bot$	$\perp$	$\bot$	$\perp$	$\perp$			
	Area C	> Area C	(03/2016 - 05/2017)						$\longrightarrow$		<del></del> '	+		$\perp \perp \perp \perp$	$\perp$					
		(f) Excavation	(06/2017 - 05/2018)		_	44	44	4	$\longrightarrow$				$\overline{}$	+++	+	++	+		+++	+
		(g) Tunnel Box Structure Construction (h) Backfilling and Superstructure	(06/2018 - 02/2019)	$\vdash$	-+	+	+						$\overline{}$	+++	+	++	+		++-	+
	Area C	Stage 1	(02/2019 - 02/2020)	$\vdash$	-+		+	+	+++	_	+								++-	+
	Area C	> Stage 2	(06/2019 - 08/2019)		-		+	+	+++		+-				<del></del>		+++			+ + + +
Barging		Barging Point at Wan Chai Ex-PCWA	(00,0010	$\vdash$	$\neg$			$\neg$	$\Box$											
Point		Construction/Set up	(09/2016 - 07/2017)					$\neg$												
		Spoil Disposal	(08/2017 - 12/2020)				ىلىك							4						
		Wan Chai PTI Area						$\perp \!\!\! \perp \!\!\! \perp$	$\perp$		'	+++								
		Site clearance, Site Hoarding Erection and utility diversion	(06/2015 - 07/2015)					+	+		<del></del> '	++	+	+++	+++	+	+		+++	+
		Demolition of existing Wan Chai Ferry Pier footbridge > Stage 1	(06/2015 - 06/2016)	$\vdash$	-+			+	+		<del></del> '	++		+	+	+			+	+
		> Stage 2	(00/2013 - 00/2010)	$\vdash$	-+			+	+	_	+'		+	+++	+	+	+		+++	+
		Construction of temporary Wan Chai Ferry Pier footbridge	(09/2015 - 12/2016)		-	+		+	+		+			+++	++++	+	+			+
		Construction of Permanent Wan Chai Ferry Pier footbridge (Superstructure)	(08/2019)					+												
		Demolition of Temporary Wan Chai Ferry Pier footbridge	(09/2019 - 12/2019)																	
		Piling works (PPW and H-piles)		$\sqcup \sqcup$			$\perp \perp \perp$	$\perp \!\!\! \perp \!\!\! \perp$	$\perp \perp \perp$		'	$\sqcup \sqcup \sqcup$	$\perp$	$\perp$	$\bot$	$\perp$	$\perp$			
		> Stage 1 (TTM Stage 2)	(07/2015 - 04/2016)	$\vdash$	$-\!\!\!+\!\!\!\!-$	$\perp$	$\rightarrow$	$+\!\!-\!\!\!-$	+++		'	$\longrightarrow$				+	+			
		> Stage 2 (TTM Stage 3a & 3b)	(06/2016 - 10/2016)	$\vdash$	-	++	++	+	+++			++	$\overline{}$	+++	+	++	++		+++	+
		> Stage 3 (TTM Stage 3C) Diaphragm wall construction	(12/2016 - 04/2017)	$\vdash$	-+	+	+	+	+++		+	++	$\overline{}$	+++	+	++	+		++-	+
		> Stage 1 (TTM Stage 2)	(08/2015 - 01/2016)	++	-+			+	+++		+	<del></del>	<del></del>	+++	+	++	+		+++	+
		> Stage 2 (TTM Stage 3a/3b/3c & 5)	(02/2016 - 03/2017)		-	-	+	+	+++		+-		$\overline{}$	+++	+	+	+		++-	+
		Excavation & ELS installation	(03/2017 - 05/2018)																	
		Construction of Internal Structure of Box Station	(06/2018 - 02/2019)		$\neg$															
		Construction of Entrances and Structure	(03/2019 - 08/2019)																	
		Harbour Road Sports Centre Area	(00/00:=	$\square$	$\perp$	+	+	44	$\coprod$		<del></del>	$\Box$	+	+	+	+	+	$\perp$	+	+
		Demolition of Harbour Road Sports Centre (HRSC)	(06/2017 - 09/2017)		+	++	++	+	+	+	<del></del> '	++	+	+++	+++	++	++	+	+++	+
		Site Hoarding Erection & Pile Removal Piling works (PPW and H-piles)	(10/2017) (11/2017 - 02/2018)			+	++	+	+++	+	+	++	+++	+++	+++	++	++		+++	+
		Excavation & ELS installation (drill-and-blast works with mechanical excavation)	(03/2018 - 01/2019)										+++	+++	+++	++	++		+++	+++
		Construction of Internal Structure of Box Station	(02/2019 - 10/2019)		-			_								+	+			+
		Construction of Entrances and Ground structure	(11/2019 - 01/2020)			工士	工士	$\exists$												
		Wan Chai Swimming Pool Area	,																	
		Demolition of Wan Chai Swimming Pool	(12/2015 - 03/2016)		[	$\bot$ $\bot$	$\bot$ $\bot$	$\bot$	$\Box$	$\bot$	$\Box$	$\Box$	$\bot$	$\bot\bot$	$\bot\bot$	$\bot$	$\bot$ $\bot$		+	$\bot$
		Site Hoarding Erection & Pile Removal	(08/2016 - 09/2016)		$\perp$	+	+	$+\!\!-\!\!\!-\!\!\!\!-$	+		<del></del> '		+	+	+	+	+		+	
		Piling works (H-piles)	(03/2016 - 04/2016)	$\vdash$	+	++	++	+	+	+	<del></del> '	++	+++-	+++	+++	++	++		+++	+
		Diaphragm wall construction Excavation & ELS installation	(05/2016 - 07/2017) (08/2017 - 08/2018)							-	+	++	+++	+++	+++	++	++		+++	+++
		Construction of Internal Structure of Box Station	(08/2017 - 08/2018) (09/2018 - 03/2019)		-	-		+						+++	+++	++	++		+++	+++
		Construction of Went Shaft and Ground structure	(04/2019 - 09/2019)		+	++	++	+								++	++			+++
	Zone 4	Wan Chai Sports Ground Area	(		十	+	+	$\dashv$		$\neg$	$\Box$	$\Box$			1	+	++			+ + + +
		Piling works (H-piles) - Wan Chai Sports Ground (WCSG)	(08/2016)					ユ												
		Diaphragm wall construction - Phase 1 WCSG	(12/2015 - 07/2016)	$\Box$		$\Box$			$\Box$								$\perp \Box$			
		Piling works (PPW and H-piles) - Tonnochy Road	(12/2016 - 06/2017)	$\square$		$\perp \perp \perp$	$\perp \perp \perp$		+				$\perp$	$\perp$	$\bot$	$\perp \perp \bar{\perp}$	$\bot$		$\bot$	$\bot$
		Excavation & ELS installation	(00/0047 07/00/7			$\perp$		$\perp$	$\longrightarrow$		<del></del> '	++	+++	+++	+++	+	+		+++	+
	I	> Underground (no noise cover)	(06/2017 - 07/2018) (08/2018 - 04/2019)		4		44							+++	+++	++	++		+++	+
			1110/2010 - 04/2019)	1 1 1	- 1	1 1	1 1	1 ,								$\bot$	$\bot$			$\perp$
		> Underground (with full noise cover over Tonnochy Road)	,																	
		Inderground (with full hoise cover over Tonnochy Road)     At surface     Construction of Internal Structure of Box Station	(08/2018 - 04/2019) (10/2018 - 04/2019)		7	++		+						+++	+++	++	++		+++	+

Appendix B1 - Construction Plant Inventory for C&C Method at Zone 2

Package: 07 EXH EXH Structure

/ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \							
							(06/2016)
(a) Site Hoarding Erection	TM Ref./ other	No. of	SWL/ Item	On- time	Correction for	Barrier	, ,
PME	Ref	Items	dB(A)	%	Underground Works	Correction	Sub-total SWL
Excavator	EPD-02341	1	105	100%	0	0	105
Drill, hand-held (electric)	CNP 065	1	98	100%	0	0	98
Generator	CNP 103	1	95	100%	0	0	95
Lorry with crane/grab	CNP 145	1	105	50%	0	0	102
Welding Set	CNP 107	2	100	30%	0	0	98
vvoiding Got	0141 107		100	0070		ise Level, dB(A)	108
						, , , ,	
(b) Roof Slab Construction							(01/2018 - 02/2018
PME	TM Ref./ other	No. of	SWL/ Item	On- time	Correction for	Barrier	Sub-total SWL
	Ref	Items	dB(A)	%	Underground Works	Correction	Sub-total SVVL
Above Ground							
Generator	CNP 103	1	95	80%	0	0	94
Dump truck	CNP 068	1	105	30%	0	0	100
Crane lorry, mobile	CNP 145	1	105	50%	0	0	102
Poker, vibrator, hand-held	CNP 173	3	102	80%	0	0	106
Air Compressor	CNP 002	1	102	80%	0	0	101
Concrete lorry mixer	BS D6/33	1	96	80%	0	0	95
Concrete pump	CNP 047	1	109	80%	0	0	108
					Overall No	ise Level, dB(A)	112
(a) Evaporation							(DE 20040 40/0010
(c) Excavation	TM Dof / oth	No of	CWI / 140m-	On time	Correction for	Darrier	(05/2018 - 10/2018)
PME	TM Ref./ other Ref	No. of Items	SWL/ Item	On- time %	Correction for	Barrier Correction	Sub-total SWL
Underground (covered by deck)	Kei	iteilis	dB(A)	/0	Underground Works	Correction	
Excavator	EPD-02341	3	105	60%	-10	0	98
Generator	CNP 103	2	95	80%	-10	0	87
Rock drill, crawler mounted (pneumatic)	CNP 181	1	128	30%	-10	0	113
Ventilation fans	CNP 241	2	108	70%	-10	0	99
	CNP 168	1	100	30%	-10	0	85
Power pack for hand-held items of PME							
Dump truck	CNP 068	2	105	50%	-10	0	95
Water pump (electric)	CNP 281	2	88	80%	-10	0	80
Welder/ generator, portable	CNP 107	2	100	30%	-10	0	88
					Overali No	ise Level, dB(A)	113
(d) Construction of Internal Structures of	Box Station						(11/2018 - 04/2019)
• •	TM Ref./ other	No. of	014/1 / 1/				(11/2010 - 04/2015)
						Rarrior	
PME			SWL/ Item	On- time	Correction for	Barrier	Sub-total SWL
	Ref	Items	dB(A)	On- time %	Correction for Underground Works	Barrier Correction	Sub-total SWL
Underground	Ref	Items	dB(A)	%	Underground Works	Correction	
Underground Generator	Ref CNP 103	Items 2	<b>dB(A)</b> 95	<b>%</b> 80%	Underground Works	Correction 0	97
Underground Generator Ventilation fans	<b>Ref</b> CNP 103  CNP 241	Items 2 2	<b>dB(A)</b> 95 108	<b>%</b> 80% 70%	Underground Works 0 0	Correction 0 0	97 109
Underground Generator Ventilation fans Power pack for hand-held items of PME	Ref  CNP 103  CNP 241  CNP 168	2 2 1	<b>dB(A)</b> 95 108 100	% 80% 70% 30%	Underground Works  0 0 0 0	Correction 0 0 0	97 109 95
Underground Generator Ventilation fans Power pack for hand-held items of PME Water pump (electric)	Ref  CNP 103  CNP 241  CNP 168  CNP 281	2 2 1 2	95 108 100 88	% 80% 70% 30% 80%	Underground Works  0 0 0 0 0	0 0 0 0	97 109 95 90
Underground Generator Ventilation fans Power pack for hand-held items of PME Water pump (electric) Welder/ generator, portable	Ref  CNP 103  CNP 241  CNP 168  CNP 281  CNP 107	2 2 1 2 1	<b>dB(A)</b> 95 108 100 88 100	% 80% 70% 30% 80% 30%	Underground Works  0 0 0 0 0 0 0	0 0 0 0 0	97 109 95 90 95
Underground Generator Ventilation fans Power pack for hand-held items of PME Water pump (electric)	Ref  CNP 103  CNP 241  CNP 168  CNP 281	2 2 1 2	95 108 100 88	% 80% 70% 30% 80%	Underground Works  0 0 0 0 0 0 0 0 0	Correction  0 0 0 0 0 0 0 0 0	97 109 95 90 95 107
Underground Generator Ventilation fans Power pack for hand-held items of PME Water pump (electric) Welder/ generator, portable	Ref  CNP 103  CNP 241  CNP 168  CNP 281  CNP 107	2 2 1 2 1	<b>dB(A)</b> 95 108 100 88 100	% 80% 70% 30% 80% 30%	Underground Works  0 0 0 0 0 0 0 0 0	0 0 0 0 0	97 109 95 90 95
Underground Generator Ventilation fans Power pack for hand-held items of PME Water pump (electric) Welder/ generator, portable Poker, vibrator, hand-held	Ref  CNP 103  CNP 241  CNP 168  CNP 281  CNP 107  CNP 173	2 2 1 2 1	<b>dB(A)</b> 95 108 100 88 100	% 80% 70% 30% 80% 30%	Underground Works  0 0 0 0 0 0 0 0 0	Correction  0 0 0 0 0 0 0 0 0	97 109 95 90 95 107 112
Underground Generator Ventilation fans Power pack for hand-held items of PME Water pump (electric) Welder/ generator, portable Poker, vibrator, hand-held  (e) Construction of Entrance and Vent St	Ref  CNP 103  CNP 241  CNP 168  CNP 281  CNP 107  CNP 173	2 2 1 2 1	<b>dB(A)</b> 95 108 100 88 100	% 80% 70% 30% 80% 30%	Underground Works  0 0 0 0 0 0 0 0 0	Correction  0 0 0 0 0 0 0 0 0	97 109 95 90 95 107 112 (01/2019 - 02/2019
Underground Generator Ventilation fans Power pack for hand-held items of PME Water pump (electric) Welder/ generator, portable Poker, vibrator, hand-held	Ref  CNP 103  CNP 241  CNP 168  CNP 281  CNP 107  CNP 173	2 2 1 2 1 3	dB(A)  95 108 100 88 100 102	% 80% 70% 30% 80% 30% 100%	Underground Works  0 0 0 0 0 0 0 O O O O O O O O O O O O	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	97 109 95 90 95 107 112
Underground Generator Ventilation fans Power pack for hand-held items of PME Water pump (electric) Welder/ generator, portable Poker, vibrator, hand-held  (e) Construction of Entrance and Vent St	Ref  CNP 103  CNP 241  CNP 168  CNP 281  CNP 107  CNP 173  mafts  TM Ref./ other  Ref	2 2 1 2 1 3 No. of	dB(A)  95 108 100 88 100 102  SWL/ Item dB(A)	% 80% 70% 30% 80% 30% 100% On- time %	Underground Works  0 0 0 0 0 0 0 Overall No	Correction  0 0 0 0 0 0 ise Level, dB(A)	97 109 95 90 95 107 112 (01/2019 - 02/2019 Sub-total SWL
Underground Generator Ventilation fans Power pack for hand-held items of PME Water pump (electric) Welder/ generator, portable Poker, vibrator, hand-held  (e) Construction of Entrance and Vent St PME  Above Ground Generator	Ref  CNP 103  CNP 241  CNP 168  CNP 281  CNP 107  CNP 173  mafts  TM Ref./ other  Ref  CNP 103	2 2 1 2 1 3 No. of	dB(A)  95 108 100 88 100 102  SWL/ Item dB(A) 95	% 80% 70% 30% 80% 30% 100%  On-time % 80%	Underground Works  0 0 0 0 0 0 0 Correction for Underground Works	Correction  0 0 0 0 0 0 isse Level, dB(A)  Barrier Correction	97 109 95 90 95 107 112 (01/2019 - 02/2019 Sub-total SWL
Underground Generator Ventilation fans Power pack for hand-held items of PME Water pump (electric) Welder/ generator, portable Poker, vibrator, hand-held  (e) Construction of Entrance and Vent SI PME  Above Ground Generator Crawler crane, mobile	Ref  CNP 103  CNP 241  CNP 168  CNP 281  CNP 107  CNP 173  nafts  TM Ref./ other  Ref  CNP 103  EPD-00467	2 2 1 2 1 3 No. of Items	95 108 100 88 100 102 SWL/ Item dB(A) 95 102	% 80% 70% 30% 80% 30% 100%  On-time % 80% 100%	Underground Works  0 0 0 0 0 0 0 Correction for Underground Works  0 0	Correction  0 0 0 0 0 ise Level, dB(A)  Barrier Correction  0 0	97 109 95 90 95 107 112 (01/2019 - 02/2019 Sub-total SWL
Underground Generator Ventilation fans Power pack for hand-held items of PME Water pump (electric) Welder/ generator, portable Poker, vibrator, hand-held  (e) Construction of Entrance and Vent SI PME  Above Ground Generator Crawler crane, mobile Dump truck	Ref  CNP 103  CNP 241  CNP 168  CNP 281  CNP 107  CNP 173  mafts  TM Ref./ other  Ref  CNP 103  EPD-00467  CNP 068	1   2   2   1   2   1   3   3	dB(A)  95 108 100 88 100 102  SWL/ Item dB(A) 95	% 80% 70% 30% 80% 30% 100%  On- time % 80% 100% 30%	Underground Works  0 0 0 0 0 0 0 Correction for Underground Works	Correction  0 0 0 0 0 0 isse Level, dB(A)  Barrier Correction	97 109 95 90 95 107 112 (01/2019 - 02/2019 Sub-total SWL
Underground Generator Ventilation fans Power pack for hand-held items of PME Water pump (electric) Welder/ generator, portable Poker, vibrator, hand-held  (e) Construction of Entrance and Vent SI PME  Above Ground Generator Crawler crane, mobile	Ref  CNP 103  CNP 241  CNP 168  CNP 281  CNP 107  CNP 173  nafts  TM Ref./ other  Ref  CNP 103  EPD-00467	tems   2   2   1   2   1   3	95 108 100 88 100 102 SWL/ Item dB(A) 95 102	% 80% 70% 30% 80% 30% 100%  On-time % 80% 100%	Underground Works  0 0 0 0 0 0 0 Correction for Underground Works  0 0	Correction  0 0 0 0 0 ise Level, dB(A)  Barrier Correction  0 0	97 109 95 90 95 107 112 (01/2019 - 02/2019 Sub-total SWL
Underground Generator Ventilation fans Power pack for hand-held items of PME Water pump (electric) Welder/ generator, portable Poker, vibrator, hand-held  (e) Construction of Entrance and Vent SI PME  Above Ground Generator Crawler crane, mobile Dump truck	Ref  CNP 103  CNP 241  CNP 168  CNP 281  CNP 107  CNP 173  mafts  TM Ref./ other  Ref  CNP 103  EPD-00467  CNP 068	Items	95 108 100 88 100 102 SWL/ Item dB(A) 95 102 105	% 80% 70% 30% 80% 30% 100%  On- time % 80% 100% 30%	Underground Works  0 0 0 0 0 0 0 Overall No  Correction for Underground Works  0 0 0	Correction  0 0 0 0 0 0 ise Level, dB(A)  Barrier Correction  0 0 0	97 109 95 90 95 107 112 (01/2019 - 02/2019 Sub-total SWL
Underground Generator Ventilation fans Power pack for hand-held items of PME Water pump (electric) Welder/ generator, portable Poker, vibrator, hand-held  (e) Construction of Entrance and Vent SI PME  Above Ground Generator Crawler crane, mobile Dump truck Crane lorry, mobile	Ref  CNP 103  CNP 241  CNP 168  CNP 281  CNP 107  CNP 173  mafts  TM Ref./ other  Ref  CNP 103  EPD-00467  CNP 068  CNP 145	1   2   2   1   2   2   1   3   3     No. of   Items   1   1   1   1   1   1   1   1   1	95 108 100 88 100 102 SWL/ Item dB(A) 95 102 105 105	% 80% 70% 30% 80% 30% 100%  On-time % 80% 100% 30% 30% 30%	Underground Works  0 0 0 0 0 0 0 Correction for Underground Works  0 0 0 0	Correction  0 0 0 0 0 ise Level, dB(A)  Barrier Correction  0 0 0	97 109 95 90 95 107 112 (01/2019 - 02/2019 Sub-total SWL 94 102 100 100
Underground Generator Ventilation fans Power pack for hand-held items of PME Water pump (electric) Welder/ generator, portable Poker, vibrator, hand-held  (e) Construction of Entrance and Vent Si PME  Above Ground Generator Crawler crane, mobile Dump truck Crane lorry, mobile Poker, vibrator, hand-held	Ref  CNP 103 CNP 241 CNP 168 CNP 281 CNP 107 CNP 173  mafts  TM Ref./ other Ref  CNP 103 EPD-00467 CNP 068 CNP 145 CNP 173	Items	### AB(A)  95 108 100 88 100 102	% 80% 70% 30% 80% 30% 100%  On-time % 80% 100% 30% 80%	Underground Works  0 0 0 0 0 0 0 Correction for Underground Works  0 0 0 0 0 0 0	Correction  0 0 0 0 0 0 ise Level, dB(A)  Barrier Correction  0 0 0 0	97 109 95 90 95 107 112 (01/2019 - 02/2019 Sub-total SWL 94 102 100 100 104
Underground Generator Ventilation fans Power pack for hand-held items of PME Water pump (electric) Welder/ generator, portable Poker, vibrator, hand-held  (e) Construction of Entrance and Vent St PME  Above Ground Generator Crawler crane, mobile Dump truck Crane lorry, mobile Poker, vibrator, hand-held Air Compressor	Ref  CNP 103  CNP 241  CNP 168  CNP 281  CNP 107  CNP 173   TM Ref./ other  Ref  CNP 103  EPD-00467  CNP 068  CNP 145  CNP 173  CNP 002	Items   2   2   1   2   1   3	dB(A)  95 108 100 88 100 102  SWL/ Item dB(A)  95 102 105 105 105 1002 102	% 80% 70% 30% 80% 30% 100%  On-time % 80% 100% 30% 30% 80% 80%	Underground Works  0 0 0 0 0 0 0 Correction for Underground Works  0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Correction  0 0 0 0 0 0 ise Level, dB(A)  Barrier Correction  0 0 0 0 0	97 109 95 90 95 107 112 (01/2019 - 02/2019 Sub-total SWL 94 102 100 100 100 104 101
Underground Generator Ventilation fans Power pack for hand-held items of PME Water pump (electric) Welder/ generator, portable Poker, vibrator, hand-held  (e) Construction of Entrance and Vent SI PME  Above Ground Generator Crawler crane, mobile Dump truck Crane lorry, mobile Poker, vibrator, hand-held Air Compressor Concrete lorry mixer	Ref  CNP 103  CNP 241  CNP 168  CNP 281  CNP 107  CNP 173  nafts  TM Ref./ other  Ref  CNP 103  EPD-00467  CNP 068  CNP 145  CNP 173  CNP 072  BS D6/33	Items	95 108 100 88 100 102 SWL/ Item dB(A) 95 102 105 105 102 105 96	% 80% 70% 30% 80% 100%  On-time % 80% 100% 30% 30% 80% 80% 80%	Underground Works  0 0 0 0 0 0 0 0 Correction for Underground Works  0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Correction  0 0 0 0 0 ise Level, dB(A)  Barrier Correction  0 0 0 0 0 0 0 0 0	97 109 95 90 95 107 112 (01/2019 - 02/2019 Sub-total SWL 94 102 100 100 100 104 101 98
Underground Generator Ventilation fans Power pack for hand-held items of PME Water pump (electric) Welder/ generator, portable Poker, vibrator, hand-held  (e) Construction of Entrance and Vent Si PME  Above Ground Generator Crawler crane, mobile Dump truck Crane lorry, mobile Poker, vibrator, hand-held Air Compressor Concrete lorry mixer Concrete pump	Ref  CNP 103 CNP 241 CNP 168 CNP 281 CNP 107 CNP 173  nafts  TM Ref./ other Ref  CNP 103 EPD-00467 CNP 068 CNP 145 CNP 173 CNP 068 CNP 173 CNP 002 BS D6/33 CNP 047	Items	95 108 100 88 100 102 SWL/ Item dB(A) 95 102 105 105 102 105 96	% 80% 70% 30% 80% 100%  On-time % 80% 100% 30% 30% 80% 80% 80%	Underground Works  0 0 0 0 0 0 0 0 Correction for Underground Works  0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Correction  0 0 0 0 0 ise Level, dB(A)  Barrier Correction  0 0 0 0 0 0 0 0 0 0	97 109 95 90 95 107 112 (01/2019 - 02/2019 Sub-total SWL  94 102 100 100 104 101 98 108 112
Underground Generator Ventilation fans Power pack for hand-held items of PME Water pump (electric) Welder/ generator, portable Poker, vibrator, hand-held  (e) Construction of Entrance and Vent SI PME  Above Ground Generator Crawler crane, mobile Dump truck Crane lorry, mobile Poker, vibrator, hand-held Air Compressor Concrete lorry mixer	Ref  CNP 103  CNP 241  CNP 168  CNP 281  CNP 107  CNP 173   Dafts  TM Ref./ other  Ref  CNP 103  EPD-00467  CNP 068  CNP 145  CNP 173  CNP 002  BS D6/33  CNP 047	Items   2   2   1   2   1   3	dB(A)  95 108 100 88 100 102  SWL/ Item dB(A)  95 102 105 105 105 102 96 109	% 80% 70% 30% 80% 30% 100%  On-time % 80% 100% 30% 30% 80% 80% 80% 80%	Underground Works  0 0 0 0 0 0 0 Correction for Underground Works  0 0 0 0 0 0 0 O O O O O O O O O O O O	Correction  0 0 0 0 0 0 ise Level, dB(A)  Barrier Correction  0 0 0 0 0 0 ise Level, dB(A)	97 109 95 90 95 107 112 (01/2019 - 02/2019 Sub-total SWL  94 102 100 100 104 101 98 108 112
Underground Generator Ventilation fans Power pack for hand-held items of PME Water pump (electric) Welder/ generator, portable Poker, vibrator, hand-held  (e) Construction of Entrance and Vent Si PME  Above Ground Generator Crawler crane, mobile Dump truck Crane lorry, mobile Poker, vibrator, hand-held Air Compressor Concrete lorry mixer Concrete pump	Ref  CNP 103  CNP 241  CNP 168  CNP 281  CNP 107  CNP 173  nafts  TM Ref./ other  Ref  CNP 103  EPD-00467  CNP 068  CNP 145  CNP 173  CNP 002  BS D6/33  CNP 047  TM Ref./ other	Items   2   2   1   2   1   3	### Company of the co	% 80% 70% 30% 80% 30% 100%  On-time % 80% 100% 30% 80% 80% 80% 80% On-time	Underground Works  0 0 0 0 0 0 0 Correction for Underground Works  0 0 0 0 0 0 O O O O O O O O O O O O O	Correction  0 0 0 0 0 ise Level, dB(A)  Barrier Correction  0 0 0 0 0 ise Level, dB(A)	97 109 95 90 95 107 112 (01/2019 - 02/2019 Sub-total SWL  94 102 100 100 104 101 98 108 112
Underground Generator Ventilation fans Power pack for hand-held items of PME Water pump (electric) Welder/ generator, portable Poker, vibrator, hand-held  (e) Construction of Entrance and Vent SI PME  Above Ground Generator Crawler crane, mobile Dump truck Crane lorry, mobile Poker, vibrator, hand-held Air Compressor Concrete lorry mixer Concrete pump  (f) Construction of Station Box Roof Slat PME	Ref  CNP 103  CNP 241  CNP 168  CNP 281  CNP 107  CNP 173   Dafts  TM Ref./ other  Ref  CNP 103  EPD-00467  CNP 068  CNP 145  CNP 173  CNP 002  BS D6/33  CNP 047	Items   2   2   1   2   1   3	dB(A)  95 108 100 88 100 102  SWL/ Item dB(A)  95 102 105 105 105 102 96 109	% 80% 70% 30% 80% 30% 100%  On-time % 80% 100% 30% 30% 80% 80% 80% 80%	Underground Works  0 0 0 0 0 0 0 Correction for Underground Works  0 0 0 0 0 0 0 O O O O O O O O O O O O	Correction  0 0 0 0 0 0 ise Level, dB(A)  Barrier Correction  0 0 0 0 0 0 ise Level, dB(A)	97 109 95 90 95 107 112 (01/2019 - 02/2019 Sub-total SWL  94 102 100 100 104 101 98 108 112 (03/2019 - 04/2019
Underground Generator Ventilation fans Power pack for hand-held items of PME Water pump (electric) Welder/ generator, portable Poker, vibrator, hand-held  (e) Construction of Entrance and Vent St PME  Above Ground Generator Crawler crane, mobile Dump truck Crane lorry, mobile Poker, vibrator, hand-held Air Compressor Concrete lorry mixer Concrete pump  (f) Construction of Station Box Roof Slat PME  Above Ground	Ref  CNP 103 CNP 241 CNP 168 CNP 281 CNP 107 CNP 173  mafts  TM Ref./ other Ref  CNP 103 EPD-00467 CNP 068 CNP 145 CNP 173 CNP 002 BS D6/33 CNP 047  TM Ref./ other Ref	Items   2   2   1   2   1   3   3     No. of   Items   1   1   2   1   2   1   1     1     2   1     1	dB(A)  95 108 100 88 100 102  SWL/ Item dB(A)  95 102 105 105 102 102 96 109  SWL/ Item dB(A)	% 80% 70% 30% 80% 30% 100%  On-time % 80% 30% 80% 80% 80% 80% 80%  On-time %	Overall No.  Correction for Underground Works  O O O O O O O O O O O O O O O O O O	Correction  0 0 0 0 0 ise Level, dB(A)  Barrier Correction  0 0 0 0 ise Level, dB(A)  Barrier Correction	97 109 95 90 95 107 112 (01/2019 - 02/2019 Sub-total SWL  94 102 100 100 104 101 98 108 112 (03/2019 - 04/2019 Sub-total SWL
Underground Generator Ventilation fans Power pack for hand-held items of PME Water pump (electric) Welder/ generator, portable Poker, vibrator, hand-held  (e) Construction of Entrance and Vent Si PME  Above Ground Generator Crawler crane, mobile Dump truck Crane lorry, mobile Poker, vibrator, hand-held Air Compressor Concrete lorry mixer Concrete pump  (f) Construction of Station Box Roof Slat PME  Above Ground Generator	Ref  CNP 103 CNP 241 CNP 168 CNP 281 CNP 107 CNP 173  nafts  TM Ref./ other Ref  CNP 103 EPD-00467 CNP 068 CNP 145 CNP 173 CNP 002 BS D6/33 CNP 047  TM Ref./ other Ref  CNP 103	Items	dB(A)  95 108 100 88 100 102  SWL/ Item dB(A)  95 102 105 105 102 96 109  SWL/ Item dB(A)  95	% 80% 70% 30% 80% 30% 100%  On-time % 80% 80% 80% 80% 80% 80% 80% 80% 80%	Overall No.  Correction for Underground Works  O O O O O O O O O O O O O O O O O O	Correction  O O O O O O O Dise Level, dB(A)  Barrier Correction  O O O O O O O O O O O O O O O O O O	97 109 95 90 95 107 112 (01/2019 - 02/2019 Sub-total SWL  94 102 100 100 104 101 98 108 112 (03/2019 - 04/2019 Sub-total SWL
Underground Generator Ventilation fans Power pack for hand-held items of PME Water pump (electric) Welder/ generator, portable Poker, vibrator, hand-held  (e) Construction of Entrance and Vent SI PME  Above Ground Generator Crawler crane, mobile Dump truck Crane lorry, mobile Poker, vibrator, hand-held Air Compressor Concrete lorry mixer Concrete pump  (f) Construction of Station Box Roof Slat PME  Above Ground Generator Crawler crane, mobile	Ref  CNP 103  CNP 241  CNP 168  CNP 281  CNP 107  CNP 173  nafts  TM Ref./ other  Ref  CNP 103  EPD-00467  CNP 068  CNP 145  CNP 173  CNP 002  BS D6/33  CNP 047  TM Ref./ other  Ref  CNP 103  EPD-00467	Items	dB(A)  95 108 100 88 100 102  SWL/ Item dB(A)  95 102 105 105 105 102 96 109  SWL/ Item dB(A)  95 102	% 80% 70% 30% 80% 30% 100%  On-time % 80% 80% 80% 80% 80% 80% 80% 80% 80% 8	Overall No.  Correction for Underground Works  O O O O O O O O O O O O O O O O O O	Correction  O O O O O O O O O O O O O O O O O O	97 109 95 90 95 107 112 (01/2019 - 02/2019 Sub-total SWL  94 102 100 100 104 101 98 108 112 (03/2019 - 04/2019 Sub-total SWL
Underground Generator Ventilation fans Power pack for hand-held items of PME Water pump (electric) Welder/ generator, portable Poker, vibrator, hand-held  (e) Construction of Entrance and Vent St PME  Above Ground Generator Crawler crane, mobile Dump truck Crane lorry, mobile Poker, vibrator, hand-held Air Compressor Concrete lorry mixer Concrete pump  (f) Construction of Station Box Roof Slat PME  Above Ground Generator Crawler crane, mobile Dump truck Crawler crane, mobile	Ref  CNP 103  CNP 241  CNP 168  CNP 281  CNP 107  CNP 173  nafts  TM Ref./ other  Ref  CNP 103  EPD-00467  CNP 002  BS D6/33  CNP 047  TM Ref./ other  Ref  CNP 103	Items	dB(A)  95 108 100 88 100 102  SWL/ Item dB(A)  95 102 105 102 96 109  SWL/ Item dB(A)  95 102 105	% 80% 70% 30% 80% 30% 100%  On-time % 80% 80% 80% 80% 80% 80% 80% 80% 80% 8	Underground Works  0 0 0 0 0 0 0 0 Overall Noi 0 0 0 0 0 0 0 0 0 0 0 0 0 0 Correction for Underground Works  Correction for Underground Works  0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Correction  0 0 0 0 0 ise Level, dB(A)  Barrier Correction  0 0 0 0 ise Level, dB(A)	97 109 95 90 95 107 112 (01/2019 - 02/2019 Sub-total SWL  94 102 100 100 104 101 98 108 112 (03/2019 - 04/2019 Sub-total SWL
Underground Generator Ventilation fans Power pack for hand-held items of PME Water pump (electric) Welder/ generator, portable Poker, vibrator, hand-held  (e) Construction of Entrance and Vent SI PME  Above Ground Generator Crawler crane, mobile Dump truck Crane lorry, mobile Poker, vibrator, hand-held Air Compressor Concrete lorry mixer Concrete pump  (f) Construction of Station Box Roof Slat PME  Above Ground Generator Crawler crane, mobile Dump truck Cranel orry mixer Concrete pump	Ref  CNP 103 CNP 241 CNP 168 CNP 281 CNP 107 CNP 173  mafts  TM Ref./ other Ref  CNP 103 EPD-00467 CNP 068 CNP 047  TM Ref./ other Ref  CNP 103 EPD-00467 CNP 068 CNP 103 EPD-00467 CNP 068 CNP 103 EPD-00467 CNP 103 EPD-00467 CNP 103 EPD-00467 CNP 103 EPD-00467 CNP 1045	Items	dB(A)  95 108 100 88 100 102  SWL/ Item dB(A)  95 102 105 102 102 96 109  SWL/ Item dB(A)	% 80% 70% 30% 80% 30% 100%  On-time % 80% 80% 80% 80% 80% 80% 80% 30% 80% 80% 80%	Overall No.  Correction for Underground Works  O O O O O O O O O O O O O O O O O O	Correction  0 0 0 0 0 0 ise Level, dB(A)  Barrier Correction  0 0 0 0 0 see Level, dB(A)  Barrier Correction  0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	97 109 95 90 95 107 112 (01/2019 - 02/2019 Sub-total SWL  94 102 100 104 101 98 108 112 (03/2019 - 04/2019 Sub-total SWL
Underground Generator Ventilation fans Power pack for hand-held items of PME Water pump (electric) Welder/ generator, portable Poker, vibrator, hand-held  (e) Construction of Entrance and Vent SI PME  Above Ground Generator Crawler crane, mobile Dump truck Crane lorry, mobile Poker, vibrator, hand-held Air Compressor Concrete lorry mixer Concrete pump  (f) Construction of Station Box Roof Slat PME  Above Ground Generator Crawler crane, mobile Dump truck Crane lorry, mobile Poker, vibrator, hand-held Crawler crane, mobile Dump truck Crane lorry, mobile Poker, vibrator, hand-held	Ref  CNP 103 CNP 241 CNP 168 CNP 281 CNP 107 CNP 173  TM Ref./ other Ref  CNP 103 EPD-00467 CNP 068 CNP 145 CNP 173 CNP 002 BS D6/33 CNP 047  TM Ref./ other Ref  CNP 103 EPD-00467 CNP 068 CNP 145 CNP 173 CNP 002 BS D6/33 CNP 047	No. of   Items	dB(A)  95 108 100 88 100 102  SWL/ Item dB(A)  95 102 105 102 109  SWL/ Item dB(A)  95 102 105 109	% 80% 70% 30% 80% 30% 100%  On-time % 80% 30% 80% 80% 80% 80% 80% 80% 80% 80% 80% 8	Underground Works  0 0 0 0 0 0 0 0 Correction for Underground Works  0 0 0 0 0 Correction for Underground Works  0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Correction  O O O O O O O O O O O O O O O O O O	97 109 95 90 95 107 112 (01/2019 - 02/2019 Sub-total SWL  94 102 100 104 101 98 108 112 (03/2019 - 04/2019 Sub-total SWL
Underground Generator Ventilation fans Power pack for hand-held items of PME Water pump (electric) Welder/ generator, portable Poker, vibrator, hand-held  (e) Construction of Entrance and Vent SI PME  Above Ground Generator Crawler crane, mobile Dump truck Crane lorry, mobile Poker, vibrator, hand-held Air Compressor Concrete lorry mixer Concrete pump  (f) Construction of Station Box Roof Slat PME  Above Ground Generator Crawler crane, mobile Dound truck Crane lorry, mobile Porcer with the pack of Station PME  Above Ground Generator Crawler crane, mobile Dump truck Crane lorry, mobile Poker, vibrator, hand-held Air Compressor	Ref  CNP 103  CNP 241  CNP 168  CNP 281  CNP 107  CNP 173   TM Ref./ other  Ref  CNP 103  EPD-00467  CNP 173  CNP 002  BS D6/33  CNP 047  TM Ref./ other  Ref  CNP 103  EPD-00467  CNP 068  CNP 173  CNP 074  TM Ref./ other  CNP 103  EPD-00467  CNP 105  CNP 145  CNP 145  CNP 173  CNP 002	No. of   Items	dB(A)  95 108 100 88 100 102  SWL/ Item dB(A)  95 102 105 105 106 109  SWL/ Item dB(A)  95 10102 102 105 105 105 105 105 105 105 105 105 105	% 80% 70% 30% 80% 30% 100%  On-time % 80% 80% 80% 80%  On-time % 80% 80% 80% 80% 80%	Underground Works  0 0 0 0 0 0 0 Correction for Underground Works  0 0 0 0 0 Correction for Underground Works  0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Correction  O O O O O O O O D D D D D D D D D D D	97 109 95 90 95 107 112 (01/2019 - 02/2019 Sub-total SWL  94 102 100 100 104 101 98 108 112 (03/2019 - 04/2019 Sub-total SWL
Underground Generator Ventilation fans Power pack for hand-held items of PME Water pump (electric) Welder/ generator, portable Poker, vibrator, hand-held  (e) Construction of Entrance and Vent SI PME  Above Ground Generator Crawler crane, mobile Dump truck Crane lorry, mobile Poker, vibrator, hand-held Air Compressor Concrete lorry mixer Concrete pump  (f) Construction of Station Box Roof Slat PME  Above Ground Generator Crawler crane, mobile Dump truck Crane lorry, mobile Poker, vibrator, hand-held Crawler crane, mobile Dump truck Crane lorry, mobile Poker, vibrator, hand-held	Ref  CNP 103 CNP 241 CNP 168 CNP 281 CNP 107 CNP 173  TM Ref./ other Ref  CNP 103 EPD-00467 CNP 068 CNP 145 CNP 173 CNP 002 BS D6/33 CNP 047  TM Ref./ other Ref  CNP 103 EPD-00467 CNP 068 CNP 145 CNP 173 CNP 002 BS D6/33 CNP 047	No. of   Items	dB(A)  95 108 100 88 100 102  SWL/ Item dB(A)  95 102 105 102 109  SWL/ Item dB(A)  95 102 105 109	% 80% 70% 30% 80% 30% 100%  On-time % 80% 30% 80% 80% 80% 80% 80% 80% 80% 80% 80% 8	Underground Works  0 0 0 0 0 0 0 0 Correction for Underground Works  0 0 0 0 0 Correction for Underground Works  0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Correction  O O O O O O O O O O O O O O O O O O	97 109 95 90 95 107 112 (01/2019 - 02/2019 Sub-total SWL  94 102 100 104 101 98 108 112 (03/2019 - 04/2019 Sub-total SWL  94 102 100 100 104 101 108 108

Appendix B1 - Construction Plant Inventory for C&C Method at Zone 2

Package: 07 EXH EXH Structure

(h) Utility diversion							(07/2016 - 10/2016)
PME	TM Ref./ other Ref	No. of Items	SWL/ Item dB(A)	On- time %	Correction for Underground Works	Barrier Correction	Sub-total SWL
Mini Backhoe	CNP 082	1	94	50%	0	0	91
Dump Truck	CNP 068	1	105	30%	0	0	100
					Overall No	ise Level, dB(A)	100
(i) Pipe Pile Construction						Stage 1 Stage 2	(10/2016 - 12/2016) (04/2017 - 08/2017)
PME	TM Ref./ other Ref	No. of Items	SWL/ Item dB(A)	On- time %	Correction for Underground Works	Barrier Correction	Sub-total SWL
Piling Rig	CNP 167	2	114	100%	0	-10	107
Crane Lorry	CNP 145	1	105	100%	0	0	105
Excavator	EPD-02341	2	105	30%	0	0	103
Generator	CNP 103	2	95	30%	0	0	93
Crawler crane, mobile	EPD-00467	2	102	60%	0	0	103
					Overall No	ise Level, dB(A)	111

### Package: 06 EXH to Shaft Tunnel at West to EXH

Notes:

[1] PME in separate groups will not be operated at the same time. The group with the higher SWL is adopted in this assessment as the worst-case scenario.

[2] The SWL of rock drill was referenced to the approved Tsim Sha Tsui Station Northern Subway EIA Report (Register No.: AEIAR-127/2008).

(a) Site Formation

Areas A & B
(06/2015)

Area A
(09/2015)

Areas C - Stage 1
(01/2016)

Areas C - Stage 2
(07/2016)

PME	TM Ref./ other	No. of	SWL/ Item	On- time %	Correction for	Barrier	Sub-to	tal SWL
FIVIE	Ref	Items	dB(A)	On-time %	Underground Works	Correction	Group 1	Group 2
Excavator	EPD-02341	1	105	100%	0	0	-	105
Dump Truck with Grab	CNP 068	1	105	30%	0	0	-	100
Breaker, excavator mounted (hydraulic)	CNP 028	1	122	50%	0	0	-	119
Air compressor	CNP 002	1	102	100%	0	0	-	102
Pneumatic Breaker	CNP 027	1	122	60%	0	0	120	-
Generator	CNP 103	1	95	100%	0	0	-	95
Water Pump (electric)	CNP 281	1	88	30%	0	0	-	83
Saw, Concrete	CNP 203	1	115	30%	0	0	-	110
					Overall Noi	ise Level, dB(A)	120	120

Overall Noise Level, dB(A) 120 Maximum, dB(A) [1]: 120

(b) Site Hoarding Erection							(06/2015)
PME	TM Ref./ other Ref	No. of Items	SWL/ Item dB(A)	On- time %	Correction for Underground Works	Barrier Correction	Sub-total SWL
Excavator	EPD-02341	1	105	100%	0	0	105
Drill, hand-held (electric)	CNP 065	1	98	100%	0	0	98
Generator	CNP 103	1	95	100%	0	0	95
Lorry with crane/grab	CNP 145	1	105	50%	0	0	102
Welding Set	CNP 107	2	100	30%	0	0	98
					Overall No	ise Level, dB(A)	108

(c) Excavation inside SCL tunnels protection works (06/2016 - 10/2017) SWL/ Item TM Ref./ other Correction for No. of Barrier Sub-total **PME** On- time %dB(A) **Underground Works** SWL Ref Items Correction In Shaft 100% Excavator EPD-02341 9 105 -10 0 105 CNP 028 50% 114 Breaker, excavator mounted (hydraulic) -10 3 122 0 [2] CNP 107 CNP 283 108 50% -10 0 100 Welding Set 1 100 30% -10 85 0 Water Pump, submersible (electric)

At Surface 78 85 100% -10 Crawler crane, mobile EPD-00467 102 50% 0 0 99 EPD-00467 CNP 241 0 102 108 Crawler crane, mobile 2 102 50% 0 Ventilation Fans 100% 108 CNP 068 0 -5 Dump Truck 105 80% 99 Air compressor Water Pump (electric) 100% 80% CNP 002 102 0 107 CNP 281 88 87 Overall Noise Level, dB(A) 116

(d) Tunnel Box Structure Construction						Area A	1/2017 - 11/2018)
						Area B	1/2017 - 12/2019)
PME	TM Ref./ other Ref	No. of Items	SWL/ Item dB(A)	On- time %	Correction for Underground Works	Barrier Correction	Sub-total SWL
In Shaft							

PME	Ref	Items	dB(A)	On- time %	Underground Works	Correction	SWL
In Shaft							
Poker, vibrator, hand-held	CNP 173	3	102	50%	-10	0	94
Bar bender and cutter (electric)	CNP 021	1	90	50%	-10	0	77
Water Pump, submersible (electric)	CNP 283	2	85	100%	-10	0	78
Compactor, vibratory	CNP 050	1	105	50%	-10	0	92
At Surface							
Concrete lorry mixer	BS D6/33	2	96	50%	0	0	96
Crawler crane, mobile	EPD-00467	1	102	60%	0	0	100
Crawler crane, mobile	EPD-00467	2	102	60%	0	0	103
Ventilation Fans	CNP 241	2	108	100%	0	0	111
Air compressor	CNP 002	1	102	100%	0	0	102
Concrete Pump	CNP 047	2	109	100%	0	0	112
Water Pump (electric)	CNP 281	1	88	80%	0	0	87
<u> </u>		·	•	•	Overall No	ise Level, dB(A)	115

### Package: 06 EXH to Shaft Tunnel at West to EXH

Notes:

[1] PME in separate groups will not be operated at the same time. The group with the higher SWL is adopted in this assessment as the worst-case scenario.

[2] The SWL of rock drill was referenced to the approved Tsim Sha Tsui Station Northern Subway EIA Report (Register No.: AEIAR-127/2008).

(e) Diaphragm Wall Construction	TM Ref./ other	No. of	SWL/ Item		Correction for		(10/2015 - 04/ (03/2016 - 05/	,
PME	Ref	Items	dB(A)	On- time %	Underground Works	Correction	Group 1	Group 2
Generator	CNP 103	3	95	30%	0	0	95	- '
Dump truck	CNP 068	2	105	30%	0	0	103	-
Piling, diaphragm wall, bentonite filtering plant	CNP 162	1	105	40%	0	0	101	-
Crane (Grab & Service)	CNP 048	2	112	70%	0	0	-	113
Hydraulic extractor	CNP 163	2	90	100%	0	0	93	-
Power Pack	CNP 168	2	100	100%	0	0	103	-
Crane lorry, mobile	CNP 145	1	105	30%	0	0	100	-
Poker, vibrator, hand-held	CNP 173	2	102	30%	0	0	-	100
Air Compressor	CNP 002	3	102	30%	0	-10	-	92
Piling Rig	CNP 167	2	114	70%	0	-10	-	105
Concrete lorry mixer	BS D6/33	2	96	30%	0	0	-	94
		•	•	•	Overall No	ise Level, dB(A)	108	114

Overall Noise Level, dB(A) 108 Maximum, dB(A) [1]:

Maximum, dB(A) [1]:

115

112

(f) Excavation PME	TM Ref./ other	No. of	SWL/ Item	On time 9/	Correction for	(06 Barrier	/2017 - 05/20 Sub-to	18) t <b>al SWL</b>
PIME	Ref	Items	dB(A)	On- time %	Underground Works	Correction	Group 1	Group 2
In Shaft								
Excavator	EPD-02341	3	105	60%	-10	0	98	-
Excavator	EPD-02341	6	105	60%	-10	0	-	101
Breaker, excavator mounted (hydraulic)	CNP 028	1	122	50%	-10	0	-	109
Breaker, excavator mounted (hydraulic)	CNP 028	2	122	50%	-10	0	112	-
Rock Drill	[2]	3	108	50%	-10	0	-	100
Welding Set	CNP 107	3	100	30%	-10	0	-	90
Water Pump, submersible (electric)	CNP 283	2	85	100%	-10	0	-	78
At Surface								
Crawler crane, mobile	EPD-00467	2	102	60%	0	0		103
Crawler crane, mobile	EPD-00467	1	102	60%	0	0	100	-
Ventilation Fans	CNP 241	1	108	100%	0	0	108	108
Dump Truck	CNP 068	1	105	80%	0	0	104	104
Air compressor	CNP 002	3	102	100%	0	0	107	107
Water Pump (electric)	CNP 281	1	88	80%	0	0	87	87
					Overall No	ise Level, dB(A)	115	114

(06/2018 - 02/2019) (g) Tunnel Box Structure Construction TM Ref./ other SWL/ Item Correction for Barrier Sub-total No. of PME On-time % dB(A) **Underground Works** SWL Ref Items Correction In Shaft Poker, vibrator, hand-held Bar bender and cutter (electric) CNP 173 3 2 102 50% -10 0 94 CNP 021 50% -10 0 80 90 2 Water Pump, submersible (electric) **CNP 283** 85 100% -10 0 78 Compactor, vibratory CNP 050 105 50% -10 0 92 At Surface 2 Concrete lorry mixer BS D6/33 96 50% 0 0 96 Crawler crane, mobile EPD-00467 102 60% 0 103 Crawler crane, mobile EPD-00467 102 60% 0 0 100 Ventilation Fans CNP 241 2 100% 0 0 108 111 CNP 002 102 -10 92 Air compressor 100% Water Pump (electric) CNP 281 80% Overall Noise Level, dB(A)

(h) Backfilling and Superstructure						•	2/2019 - 02/2020) 5/2019 - 08/2019)
PME	TM Ref./ other Ref	No. of Items	SWL/ Item dB(A)	On- time %	Correction for Underground Works	Barrier Correction	Sub-total SWL
In Shaft							
Excavator	EPD-02341	4	105	100%	-10	0	101
Water Pump, submersible (electric)	CNP 283	1	85	100%	-10	0	75
At Surface							
Crawler crane, mobile	EPD-00467	1	102	30%	0	0	97
Crawler crane, mobile	EPD-00467	1	102	30%	0	0	97
Ventilation Fans	CNP 241	1	108	60%	0	0	106
Concrete Lorry mixer	BS D6/33	1	96	50%	0	0	93
Water Pump (electric)	CNP 281	1	88	40%	0	0	84
Concrete Pump	CNP 047	1	109	100%	0	0	109
Dump Truck	CNP 068	2	105	60%	0	-5	101
					Overall No	ise Level, dB(A)	112

Appendix B1 - Construction Plant Inventory for C&C Method at Zone 2

### Barging Point at Wan Chai Ex-PCWA

Construction/Set up							(09/2016 - 07/2017)
PME	TM Ref./ other Ref	No. of Items	SWL/ Item dB(A)	On- time %	Correction for Underground Works	Barrier Correction	Sub-total SWL
Crawler crane, mobile	EPD-00467	1	102	100%	0	0	102
Generator	CNP 103	2	95	100%	0	0	98
Crane Lorry	CNP 145	1	105	30%	0	0	100
Poker, vibrator, hand-held	CNP 173	2	102	30%	0	0	100
Concrete lorry mixer	BS D6/33	1	96	60%	0	0	94
					Overall No	ise Level, dB(A)	106
Spoil Disposal							(08/2017 - 12/2020)
PME	TM Ref./ other Ref	No. of Items	SWL/ Item dB(A)	On- time %	Correction for Underground Works	Barrier Correction	Sub-total SWL
Barges	CNP 061	1	104	30%	0	0	99
Truck	CNP 142	9	105	60%	0	0	112
Generator	CNP 103	1	95	100%	0	0	95
Excavator	EPD-02341	1	105	30%	0	0	100
					Overall No	ise Level, dB(A)	113

### Zone 1 - Wan Chai PTI

Notes:
[1] PME in separate groups will not be operated at the same time. The group with the higher SWL is adopted in this assessment as the worst-case scenario.
[2] The SWL of rock drill was referenced to the approved Tsim Sha Tsui Station Northern Subway EIA Report (Register No.: AEIAR-127/2008).

Site clearance, Site Hoarding Erection	on and utility diversion					(06/20	15 - 07/2015)
PME	TM Ref./ other Ref	No. of Items	SWL/ Item dB(A)	On- time %	Correction for Underground Works	Barrier Correction	Sub-total SWL
Excavator	EPD-02341	2	105	100%	0	0	108
Dump truck with Grab	CNP 068	1	105	100%	0	0	105
Generator	CNP 103	2	95	100%	0	0	98
Air compressor	CNP 002	2	102	100%	0	0	105
Hand held pneumatic breaker	CNP 024	2	108	100%	0	-5	106
Welding Set	CNP 107	2	100	100%	0	0	103
Mini backhoe	CNP 082	1	94	100%	0	0	94
					Overall No	ise Level, dB(A)	113

Stage 1						(06/20	15 - 06/2016)	
PME	TM Ref./ other	No. of	SWL/ Item	On- time %	Correction for	Barrier	Sub-to	tal SWL
- IVIL	Ref	Items	dB(A)	On-time %	Underground Works	Correction	Group 1	Group 2
Concrete saw	CNP 203	1	115	80%	0	-10	-	104
Air compressor	CNP 002	1	102	100%	0	-10	-	92
Hand held pneumatic breaker	CNP 024	1	108	80%	0	-5	-	102
Dump truck with Grab	CNP 068	1	105	80%	0	0	104	-
Welding Set	CNP 107	2	100	80%	0	0	-	102
Crane, mobile	EPD-01239	1	109	75%	0	0	108	-

Overall Noise Level, dB(A)
Maximum, dB(A) [1]: 108 109 109

Stage 2 PME	TM Ref./ other Ref	No. of Items	SWL/ Item dB(A)	On- time %	Correction for Underground Works	Barrier Correction	(01/2017) Sub-total SWL
Concrete saw	CNP 203	1	115	55%	0	0	112
Air compressor	CNP 002	1	102	100%	0	0	102
Hand held pneumatic breaker	CNP 024	1	108	100%	0	-5	103
Dump truck with Grab	CNP 068	1	105	100%	0	0	105
Welding Set	CNP 107	2	100	100%	0	0	103
Crane, mobile	EPD-01239	1	109	100%	0	0	109
					Overall No	ise Level, dB(A)	115

Construction of temporary Wan Chai Ferry Pier footbridge
TM Ref./ other
Ref (09/2015 - 12/2016) SWL/ Item dB(A) Sub-total SWL No. of Correction for Barrier On- time % **Group 1** 103 Items **Underground Works** Correction Group 2 Welding Set **CNP 107** 100 100% 2 0 0 Piling rig - H piles
Concrete vibrating poker
Concrete mixing truck CNP 167 CNP 173 BS D6/33 100% 0 -10 104 0 2 102 70% 100% 0 103 96 105 0 96 Excavator EPD-02341 100% 0 105 Crane, mobile EPD-01239 80%

Overall Noise Level, dB(A)

Maximum, dB(A) [1]: 108 107 108

Construction of Permanent Wan Chai Fer	ry Pier footbridge (	Superstru	cture)				(08/2019)
PME	TM Ref./ other	No. of	SWL/ Item	On- time %	Correction for	Barrier	Sub-total
1 ML	Ref	Items	dB(A)		Underground Works	Correction	SWL
Welding Set	CNP 107	2	100	100%	0	0	103
Crane, mobile	EPD-01239	1	109	100%	0	0	109
					Overall No	ise Level, dB(A)	110

Demolition of Temporary Wan Chai F	erry Pier footbridge					(09/20	19 - 12/2019)
PME	TM Ref./ other	On- time		On- time %	Correction for	Barrier	Sub-total
ı mı	Ref	Items	dB(A)	On-time 70	Underground Works	Correction	SWL
Concrete saw	CNP 203	1	115	100%	0	0	115
Air compressor	CNP 002	1	102	100%	0	0	102
Hand held pneumatic breaker	CNP 024	1	108	100%	0	-5	103
Dump truck with Grab	CNP 068	1	105	100%	0	0	105
Welding Set	CNP 107	2	100	100%	0	0	103
Crane, mobile	EPD-01239	1	109	100%	0	0	109
					Overall No	ise Level, dB(A)	117

P.6

### Zone 1 - Wan Chai PTI

Notes:
[1] PME in separate groups will not be operated at the same time. The group with the higher SWL is adopted in this assessment as the worst-case scenario.
[2] The SWL of rock drill was referenced to the approved Tsim Sha Tsui Station Northern Subway EIA Report (Register No.: AEIAR-127/2008).

Piling works (PPW and H-piles) Stage 1 (TTM Stage 2)						(07/2)	015 - 04/2016)	
PME	TM Ref./ other	No. of Items	SWL/ Item	On- time %	Correction for	Barrier	Sub-to	tal SWL
0	Ref CNP 103	items	dB(A)	4000/	Underground Works	Correction	Group 1	Group 2
Generator		1	95	100%	U	-10	85	-
Welding set	CNP 107	2	100	55%	0	0	100	-
Welding set	CNP 107	2	100	55%	0	0	-	100
Piling rig	CNP 167	3	114	60%	0	-10	107	-
Piling rig	CNP 167	3	114	60%	0	-10	-	107
Crawler crane	EPD-00467	2	102	60%	0	0	103	
Crawler crane	EPD-00467	2	102	60%	0	0	-	103
Grout mixer	CNP 105	2	90	100%	0	0	-	93
Air compressor	CNP 002	9	102	60%	0	-10	99	-
Air compressor	CNP 002	9	102	60%	0	-10	-	99

Overall Noise Level, dB(A) 109 Maximum, dB(A) [1]: 109 109

Stage 2 (TTM Stage 3a & 3b)						(06/20	16 - 10/2016)	
PME	TM Ref./ other	No. of	SWL/ Item	On- time %	Correction for	Barrier	Sub-to	tal SWL
FIVIC	Ref	Items	dB(A)	On-time %	Underground Works	Correction	Group 1	Group 2
Generator	CNP 103	1	95	100%	0	-10	85	-
Welding set	CNP 107	1	100	100%	0	0	-	100
Piling rig	CNP 167	2	114	80%	0	-10	-	106
Crawler crane	EPD-00467	1	102	100%	0	0	102	-
Grout mixer	CNP 105	1	90	100%	0	0	90	-
Air compressor	CNP 002	6	102	80%	0	-10	-	99
					Overall No	ise Level, dB(A)	102	108

Overall Noise Level, dB(A)

Maximum, dB(A) [1]: 102

109

108

Overall Noise Level, dB(A)

Stage 3 (TTM Stage 3C)						(12/20	016 - 04/2017)
PME	TM Ref./ other Ref	No. of Items	SWL/ Item dB(A)	On- time %	Correction for Underground Works	Barrier Correction	Sub-total SWL
Generator	CNP 103	1	95	100%	- 0	-10	85
Welding set	CNP 107	1	100	100%	0	0	100
Piling rig	CNP 167	2	114	100%	0	-10	107
Crawler crane	EPD-00467	1	102	100%	0	0	102
Grout mixer	CNP 105	1	90	100%	0	0	90
Air compressor	CNP 002	4	102	100%	0	-10	98

Diaphragm wall construction

Stage 1 (TTM Stage 2)						(08/20	15 - 01/2016)	
PME	TM Ref./ other Ref	No. of Items	SWL/ Item dB(A)	On- time %	Correction for Underground Works	Barrier Correction	Sub-to	tal SWL
Generator	CNP 103	5		100%	onderground works	Correction		Group 2
		5	95		U	U	102	-
Dump truck	CNP 068	1	105	100%	0	-5	-	100
Hydraulic extractor	CNP 163	3	90	70%	0	0	93	-
Power Pack	CNP 168	3	100	70%	0	0	103	-
Crawler crane with grab	EPD-00467	4	102	70%	0	0	-	106
Desander	CNP 162	3	105	100%	0	-10	100	-
Filter press	CNP 162	1	105	100%	0	-10	-	95
Bentonite mixer	CNP 045	2	96	100%	0	0	-	99
Crane lorry	CNP 145	1	105	80%	0	0	-	104
Concrete mixing truck	BS D6/33	3	96	40%	0	0	-	97
					Overall No	ise Level, dB(A)	107	110

Overall Noise Level, dB(A)

Maximum, dB(A) [1]: 107 110

Stage 2 (TTM Stage 3a/3b/3c & 5) (02/2016 - 03/2017) SWL/ Item TM Ref./ other No. of Correction for Barrier Sub-total SWL PME On- time % Ref CNP 103 Items dB(A) **Underground Works** Correction Group 1 Group 2 100% 95 Generator 0 -10 91 91 Dump truck CNP 068 105 0 80% 0 104 CNP 163 CNP 168 EPD-00467 Hydraulic extractor 3 90 70% 0 93 0 0 0 0 0 0 -10 Power Pack 3 4 1 100 70% 80% 103 Crawler crane with grab 102 106 Desander CNP 162 105 100% 101 Filter press CNP 162 105 100% -10 95 CNP 045 CNP 145 2 96 105 0 Bentonite mixer 100% 0 99 100% Crane lorry 105 Concrete mixing truck BS D6/33 100% 96 109

Overall Noise Level, dB(A)

Maximum, dB(A) [1]: 108 109

### Zone 1 - Wan Chai PTI

Notes:
[1] PME in separate groups will not be operated at the same time. The group with the higher SWL is adopted in this assessment as the worst-case scenario.
[2] The SWL of rock drill was referenced to the approved Tsim Sha Tsui Station Northern Subway EIA Report (Register No.: AEIAR-127/2008).

	avation & ELS installation	n
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Underground (partially covered by decking						(03/20	17 - 05/2018)	
PME	TM Ref./ other	No. of	SWL/ Item	On- time %	Correction for	Barrier	Sub-to	tal SWL
FIME.	Ref	Items	dB(A)	On-time /	Underground Works	Correction	Group 1	Group 2
Rock drill	[2]	1	108	60%	0	-5	101	-
Rock drill	[2]	1	108	60%	0	-5	-	101
Breaker, excavator mounted (hydraulic)	CNP 028	3	122	50%	0	-10	114	-
Breaker, excavator mounted (hydraulic)	CNP 028	3	122	50%	0	-10	-	114
Excavator	EPD-02341	1	105	50%	0	0	102	-
Excavator	EPD-02341	1	105	50%	0	0	-	102
Welding set	CNP 107	2	100	80%	0	0	-	102
Water Pump, submersible (electric)	CNP 283	4	85	80%	0	0	-	90
Ventilation fans	CNP 241	2	108	50%	0	0	108	-
Ventilation fans	CNP 241	2	108	50%	0	0	-	108
At surface								
Crawler crane	EPD-00467	4	102	50%	0	0	105	-
Crane lorry	CNP 145	1	105	60%	0	0	103	-
Water pump (electric)	CNP 281	1	88	70%	0	0	86	-
Dump truck	CNP 068	2	105	60%	0	-5	101	-
Excavator	EPD-02341	3	105	70%	0	-5	-	103
Welding set	CNP 107	1	100	100%	0	0	-	100
Power pack for handheld tools	CNP 168	1	100	100%	0	0	100	-
Concrete pump	CNP 047	1	109	60%	0	-10	97	-
Concrete mixing truck	BS D6/33	1	96	60%	0	0	94	-
					Overall No	ise Level, dB(A)	116	116

Overall Noise Level, dB(A)

Maximum, dB(A) [1]: 116 116

Construction of Internal Structure of Box Station

Construction of internal off acture of Box	x Otation							
Underground (partially covered by deck	ing)					(06/20	018 - 02/2019)	
DME	TM Ref./ other	No. of	SWL/ Item	O 4i 0/	Correction for	Barrier	Sub-to	tal SWL
PME	Ref	Items	dB(A)	On- time %	Underground Works	Correction	Group 1	Group 2
Welding set	CNP 107	2	100	100%	0	0	103	
Ventilation fans	CNP 241	2	108	100%	0	0	111	-
Ventilation fans	CNP 241	2	108	100%	0	0	-	111
Power pack for handheld tools	CNP 168	1	100	100%	0	0	100	-
Vibrating poker - handheld	CNP 173	3	102	80%	0	0	-	106
At surface								
Crawler crane	EPD-00467	3	102	50%	0	0	-	104
Crane lorry	CNP 145	1	105	80%	0	0	-	104
Water pump (electric)	CNP 281	1	88	100%	0	0	88	-
Dump truck	CNP 068	1	105	50%	0	-5	-	97
Excavator	EPD-02341	1	105	60%	0	-5	-	98
Welding set	CNP 107	1	100	100%	0	0	-	100
Concrete pump	CNP 047	1	109	80%	0	0	108	-
Concrete mixing truck	BS D6/33	1	96	100%	0	0	96	-

Overall Noise Level, dB(A) 114 114 Maximum, dB(A) [1]: 114

Construction of Entrances and Structure

Above ground						(03/20	19 - 08/2019)
PME	TM Ref./ other Ref	No. of Items	SWL/ Item dB(A)	On- time %	Correction for Underground Works	Barrier Correction	Sub-total SWL
Mobile crane	EPD-01239	2	109	50%	- 0	-5	104
Crane lorry	CNP 145	1	105	100%	0	0	105
Dump truck	CNP 068	1	105	60%	0	-5	98
Welding set	CNP 107	1	100	100%	0	0	100
Concrete pump	CNP 047	1	109	50%	0	0	106
Concrete mixing truck	BS D6/33	1	96	50%	0	0	93
Air compressor	CNP 002	1	102	50%	0	0	99
Vibrating poker - handheld	CNP 173	3	102	50%	0	0	104
					Overall No	ise Level, dB(A)	112

P.8

### Zone 2 - Harbour Road Sports Centre

Notes:
[1] PME in separate groups will not be operated at the same time. The group with the higher SWL is adopted in this assessment as the worst-case scenario.
[2] The SWL of rock drill was referenced to the approved Tsim Sha Tsui Station Northern Subway EIA Report (Register No.: AEIAR-127/2008).

Demolition of Harbour Road Sports Co	entre (HRSC)					(06/20	17 - 09/2017)	
PME	TM Ref./ other	No. of SWL/ Item		On- time %	Correction for	Barrier	Sub-to	tal SWL
FINE	Ref	Items	dB(A)	On-time %	Underground Works	Correction	Group 1	Group 2
Excavator	EPD-02341	2	105	100%	0	-5	103	-
Dump truck with Grab	CNP 068	1	105	100%	0	0	-	105
Air compressor	CNP 002	1	102	100%	0	-10	-	92
Hand held pneumatic breaker	CNP 024	3	108	60%	0	-5	106	-
Welding Set	CNP 107	1	100	100%	0	0	-	100
<u> </u>	<u> </u>				Overall No	ise Level, dB(A)	107	106

Overall Noise Level, dB(A)

Maximum, dB(A) [1]: 107 107

Site Hoarding Erection & Pile Removal	TM Ref./ other	No. of	SWL/ Item		Correction for	Barrier	(10/2017) Sub-to	tal SWL
PME	Ref	Items	dB(A)	On- time %	Underground Works	Correction	Group 1	Group 2
Excavator	EPD-02341	2	105	100%	0	-5	-	103
Dump truck with Grab	CNP 068	1	105	100%	0	0	105	-
Crane lorry	CNP 145	1	105	100%	0	0	-	105
Air compressor	CNP 002	1	102	60%	0	-10	90	-
Hand held pneumatic breaker	CNP 024	1	108	50%	0	-5	-	100
Welding Set	CNP 107	1	100	100%	0	0	-	100
Piling, large diameter bored, oscillator	CNP 165	1	115	100%	0	-10	105	-
Crawler crane	EPD-00467	1	102	100%	0	0	102	-

Overall Noise Level, dB(A) 109 109 Maximum, dB(A) [1]: 109

(11/2017 - 02/2018) Piling works (PPW and H-piles) TM Ref./ other No. of SWL/ Item Correction for Barrier Sub-total SWL PME On-time % Ref CNP 107 CNP 167 Items dB(A) **Underground Works** Correction Group 1 Group 2 Welding set Piling rig Crawler crane 4 4 100 80% 0 0 105 0 80% 114 -10 109 3 2 16 0 EPD-00467 102 80% 0 106 CNP 105 CNP 002 Grout mixer 90 100% 0 93 Air compressor 102 80% 0 -10 103 109

110 Overall Noise Level, dB(A)

Maximum, dB(A) [1] 110

Excavation & ELS installation (C&C Methodology Underground (partially covered by deckin	<del></del>					(03/2)	018 - 02/2019)	
PME	TM Ref./ other	No. of Items	SWL/ Item dB(A)	On- time %	Correction for Underground Works	Barrier Correction	,	tal SWL Group 2
Rock drill	[2]	2	108	50%	0	-5	103	- '
Breaker, excavator mounted (hydraulic)	CNP 028	2	122	50%	-10	0	-	112
Breaker, excavator mounted (hydraulic)	CNP 028	2	122	50%	-10	0	112	
Welding set	CNP 107	2	100	60%	0	0	101	-
Water Pump, submersible (electric)	CNP 283	2	85	100%	0	0	-	88
Ventilation fans	CNP 241	1	108	50%	0	0	-	105
Ventilation fans	CNP 241	1	108	50%	0	0	105	-
At surface								
Crawler crane	EPD-00467	2	102	50%	0	0	102	-
Crane lorry	CNP 145	1	105	60%	0	0	-	103
Dump truck	CNP 068	1	105	50%	0	-5	-	97
Excavator	EPD-02341	1	105	50%	0	-5	-	97
Concrete mixing truck	BS D6/33	1	96	50%	0	0	-	93

Overall Noise Level, dB(A)
Maximum, dB(A) [1]:

114 114 113

### Zone 2 - Harbour Road Sports Centre

Notes:
[1] PME in separate groups will not be operated at the same time. The group with the higher SWL is adopted in this assessment as the worst-case scenario.
[2] The SWL of rock drill was referenced to the approved Tsim Sha Tsui Station Northern Subway EIA Report (Register No.: AEIAR-127/2008).

Constructi	on of	Internal	Structure of	Box Station

$(03/2019 \cdot$	- 11	/20	19

Underground (partially covered by decking)						(03/2019 - 11/2019)				
PME	TM Ref./ other	No. of	SWL/ Item	On- time %	Correction for	Barrier	Sub-total SWL			
FINE	Ref	Items	dB(A)	OII- tillie /6	Underground Works	Correction	Group 1	Group 2		
Welding set	CNP 107	2	100	100%	0	0	-	103		
Ventilation fans	CNP 241	2	108	60%	0	0	109	-		
Power pack for handheld tools	CNP 168	1	100	100%	0	0	-	100		
Vibrating poker - handheld	CNP 173	3	102	60%	0	0	105	-		
At surface										
Crawler crane	EPD-00467	2	102	50%	0	0	-	102		
Crane lorry	CNP 145	1	105	80%	0	0	-	104		
Dump truck	CNP 068	1	105	100%	0	-5	-	100		
Excavator	EPD-02341	1	105	100%	0	0	105	-		
Welding set	CNP 107	1	100	100%	0	0	-	100		
Concrete pump	CNP 047	1	109	80%	0	0	-	108		
Concrete mixing truck	BS D6/33	1	96	100%	0	0	96	-		

Overall Noise Level, dB(A)

Maximum, dB(A) [1]: 111 112 112

Construction of Entrances and Ground structure

Above ground	ouna structure					(12/2	019 - 02/2020)
PME	TM Ref./ other Ref	No. of Items	SWL/ Item dB(A)	On- time %	Correction for Underground Works	Barrier Correction	Sub-total SWL
Mobile crane	EPD-01239	1	109	100%	0	-5	104
Crane lorry	CNP 145	1	105	100%	0	0	105
Dump truck	CNP 068	1	105	100%	0	-5	100
Welding set	CNP 107	1	100	100%	0	0	100
Concrete pump	CNP 047	1	109	100%	0	0	109
Concrete mixing truck	BS D6/33	1	96	100%	0	0	96
Air compressor	CNP 002	1	102	100%	0	0	102
Vibrating noker - handheld	CND 173	3	102	100%	0	0	107

Overall Noise Level, dB(A)

### Zone 3 - Wan Chai Swimming Pool

Notes:
[1] PME in separate groups will not be operated at the same time. The group with the higher SWL is adopted in this assessment as the worst-case scenario.
[2] The SWL of rock drill was referenced to the approved Tsim Sha Tsui Station Northern Subway EIA Report (Register No.: AEIAR-127/2008).

Demolition of Wan Chai Swimming Pool						(12/20	15 - 03/2016)	
PME	TM Ref./ other	No. of	SWL/ Item	On- time %	Correction for	Barrier	Sub-tot	al SWL
	Ref	Items	ns dB(A)	On-time /	Underground Works	Correction	Group 1	Group 2
Concrete Saw	CNP 203	2	115	50%	0	-10	-	105
Excavator	EPD-02341	1	105	50%	0	-5	97	-
Dump truck	CNP 068	1	105	30%	0	0	100	-
	•				Overall Noi	se Level, dB(A)	102	105

Maximum, dB(A) [1]:

Site Hoarding Erection & Pile Removal						(08/20	16 - 09/2016)	
PME	TM Ref./ other	No. of	SWL/ Item	On- time %	Correction for	Barrier	Sub-to	tal SWL
I ML	Ref	Items	dB(A)	On-time /	Underground Works	Correction	Group 1	Group 2
Excavator	EPD-02341	2	105	50%	0	-5	-	100
Dump truck with Grab	CNP 068	1	105	40%	0	0	-	101
Crane lorry	CNP 145	1	105	80%	0	0	-	104
Air compressor	CNP 002	1	102	100%	0	-10	92	92
Hand held pneumatic breaker	CNP 024	1	108	70%	0	-5	-	-
Welding Set	CNP 107	1	100	100%	0	-10	90	-
Piling, large diameter bored, oscillator	CNP 165	1	115	100%	0	-10	105	-
Crawler crane	EPD-00467	1	102	100%	0	0	102	-
					Overall No	ise Level, dB(A)	107	107

Overall Noise Level, dB(A)

Maximum, dB(A) [1]: 107

Piling works (H-piles)		(03/2016 - 04/2016)						
PME	TM Ref./ other	No. of	SWL/ Item	On-time %	Correction for	Barrier	Sub-to	tal SWL
	Ref	Items	dB(A)		Underground Works	Correction	Group 1	Group 2
Welding set	CNP 107	2	100	100%	0	0	103	-
Piling rig	CNP 167	2	114	100%	0	-10	-	107
Crawler crane	EPD-00467	2	102	100%	0	0	105	-
Grout mixer	CNP 105	1	90	100%	0	0	90	-
Air compressor	CNP 002	6	102	100%	0	-10	-	100
					Overall No	ise Level, dB(A)	107	108

Overall Noise Level, dB(A)

Maximum, dB(A) [1]: 107 108

Overall Noise Level, dB(A)

Diaphragm wall construction						(05/2	016 - 07/2017)
PME	TM Ref./ other Ref	No. of Items	SWL/ Item dB(A)	On- time %	Correction for Underground Works	Barrier Correction	Sub-total SWL
Hydraulic extractor	CNP 163	2	90	100%	0	0	93
Power Pack	CNP 168	2	100	65%	0	0	101
Crawler crane with grab	EPD-00467	3	102	55%	0	0	104
Concrete mixing truck	BS D6/33	1	96	80%	0	0	95

Excavation & ELS installation

<u>a)</u>					(08/20	017 - 08/2018)	
TM Ref./ other	No. of	SWL/ Item	On time %	Correction for	Barrier	Sub-to	tal SWL
Ref	Items	dB(A)	On-time %	Underground Works	Correction	Group 1	Group 2
[2]	1	108	60%	0	-5	-	101
CNP 028	2	122	50%	0	-10	112	-
CNP 028	2	122	50%	0	-10	-	112
CNP 107	2	100	60%	0	0	101	-
CNP 283	2	85	100%	0	0	88	-
CNP 241	2	108	60%	0	0		109
EPD-00467	2	102	40%	0	0	101	-
CNP 145	1	105	50%	0	0	102	-
CNP 068	1	105	40%	0	-5	96	-
EPD-02341	1	105	50%	0	-5	97	-
BS D6/33	1	96	60%	0	0	94	-
	TM Ref./ other Ref [2] CNP 028 CNP 028 CNP 107 CNP 283 CNP 241  EPD-00467 CNP 145 CNP 068 EPD-02341	TM Ref./ other Ref   No. of Items   [2]   1   1   1   1   1   1   1   1   1	TM Ref./ other Ref Items (dB(A))  [2] 1 108  CNP 028 2 122  CNP 028 2 122  CNP 107 2 100  CNP 283 2 85  CNP 241 2 108  EPD-00467 2 102  CNP 105  CNP 105  EPD-02341 1 105	TM Ref / other Ref ltems	TM Ref / other Ref         No. of Items         SWL/ Item dB(A)         On- time %	TM Ref.   No. of Ref   No. of No. of No. of Ref   No. of	TM Ref / other Ref         No. of Items         SWL/ Item dB(A)         Correction for Underground Works         Barrier Correction         Sub-to Group 1           [2]         1         108         60%         0         -5         -           CNP 028         2         122         50%         0         -10         112           CNP 028         2         122         50%         0         -10         -           CNP 107         2         100         60%         0         0         101         -           CNP 283         2         85         100%         0         0         88         CNP 241         2         108         60%         0         0         101         101         CNP 145         1         105         50%         0         0         102         102         40%         0         0         102         102         0         102         102         0         0         105         105         0         0         105         105         0         0         105         0         0         102         0         102         0         0         105         0         0         0         0         0         0

Overall Noise Level, dB(A)

Maximum, dB(A) [1]:

114

106

### Zone 3 - Wan Chai Swimming Pool

Notes:
[1] PME in separate groups will not be operated at the same time. The group with the higher SWL is adopted in this assessment as the worst-case scenario.
[2] The SWL of rock drill was referenced to the approved Tsim Sha Tsui Station Northern Subway EIA Report (Register No.: AEIAR-127/2008).

Underground (partially covered by d	ecking)					(09/20	18 - 03/2019)	
PME	TM Ref./ other	No. of	SWL/ Item	On- time %	Correction for	Barrier	Sub-to	tal SWL
FIVIC	Ref	Items	dB(A)	On-time %	Underground Works	Correction	Group 1	Group 2
Welding set	CNP 107	2	100	100%	0	0	103	-
Ventilation fans	CNP 241	2	108	80%	0	0	-	110
Power pack for handheld tools	CNP 168	1	100	100%	0	0	100	-
Vibrating poker - handheld	CNP 173	3	102	80%	0	0	106	-
At surface								
Crawler crane	EPD-00467	2	102	50%	0	0	-	102
Crane lorry	CNP 145	1	105	70%	0	0	103	-
Dump truck	CNP 068	1	105	70%	0	-5	98	-
Excavator	EPD-02341	1	105	100%	0	-5	100	-
Welding set	CNP 107	1	100	100%	0	0	100	-
Concrete pump	CNP 047	1	109	80%	0	-10	-	98
Concrete mixing truck	BS D6/33	1	96	100%	0	0	-	96

Overall Noise Level, dB(A)

Maximum, dB(A) [1]: 111 111

111

Above ground						(04/20	019 - 09/2019)	
PME	TM Ref./ other	No. of	SWL/ Item	On 4im = 0/	Correction for	Barrier	Sub-to	tal SWL
PIVIE	Ref	Items	dB(A)	On- time %	Underground Works	Correction	Group 1	Group 2
Mobile crane	EPD-01239	1	109	50%	0	0	106	106
Crane lorry	CNP 145	1	105	80%	0	0	104	-
Dump truck	CNP 068	1	105	100%	0	0	-	105
Welding set	CNP 107	1	100	100%	0	0	100	-
Concrete pump	CNP 047	1	109	80%	0	0	108	-
Concrete mixing truck	BS D6/33	1	96	100%	0	0	-	96
Vibrating poker - handheld	CNP 173	3	102	100%	0	0	-	107

Overall Noise Level, dB(A)

Maximum, dB(A) [1]: 111

### Zone 4 - Wan Chai Sports Ground

Notes:
[1] PME in separate groups will not be operated at the same time. The group with the higher SWL is adopted in this assessment as the worst-case scenario.
[2] The SWL of rock drill was referenced to the approved Tsim Sha Tsui Station Northern Subway EIA Report (Register No.: AEIAR-127/2008).

Piling works (H-piles) - Wan Chai S	Sports Ground (WCSG) TM Ref./ other	No. of	SWL/ Item		Correction for	Barrier	(08/2016) Sub-to	tal SWL
PME	Ref	Items	dB(A)	On- time %	Underground Works	Correction	Group 1	Group 2
Generator	CNP 103	1	95	100%	0	0		95
Welding set	CNP 107	1	100	100%	0	0	-	100
Piling rig	CNP 167	1	114	100%	0	0	114	-
Crawler crane	EPD-00467	1	102	100%	0	0	-	102
Grout mixer	CNP 105	1	90	100%	0	0	-	90
Air compressor	CNP 002	2	102	100%	0	0	105	-
					Overall No	ise Level, dB(A)	115	105

Overall Noise Level, dB(A)
Maximum, dB(A) [2]: 115

Diaphragm wall construction - Phas	se 1 WCSG					(12/20	15 - 07/2016)	
PME	TM Ref./ other	No. of	SWL/ Item	On- time %	Correction for	Barrier	Sub-to	tal SWL
PIVIE	Ref	Items	dB(A)	On-time %	Underground Works	Correction	Group 1	Group 2
Generator	CNP 103	1	95	100%	0	0	-	95
Dump truck	CNP 068	1	105	50%	0	0	-	102
Hydraulic extractor	CNP 163	1	90	80%	0	0	-	89
Power Pack	CNP 168	1	100	80%	0	0	99	-
Crawler crane with grab	EPD-00467	1	102	100%	0	0	-	102
Desander	CNP 162	1	105	100%	0	-10	-	95
Bentonite mixer	CNP 045	1	96	100%	0	0	96	-
Crane lorry	CNP 145	1	105	70%	0	0	103	-
Concrete mixing truck	BS D6/33	1	96	100%	0	0	96	-
					Overall No	ise Level, dB(A)	106	106

Overall Noise Level, dB(A)

Maximum, dB(A) [2]: 106

PME	TM Ref./ other Ref	No. of Items	SWL/ Item dB(A)	On- time %	Correction for Underground Works	Barrier Correction	Sub-total SWL
Welding set	CNP 107	2	100	100%	0	0	103
Piling rig	CNP 167	4	114	55%	0	-10	107
Crawler crane	EPD-00467	2	102	55%	0	0	102
Grout mixer	CNP 105	2	90	100%	0	0	93
Air compressor	CNP 002	8	102	100%	0	-10	101
					Overall No	ise Level, dB(A)	110

Underground (no noise cover)						(06/20	17 - 07/2018)	
PME	TM Ref./ other Ref	No. of Items	SWL/ Item dB(A)	On- time %	Correction for Underground Works	Barrier Correction	Sub-to	tal SWL Group 2
Rock drill	[2]	1	108	80%	0	-5	102	102
Breaker, excavator mounted (hydraulic)	CNP 028	1	122	60%	0	-10	-	110
Welding set	CNP 107	2	100	80%	0	0	102	102
Water Pump, submersible (electric)	CNP 283	1	85	80%	0	0	84	84
Ventilation fans	CNP 241	3	108	80%	0	0	112	-
					Overall No	ise Level, dB(A)	113	111
					Max	imum, dB(A) <sup>[2]</sup> :	113	
Underground (with full noise cover over	Tonnochy Road)					(08/20	18 - 04/2019)	
Rock drill	[2]	1	108	70%	-10	0 `	96	
Excavator	EPD-02341	4	105	100%	-10	0	101	
Welding set	CNP 107	2	100	100%	-10	0	93	
Water Pump, submersible (electric)	CNP 283	1	85	100%	-10	0	75	
Ventilation fans	CNP 241	3	108	100%	-10	0	103	
					Overall No	ise Level, dB(A)	106	•
At surface						(08/20	18 - 04/2019)	
Crawler crane	EPD-00467	1	102	50%	0	0	99	
Crane lorry	CNP 145	1	105	100%	0	0	105	
Water pump (electric)	CNP 281	1	88	100%	0	0	88	
Dump truck	CNP 068	1	105	100%	0	-5	100	
Excavator	EPD-02341	1	105	100%	0	-5	100	
Welding set	CNP 107	1	100	100%	0	0	100	
Generator	CNP 103	1	95	100%	0	-10	85	
Concrete pump	CNP 047	1	109	100%	0	0	109	
Concrete mixing truck	BS D6/33	1	96	100%	0	0	96	

### Zone 4 - Wan Chai Sports Ground

Notes:
[1] PME in separate groups will not be operated at the same time. The group with the higher SWL is adopted in this assessment as the worst-case scenario.
[2] The SWL of rock drill was referenced to the approved Tsim Sha Tsui Station Northern Subway EIA Report (Register No.: AEIAR-127/2008).

Construction o	f Interna	l Structure of	f Box Station

Underground (with full noise cover over	er Tonnochy Road)					(10/20	018 - 04/2019)	
PME	TM Ref./ other	No. of	SWL/ Item	On- time %	Correction for	Barrier	Sub-to	tal SWL
FIVIC	Ref	Items	dB(A)	On-time %	Underground Works	Correction	Group 1	Group 2
Welding set	CNP 107	2	100	100%	-10	0	93	-
Water Pump, submersible (electric)	CNP 283	1	85	100%	-10	0	-	75
Excavator	EPD-02341	2	105	100%	-10	0	98	-
Ventilation fans	CNP 241	4	108	100%	-10	0	104	-
Power pack for handheld tools	CNP 168	1	100	100%	-10	0	90	
Vibrating poker - handheld	CNP 173	3	102	100%	-10	0	-	97
At surface								
Crawler crane	EPD-00467	1	102	100%	0	0	-	102
Crane lorry	CNP 145	1	105	100%	0	0	105	-
Water pump (electric)	CNP 281	1	88	100%	0	0	-	88
Dump truck	CNP 068	1	105	100%	0	-5	-	100
Excavator	EPD-02341	1	105	100%	0	-5	-	100
Welding set	CNP 107	1	100	100%	0	0	-	100
Concrete pump	CNP 047	1	109	100%	0	-10	-	99
Concrete mixing truck	BS D6/33	1	96	100%	0	0	-	96
Generator	CNP 103	1	95	100%	0	-10	-	85

Overall Noise Level, dB(A) 108 108 Maximum, dB(A) [2]: 108

rovision of WCSG grandstand

Reprovision of WCSG grandstand						(05/20	119 - 09/2020)
PME	TM Ref./ other Ref	No. of Items	SWL/ Item dB(A)	On- time %	Correction for Underground Works	Barrier Correction	Sub-total SWL
Mobile crane	EPD-01239	1	109	100%	0	0	109
Crane lorry	CNP 145	1	105	100%	0	0	105
Dump truck	CNP 068	1	105	100%	0	0	105
Excavator	EPD-02341	1	105	100%	0	0	105
Welding set	CNP 107	1	100	100%	0	0	100
Concrete pump	CNP 047	1	109	100%	0	0	109
Concrete mixing truck	BS D6/33	1	96	100%	0	0	96
Air compressor	CNP 002	1	102	100%	0	0	102
Generator	CNP 103	1	95	100%	0	0	95
Vibrating poker - handheld	CNP 173	3	102	100%	0	0	107
					Overall No	ise Level, dB(A)	115

# Appendix B2 Construction Plant Inventory for Drill-and-Blast Works Combined with Mechanical Excavation at Zone 2

Appendix B2 - Construction Plant Inventory for Drill-and-Blast Works Combined with Mechanical Excavation at Zone 2

Package: 07 EXH EXH Structure

ner No. of Items  1	SWL/ Item dB(A) 105 98 95 105 100  SWL/ Item dB(A) 95 105 102 102 102 96 109  SWL/ Item dB(A)	On- time % 100% 100% 50% 30%  On- time % 80% 50% 80% 80% 80%	Correction for Underground Works  0 0 0 0 0 0 0 Correction for Underground Works  0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Barrier Correction  0 0 0 0 ise Level, dB(A)  Barrier Correction  0 0 0 0	(06/2016)  Sub-total SWL  105 98 95 102 98 108  (01/2018 - 02/2018)  Sub-total SWL  94 100 102
Items	dB(A) 105 98 95 105 100 SWL/ Item dB(A) 95 105 105 102 102 96 109	% 100% 100% 100% 50% 30%  On- time % 80% 30% 50% 80% 80% 80%	Underground Works  0 0 0 0 0 0 Correction for Underground Works  0 0 0 0 0 0 0 0 0 0 0 0	Correction  0 0 0 0 ise Level, dB(A)  Barrier Correction  0 0 0 0	Sub-total SWL  105 98 95 102 98 108  (01/2018 - 02/2018) Sub-total SWL  94 100 102
1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	105 98 95 105 100 SWL/ Item dB(A) 95 105 105 102 96 109	100% 100% 100% 50% 30% On- time % 80% 30% 50% 80% 80%	Correction for Underground Works  0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 ise Level, dB(A) Barrier Correction	105 98 95 102 98 108 (01/2018 - 02/2018 Sub-total SWL 94 100 102
1 1 1 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	98 95 105 100 SWL/ Item dB(A) 95 105 105 102 102 96 109	100% 100% 50% 30% On- time % 80% 30% 50% 80% 80%	Overall Noi  Correction for Underground Works  0 0 0 0 0 0 0 0 0	0 0 0 0 ise Level, dB(A) Barrier Correction 0 0	98 95 102 98 108 (01/2018 - 02/2018 Sub-total SWL 94 100 102
1 1 2 2 neer No. of Items 1 1 3 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	95 105 100 SWL/ Item dB(A) 95 105 105 102 102 96 109	100% 50% 30% On-time % 80% 30% 50% 80% 80%	O O O O O O O O O O O O O O O O O O O	0 0 0 ise Level, dB(A) Barrier Correction 0 0	95 102 98 108 (01/2018 - 02/2018 Sub-total SWL 94 100 102
1 2  ner No. of Items  1 1 3 1 1 3 1 1 1 1 1 1 1 1 1 1 1 1 1	105 100 SWL/ Item dB(A) 95 105 105 102 102 96 109	50% 30% On- time % 80% 30% 50% 80% 80%	Overall Noi  Correction for Underground Works  0 0 0 0 0 0 0 0 0	0 0 0 ise Level, dB(A) Barrier Correction 0 0 0	102 98 108 (01/2018 - 02/2018 Sub-total SWL 94 100 102
2 No. of Items 1 1 1 1 3 1 1 1 1 1 1 1 1 1 1 1 1 1 1	95 105 105 102 102 96 109	30%  On- time %  80% 30% 50% 80% 80% 80%	Correction for Underground Works  0 0 0 0 0 0 0 0 0 0	0 ise Level, dB(A)  Barrier Correction  0 0 0 0 0	98 108 (01/2018 - 02/2018 Sub-total SWL 94 100 102
No. of Items  1	SWL/ Item dB(A) 95 105 105 102 102 96 109	On- time % 80% 30% 50% 80% 80%	Correction for Underground Works  0 0 0 0 0 0 0 0	Barrier Correction	108 (01/2018 - 02/2018 Sub-total SWL 94 100 102
Items	95 105 105 102 102 96 109	% 80% 30% 50% 80% 80%	Correction for Underground Works  0 0 0 0 0 0 0 0	Barrier Correction 0 0 0 0	(01/2018 - 02/2018 <b>Sub-total SWL</b> 94 100 102
Items	95 105 105 102 102 96 109	% 80% 30% 50% 80% 80%	Underground Works  0 0 0 0 0 0 0 0 0	0 0 0 0 0	94 100 102
Items	95 105 105 102 102 96 109	% 80% 30% 50% 80% 80%	Underground Works  0 0 0 0 0 0 0 0 0	0 0 0 0 0	94 100 102
1 1 1 1 3 3 1 1 1 1 1 1 1 1 1 1 1 1 1 1	95 105 105 102 102 96 109	80% 30% 50% 80% 80%	0 0 0 0 0	0 0 0 0 0	94 100 102
1 1 3 3 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	105 105 102 102 96 109	30% 50% 80% 80% 80%	0 0 0 0	0 0 0 0	100 102
1 1 3 3 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	105 105 102 102 96 109	30% 50% 80% 80% 80%	0 0 0 0	0 0 0 0	100 102
1 3 1 1 3 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	105 102 102 96 109	50% 80% 80% 80%	0 0 0 0	0 0 0	102
3 1 3 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	102 102 96 109 SWL/ Item	80% 80% 80%	0 0 0	0	
1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	102 96 109 SWL/ Item	80% 80%	0	0	
ner No. of	96 109 SWL/ Item	80%	0		106
ner No. of	109				101
ner No. of Items	SWL/ Item	80%	0	0	95
Items				0	108
Items			Overall Noi	ise Level, dB(A)	112
Items					(05/2018 - 10/2018)
Items		On- time	Correction for	Barrier	
	uD(A)	%	Underground Works	Correction	Sub-total SWL
1 3	105	60%	-10	0	98
2	95	80%	-10	0	87
1	128	30%	-10	0	113
2	108	70%	-10	0	99
					85
					95
					80
2	100	30%			88
			Overall No	ise Level, db(A)	113
					(11/2018 - 04/2019)
ner No of	SWI / Item	On- time	Correction for	Rarrier	(11/2010 - 04/2013)
					Sub-total SWL
itomo	ub(rt)	70	onderground Works	Correction	
2	95	80%	0	0	97
					109
					95
				0	90
	100		0	0	95
3	102	100%	0	0	107
			Overall No	ise Level, dB(A)	112
					(0.1/00.10 00/00.10)
or No of	SWI / Itom	On time	Correction for	Parrier	(01/2019 - 02/2019)
					Sub-total SWL
items	ub(A)	76	Onderground Works	Correction	
1	95	80%	0	0	94
7 1					102
					100
	105		0	0	100
	102		0	0	104
	102	80%	0	0	101
3 2	96		0	0	98
1	109	80%	0	0	108
			Overall No	ise Level, dB(A)	112
					(02/2040 04/2042)
	SWL/ Item	On- time	Correction for	Barrier	(03/2019 - 04/2019)
ner No of	CIVE REIII	%	Underground Works	Correction	Sub-total SWL
ner No. of	dB(A)		5		
	dB(A)				
	<b>dB(A)</b> 95	80%	0	0	94
Items		80% 100%	0 0		94 102
Items	95			0	
1 1 7 1	95 102	100%	0	0	102
1 1 7 1 1 1	95 102 105	100% 30%	0 0	0 0 0	102 100
1 1 7 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	95 102 105 105	100% 30% 30%	0 0 0	0 0 0 0	102 100 100
1 1 7 1 1 1 1 3	95 102 105 105 102	100% 30% 30% 80%	0 0 0 0	0 0 0 0	102 100 100 106
317 313173	1   2   7   2   2   3   3   3   4   4   5   6   6   6   6   6   6   6   6   6	1	1	1	1

Appendix B2 - Construction Plant Inventory for Drill-and-Blast Works Combined with Mechanical Excavation at Zone 2

Package: 07 EXH EXH Structure

(h) Utility diversion PME	TM Ref./ other Ref	No. of	SWL/ Item dB(A)	On- time	Correction for Underground Works	Barrier Correction	(07/2016 - 10/2016) Sub-total SWL
Mini Backhoe	CNP 082	1	94	50%	0	0	91
Dump Truck	CNP 068	1	105	30%	0	0	100
					Overall No	ise Level, dB(A)	100
(i) Pipe Pile Construction						Stage 1 Stage 2	(10/2016 - 12/2016) (04/2017 - 08/2017)
PME	TM Ref./ other Ref	No. of Items	SWL/ Item dB(A)	On- time %	Correction for Underground Works	Barrier Correction	Sub-total SWL
Piling Rig	CNP 167	2	114	100%	0	-10	107
Crane Lorry	CNP 145	1	105	100%	0	0	105
Excavator	EPD-02341	2	105	30%	0	0	103
Generator	CNP 103	2	95	30%	0	0	93
Crawler crane, mobile	EPD-00467	2	102	60%	0	0	103

### Appendix B2 - Construction Plant Inventory for Drill-and-Blast Works Combined with Mechanical Excavation at Zone 2

### Package: 06 EXH to Shaft Tunnel at West to EXH

Notes:

[1] PME in separate groups will not be operated at the same time. The group with the higher SWL is adopted in this assessment as the worst-case scenario.

[2] The SWL of rock drill was referenced to the approved Tsim Sha Tsui Station Northern Subway EIA Report (Register No.: AEIAR-127/2008).

 (a) Site Formation
 Areas A & B
 (06/2015)

 Area A
 (09/2015)

 Area C - Stage 1
 (01/2016)

						Aleas C - Slaye Z	(07/2010)	
PME	TM Ref./ other	No. of	SWL/ Item	On- time %	Correction for	Barrier	Sub-to	tal SWL
FINIL	Ref	Items	dB(A)	On-time %	Underground Works	Correction	Group 1	Group 2
Excavator	EPD-02341	1	105	100%	0	0	-	105
Dump Truck with Grab	CNP 068	1	105	30%	0	0	-	100
Breaker, excavator mounted (hydraulic)	CNP 028	1	122	50%	0	0	-	119
Air compressor	CNP 002	1	102	100%	0	0	-	102
Pneumatic Breaker	CNP 027	1	122	60%	0	0	120	-
Generator	CNP 103	1	95	100%	0	0	-	95
Water Pump (electric)	CNP 281	1	88	30%	0	0	-	83
Saw, Concrete	CNP 203	1	115	30%	0	0	-	110

Overall Noise Level, dB(A) 120 120 Maximum, dB(A) 11: 120

(b) Site Hoarding Erection (06/2015) TM Ref./ other SWL/ Item No. of Correction for Barrier Sub-total PME On-time % **Ref** EPD-02341 Items dB(A) **Underground Works** Correction SWL 100% Excavator 105 0 105 CNP 065 Drill, hand-held (electric) 98 100% 98 0 0 CNP 103 95 100% 0 0 95 Lorry with crane/grab **CNP 145** 105 50% 0 0 102 CNP 107 Welding Set 100 30% 98 **108** Overall Noise Level, dB(A)

(c) Excavation inside SCL tunnels protection works (06/2016 - 10/2017) SWL/ Item TM Ref./ other Correction for Barrier No. of Sub-total **PME** On-time % dB(A) **Underground Works** SWL Correction Ref Items In Shaft Excavator FPD-02341 9 105 100% -10 O 105 CNP 028 Breaker, excavator mounted (hydraulic) 122 50% -10 0 114 3 108 50% -10 0 100 [2] Welding Set CNP 107 100 30% -10 0 85 1 Water Pump, submersible (electric) CNP 283 85 100% -10 78 At Surface 0 Crawler crane, mobile EPD-00467 102 50% 0 0 99 EPD-00467 CNP 241 Crawler crane, mobile 2 102 50% 0 0 102 0 O Ventilation Fans 108 100% 108 CNP 068 0 -5 99 **Dump Truck** 105 80% Air compressor CNP 002 102 100% 0 107 Water Pump (electric) CNP 281 88 80% 87 Overall Noise Level, dB(A) 116

(d) Tunnel Box Structure Construction Area A I/2017 - 11/2018) Area B I/2017 - 12/2019) TM Ref./ other SWL/ Item Correction for No. of Barrier Sub-total PME On-time % **Underground Works** SWL dB(A) Correction Ref Items **CNP 173** 3 102 50% -10 0 94

In Shaft Poker, vibrator, hand-held CNP 021 50% Bar bender and cutter (electric) 90 -10 0 77 CNP 283 85 78 Water Pump, submersible (electric) 100% -10 0 Compactor, vibratory CNP 050 105 50% -10 0 92 At Surface BS D6/33 2 0 96 50% 0 96 Concrete lorry mixer Crawler crane, mobile EPD-00467 Ō 0 102 60% 100 Crawler crane, mobile EPD-00467 2 102 60% 0 0 103 Ventilation Fans **CNP 241** 2 108 100% 0 0 111 CNP 002 0 0 Air compressor 102 100% 102 Concrete Pump CNP 047 0 109 100% 112 Water Pump (electric CNP 281 80% Overall Noise Level, dB(A) 115

### Appendix B2 - Construction Plant Inventory for Drill-and-Blast Works Combined with Mechanical Excavation at Zone 2

### Package: 06 EXH to Shaft Tunnel at West to EXH

Notes:

[1] PME in separate groups will not be operated at the same time. The group with the higher SWL is adopted in this assessment as the worst-case scenario.

[2] The SWL of rock drill was referenced to the approved Tsim Sha Tsui Station Northern Subway EIA Report (Register No.: AEIAR-127/2008).

(e) Diaphragm Wall Construction							03/2016 - 05/	
PME	TM Ref./ other	No. of	SWL/ Item	On- time %	Correction for	Barrier		al SWL
	Ref	Items	dB(A)		Underground Works	Correction	Group 1	Group 2
Generator	CNP 103	3	95	30%	0	0	95	-
Dump truck	CNP 068	2	105	30%	0	0	103	-
Piling, diaphragm wall, bentonite filtering plant	CNP 162	1	105	40%	0	0	101	-
Crane (Grab & Service)	CNP 048	2	112	70%	0	0	-	113
Hydraulic extractor	CNP 163	2	90	100%	0	0	93	-
Power Pack	CNP 168	2	100	100%	0	0	103	-
Crane lorry, mobile	CNP 145	1	105	30%	0	0	100	-
Poker, vibrator, hand-held	CNP 173	2	102	30%	0	0	-	100
Air Compressor	CNP 002	3	102	30%	0	-10	-	92
Piling Rig	CNP 167	2	114	70%	0	-10	-	105
Concrete lorry mixer	BS D6/33	2	96	30%	0	0	-	94
					Overall No	ise Level, dB(A)	108	114

Overall Noise Level, dB(A) 108
Maximum, dB(A) [1]: 114

 $\Delta reg \Delta = (10/2015 - 04/2016)$ 

(f) Excavation	TM Ref./ other	No. of	SWL/ Item		Correction for	(06) <b>Barrier</b>	/2017 - 05/20 Sub-to	18) <b>tal SWL</b>
PME	Ref	Items	dB(A)	On- time %	Underground Works	Correction	Group 1	Group 2
In Shaft			` ,		ŭ			
Excavator	EPD-02341	3	105	60%	-10	0	98	-
Excavator	EPD-02341	6	105	60%	-10	0	-	101
Breaker, excavator mounted (hydraulic)	CNP 028	1	122	50%	-10	0	-	109
Breaker, excavator mounted (hydraulic)	CNP 028	2	122	50%	-10	0	112	-
Rock Drill	[2]	3	108	50%	-10	0	-	100
Welding Set	CNP 107	3	100	30%	-10	0	-	90
Water Pump, submersible (electric)	CNP 283	2	85	100%	-10	0	-	78
At Surface								
Crawler crane, mobile	EPD-00467	2	102	60%	0	0		103
Crawler crane, mobile	EPD-00467	1	102	60%	0	0	100	-
Ventilation Fans	CNP 241	1	108	100%	0	0	108	108
Dump Truck	CNP 068	1	105	80%	0	0	104	104
Air compressor	CNP 002	3	102	100%	0	0	107	107
Water Pump (electric)	CNP 281	1	88	80%	0	0	87	87
					Overall No	ise Level, dB(A)	115	114

(06/2018 - 02/2019) (g) Tunnel Box Structure Construction TM Ref./ other SWL/ Item Barrier No. of Correction for Sub-total PME On-time % dB(A) **Underground Works** SWL Ref Items Correction In Shaft CNP 173 Poker, vibrator, hand-held 3 102 50% -10 0 94 Bar bender and cutter (electric) CNP 021 50% 80 2 90 -10 0 Water Pump, submersible (electric) CNP 283 85 100% -10 0 78 Compactor, vibratory CNP 050 105 50% -10 0 92 At Surface BS D6/33 2 50% 0 0 96 Concrete lorry mixer 96 Crawler crane, mobile EPD-00467 102 60% 0 103 Crawler crane, mobile EPD-00467 102 60% 0 0 100 CNP 241 2 Ventilation Fans 108 100% 111 CNP 002 0 102 -10 92 100% Air compressor Water Pump (electric) CNP 281

 (h) Backfilling and Superstructure
 Stage 1 ½/2019 - 02/2020)

 Stage 2 ½/2019 - 08/2019)

						Stage 2	1/2019 - 00/201	. 5)
PME	TM Ref./ other Ref	No. of Items	SWL/ Item dB(A)	On- time %	Correction for Underground Works	Barrier Correction	Sub-total SWL	
In Shaft								
Excavator	EPD-02341	4	105	100%	-10	0	101	
Water Pump, submersible (electric)	CNP 283	1	85	100%	-10	0	75	
At Surface								
Crawler crane, mobile	EPD-00467	1	102	30%	0	0	97	
Crawler crane, mobile	EPD-00467	1	102	30%	0	0	97	
Ventilation Fans	CNP 241	1	108	60%	0	0	106	
Concrete Lorry mixer	BS D6/33	1	96	50%	0	0	93	
Water Pump (electric)	CNP 281	1	88	40%	0	0	84	
Concrete Pump	CNP 047	1	109	100%	0	0	109	
Dump Truck	CNP 068	2	105	60%	0	-5	101	

Overall Noise Level, dB(A) 112

Maximum, dB(A) [1]:

Overall Noise Level, dB(A)

115

112

Appendix B2 - Construction Plant Inventory for Drill-and-Blast Works Combined with Mechanical Excavation at Zone 2

### Barging Point at Wan Chai Ex-PCWA

Construction/Set up							(09/2016 - 07/2017)
PME	TM Ref./ other Ref	No. of Items	SWL/ Item dB(A)	On- time %	Correction for Underground Works	Barrier Correction	Sub-total SWL
Crawler crane, mobile	EPD-00467	1	102	100%	_ 0	0	102
Generator	CNP 103	2	95	100%	0	0	98
Crane Lorry	CNP 145	1	105	30%	0	0	100
Poker, vibrator, hand-held	CNP 173	2	102	30%	0	0	100
Concrete lorry mixer	BS D6/33	1	96	60%	0	0	94
					Overall No	ise Level, dB(A)	106
Spoil Disposal							(08/2017 - 12/2020)
PME	TM Ref./ other Ref	No. of Items	SWL/ Item dB(A)	On- time %	Correction for Underground Works	Barrier Correction	Sub-total SWL
Barges	CNP 061	1	104	30%	0	0	99
Truck	CNP 142	9	105	60%	0	0	112
Generator	CNP 103	1	95	100%	0	0	95
Excavator	EPD-02341	1	105	30%	0	0	100
					Overall No	ise Level, dB(A)	113

### Appendix B2 - Construction Plant Inventory for Drill-and-Blast Works Combined with Mechanical Excavation at Zone 2

### Zone 1 - Wan Chai PTI

Notes:
[1] PME in separate groups will not be operated at the same time. The group with the higher SWL is adopted in this assessment as the worst-case scenario.
[2] The SWL of rock drill was referenced to the approved Tsim Sha Tsui Station Northern Subway EIA Report (Register No.: AEIAR-127/2008).

Site clearance, Site Hoarding Erection	on and utility diversion					(06/20	15 - 07/2015)
PME	TM Ref./ other Ref	No. of Items	SWL/ Item dB(A)	On- time %	Correction for Underground Works	Barrier Correction	Sub-total SWL
Excavator	EPD-02341	2	105	100%	0	0	108
Dump truck with Grab	CNP 068	1	105	100%	0	0	105
Generator	CNP 103	2	95	100%	0	0	98
Air compressor	CNP 002	2	102	100%	0	0	105
Hand held pneumatic breaker	CNP 024	2	108	100%	0	-5	106
Welding Set	CNP 107	2	100	100%	0	0	103
Mini backhoe	CNP 082	1	94	100%	0	0	94
					Overall No	ise Level, dB(A)	113

Stage 1						(06/20	15 - 06/2016)	
PME	TM Ref./ other	No. of	SWL/ Item	On- time %	Correction for	Barrier	Sub-to	tal SWL
FINIL	Ref	Items	dB(A)	On-time /6	Underground Works	Correction	Group 1	Group 2
Concrete saw	CNP 203	1	115	80%	0	-10	-	104
Air compressor	CNP 002	1	102	100%	0	-10	-	92
Hand held pneumatic breaker	CNP 024	1	108	80%	0	-5	-	102
Dump truck with Grab	CNP 068	1	105	80%	0	0	104	-
Welding Set	CNP 107	2	100	80%	0	0	-	102
Crane, mobile	EPD-01239	1	109	75%	0	0	108	-
					Overall Noi	ise Level, dB(A)	109	108

Overall Noise Level, dB(A)
Maximum, dB(A) [1]: 109 109

Stage 2 PME	TM Ref./ other Ref	No. of	SWL/ Item dB(A)	On- time %	Correction for Underground Works	Barrier Correction	(01/2017) Sub-total SWL
Concrete saw	CNP 203	1	115	55%	0	0	112
Air compressor	CNP 002	1	102	100%	0	0	102
Hand held pneumatic breaker	CNP 024	1	108	100%	0	-5	103
Dump truck with Grab	CNP 068	1	105	100%	0	0	105
Welding Set	CNP 107	2	100	100%	0	0	103
Crane, mobile	EPD-01239	1	109	100%	0	0	109
					Overall No	ise Level, dB(A)	115

Construction of temporary Wan Chai I	(09/20	(09/2015 - 12/2016)						
PME	TM Ref./ other	No. of		On- time %	Correction for	Barrier	Sub-to	tal SWL
F.W.L	Ref	Items	dB(A)	On-time %	Underground Works	Correction	Group 1	Group 2
Welding Set	CNP 107	2	100	100%	0	0	103	-
Piling rig - H piles	CNP 167	1	114	100%	0	-10	104	-
Concrete vibrating poker	CNP 173	2	102	70%	0	0	103	-
Concrete mixing truck	BS D6/33	1	96	100%	0	0	-	96
Excavator	EPD-02341	1	105	100%	0	0	-	105
Crane, mobile	EPD-01239	1	109	80%	0	-5	-	103
					Overall No	ise Level, dB(A)	108	107
					Max	imum, dB(A) [1]:	108	

Construction of Permanent Wan Chai Ferry Pier footbridge (Superstructure)

TM Ref./ other No. of SWL/ Item (08/2019) Correction for Barrier Sub-total PME On-time % Ref CNP 107 dB(A) **Underground Works** Correction SWL 100 109 Welding Set Crane, mobile 100% 0 103 109 EPD-01239 100% Overall Noise Level, dB(A) 110

Demolition of Temporary Wan Chai	Ferry Pier footbridge					(09/20	19 - 12/2019)
PME	TM Ref./ other Ref	No. of Items	SWL/ Item dB(A)	On- time %	Correction for Underground Works	Barrier Correction	Sub-total SWL
Concrete saw	CNP 203	1	115	100%	0	0	115
Air compressor	CNP 002	1	102	100%	0	0	102
Hand held pneumatic breaker	CNP 024	1	108	100%	0	-5	103
Dump truck with Grab	CNP 068	1	105	100%	0	0	105
Welding Set	CNP 107	2	100	100%	0	0	103
Crane, mobile	EPD-01239	1	109	100%	0	0	109
					Overall No	isa Laval dR(A)	117

### Appendix B2 - Construction Plant Inventory for Drill-and-Blast Works Combined with Mechanical Excavation at Zone 2

### Zone 1 - Wan Chai PTI

Notes:
[1] PME in separate groups will not be operated at the same time. The group with the higher SWL is adopted in this assessment as the worst-case scenario.
[2] The SWL of rock drill was referenced to the approved Tsim Sha Tsui Station Northern Subway EIA Report (Register No.: AEIAR-127/2008).

Piling works (PPW and H-piles)								
Stage 1 (TTM Stage 2)							015 - 04/2016)	
PME	TM Ref./ other	No. of	SWL/ Item	On- time %	Correction for	Barrier	Sub-to	tal SWL
· ···=	Ref	Items	dB(A)	O11 tillio /0	Underground Works	Correction	Group 1	Group 2
Generator	CNP 103	1	95	100%	0	-10	85	-
Welding set	CNP 107	2	100	55%	0	0	100	-
Welding set	CNP 107	2	100	55%	0	0	-	100
Piling rig	CNP 167	3	114	60%	0	-10	107	-
Piling rig	CNP 167	3	114	60%	0	-10	-	107
Crawler crane	EPD-00467	2	102	60%	0	0	103	
Crawler crane	EPD-00467	2	102	60%	0	0	-	103
Grout mixer	CNP 105	2	90	100%	0	0	-	93
Air compressor	CNP 002	9	102	60%	0	-10	99	-
Air compressor	CNP 002	9	102	60%	0	-10	-	99

Overall Noise Level, dB(A)
Maximum, dB(A) [1]: 109 109

Stage 2 (TTM Stage 3a & 3b)						(06/20	16 - 10/2016)	
PME	TM Ref./ other	No. of	SWL/ Item	On- time %	Correction for	Barrier	Sub-to	tal SWL
FIVIC	Ref	Items	dB(A)	On-time %	Underground Works	Correction	Group 1	Group 2
Generator	CNP 103	1	95	100%	0	-10	85	-
Welding set	CNP 107	1	100	100%	0	0	-	100
Piling rig	CNP 167	2	114	80%	0	-10	-	106
Crawler crane	EPD-00467	1	102	100%	0	0	102	-
Grout mixer	CNP 105	1	90	100%	0	0	90	-
Air compressor	CNP 002	6	102	80%	0	-10	-	99
					Overall No	ise Level, dB(A)	102	108

Overall Noise Level, dB(A)

Maximum, dB(A) [1]:

108

Overall Noise Level, dB(A)

Stage 3 (TTM Stage 3C)						(12/2	016 - 04/2017)
PME	TM Ref./ other Ref	No. of Items	SWL/ Item dB(A)	On- time %	Correction for Underground Works	Barrier Correction	Sub-total SWL
Generator	CNP 103	1	95	100%	0	-10	85
Welding set	CNP 107	1	100	100%	0	0	100
Piling rig	CNP 167	2	114	100%	0	-10	107
Crawler crane	EPD-00467	1	102	100%	0	0	102
Grout mixer	CNP 105	1	90	100%	0	0	90
Air compressor	CND 003	4	102	100%	0	-10	O.S.

**Diaphragm wall construction** 

Stage 1 (TTM Stage 2)						(08/20	15 - 01/2016)	
PME	TM Ref./ other	No. of	SWL/ Item	On- time %	Correction for	Barrier	Sub-to	tal SWL
FINE	Ref	Items	dB(A)	On-time /6	Underground Works	Correction	Group 1	Group 2
Generator	CNP 103	5	95	100%	0	0	102	-
Dump truck	CNP 068	1	105	100%	0	-5	-	100
Hydraulic extractor	CNP 163	3	90	70%	0	0	93	-
Power Pack	CNP 168	3	100	70%	0	0	103	-
Crawler crane with grab	EPD-00467	4	102	70%	0	0	-	106
Desander	CNP 162	3	105	100%	0	-10	100	-
Filter press	CNP 162	1	105	100%	0	-10	-	95
Bentonite mixer	CNP 045	2	96	100%	0	0	-	99
Crane lorry	CNP 145	1	105	80%	0	0	-	104
Concrete mixing truck	BS D6/33	3	96	40%	0	0	-	97

Overall Noise Level, dB(A)

Maximum, dB(A) [1]: 107 110

110

Stage 2 (TTM Stage 3a/3b/3c & 5)						(02/2016 - 03/2017)		
PME	TM Ref./ other Ref	No. of Items	SWL/ Item dB(A)	On- time %	Correction for Underground Works	Barrier Sub-to		otal SWL
						Correction	Group 1	Group 2
Generator	CNP 103	4	95	100%	0	-10	91	91
Dump truck	CNP 068	1	105	80%	0	0	104	-
Hydraulic extractor	CNP 163	3	90	70%	0	0	-	93
Power Pack	CNP 168	3	100	70%	0	0	-	103
Crawler crane with grab	EPD-00467	3	102	80%	0	0	106	-
Desander	CNP 162	4	105	100%	0	-10	-	101
Filter press	CNP 162	1	105	100%	0	-10	-	95
Bentonite mixer	CNP 045	2	96	100%	0	0	-	99
Crane lorry	CNP 145	1	105	100%	0	0	-	105
Concrete mixing truck	BS D6/33	1	96	100%	0	0	96	_

Overall Noise Level, dB(A)

Maximum, dB(A) [1]: 108 109

109

# Zone 1 - Wan Chai PTI

Notes:
[1] PME in separate groups will not be operated at the same time. The group with the higher SWL is adopted in this assessment as the worst-case scenario.
[2] The SWL of rock drill was referenced to the approved Tsim Sha Tsui Station Northern Subway EIA Report (Register No.: AEIAR-127/2008).

Excavation	&	ELS	insta	llation
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Underground (partially covered by deckir	<u>1q)</u>					(03/20	017 - 05/2018)	
PME	TM Ref./ other	No. of	SWL/ Item	On- time %	Correction for	Barrier	Sub-to	al SWL
FIVIE	Ref	Items	dB(A)	On-time %	Underground Works	Correction	Group 1	Group 2
Rock drill	[2]	1	108	60%	0	-5	101	-
Rock drill	[2]	1	108	60%	0	-5	-	101
Breaker, excavator mounted (hydraulic)	CNP 028	3	122	50%	0	-10	114	-
Breaker, excavator mounted (hydraulic)	CNP 028	3	122	50%	0	-10	-	114
Excavator	EPD-02341	1	105	50%	0	0	102	-
Excavator	EPD-02341	1	105	50%	0	0	-	102
Welding set	CNP 107	2	100	80%	0	0	-	102
Nater Pump, submersible (electric)	CNP 283	4	85	80%	0	0	-	90
Ventilation fans	CNP 241	2	108	50%	0	0	108	-
Ventilation fans	CNP 241	2	108	50%	0	0	-	108
At surface								
Crawler crane	EPD-00467	4	102	50%	0	0	105	-
Crane lorry	CNP 145	1	105	60%	0	0	103	-
Nater pump (electric)	CNP 281	1	88	70%	0	0	86	-
Dump truck	CNP 068	2	105	60%	0	-5	101	-
Excavator	EPD-02341	3	105	70%	0	-5	-	103
Welding set	CNP 107	1	100	100%	0	0	-	100
Power pack for handheld tools	CNP 168	1	100	100%	0	0	100	-
Concrete pump	CNP 047	1	109	60%	0	-10	97	-
Concrete mixing truck	BS D6/33	1	96	60%	0	0	94	-
					Overall No	ise Level, dB(A)	116	116

Overall Noise Level, dB(A)

Maximum, dB(A) [1]: 116 116

Construction of Internal Structure of Box Station

Underground (partially covered by decking						(06/20	)18 - 02/2019)	
PME	TM Ref./ other	No. of	SWL/ Item	On- time %	Correction for	Barrier	Sub-to	tal SWL
	Ref	Items	dB(A)		Underground Works	Correction	Group 1	Group 2
Welding set	CNP 107	2	100	100%	0	0	103	-
Ventilation fans	CNP 241	2	108	100%	0	0	111	-
Ventilation fans	CNP 241	2	108	100%	0	0	-	111
Power pack for handheld tools	CNP 168	1	100	100%	0	0	100	-
Vibrating poker - handheld	CNP 173	3	102	80%	0	0	-	106
At surface								
Crawler crane	EPD-00467	3	102	50%	0	0	-	104
Crane lorry	CNP 145	1	105	80%	0	0	-	104
Water pump (electric)	CNP 281	1	88	100%	0	0	88	-
Dump truck	CNP 068	1	105	50%	0	-5	-	97
Excavator	EPD-02341	1	105	60%	0	-5	-	98
Welding set	CNP 107	1	100	100%	0	0	-	100
Concrete pump	CNP 047	1	109	80%	0	0	108	-
Concrete mixing truck	BS D6/33	1	96	100%	0	0	96	-

Overall Noise Level, dB(A) 114 114 Maximum, dB(A) [1]: 114

Construction of Entrances and Structure

Above ground						(03/20	19 - 08/2019)
PME	TM Ref./ other Ref	No. of Items	SWL/ Item dB(A)	On- time %	Correction for Underground Works	Barrier Correction	Sub-total SWL
Mobile crane	EPD-01239	2	109	50%	0	-5	104
Crane lorry	CNP 145	1	105	100%	0	0	105
Dump truck	CNP 068	1	105	60%	0	-5	98
Welding set	CNP 107	1	100	100%	0	0	100
Concrete pump	CNP 047	1	109	50%	0	0	106
Concrete mixing truck	BS D6/33	1	96	50%	0	0	93
Air compressor	CNP 002	1	102	50%	0	0	99
Vibrating poker - handheld	CNP 173	3	102	50%	0	0	104
<u> </u>		·	•	•	Overall No	ise Level, dB(A)	112

P.8

# Zone 2 - Harbour Road Sports Centre

Notes:
[1] PME in separate groups will not be operated at the same time. The group with the higher SWL is adopted in this assessment as the worst-case scenario.
[2] The SWL of rock drill was referenced to the approved Tsim Sha Tsui Station Northern Subway EIA Report (Register No.: AEIAR-127/2008).

Demolition of Harbour Road Sports Cen	tre (HRSC)			017 - 09/2017)	7)			
PME	TM Ref./ other	No. of	SWL/ Item	On- time %	Correction for	Barrier	Sub-to	al SWL
	Ref	Items dB(A)	On-time %	Underground Works	Correction	Group 1	Group 2	
Excavator	EPD-02341	2	105	100%	0	-5	103	-
Dump truck with Grab	CNP 068	1	105	100%	0	0	-	105
Air compressor	CNP 002	1	102	100%	0	-10	-	92
Hand held pneumatic breaker	CNP 024	3	108	60%	0	-5	106	-
Welding Set	CNP 107	1	100	100%	0	0	-	100

Overall Noise Level, dB(A)

Maximum, dB(A) [1]: 107 106 107

Site Hoarding Erection & Pile Removal	TM Ref./ other	No. of	SWL/ Item	0	Correction for	Barrier	(10/2017) Sub-to	tal SWL
PME	Ref	Items	dB(A)	On- time %	Underground Works	Correction	Group 1	Group 2
Excavator	EPD-02341	2	105	100%	0	-5	-	103
Dump truck with Grab	CNP 068	1	105	100%	0	0	105	-
Crane lorry	CNP 145	1	105	100%	0	0	-	105
Air compressor	CNP 002	1	102	60%	0	-10	90	-
Hand held pneumatic breaker	CNP 024	1	108	50%	0	-5	-	100
Welding Set	CNP 107	1	100	100%	0	0	-	100
Piling, large diameter bored, oscillator	CNP 165	1	115	100%	0	-10	105	-
Crawler crane	EPD-00467	1	102	100%	0	0	102	-
					Overall No	ise Level, dB(A)	109	109

Overall Noise Level, dB(A) 109 Maximum, dB(A) [1]: 109

Piling works (PPW and H-piles)						(11/20	17 - 02/2018)	
PME	TM Ref./ other	No. of	SWL/ Item	On-time %	Correction for	Barrier		tal SWL
	Ref	Items	dB(A)		Underground Works	Correction	Group 1	Group 2
Welding set	CNP 107	4	100	80%	0	0	-	105
Piling rig	CNP 167	4	114	80%	0	-10	109	-
Crawler crane	EPD-00467	3	102	80%	0	0	-	106
Grout mixer	CNP 105	2	90	100%	0	0	-	93
Air compressor	CNP 002	16	102	80%	0	-10	103	-
					Overall No	ise Level, dB(A)	110	109

Overall Noise Level, dB(A)

Maximum, dB(A) [1]: 110

Underground (partially covered by decking	<u>ng)</u>					(03/20	18 - 01/2019)	
PME	TM Ref./ other	No. of	SWL/ Item	On- time %	Correction for	Barrier		tal SWL
	Ref	Items	dB(A)		Underground Works	Correction	Group 1	Group 2
Rock drill	[2]	3	108	60%	0	-5	106	-
Breaker, excavator mounted (hydraulic)	CNP 028	2	122	30%	-10	0	-	110
Breaker, excavator mounted (hydraulic)	CNP 028	2	122	30%	-10	0	110	
Welding set	CNP 107	2	100	60%	0	0	101	-
Water Pump, submersible (electric)	CNP 283	2	85	100%	0	0	-	88
Ventilation fans	CNP 241	1	108	75%	0	0	-	107
Ventilation fans	CNP 241	1	108	75%	0	0	107	-
At surface								
Crawler crane	EPD-00467	2	102	50%	0	0	102	-
Crane lorry	CNP 145	1	105	60%	0	0	-	103
Dump truck	CNP 068	1	105	50%	0	-5	-	97
Excavator	EPD-02341	1	105	50%	0	-5	-	97
Concrete mixing truck	BS D6/33	1	96	50%	0	0	-	93

Overall Noise Level, dB(A)

Maximum, dB(A) [1]: 113 113

# Zone 2 - Harbour Road Sports Centre

Notes:
[1] PME in separate groups will not be operated at the same time. The group with the higher SWL is adopted in this assessment as the worst-case scenario.
[2] The SWL of rock drill was referenced to the approved Tsim Sha Tsui Station Northern Subway EIA Report (Register No.: AEIAR-127/2008).

Underground (partially covered by de	cking)					(02/20	19 - 10/2019)	
PME	TM Ref./ other	No. of	SWL/ Item	On- time %	Correction for	Barrier		tal SWL
	Ref	Items	dB(A)		Underground Works	Correction	Group 1	Group 2
Welding set	CNP 107	2	100	100%	0	0	-	103
Ventilation fans	CNP 241	2	108	60%	0	0	109	-
Power pack for handheld tools	CNP 168	1	100	100%	0	0	-	100
Vibrating poker - handheld	CNP 173	3	102	60%	0	0	105	-
At surface								
Crawler crane	EPD-00467	2	102	50%	0	0	-	102
Crane lorry	CNP 145	1	105	80%	0	0	-	104
Dump truck	CNP 068	1	105	100%	0	-5	-	100
Excavator	EPD-02341	1	105	100%	0	0	105	-
Welding set	CNP 107	1	100	100%	0	0	-	100
Concrete pump	CNP 047	1	109	80%	0	0	-	108
Concrete mixing truck	BS D6/33	1	96	100%	0	0	96	-
					Overall No	ise Level, dB(A)	111	112

Overall Noise Level, dB(A)

Maximum, dB(A) [1]: 11. 112

Construction of Entrances and Ground structure

Above ground						(11/20	19 - 01/2020)
PME	TM Ref./ other Ref	No. of Items	SWL/ Item dB(A)	On- time %	Correction for Underground Works	Barrier Correction	Sub-total SWL
Mobile crane	EPD-01239	1	109	100%	0	-5	104
Crane lorry	CNP 145	1	105	100%	0	0	105
Dump truck	CNP 068	1	105	100%	0	-5	100
Welding set	CNP 107	1	100	100%	0	0	100
Concrete pump	CNP 047	1	109	100%	0	0	109
Concrete mixing truck	BS D6/33	1	96	100%	0	0	96
Air compressor	CNP 002	1	102	100%	0	0	102
Vibrating poker - handheld	CNP 173	3	102	100%	0	0	107
					Overall No	ise Level, dB(A)	114

## Zone 3 - Wan Chai Swimming Pool

Piling, large diameter bored, oscillator

Crawler crane

Notes:

[1] PME in separate groups will not be operated at the same time. The group with the higher SWL is adopted in this assessment as the worst-case scenario.

[2] The SWL of rock drill was referenced to the approved Tsim Sha Tsui Station Northern Subway EIA Report (Register No.: AEIAR-127/2008).

**CNP 165** 

EPD-00467

Demolition of Wan Chai Swimming Pool						(12/201	15 - 03/2016)	
PME	TM Ref./ other	No. of	SWL/ Item	On- time %	Correction for	Barrier	Sub-to	tal SWL
	Ref	Items	dB(A)	OII- tillie 70	Underground Works	Correction	Group 1	Group 2
Concrete Saw	CNP 203	2	115	50%	0	-10	-	105
Excavator	EPD-02341	1	105	50%	0	-5	97	-
Dump truck	CNP 068	1	105	30%	0	0	100	
					Overall Noi	se Level, dB(A)	102	105
					Max	imum, dB(A) <sup>[1]</sup> :	105	

09/2016) Site Hoarding Erection & Pile Removal TM Ref./ other SWL/ Item Sub-total SWL No. of Correction for Barrier **PME** On- time % dB(A) Ref **Underground Works** Items Correction Group 1 Group 2 EPD-02341 Excavator 105 50% 100 0 -5 Dump truck with Grab CNP 068 105 40% 0 101 CNP 145 CNP 002 Crane lorry 105 80% 0 0 104 100% Air compressor 102 -10 92 92 0 CNP 024 Hand held pneumatic breaker 108 70% -5 Welding Set **CNP 107** 100 100% -10 90

100%

100%

0

0 Overall Noise Level, dB(A) 107

-10

105

102

107

108

Maximum, dB(A) [1]: 107

115

102

Piling works (H-piles)						(03/20	016 - 04/2016)	
PME	TM Ref./ other	No. of	SWL/ Item	On- time %	Correction for	Barrier	Sub-total SWL	
	Ref	Items	dB(A)	On-time %	Underground Works	Correction	Group 1	Group 2
Welding set	CNP 107	2	100	100%	0	0	103	-
Piling rig	CNP 167	2	114	100%	0	-10	-	107
Crawler crane	EPD-00467	2	102	100%	0	0	105	-
Grout mixer	CNP 105	1	90	100%	0	0	90	-
Air compressor	CNP 002	6	102	100%	0	-10	-	100

Overall Noise Level, dB(A) 107 Maximum, dB(A) [1]: 108

Overall Noise Level, dB(A)

(05/2016 - 07/2017) Diaphragm wall construction TM Ref./ other SWL/ Item Correction for Barrier No. of Sub-total **PME** On-time % Ref Items dB(A) **Underground Works** Correction SWL CNP 163 CNP 168 Hydraulic extractor 2 100% 0 0 93 65% Power Pack 100 0 0 101 Crawler crane with grab 3 0 EPD-00467 55% 0 104 102 Concrete mixing truck 80% BS D6/33 95

**Excavation & ELS installation** Underground (partially covered by decking) (08/2017 - 08/2018) TM Ref./ other SWL/ Item No. of Correction for Barrier Sub-total SWL **PME** On- time % Ref dB(A) **Underground Works** Correction Items Group 1 Group 2 Rock drill 60% [2] 108 101 0 -5 Breaker, excavator mounted (hydraulic) CNP 028 50% 0 -10 112 CNP 028 Breaker, excavator mounted (hydraulic) 2 122 50% 0 -10 112 **CNP 107** Welding set 60% 101 100 0 CNP 283 2 0 0 Water Pump, submersible (electric) 85 100% 88 Ventilation fans CNP 241 108 60% 0 0 109 At surface 2 40% 0 EPD-00467 102 0 Crawler crane 101 CNP 145 0 0 102 Crane lorry 105 50% Dump truck CNP 068 105 40% 0 -5 96 Excavator FPD-02341 105 50% 0 -5 97 Concrete mixing truck BS D6/33 60% 96 94

Overall Noise Level, dB(A) Maximum, dB(A) [1]:

113 114

106

P.11

# Zone 3 - Wan Chai Swimming Pool

Notes:
[1] PME in separate groups will not be operated at the same time. The group with the higher SWL is adopted in this assessment as the worst-case scenario.
[2] The SWL of rock drill was referenced to the approved Tsim Sha Tsui Station Northern Subway EIA Report (Register No.: AEIAR-127/2008).

Underground (partially covered by deci	king)					(09/20	018 - 03/2019)	
PME	TM Ref./ other Ref	No. of Items	SWL/ Item dB(A)	On- time %	Correction for Underground Works	Barrier Correction	Sub-to	tal SWL Group 2
Welding set	CNP 107	2	100	100%	0	0	103	-
Ventilation fans	CNP 241	2	108	80%	0	0	-	110
Power pack for handheld tools	CNP 168	1	100	100%	0	0	100	-
Vibrating poker - handheld	CNP 173	3	102	80%	0	0	106	-
At surface								
Crawler crane	EPD-00467	2	102	50%	0	0	-	102
Crane lorry	CNP 145	1	105	70%	0	0	103	-
Dump truck	CNP 068	1	105	70%	0	-5	98	-
Excavator	EPD-02341	1	105	100%	0	-5	100	-
Welding set	CNP 107	1	100	100%	0	0	100	-
Concrete pump	CNP 047	1	109	80%	0	-10	-	98
Concrete mixing truck	BS D6/33	1	96	100%	0	0	-	96

Overall Noise Level, dB(A)

Maximum, dB(A) [1]: 111 111 111

111

Construction of Vent Shaft and Ground structure

Above ground	<u> </u>					(04/20	019 - 09/2019)	
PME	TM Ref./ other	No. of	SWL/ Item	On- time %	Correction for	Barrier	Sub-total SWL	
	Ref	Items	Items dB(A)		Underground Works	Correction	Group 1	Group 2
Mobile crane	EPD-01239	1	109	50%	0	0	106	106
Crane lorry	CNP 145	1	105	80%	0	0	104	-
Dump truck	CNP 068	1	105	100%	0	0	-	105
Welding set	CNP 107	1	100	100%	0	0	100	-
Concrete pump	CNP 047	1	109	80%	0	0	108	-
Concrete mixing truck	BS D6/33	1	96	100%	0	0	-	96
Vibrating poker - handheld	CNP 173	3	102	100%	0	0	_	107

Overall Noise Level, dB(A)

Maximum, dB(A) [1]: 111 111

# Zone 4 - Wan Chai Sports Ground

Notes:
[1] PME in separate groups will not be operated at the same time. The group with the higher SWL is adopted in this assessment as the worst-case scenario.
[2] The SWL of rock drill was referenced to the approved Tsim Sha Tsui Station Northern Subway EIA Report (Register No.: AEIAR-127/2008).

Piling works (H-piles) - Wan Chai Sp	ports Ground (WCSG)						(08/2016)	
PME	TM Ref./ other	No. of	SWL/ Item	On- time %	Correction for	Barrier	Sub-total SWL	
	Ref	Items	dB(A)		Underground Works	Correction	Group 1	Group 2
Generator	CNP 103	1	95	100%	0	0	-	95
Welding set	CNP 107	1	100	100%	0	0	-	100
Piling rig	CNP 167	1	114	100%	0	0	114	-
Crawler crane	EPD-00467	1	102	100%	0	0	-	102
Grout mixer	CNP 105	1	90	100%	0	0	-	90
Air compressor	CNP 002	2	102	100%	0	0	105	-
					Overall No	ise Level, dB(A)	115	105

Overall Noise Level, dB(A)
Maximum, dB(A) [2]: 115

Diaphragm wall construction - Phase 1 \		(12/2015 - 07/2016)						
PME	TM Ref./ other	No. of	SWL/ Item	On- time %	Correction for	Barrier	Sub-to	tal SWL
FIVIC	Ref	Items	dB(A)		Underground Works	Correction	Group 1	Group 2
Generator	CNP 103	1	95	100%	0	0	-	95
Dump truck	CNP 068	1	105	50%	0	0	-	102
Hydraulic extractor	CNP 163	1	90	80%	0	0	-	89
Power Pack	CNP 168	1	100	80%	0	0	99	-
Crawler crane with grab	EPD-00467	1	102	100%	0	0	-	102
Desander	CNP 162	1	105	100%	0	-10	-	95
Bentonite mixer	CNP 045	1	96	100%	0	0	96	-
Crane lorry	CNP 145	1	105	70%	0	0	103	-
Concrete mixing truck	BS D6/33	1	96	100%	0	0	96	-
				-	Overall No	ise Level, dB(A)	106	106

Overall Noise Level, dB(A)

Maximum, dB(A) [2]: 106

PME	TM Ref./ other Ref	No. of Items	SWL/ Item dB(A)	On- time %	Correction for Underground Works	Barrier Correction	Sub-total SWL
Welding set	CNP 107	2	100	100%	0	0	103
Piling rig	CNP 167	4	114	55%	0	-10	107
Crawler crane	EPD-00467	2	102	55%	0	0	102
Grout mixer	CNP 105	2	90	100%	0	0	93
Air compressor	CNP 002	8	102	100%	0	-10	101
					Overall No	ise Level, dB(A)	110

Excavation & ELS installation Underground (no noise cover)						(06/20	17 - 07/2018)	
Onderground (no noise cover)	TM Ref./ other	No. of	SWL/ Item		Correction for	Barrier		tal SWL
PME	Ref	Items		On- time %	Underground Works	Correction		
Darah dalii		items	dB(A)	000/	• .		Group 1	Group 2
Rock drill	[2]	1	108	80%	0	-5	102	102
Breaker, excavator mounted (hydraulic)	CNP 028	1	122	60%	0	-10	-	110
Welding set	CNP 107	2	100	80%	0	0	102	102
Water Pump, submersible (electric)	CNP 283	1	85	80%	0	0	84	84
Ventilation fans	CNP 241	3	108	80%	0	0	112	-
					Overall No	ise Level, dB(A)	113	111
					Max	imum, dB(A) <sup>[2]</sup> :	113	
Underground (with full noise cover over	Tonnochy Road)					(08/20	18 - 04/2019)	
Rock drill	[2]	1	108	70%	-10	0	96	
Excavator	EPD-02341	4	105	100%	-10	0	101	
Welding set	CNP 107	2	100	100%	-10	0	93	
Water Pump, submersible (electric)	CNP 283	1	85	100%	-10	0	75	
Ventilation fans	CNP 241	3	108	100%	-10	0	103	
					Overall No	ise Level, dB(A)	106	•
At surface						(08/20	18 - 04/2019)	
Crawler crane	EPD-00467	1	102	50%	0	0 `	99 ´	
Crane lorry	CNP 145	1	105	100%	0	0	105	
Water pump (electric)	CNP 281	1	88	100%	0	0	88	
Dump truck	CNP 068	1	105	100%	0	-5	100	
Excavator	EPD-02341	1	105	100%	0	-5	100	
Welding set	CNP 107	1	100	100%	0	0	100	
Generator	CNP 103	1	95	100%	0	-10	85	
Concrete pump	CNP 047	1	109	100%	0	0	109	
Concrete mixing truck	BS D6/33	1	96	100%	0	0	96	
	20 20/00				•	ise Level, dB(A)	112	-

# Zone 4 - Wan Chai Sports Ground

Notes:
[1] PME in separate groups will not be operated at the same time. The group with the higher SWL is adopted in this assessment as the worst-case scenario.
[2] The SWL of rock drill was referenced to the approved Tsim Sha Tsui Station Northern Subway EIA Report (Register No.: AEIAR-127/2008).

Construction	of	Internal	Structure	of	Box	Station
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Underground (with full noise cover ove	nderground (with full noise cover over Tonnochy Road)								
PME	TM Ref./ other	No. of	SWL/ Item	On- time %	Correction for	Barrier	Sub-to	tal SWL	
r MIL	Ref	Items	dB(A)	On-time %	Underground Works	Correction	Group 1	Group 2	
Welding set	CNP 107	2	100	100%	-10	0	93	-	
Water Pump, submersible (electric)	CNP 283	1	85	100%	-10	0	-	75	
Excavator	EPD-02341	2	105	100%	-10	0	98	-	
Ventilation fans	CNP 241	4	108	100%	-10	0	104	-	
Power pack for handheld tools	CNP 168	1	100	100%	-10	0	90		
Vibrating poker - handheld	CNP 173	3	102	100%	-10	0	-	97	
At surface									
Crawler crane	EPD-00467	1	102	100%	0	0	-	102	
Crane lorry	CNP 145	1	105	100%	0	0	105	-	
Water pump (electric)	CNP 281	1	88	100%	0	0	-	88	
Dump truck	CNP 068	1	105	100%	0	-5	-	100	
Excavator	EPD-02341	1	105	100%	0	-5	-	100	
Welding set	CNP 107	1	100	100%	0	0	-	100	
Concrete pump	CNP 047	1	109	100%	0	-10	-	99	
Concrete mixing truck	BS D6/33	1	96	100%	0	0	-	96	
Generator	CNP 103	1	95	100%	0	-10	-	85	

Overall Noise Level, dB(A) 108 108 Maximum, dB(A) [2]: 108

rovision of WCSG grandstand

Reprovision of WCSG grandstand						(05/20	19 - 09/2020)
PME	TM Ref./ other Ref	No. of Items	SWL/ Item dB(A)	On- time %	Correction for Underground Works	Barrier Correction	Sub-total SWL
Mobile crane	EPD-01239	1	109	100%	0	0	109
Crane lorry	CNP 145	1	105	100%	0	0	105
Dump truck	CNP 068	1	105	100%	0	0	105
Excavator	EPD-02341	1	105	100%	0	0	105
Welding set	CNP 107	1	100	100%	0	0	100
Concrete pump	CNP 047	1	109	100%	0	0	109
Concrete mixing truck	BS D6/33	1	96	100%	0	0	96
Air compressor	CNP 002	1	102	100%	0	0	102
Generator	CNP 103	1	95	100%	0	0	95
Vibrating poker - handheld	CNP 173	3	102	100%	0	0	107
					Overall No	ise Level, dB(A)	115

# Appendix C Notional Distance of Works Area to NSR

Appendix C - Notional Distance of Works Area to NSR

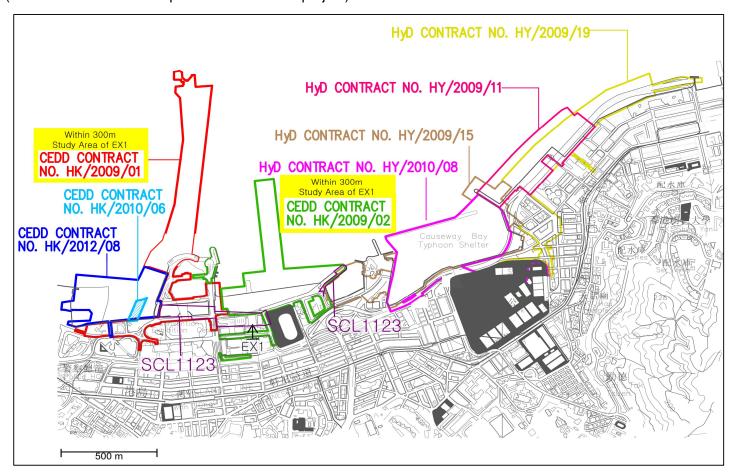
Works Area	Notional Distance to EX1 (m) [1]
Zone 1	124
Zone 2	92
Zone 3	100
Zone 4	124
Area A	354
Area B	437
Area C	293
Area E	248
Barging Point	445

# Note:

[1] Works further than 300 m from the NSR would not be assessed due to the large distance attentuation.

# Appendix D Details of the Concurrent Projects

Appendix D - Details of the Concurrent Projects Locations of Works Sites of WDII Contracts (Extracted from EM&A Reports of WDII&CWB project)



Contract No. HK/2009/01 Wan Chai Development Phase II – Central -Wan Chai Bypass at Hong Kong Convention and Exhibition Centre

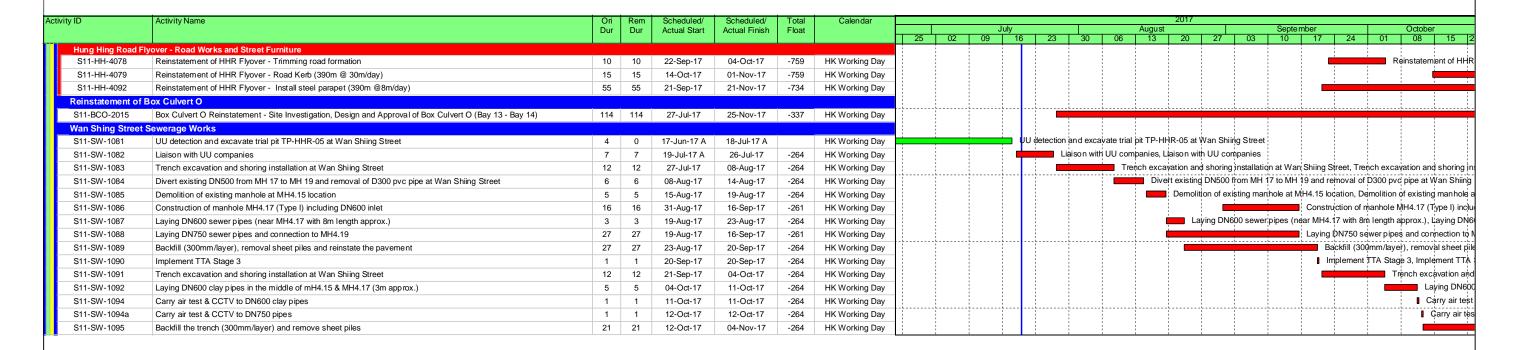
# **Construction Activities for Three Months Rolling**

Construction Activities	July 2017	August 2017	September 2017
Reinstatement of Amenity Area			
Road and Drain Works			

Page 1 of 4

Page 2 of 4

tivity ID	Activity Name		0	Rem	Scheduled/	Scheduled/	Total	Calendar	2017 September Cortober
			Du	r Dur	Actual Start	Actual Finish	Float		July   August   September October   25   02   09   16   23   30   06   13   20   27   03   10   17   24   01   08   15
	Flyover - Bay 1 (West Side) CH 3709				05 Aug 47	05 Aug 47	750	LUC Warking Day	Deinstellang and of III D. Elegans Consenting for the large glob of used abdument Deinstelland and a
S11-HH-4140 S11-HH-4142	Reinstatement of HHR Flyover -	Concreting for the base slab of west abutment	1 2		05-Aug-17 07-Aug-17	05-Aug-17 09-Aug-17	-759 -759	HK Working Day HK Working Day	Reinstatement of HHR Flyover - Concreting for the base slab of west abutment, Reinstatement of HHR Flyover - CJ Treatment, Reinstatement of HHR Flyover - CJ Treatment, Reinstatement of HHR Flyover - CJ Treatment
S11-HH-4145	· · · · · · · · · · · · · · · · · · ·	Erect falsework and external formwork for the walls of west abutm			09-Aug-17	15-Aug-17	-759	HK Working Day	Reinstatement of HHR Flyover - Erect falsework and external formwork for the walls
S11-HH-4150	· · · · · · · · · · · · · · · · · · ·	Fix Re-bars for the walls of west abutment	6		16-Aug-17	23-Aug-17	-759	HK Working Day	Reinstatement of HHR Flyover - Fix Re-bars for the walls of west abutme
S11-HH-4152		Erect internal formwork for the walls of west abutment	7		24-Aug-17	31-Aug-17	-759	HK Working Day	Reinstatement of HHR Flyover - Erect internal formwork for the
S11-HH-4155	· · · · · · · · · · · · · · · · · · ·	Concreting for the walls of west abutment	1		31-Aug-17	01-Sep-17	-759	HK Working Day	Reinstatement of HHR Flyover - Concreting for the walls of we
S11-HH-4159		Formwork stripping for the walls of west abutment	. 2		02-Sep-17	04-Sep-17	-759	HK Working Day	Reinstatement of HHR Flyover - Formwork stripping for th
S11-HH-4165	-	Filling inside structure with granular fill (1.63m thick @ 0.15m/laye			04-Sep-17	21-Sep-17	-759	HK Working Day	Reinstatement of HHR Flyover - F
	Tyover - Bay 2 (Middle) CH 3732-37	3 (			51 55p 11	2. 33p		- The state of the	
S11-HH-5049	Reinstatement of HHR Flyover -		3	0	07-Jun-17 A	27-Jun-17 A		HK Working Day	Reinstatement of HHR:Flyover - Kicker
S11-HH-5050	Reinstatement of HHR Flyover -	Concreting for the base slab of bay 2 of HHR	1	0	28-Jun-17 A	28-Jun-17 A		HK Working Day	I Reinstatement of HHR Flydver - Concreting for the base slab of bay 2 of HHR
S11-HH-5060	Reinstatement of HHR Flyover -	CJ Treatment	1	0	29-Jun-17 A	30-Jun-17 A		HK Working Day	Reinstatement of HHR Flyover - CJ Treatment
S11-HH-5070	Reinstatement of HHR Flyover -	Erect Working Platform and external formwork for bay 2 of HHR	7	0	03-Jul-17 A	08-Jul-17 A		HK Working Day	Reinstatement of HHR Flyover - Erect Working Platform and external formwork for bay 2 of HHR
S11-HH-5071	Reinstatement of HHR Flyover -	Fix re-bars for the walls of bay 2 of HHR	7	0	05-Jul-17 A	11-Jul-17 A		HK Working Day	Reinstate nent of HHR Flyover - Fix re-bars for the walls of pay 2 of HHR
S11-HH-5072	Reinstatement of HHR Flyover -	Erect external Working Platform, falsework, formwork & install hole	ding bolt 12	15	12-Jul-17 A	03-Aug-17	-736	HK Working Day	Reinstatement of HHR Flyover - Erect external Working Platform, falsework, formwork & install holdi
S11-HH-5073	Reinstatement of HHR Flyover -	Concreting for the walls of bay 2 of HHR	1	1	04-Aug-17	04-Aug-17	-736	HK Working Day	■ Reinstatement of HHR Flyover - Concreting for the walls of bay 2 of HHR, Reinstatement of HHR Flyover - Concreting for the walls of bay 2 of HHR, Reinstatement of HHR Flyover - Concreting for the walls of bay 2 of HHR.
S11-HH-5075	Reinstatement of HHR Flyover -	Formwork stripping for the walls of bay 2 of HHR	4	4	05-Aug-17	10-Aug-17	-736	HK Working Day	Reinstatement of HHR Flyover - Formwork stripping for the walls of bay 2 of HHR, Reinstate
S11-HH-5077	Reinstatement of HHR Flyover -	Filling inside structure with granular fill (approx. 470 m3) and insta	all sub-soil drain 12	12	10-Aug-17	22-Aug-17	-736	HK Working Day	Reinstatement of HHR Flyover - Filling inside structure with granular fill (ap
S11-HH-5078	Reinstatement of HHR Flyover -	Excavate for selected filter material (42m3)	3	3	23-Aug-17	26-Aug-17	-736	HK Working Day	Reinstatement of HHR Flyover - Excavate for selected filter material (
S11-HH-5079	Reinstatement of HHR Flyover -	Backfill selected filter material (42m3)	4	4	26-Aug-17	31-Aug-17	-736	HK Working Day	Reinstatement of HHR Flyover - Backfill selected filter material
S11-HH-5080	Reinstatement of HHR Flyover -	Lay blinding layer for the transition slab	1	1	31-Aug-17	31-Aug-17	-671	HK Working Day	I Reinstatement of HHR Flyover - Lay blinding layer for the trans
S11-HH-5085	Reinstatement of HHR Flyover -	Erect formwork & prepare CJ for the transition slab	4	4	01-Sep-17	06-Sep-17	-671	HK Working Day	Reinstatement of HHR Flyover - Erect formwork & prep
S11-HH-5086	Reinstatement of HHR Flyover -	Fix Re-bars for the transition slab	4	4	07-Sep-17	11-Sep-17	-671	HK Working Day	Reinstatement of HHR Flyover - Fix Re-bars for
S11-HH-5087	Reinstatement of HHR Flyover -	Concreting for the transition slab	1	1	11-Sep-17	12-Sep-17	-671	HK Working Day	■ Reinstatement of HHR Flyover - Concreting for
<del>_</del>	Tyover - Bay 3 (East Side) CH 3747				,	,			
S11-HH-5159		Erect fmk for the base slab of east abutment	4	0	01-Jun-17 A	04-Jul-17 A		HK Working Day	Reinstatement of HHR:Flyover - Erect fmk for the base slab of east abutment
S11-HH-5160	· · · · · · · · · · · · · · · · · · ·	Fix Re-bars for the base slab of east abutment	7	0	03-Jul-17 A	15-Jul-17 A		HK Working Day	Reinstatement of HHR Flyover - Fix Re-bars for the base slab of east abutment
S11-HH-5163	Reinstatement of HHR Flyover -		4		16-Jul-17 A	19-Jul-17 A		HK Working Day	Reinstatement of HHR Flyoveri- Kicker
S11-HH-5165		Concreting for the base slab of east abutment	1		20-Jul-17	20-Jul-17	-733	HK Working Day	Reinstatement of HHR Flyover - Concreting for the base slab of east abutment, Reinstatement of HHR Flyover - Conc
S11-HH-5170	Reinstatement of HHR Flyover -		1		21-Jul-17	21-Jul-17	-733	HK Working Day	I Reinstatement of HHR Flyover - CJ Treatment, Reinstatement of HHR Flyover - CJ Treatment
S11-HH-5172	•	Erect falsework and external formwork for the walls of east abutm			22-Jul-17	01-Aug-17	-733	HK Working Day	Reinstatement of HHR Flyover   Erect falsework and external formwork for the walls of east abutment,
S11-HH-5173	•	Fix Re-bars for the walls of east abutment	6	6	01-Aug-17	07-Aug-17	-733	HK Working Day	Reinstatement of HHR Flyover - Fix Re-bars for the walls of east abument, Reinstatement of H
S11-HH-5174	Reinstatement of HHR Flyover -	Concreting for the walls of east abutment	1	1	07-Aug-17	08-Aug-17	-733	HK Working Day	Reinstatement of HHR Flyover - Concreting for the walls of east abutment, Reinstatement of I
S11-HH-5176	•	Formwork stripping and CJ Treatment for the walls of east abutme	ent 2	2	09-Aug-17	11-Aug-17	-733	HK Working Day	Reinstatement of HHR Flyover - Formwork stripping and CJ Treatment for the walls of east
S11-HH-5178	Reinstatement of HHR Flyover -		4		11-Aug-17	15-Aug-17	-733	HK Working Day	Reinstatement of HHR Flyover - Temporary Protection for UU, Reinstatement of HH
S11-HH-5180		Erect external falsework and formwork including bridge deck upsta			16-Aug-17	28-Aug-17	-733	HK Working Day	Reinstatement of HHR Flyover - Erect external falsework and form
S11-HH-5182	Reinstatement of HHR Flyover -	<u> </u>	12		29-Aug-17	11-Sep-17	-733	HK Working Day	Reinstatement of HHR Flyover - Fix Re-bars, inc
S11-HH-5184	-	Install drainage pipe inside wall between gullies	3		12-Sep-17	14-Sep-17	-733	HK Working Day	Reinstatement of HHR Flyover - Install drain
S11-HH-5186	•	Formwork for the end wall and internal wall of east abutment	7		15-Sep-17	22-Sep-17	-733	HK Working Day	Reinstatement of HHR Flyover - F
S11-HH-5188	Reinstatement of HHR Flyover -	•	6		23-Sep-17	30-Sep-17	-733	HK Working Day	Reinstafement of HHR
S11-HH-5190	Reinstatement of HHR Flyover -	·	4		30-Sep-17	06-Oct-17	-733	HK Working Day	Reinstatément
S11-HH-5192	Reinstatement of HHR Flyover -		4		07-Oct-17	12-Oct-17	-733	HK Working Day	Reinsta
S11-HH-5194	Reinstatement of HHR Flyover -	<u> </u>	3		12-Oct-17	14-Oct-17	-733	HK Working Day	Rein Rein
S11-HH-5196		Formwork for the bridge deck upstand	4	4	16-Oct-17	20-Oct-17	-733	HK Working Day	<u>.</u>
_	Principles of HUD Flywer			45	00 0-: 17	00 No. 47	700	LIK Wastin B	<u> </u>
S11-HH-4052		Construct manholo MH4 8 MH2	45	_	06-Oct-17	23-Nov-17	-733	HK Working Day	Reinstatement of HHR Flyover - Construct manhole
S11-HH-4062	Reinstatement of HHR Flyover -		7		01-Sep-17	08-Sep-17	-736	HK Working Day	
S11-HH-4064		Lay drainage works G2 to MH2, including testing	7	_	04-Oct-17	12-Oct-17	-759	HK Working Day	Reinst
S11-HH-4066	-	Lay drainage works MH2 to MH1, including testing	7		04-Oct-17	12-Oct-17	747	HK Working Day	Reinst
S11-HH-4068		Lay drainage works G1 to MH1, including testing	7		04-Oct-17	12-Oct-17	747	HK Working Day	Reinst
S11-HH-4069	·	Manhole Final Works after acceptance of pipes	2		13-Oct-17	14-Oct-17	-759	HK Working Day	■ Reir
S11-HH-4070	· · · · · · · · · · · · · · · · · · ·	Backfill on top of drainage pipe at Bay 1 & 2	5 sa including testing		13-Oct-17	18-Oct-17	747	HK Working Day	4: : : :
S11-HH-4071		Laying drainage pipe (300mm dia. pipe - MH2 to MH20), 10 m Ion		_	07-Oct-17	14-Oct-17	709	HK Working Day	
S11-HH-4072	·	Backfill on top of drainage pipe outside Bay 1 & 2 - Layer 1	2		14-Oct-17	17-Oct-17	709	HK Working Day	
S11-HH-4073	Reinstatement of HHR Flyover -	SK I for drainage pipe - Layer 1	10	10	18-Oct-17	30-Oct-17	709	HK Working Day	
◆ Milestone	e								Date Revision Checked Approve
◆ Critical M		CHINING CROI			CEDD	CONTE	) A CT	NO LIVE	2000/02
Current V		CHUN WO - CRGL			CEDD	CONTR	KAUI	NO. HK/2	2009/02
Critical W		IOINT VENTURE	MD !! C	\ 4	-1 14/	alar! D		-4 \\\	Nhai Faat (Camtuaat O)
Remainin	ng Level of Effort	JOINT VENTURE	WD II - C	entr	ai wand	cnai By	pass	at wan C	Chai East (Contract 2)
			3-MO	NTH	ROLLI	NG PR	)GR	ΔMMF (da	ata date 20-Jul-17)
			3-1410		OLLI		J U 1 ( )	THINE (MA	114 4410 20 VII 11 J



Milestone Critical Milestones Current Works Critical Works Remaining Level of Effort

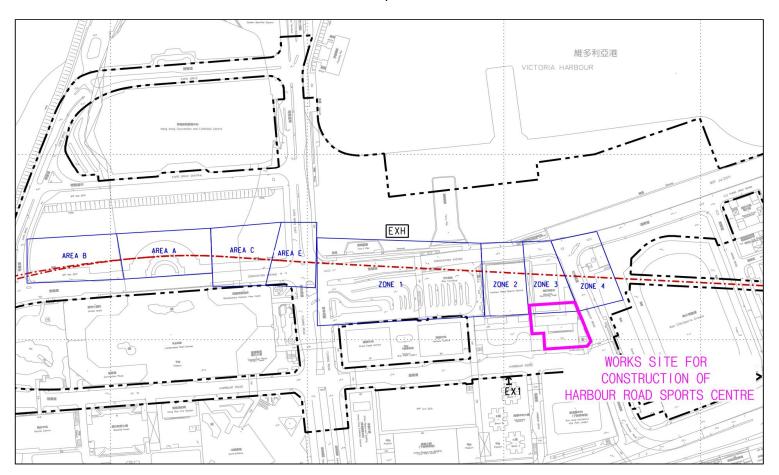
**CHUN WO - CRGL JOINT VENTURE** 

# CEDD CONTRACT NO. HK/2009/02

WD II - Central Wanchai Bypass at Wan Chai East (Contract 2) 3-MONTH ROLLING PROGRAMME (data date 20-Jul-17)

Date	Revision	Checked	Approved

Appendix D - Details of the Concurrent Projects
Location of Works Site for Construction of Harbour Road Sports Centre



# Appendix E1 Detailed Noise Calculation for C&C Method at Zone 2

NSR:

Causeway Centre, Block A

					T						2015								2	2016									201	17			
Package	Area/Zone	Construction Activity	Construction Period	SWL	Distance / m [1][2]	SPL	Q.		Q		- Int	Q3	2 0-	Q4	D I-	Q1		Q		1.1	Q3	C		Q4		Q1	Man An	Q2			3		Q4
					m r-ses	'			Apr Ma																								
7 EXH		EXH Structure			†	$\vdash$		$\pm$		T									Ħ	Ħ			Ħ		Ī								Ĭ
	Area E	(a) Site Hoarding Erection	(06/2016)	108	248	55	$\vdash$		+		$\perp$						+		55	4'		_	_	$\rightarrow$		+		+	$\perp \perp \downarrow$	$\leftarrow$			4
	Area E Area E	(b) Roof Slab Construction (c) Excavation	(01/2018 - 02/2018) (05/2018 - 10/2018)	112 113	248 248	59 60	$\vdash$	_	+-+	+	+-	+-+			_		++	-	+	+	$\rightarrow$	+	+	-	+	+-+	-	+	$\vdash$		_		+
	Area E	(d) Construction of Internal Structures of Box Station	(11/2018 - 04/2019)	112	248	59		$\overline{}$	+	+-	+-	$\overline{}$					+	-	+-	+'	-+	$\rightarrow$	-	-	_	$\vdash$	-	+	$\vdash$		$\overline{}$		-
	Area C	(e) Construction of Entrance and Vent Shafts	(01/2019 - 02/2019)	112	293	57														1								+					
	Area C	(f) Construction of Station Box Roof Slab	(03/2019 - 04/2019)	112	293	58																											
	Area E	(h) Utility diversion	(07/2016 - 10/2016)	100	248	47	$\vdash$		++		$\perp$	+-+					$\perp$			47	47	47	47	$\rightarrow$		$\longrightarrow$	$\rightarrow$	+	$\perp \perp \mid$				$\perp$
	Area E	(i) Pipe Pile Construction > Stage 1	(10/2016 - 12/2016)	111	248	58	$\vdash$	+	+-+	+	+-	+-+					+	-	+	+'		+	E0 E	58 58	,—	$\vdash$	-	+	$\vdash$	-			+
	Area E	> Stage 1	(04/2017 - 08/2017)	111	248	58	$\vdash$	+-	+-+	+-	+-	+-+					+	-+	+	+'	-+		36 3	10 30	-	+	58	58	58	58 5	8		+
6 EXH to		Tunnel at West to EXH	(0.00000		<del>                                     </del>			$\top$	$\vdash$	+	$\top$						+	$\neg$	$\top$	+	$\overline{}$	$\neg$	$\overline{}$	$\neg$	+	$\vdash$		100					_
Shaft		(a) Site Formation				'																											
	Areas A & B	> Areas A & B	(06/2015)	120	>300	- '	$\vdash$		$\perp \perp$	-	4	$\perp$		$\perp$	_		$\perp$					_				$\perp \perp$	_	42	$\perp \perp \downarrow$		$\perp$		_
	Area A Area C	> Areas A > Area C - 1	(09/2015)	120	>300 293	- 65	$\vdash$	+-	++	+		+	-	+	-	-	+	-	+	+'		+	-	-		$\vdash$	-	+	$\vdash$		+		-
	Area C	> Area C - 1 > Area C - 2	(01/2016) (07/2016)	120 120	293	65	$\vdash$	+-	++	+	+-	+-+			0:	5	+-+	-+	+-	65	-+	+	+	-	+'	+	-	+	$\vdash$		+		+
	Areas A & B	(b) Site Hoarding Erection	(06/2015)	108	>300		$\vdash$		++	-		+					+	-	+-	- 00		-	-	-	_	$\vdash$	-	+	$\vdash$		-		-
	Areas A & B	(c) Excavation inside SCL tunnels protection works	(06/2016 - 10/2017)	116	>300	- '					1								-	-	- 1	- 7	- 7		-	- 1		-	- 1	- 1	)	-	$\top$
		(d) Tunnel Box Structure Construction				'																											
	Area A	> Area A	(11/2017 - 11/2018)	115	>300	- '	$\vdash$		$\perp \perp$	—		$\perp \perp$		$\perp$	_		$\perp$					_				$\perp \perp$	_	42	$\perp \perp \downarrow$		$\perp$		-
	Area B	> Area B	(11/2017 - 12/2019)	115	>300	- '	$\vdash$	+-	++	+	+-	++	_	+			+	-	+	+'	$\rightarrow$	+	+	+	+	+	+	+	$\vdash$		+		-
	Area A	(e) Diaphragm Wall Construction > Area A	(10/2015 - 04/2016)	114	>300	1 . '	$\vdash$	+-	++	+	+-	+	_	-			-	_	+	+'	-	+	+	+	+-	++	+	+	$\vdash$	+	+		+
	Area C	> Area C	(03/2016 - 05/2017)	114	293	60	$\vdash$	_	+	+	+-	+++						60 6	0 60	60	60	60	60 E	30 60	60	60	60 60	60	$\vdash$	-+	+		+
	Area C	(f) Excavation	(06/2017 - 05/2018)	115	293	61		$\bot$		$\Box$				1															61	61 6	1 61	61 6	1
	Area C	(g) Tunnel Box Structure Construction	(06/2018 - 02/2019)	112	293	58				$\perp$										$\Box$		工			$\perp$	ш							$\Box$
		(h) Backfilling and Superstructure			l	l '	$\vdash$		+	-	$\perp$	+-+	_				++	_	$\perp$	<del></del> '		_	$\rightarrow$	$\rightarrow$		$\longrightarrow$		+	$\longrightarrow$		$\perp$		$\perp$
	Area C Area C	> Stage 1 > Stage 2	(02/2019 - 02/2020) (06/2019 - 08/2019)	112 112	293 293	58 58	$\vdash$	+	+++	+	+-	+++	-	+	-	-	+	-	+	+'	$\rightarrow$	+	+	+	+	++	+	+	$\vdash$		+		+
Barging Point	Barging Point	Stage 2  Barging Point at Wan Chai Ex-PCWA	(00/2019 - 08/2019)	112	293	38	$\vdash$	+-	++	+	+-	++	_	+	+	+	+	+	+	+-	+	+	+	+	+	++	+	+	$\vdash$	+	+		+
- u. gg	Daignig i omi	Construction/Set up	(09/2016 - 07/2017)	106	>300	- '		+	+	+	+	+					+	-	+	+		-	-		-	-		-	-	-	+		-
		Spoil Disposal	(08/2017 - 12/2020)	113	>300	<u> </u>																											-
	Zone 1	Wan Chai PTI Area			T															<u> </u>													
		Site clearance, Site Hoarding Erection and utility diversion	(06/2015 - 07/2015)	113	124	66	$\vdash$		++	66	6 66	4					+			+'		$\rightarrow$	-			$\vdash$	-	+	$\vdash$		_		-
		Demolition of existing Wan Chai Ferry Pier footbridge > Stage 1	(06/2015 - 06/2016)	109	124	62	$\vdash$		+-+	62	2 62	62	62 62	62	62 6	2 62	62	62 6	2 62			-+	-	-	+	$\vdash$		+	$\vdash$		$\rightarrow$		-
		> Stage 2	(01/2017)	115	124	68		+	+	02	. 02	02	02 02	- 02	02 0.	2 02	02	02 02	2 02	+-	-+	-	-	_	68	$\vdash$	-	+	$\vdash$		+		-
		Construction of temporary Wan Chai Ferry Pier footbridge	(09/2015 - 12/2016)	108	124	61							61 61	61	61 6	1 61	61	61 6	1 61	61	61	61	61 6	31 61									
		Construction of Permanent Wan Chai Ferry Pier footbridge (Superstructure)	(08/2019)	110	124	63														<u> </u>													
		Demolition of Temporary Wan Chai Ferry Pier footbridge	(09/2019 - 12/2019)	117	124	70	$\vdash$	+-	++	+		+		+			+	-	+	+'		+	-	-		$\vdash$	-	+	$\vdash$		+		-
		Piling works (PPW and H-piles) > Stage 1 (TTM Stage 2)	(07/2015 - 04/2016)	109	124	62	$\vdash$	+-	+-	-	62	62	62 62	62	62 6	2 62	62	62	+	+'		-	-	_	+	+	-	+	+		+		-
		> Stage 2 (TTM Stage 2a & 3b)	(06/2016 - 10/2016)	108	124	61	$\vdash$	+-	+	+	02	102	02 02	02	02 0.	2 02	02	OZ.	61	61	61	61	61	_	+	+		+	+		+		-
		> Stage 3 (TTM Stage 3C)	(12/2016 - 04/2017)	109	124	62																		62	62	62	62 62				$\neg$		
		Diaphragm wall construction				'			$\perp \perp$											<u></u> '		_			4—'	$\perp$		4	$\perp$				
		> Stage 1 (TTM Stage 2)	(08/2015 - 01/2016)	110	124	63	$\vdash$		+-+	$-\!$		63	63 63	63	63 6		62	60 6	2 60			00	60 (	00 00		60	60	+	$\vdash$				_
		> Stage 2 (TTM Stage 3a/3b/3c & 5) Excavation & ELS installation	(02/2016 - 03/2017) (03/2017 - 05/2018)	109 116	124 124	62 69	$\vdash$	+-	+-+	-	+	+-+			_	62	62	62 6	2 62	62	62	62 1	02 6	12 62	62			60	60	60 F	0 60	69 69	0
		Construction of Internal Structure of Box Station	(06/2018 - 02/2019)	114	124	67	$\vdash$		++	-	+-	+					+	-	+-	+'		-	-	-	_		03 03	03	03	03 0	9 03	03 0	3
		Construction of Entrances and Structure	(03/2019 - 08/2019)	112	124	65																											
	Zone 2	Harbour Road Sports Centre Area																		<u> </u>													
		Demolition of Harbour Road Sports Centre (HRSC)	(06/2017 - 09/2017)	107	92	63 65	$\vdash$		++	-		+					+		-	+'		$\rightarrow$	-			$\vdash$	-	+	63	63 6	3 63	GE.	-
		Site Hoarding Erection & Pile Removal Piling works (PPW and H-piles)	(10/2017) (11/2017 - 02/2018)	109 110	92 92	66	$\vdash$		+-+	+-	+-	+-+					+	-+	+	+'		-+	-	-	+	$\vdash$		+	$\vdash$		$\rightarrow$	65	66
	1	Excavation & ELS installation (C&C Method)	(03/2018 - 02/2019)	114	92	69	$\vdash$	_	+	+	+-	+++		+ +	-		+	+	+	+	$\overline{}$	+	+	+	+-	+	_	+	$\forall$	-+	+		
	1	Construction of Internal Structure of Box Station	(03/2019 - 11/2019)	112	92	68																											
		Construction of Entrances and Ground structure	(12/2019 - 02/2020)	114	92	69	$\perp \perp$	$\bot$	$+$ $\top$	$\bot$	$\bot$	$+$ $\Box$		$\bot$			$+\Box$	$\bot$	$\bot$	42		二二	工	$\bot$	$\bot$	oxdot	$\bot$	$\bot$	$\Box$		$\Box$		4
	Zone 3	Wan Chai Swimming Pool Area Demolition of Wan Chai Swimming Pool	(12/2015 02/2010)	105	100	60	$\vdash$	+-	++	+	+-	++	+	+	60 0	0 00	60	-	+	+'	+	+	+	+	+'	$\vdash$	-	+	$\vdash$		+		+
		Demolition of Wan Chai Swimming Pool Site Hoarding Erection & Pile Removal	(12/2015 - 03/2016) (08/2016 - 09/2016)	105 107	100 100	60 62	$\vdash$	+-	++	+	+-	++	+	+ +	60 6	0 60	00	+	+	+'	62	62	+	+-	+	+	+	+	$\vdash$	+	+		+
		Piling works (H-piles)	(03/2016 - 04/2016)	107	100	63		_	+	+	+		$\top$		-	+	63		+	1 '			+	+	+-	$\vdash$	_	+	$\vdash$		+		+
		Diaphragm wall construction	(05/2016 - 07/2017)	106	100	61				工									1 61	61	61	61	61 6	61 اذ	61	61	61 61	61	61				二
		Excavation & ELS installation	(08/2017 - 08/2018)	114	100	69	$\vdash$	$\bot$	$+$ $\Gamma$	$\bot$	$\bot$	$+$ $\top$		$\perp \Box$			$+$ $\top$	$\Box$	$\perp$	₩	$\perp$		$\perp$	$\bot$	$\bot$	$\coprod$	$\dashv$	+	igspace	6	9 69	69 6	9
		Construction of Internal Structure of Box Station	(09/2018 - 03/2019)	111 111	100 100	66 66	$\vdash$	+-	++	+	+-	++	+	+	$ \vdash$	+	+	-	+	+'	+	+	+	+	+'	$\vdash$	-	+	$\vdash$		+		+
	Zone 4	Construction of Vent Shaft and Ground structure  Wan Chai Sports Ground Area	(04/2019 - 09/2019)	111	100	00	$\vdash$	+-	+-	+	+-	+-+	+	+	-	+	+	-+	+	+-	+	+	+	+-	+-	+	-	+	$\vdash$	-+	+		+
		Piling works (H-piles) - Wan Chai Sports Ground (WCSG)	(08/2016)	115	124	68		_	+	+	+-	+-+		+			+-+	+	+	+	68	+	+	+	+-	+	+	+	$\vdash$	-+	+		+
		Diaphragm wall construction - Phase 1 WCSG	(12/2015 - 07/2016)	106	124	59				$\perp$					59 59	9 59	59	59 5	9 59	59		二	工										
		Piling works (PPW and H-piles) - Tonnochy Road	(12/2016 - 06/2017)	110	124	63	$\vdash \vdash$	$\bot$	$+$ $\Gamma$	$\bot$	$\bot$	$+$ $\top$		$+ \top$			$+$ $\top$	$\Box$	$\perp$		$\perp$		$\perp$	63	63	63	63 63	63	63	$\Box$	$\perp \! \! \perp \! \! \perp$	$\perp \perp \Gamma$	$\bot$
		Excavation & ELS installation > Underground (no noise cover)	(06/2017 - 07/2018)	113	124	66	$\vdash$	+-	++	+	+-	+	+	+	$ \vdash$	-	+	-	+	+'	$\rightarrow$	+	+	-	+	$\vdash$	-	+	66	66 6	6 66	66 6	6
		> Underground (no noise cover) > Underground (with full noise cover over Tonnochy Road)	(06/2017 - 07/2018) (08/2018 - 04/2019)	113	124	59	$\vdash$	+-	++	+	+-	+	_	+			+	+	+	+	-	+	+	+	+-	++	+	+	00	00 6	00	00 0	J
		> At surface	(08/2018 - 04/2019)	112	124	65		_	+	+	+		$\top$		-		+ +	-	$\top$	$\top$	-	+	+	+	+	$\vdash$	_	+	$\vdash$		+		+
	1	Construction of Internal Structure of Box Station	(10/2018 - 04/2019)	108	124	61				$\perp$		$\perp$								'	二					$\bot$		$\perp$	$\Box$				
	l	Reprovision of WCSG grandstand	(05/2019 - 09/2020)	115	124	68	$\vdash$	+	+	+-		+=+	-	1 1			+_+		_	+'						-			$\vdash$			1	_
	Construction of	1	Noise Level from Works		1			+-	+-+-	67	69		68   68	68	69 7	1   69	70	70 6	9 70	70	72	69	58 6	i8 70	71	69	/2 72	71	73	72 7	1 74	74 7	4
	Construction of Harbour Road	Site Hoarding Erection for Harbour Road Sports Centre	(08/2015)	106	77	63						63								'	.									,			
	Sports Centre [4]	Demolition of Wan Chai Swimming Pool and filtration plant room	(09/2015 - 12/2015)	106	77	63		$\pm$		=	$\pm$		63 63	63	63		<u> </u>		$\exists$	ፗ	= $+$							╧			$\exists$		
	1	Piling works for Harbour Road Sports Centre	(12/2015 - 07/2016)	109	77	66				$\perp$		$\perp$				6 66	66	66 6								Ш			$\Box$				
	1	Superstructure for Harbour Road Sports Centre	(06/2016 - 02/2017)	102	77	59	$\vdash$	—	+	+	+	+	00 -		00 -		+							59 59			$-\!\!\!\!+\!\!\!\!\!-$	+	$\vdash$		+		+
		Noise Level from Construct  Cumulative Noise Level from Works Contract 1123 and Construct	ruction of Harbour Road S						+-+-			63															72 70	74	70	72 -	1 74	74 7	4
		Cumulative Noise Level from Works Contract 1123 and Constrc	unon or marbour Road St	JULIS CENT						0/	. 09	1 09 1	υ <del>υ</del>   υ	09	14 /		12												13	14 /	+ 14	14 /	+
Concurrent						F9* 1	l l									_   _			_								!	1 1	1 1	,	1		- 1
Concurrent Works			Noise Level from Constru	uction of V	WDII, L <sub>eq (30min)</sub>	, dB(A) <sup>[3]</sup> :	73 7	3 73	73 7	3 73	3 73		73 73	3 73	73 73	3 73	73	73 7.	'3 73	73	73	73	73 7	73 73	73	73	73 73	73	-	-	·   -	-   -	-

- marks: [1]

- For the calculation of sound pressure levels (SPL), the PMEs are assumed to be placed at the notional source position according to the "Technical Memorandum on Noise from Construction Work other than Percussive Piling" by EPD.

  Works further than 300 m from the NSR would not be assessed due to the large distance attentuation.

  The maximum mitigated noise level predicted at EX1 in the approved EIA Report for "Wan Chai Development Phase II and Central-Wan Chai Bypass" (WDII&CWB EIA Report) (Register No.: AEIAR-125/2008) has been adopted in this assessment.

  Based on the construction programmes in the latest available monthly EM&A Report for WDII&CWB project (Sep 2017), the major construction works of WDII within 300 m of the NSR were completed in May 2017.
- Noise impact from construction of Harbour Road Sports Centre was retrieved from the CNMMP for Works Contract 1126 as presented in Appendix D.

NSR:

Causeway Centre, Block A

											2018								20	19							-	202	.0	-		_
Package	Area/Zone	Construction Activity	Construction Period	SWL	Distance / m [1][2]	SPL	Q lan Lea			Q2 May	lus lul	Q3	Son Oot	Q4		Q lon I Eo		Q Apr I Ma		C Lul A			Q4		Q1	Mor. /	Q2		Jul Aug	Son C		4 ~/ I D
					m····																								67 68			
EXH		EXH Structure			İ																					Ĭ					Ì	Ħ
	Area E	(a) Site Hoarding Erection	(06/2016)	108	248	55																										
	Area E Area E	(b) Roof Slab Construction (c) Excavation	(01/2018 - 02/2018) (05/2018 - 10/2018)	112 113	248 248	59 60	59 59	9		60	60 60	60	60 60											+		-+	-	$\vdash$	-		+	-
	Area E	(d) Construction of Internal Structures of Box Station	(11/2018 - 04/2019)	112	248	59				00	60 60	00	60 60		59	59 50	9 59	59								-+	-	$\vdash$	$\overline{}$		-	-
	Area C	(e) Construction of Entrance and Vent Shafts	(01/2019 - 02/2019)	112	293	57								33		57 57		33								-	+	+	-	-	+	+
	Area C	(f) Construction of Station Box Roof Slab	(03/2019 - 04/2019)	112	293	58											58	58														
	Area E	(h) Utility diversion	(07/2016 - 10/2016)	100	248	47																										
		(i) Pipe Pile Construction																								$\rightarrow$	$\perp$	$\perp \perp$	$\perp \!\!\!\perp \!\!\!\!\perp$		_	_
	Area E Area E	> Stage 1 > Stage 2	(10/2016 - 12/2016) (04/2017 - 08/2017)	111 111	248 248	58 58																		+		-+		$\vdash$	-		+	-
EXH to	Alea E	Tunnel at West to EXH	(04/2017 - 06/2017)	1111	240	56		+																+ +		-	+	$\vdash$	$\overline{}$	-	+	+
aft		(a) Site Formation																								-	+		$\rightarrow$	-	-	_
	Areas A & B	> Areas A & B	(06/2015)	120	>300	-																										
	Area A	> Areas A	(09/2015)	120	>300	-																						$\perp \perp \downarrow$			_	_
	Area C	> Area C - 1	(01/2016)	120	293	65		-		_					$\vdash$		-									+	+	$\vdash$	$-\!\!\!\!-\!\!\!\!\!-$	-+	+	+
	Area C Areas A & B	> Area C - 2 (b) Site Hoarding Erection	(07/2016) (06/2015)	120 108	293 >300	65																				-+	$\rightarrow$	+-+	-	-+	+	+
	Areas A & B	(c) Excavation inside SCL tunnels protection works	(06/2016 - 10/2017)	116	>300	-																				-+	+	$\vdash$	$\rightarrow$	-+	+	_
		(d) Tunnel Box Structure Construction	(**************************************																													
	Area A	> Area A	(11/2017 - 11/2018)	115	>300	-		-	-	-		-		-																		
	Area B	> Area B	(11/2017 - 12/2019)	115	>300	-		-	-	-		-		-	-		-		-		-	-						$\perp \perp \downarrow$			_	_
	Area A	(e) Diaphragm Wall Construction > Area A	(10/2015 04/2010)	114	200		$\vdash$		$\vdash$	-+		$\vdash$		1	$\vdash$	_	-		-	$\vdash$	-	$\vdash$	_	+	-+	+	+	$\vdash$	+	-+	+	+
	Area C	> Area C	(10/2015 - 04/2016) (03/2016 - 05/2017)	114 114	>300 293	60	$\vdash$	-	$\vdash$	-+		+		+	++		+		+		+	$\vdash$		+	-	+	+	+	-	-+	+	+
	Area C	(f) Excavation	(06/2017 - 05/2017)	115	293	61	61 6	1 61	61	61		$\vdash$			+							$\vdash$		+ +	-+	+	+	+	$\dashv$	-+	+	+
	Area C	(g) Tunnel Box Structure Construction	(06/2018 - 02/2019)	112	293	58					58 58	58	58 58	58	58	58 58	3									+	$\dashv$		$\neg$		$\top$	$\top$
		(h) Backfilling and Superstructure																									$\perp$	$\Box$				ፗ
	Area C	> Stage 1	(02/2019 - 02/2020)	112	293	58	$\vdash$			_		$\square$			$\perp \perp$	58	58	58 5				58	58 58	58	58	$\perp$	$+\!\!-\!\!\!-$	$\vdash$	$-\!\!\!\!\!-\!$	$-\bot$	$\perp$	+
raina Daint	Area C	> Stage 2	(06/2019 - 08/2019)	112	293	58				_		$\vdash$		+	-		_		58	58 5	3			+	_	+	+	$\vdash$	$-\!\!+\!\!-\!\!\!-$	-+	+	+
irging Point	Barging Point	Barging Point at Wan Chai Ex-PCWA Construction/Set up	(09/2016 - 07/2017)	106	>300			-																		-+	+	$\vdash$	$\rightarrow$	-+	+	+
		Spoil Disposal	(08/2017 - 12/2020)	113	>300	_		_	-	-		-		-	-		-		-		-	-		-	-	-		- 1		- 1	-	_
	Zone 1	Wan Chai PTI Area	(00)2011 12/2020/		1 1111																					$\overline{}$	$\overline{}$		$\overline{}$		$\overline{}$	_
		Site clearance, Site Hoarding Erection and utility diversion	(06/2015 - 07/2015)	113	124	66																										
		Demolition of existing Wan Chai Ferry Pier footbridge			l																			_							_	_
		> Stage 1 > Stage 2	(06/2015 - 06/2016)	109 115	124 124	62 68								+	<del>     </del>									+		+	+	$\vdash$	-		+	-
		Construction of temporary Wan Chai Ferry Pier footbridge	(01/2017) (09/2015 - 12/2016)	108	124	61																				-+	+	$\vdash$	-	-+	+	+
		Construction of Permanent Wan Chai Ferry Pier footbridge (Superstructure)	(08/2019)	110	124	63														6	3					-	$\neg$		$\neg$		$\pm$	_
		Demolition of Temporary Wan Chai Ferry Pier footbridge	(09/2019 - 12/2019)	117	124	70															70	70	70 70	)								
		Piling works (PPW and H-piles)	(07/0045 04/0040)	400	404									-												-		$\vdash$			_	_
		> Stage 1 (TTM Stage 2) > Stage 2 (TTM Stage 3a & 3b)	(07/2015 - 04/2016) (06/2016 - 10/2016)	109 108	124 124	62 61									$\vdash$											-+	+	$\vdash$	-		+	+
		> Stage 3 (TTM Stage 3a & 3b)	(12/2016 - 04/2017)	109	124	62																				-+	+	$\vdash$	-	-+	+	+
		Diaphragm wall construction	(12,2010 01,2011)																							-	$\neg$		$\neg$		$\pm$	_
		> Stage 1 (TTM Stage 2)	(08/2015 - 01/2016)	110	124	63																										
		> Stage 2 (TTM Stage 3a/3b/3c & 5)	(02/2016 - 03/2017)	109	124	62	00 00			00																$\rightarrow$	$\perp$	$\perp \perp$	$\perp \!\!\!\perp \!\!\!\!\perp$		_	_
		Excavation & ELS installation Construction of Internal Structure of Box Station	(03/2017 - 05/2018) (06/2018 - 02/2019)	116 114	124 124	69 67	69 69	9 69	69		67 67	67	67 67	67	67	67 6	7							+		+	+	$\vdash$	-		+	-
		Construction of Entrances and Structure	(03/2019 - 08/2019)	112	124	65					01 01	01	67 67	07	67	01 01		65 6	5 65	65 6	5					-+	+	$\vdash$	-	-+	+	+
	Zone 2	Harbour Road Sports Centre Area	(00,00000000000000000000000000000000000		1																					$\neg$	$\neg$				$\top$	_
		Demolition of Harbour Road Sports Centre (HRSC)	(06/2017 - 09/2017)	107	92	63																										
		Site Hoarding Erection & Pile Removal	(10/2017)	109	92	65	00 00																	_			$\perp$				_	_
		Piling works (PPW and H-piles) Excavation & ELS installation (C&C Method)	(11/2017 - 02/2018) (03/2018 - 02/2019)	110 114	92 92	66 69	66 66		60	60	60 60	60	69 69	60	60	60 60	3									-+	$\rightarrow$	+-+	-	-+	+	+
		Construction of Internal Structure of Box Station	(03/2018 - 02/2019)	114	92	68	$\vdash$	09	03	03	00	03	03 09	09	03	00 00	68	68 6	68	68 6	68	68	68	+ +		+	+	+	$\dashv$	-+	+	+
		Construction of Entrances and Ground structure	(12/2019 - 02/2020)	114	92	69																	69	69	69		ユ				士	ᆂ
	Zone 3	Wan Chai Swimming Pool Area																								$\Box$	$\Box$				$\blacksquare$	I
		Demolition of Wan Chai Swimming Pool	(12/2015 - 03/2016)	105	100	60		_	$\vdash$			$\vdash$		1	$\vdash$		-		-	$\vdash$	-	$\vdash$		+		+	+	$\vdash$	$\perp \perp \perp$		+	+
		Site Hoarding Erection & Pile Removal Piling works (H-piles)	(08/2016 - 09/2016) (03/2016 - 04/2016)	107 108	100 100	62 63	$\vdash$	-		-+		+		1	+	_	-				_	$\vdash$		+	-+	+	+	$\vdash$	+	-+	+	+
		Diaphragm wall construction	(05/2016 - 07/2017)	106	100	61				_		+		+	++									+ +		+	+	+	$\dashv$	-+	+	+
		Excavation & ELS installation	(08/2017 - 08/2018)	114	100	69	69 69	9 69	69	69	69 69	69																			工	
		Construction of Internal Structure of Box Station	(09/2018 - 03/2019)	111	100	66			$\Box$			$\Box$	66 66	66	66	66 66	66				4			$\perp$		$\bot$	47	$\sqcup T$	$\dashv \Box$	$ \top$		_[
	Zono 4	Construction of Vent Shaft and Ground structure	(04/2019 - 09/2019)	111	100	66	$\vdash$	-		-		$\vdash$		+	$\vdash$	_	+-	66 6	66	66 6	66			+	-	+	$+\!-\!\!\!-$	$\vdash$	$\dashv$	-+	+	+
	Zone 4	Wan Chai Sports Ground Area Piling works (H-piles) - Wan Chai Sports Ground (WCSG)	(08/2016)	115	124	68	$\vdash$		<del>   </del>	+	-	+		1	+	-	-	<del>                                     </del>	-	$\vdash$	-	$\vdash$	_	+	+	+	+	+	+	-+	+	+
		Diaphragm wall construction - Phase 1 WCSG	(12/2015 - 07/2016)	106	124	59			$\vdash$			$\vdash$		1												+	+	+	$\dashv$	-+	+	+
		Piling works (PPW and H-piles) - Tonnochy Road	(12/2016 - 06/2017)	110	124	63																				$\Box$		$\Box$			$\Box$	ユ
		Excavation & ELS installation										$\Box$		$\perp$	$oxed{\Box}$					$\Box$		$\Box$		$\perp$		—Г	47	$\sqcup T$	$\Box$	[	$\perp \!\!\! \perp$	Ţ
		> Underground (no noise cover) > Underground (with full noise cover over Tonnochy Road)	(06/2017 - 07/2018)	113 106	124 124	66 59	66 66	66	66	66	66 66		59 59	EO	FO	50 5	) 50	50		$\vdash$		$\vdash$	-	+		+	+	$\vdash$	$+\!\!-\!\!\!+$	- $+$	+	+
		> Underground (with full hoise cover over Tonnochy Road) > At surface	(08/2018 - 04/2019) (08/2018 - 04/2019)	106	124	59 65	$\vdash$		$\vdash$	-			65 65							<del>                                     </del>		$\vdash$		+ +	-	+	+	+	+	-+	+	+
		Construction of Internal Structure of Box Station	(10/2018 - 04/2019)	108	124	61						00					1 61								-+	+	+	+	$\rightarrow$	-	+	+
		Reprovision of WCSG grandstand	(05/2019 - 09/2020)	115	124	68												6											68 68		工	ユ
			Noise Level from Works	Contract	1123, L <sub>eq (30m</sub>	<sub>nin)</sub> , dB(A)	74 74	4 75	75	75	74 74	74	74 74	74	74	74 74	4 73	73 7	3 73	73 7	1 74	74	74 74	72	72	68 E	8 68	68	68 68	68	-	┙
	Construction of	Site Hoarding Erection for Harbour Road Sports Centre	(08/2015)	106	77	63			[			1						-		-							1 7		7			
	Harbour Road Sports Centre [4]	Demolition of Wan Chai Swimming Pool and filtration plant room	(09/2015 - 12/2015)	106	77	63		+		-		+		+	+						+			+	-	+	+	+	+	-+	+	+
	Shours Ceutte.	Piling works for Harbour Road Sports Centre	(12/2015 - 07/2016)	100	77	66																		+ +		+	+	+	$\rightarrow$	-+	+	+
		Superstructure for Harbour Road Sports Centre	(06/2016 - 02/2017)	102	77	59																				二		$\Box$			工	#
		Noise Level from Constru						-	-	-		-		-	-		-		-		-	-		-	- [		-   -	LΞ			<u>-</u>	Ţ
`ana '		Cumulative Noise Level from Works Contract 1123 and Constrcu	tion of Harbour Road Sp	orts Cent	re, Leq (30mi	n), dB(A)	74 74	4   75	75	75	74 74	74	74 74	74	74	74   74	1 73	73 7	3   73	73 7	1 74	74	74 74	72	72	68 6	8 68	68	68 68	68	-	+
oncurrent Works			loise Level from Constru	action of V	VDII, L <sub>eq (30min)</sub>	, dB(A) <sup>[3]</sup>	:  -   -	-	-	-	-   -	-	-   -	-	-	-   -	-	-   -	-	-   -	-	-	-   -	-	-	-	-   -	-	-   -	-	-	.
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- marks: [1]

- For the calculation of sound pressure levels (SPL), the PMEs are assumed to be placed at the notional source position according to the "Technical Memorandum on Noise from Construction Work other than Percussive Piling" by EPD.

  Works further than 300 m from the NSR would not be assessed due to the large distance attentuation.

  The maximum mitigated noise level predicted at EX1 in the approved EIA Report for "Wan Chai Development Phase II and Central-Wan Chai Bypass" (WDII&CWB EIA Report) (Register No.: AEIAR-125/2008) has been adopted in this assessment.

  Based on the construction programmes in the latest available monthly EM&A Report for WDII&CWB project (Sep 2017), the major construction works of WDII within 300 m of the NSR were completed in May 2017.
- Noise impact from construction of Harbour Road Sports Centre was retrieved from the CNMMP for Works Contract 1126 as presented in Appendix D.

# Appendix E2 Detailed Noise Calculation for Drill-and-Blast Works Combined with Mechanical Excavation at Zone 2

# Appendix E2 - Detailed Noise Calculation for Drill-and-Blast Works Combined with Mechanical Excavation at Zone 2

NSR: Causeway Centre, Block A

Separation of the control of the con				1		Distance /		Q1		Q2	201	15 Q3	3	Q4		Q1	1		20	016	Q3	_	Q4	+	Q1	—	Q2	2017	Q3	$\overline{}$
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Mart	<u> </u>		EYH Structure		—	<u> </u>	1	1   2	3	4   5	6	7   8	9	10   11	12	13   14	15	16   1	7   18	19	20   21	22	23   24	1 25	26   2	27   28	29	30   31	32   33	34
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March 1			(-)						+		+								-	+	-	+	-	+	+	-	+	-+	+	+-
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Diaphragm wall construction - Phase 1 WCSG   (1/2/015 - 07/2016)   106   124   59	Z	one 4			l	1	1	$\vdash$	4	$\leftarrow$	$\perp$		$\perp$		$\perp \perp \downarrow$		$\perp$		-	+	00	$\perp$	$\vdash$	$\bot$	+	$\perp$	+	-	+	$\perp$
Piling works (PPW and H-piles) - Tonnochy Road   (12/2016 - 06/2017)   110   124   63     12/2016 - 06/2017)   110   124   63     12/2016 - 06/2017)   113   124   66     12/2016 - 04/2019)   113   124   66     12/2016 - 04/2019)   113   124   66     12/2016 - 04/2019)   112   124   65     12/2016 - 04/2019)   112   124   65     12/2016 - 04/2019)   112   124   65     12/2016 - 04/2019)   112   124   68     12/2016 - 04/2019)   112   124   12/2016 - 04/2019)   112   124   12/2016 - 04/2019   12/2016									!	$\vdash$	$\perp$										68	$\perp$	$\vdash$	4	+		$\perp$		+	
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Construction of Harbour Road Sports Centre (4)	$\perp$			Noise Level from Works	s Contract	t 1123, L <sub>eq (30)</sub>	min), dB(A)	:	-		67	69 67	68	68 68	69	71 69	70	70 6	i9 70	70	72 69	68	68 70	) 71	69	72 72	71	73 72	74 74	74
Harbour Road   Sports Centre     Demolition of Wan Chai Swimming Pool and filtration plant room   (09/2015 - 12/2015)   106   77   63		onstruction of	Cita Handina Frantisa ta Hada ya Bani Cita Cita			1	Τ		$\top$	$\overline{}$	+				1 1				$\neg$	+	$\overline{}$	1	-	$\top$	+	$\neg$	+	-	+	$\top$
Sports Centre [4] Demolition of Wan Chai Swimming Pool and filtration plant room Piling works for Harbour Road Sports Centre (12/2015 - 07/2016) 106 77 63 66 6 66 66 66 66 66 66 66 66 66 66 6	Ic		Site Hoarding Erection for Harbour Road Sports Centre	(08/2015)	106	//	63		'			63			I									ı						
Piling works for Harbour Road Sports Centre  (12/2015 - 07/2016)   109   77   66   50   59   59   59   59   59   59   59		larbour Road	Demolition of Wan Chai Swimming Pool and filtration plant room	(09/2015 - 12/2015)	106	77	63		$\top$				63	63 63	63															
Superstructure for Harbour Road Sports Centre    Superstructure for Harbour Road Sports Centre   Superstructure for Harbour Ro	Н								$\top$		$\top$					66 66	66	66 6						$\neg$	$\top$					
Noise Level from Construction of Harbour Road Sports Centre, Leg (30min), dB(A)   5   5   5   5   5   5   5   5   5	Н		Filling works for Harbour Road Sports Certife						$\top$		+	-									59 59	59	59 59	9 59	59	$\neg$	+	-	+	$\top$
Cumulative Noise Level from Works Contract 1123 and Construction of Harbour Road Sports Centre, Leq (30min), dB(A):  Noise Level from Construction of WDII, Leq (30min), dB(A) 31: 73 73 73 73 73 73 73 73 73 73 73 73 73	Н								-	-	$\overline{}$		-		00	66 66	66	66 6								-	+	-	-	+-
Noise Level from Construction of WDII, Leq (30min), dB(A) <sup>[3]</sup> : 73 73 73 73 73 73 73 73 73 73 73 73 73	Н		Superstructure for Harbour Road Sports Centre		Sporte Co.	ntre I	. dB/All		- 1		- '		1 63	83 83								50	50 50	7 50	50	-   -	-	- ! -		
Noise Level from Construction of WDII, Leq (30min), dB(A)**: /3 /3 /3 /3 /3 /3 /3 /3 /3 /3 /3 /3 /3	Н		Superstructure for Harbour Road Sports Centre  Noise Level from Consi	truction of Harbour Road					+=+																	72 72	71	73 72	7/ 7/	7/
	H S		Superstructure for Harbour Road Sports Centre  Noise Level from Consi	truction of Harbour Road Spution of Harbour Road Sp	ports Cent	tre, Leq (30m	in), dB(A)	:	-		67	69 69	69	69 69	72	72 71	72	71 7	71 71	72	72 69	69	68 70	0 72	69 7			73 72	74 74	1 74
Cumulative Noise Level, L <sub>eq (30min)</sub> , dB(A):   73   73   73   73   73   73   74   74	nt H		Superstructure for Harbour Road Sports Centre  Noise Level from Consi	truction of Harbour Road Spution of Harbour Road Sp	ports Cent	tre, Leq (30m	in), dB(A)	:	73	73 73	67	69 69	69	69 69	72	72 71	72	71 7	71 71	72	72 69	69	68 70	0 72	69 7			73 72	74 74	1 74

- For the calculation of sound pressure levels (SPL), the PMEs are assumed to be placed at the notional source position according to the "Technical Memorandum on Noise from Construction Work other than Percussive Piling" by EPD.

  [2] Works further than 300 m from the NSR would not be assessed due to the large distance attentuation.

  [3] The maximum mitigated noise level predicted at EX1 in the approved EIA Report for "Wan Chai Development Phase II and Central-Wan Chai Bypass" (WDII&CWB EIA Report) (Register No.: AEIAR-125/2008) has been adopted in this assessment.

  Based on the construction programmes in the latest available monthly EM&A Report for WDII&CWB project (Sep 2017), the major construction works of WDII within 300m of the NSR were completed in May 2017.
- Noise impact from construction of Harbour Road Sports Centre was retrieved from the CNMMP for Works Contract 1126 as presented in Appendix D.

# Appendix E2 - Detailed Noise Calculation for Drill-and-Blast Works Combined with Mechanical Excavation at Zone 2

NSR: Causeway Centre, Block A

	_		_	Ι.	Distance /	l .	-	Q1	1	Q2	2018	Q3		Q4	+-	Q1		Q2	2019	9 Q3	-		Q4	+	Q1	$\overline{}$	Q2	202	)20   Q:	3	1
ckage	Area/Zone	Construction Activity	Construction Period	SWL	m [1][2]	SPL					n Jul		ep Oct	Nov De	c Jan		Mar Apı		Jun					c Jan		Mar Ap					Oct
														47 48																8 69	
-		EXH Structure																										igspace	$\vdash$		
	Area E	(a) Site Hoarding Erection	(06/2016)	108	248	55	50	50																-				$\perp \!\!\!\!\perp \!\!\!\!\perp$			
	Area E	(b) Roof Slab Construction	(01/2018 - 02/2018)	112	248	59	59	59		00 00	0.00	00 (	20 00														'	$\perp \!\!\!\!\perp \!\!\!\!\perp$			
	Area E	(c) Excavation (d) Construction of Internal Structures of Box Station	(05/2018 - 10/2018)	113 112	248 248	60	$\vdash$			60 60	0 60	60 6	60			50	50 50							-			'	+	$\leftarrow$		
	Area E Area C	(e) Construction of Internal Structures of Box Station (e) Construction of Entrance and Vent Shafts	(11/2018 - 04/2019)	112	248	59 57								59 58		57	59 59									-	+'	+	+	-	
	Area C	• /	(01/2019 - 02/2019)												5/		E0 E0									-	+'	+	+	-	
		(f) Construction of Station Box Roof Slab	(03/2019 - 04/2019)	112	293	58 47	$\vdash$	-			_		-		-		58 58				+	-		-		-	'	+	+-	-	
	Area E	(h) Utility diversion	(07/2016 - 10/2016)	100	248	47	$\vdash$	-			_		-		-						+	-		-		-	'	+	+-	-	
	Arao E	(i) Pipe Pile Construction	(10/2016 - 12/2016)	111	240		$\vdash$	-			_		-		-						+	-		-		-	'	+	+-	-	
	Area E	> Stage 1	,	111	248	58	$\vdash$			_	_		_		+						+	-		+	+ +	-	'	+	-	-	
to	Area E	> Stage 2	(04/2017 - 08/2017)	111	248	58	-								+					_	+	_		+	-	-	'	$+\!-\!\!-\!\!\!-$	+	-	
to		Tunnel at West to EXH					$\vdash$			_	_		_		+						+	-		+	+ +	-	'	+	-	-	
		(a) Site Formation	(		l																					-	'	+	+	$\rightarrow$	
	Areas A & B Area A	> Areas A & B	(06/2015)	120	>300	-			_						_									_			'	+	$\vdash$		
		> Areas A	(09/2015)	120	>300	-	$\vdash$				-				+						+			+	+	-+	'	+	+-	-	
	Area C	> Area C - 1	(01/2016)	120	293	65																				-	'	+	+	$\rightarrow$	
	Area C	> Area C - 2	(07/2016)	120	293	65									_									_		-		+	$\vdash$	$\rightarrow$	
	Areas A & B	(b) Site Hoarding Erection	(06/2015)	108	>300	-																						$\perp$			
	Areas A & B	(c) Excavation inside SCL tunnels protection works	(06/2016 - 10/2017)	116	>300	-																						$\perp$			
		(d) Tunnel Box Structure Construction																													
	Area A	> Area A	(11/2017 - 11/2018)	115	>300	-	-				-																	$\perp$			
	Area B	> Area B	(11/2017 - 12/2019)	115	>300	-	-		-		-	-			-	-		-	-		-	-					'	$\perp$	$\perp \perp$		
		(e) Diaphragm Wall Construction													$\perp$						$\perp \perp \perp$							$\perp \perp \rfloor$	oxdot		
	Area A	> Area A	(10/2015 - 04/2016)	114	>300	-	$\Box$																				'	$\perp$	$\perp \perp$		
	Area C	> Area C	(03/2016 - 05/2017)	114	293	60	$\Box$								┸				oxdot		┸				$\perp$		Щ"	<sup>Ţ</sup>			
	Area C	(f) Excavation	(06/2017 - 05/2018)	115	293	61	61	61 61	61	61				$\perp$	╧						$\perp$ $\Box$		[		$\perp$			$\perp$	$\perp$		
	Area C	(g) Tunnel Box Structure Construction	(06/2018 - 02/2019)	112	293	58				58	58	58 5	58 58	58 58	58	58									$\perp$			$\perp$			
		(h) Backfilling and Superstructure				1																						$\perp$	oxdot		
	Area C	> Stage 1	(02/2019 - 02/2020)	112	293	58		T	$\perp$			$\perp$		$\perp$	$\perp \Box$	58	58 58	58	58	58 58	58	58	58 58	58	58	T	ユー	$\perp$	$_{\perp}$ T		$\perp$
	Area C	> Stage 2	(06/2019 - 08/2019)	112	293	58														58 58											
Point	Barging Point	Barging Point at Wan Chai Ex-PCWA																													
		Construction/Set up	(09/2016 - 07/2017)	106	>300	-																									
		Spoil Disposal	(08/2017 - 12/2020)	113	>300	-	-		-		-	-			-	-		-	-		-	-		-	-		- /	- /			-
	Zone 1	Wan Chai PTI Area																													
		Site clearance, Site Hoarding Erection and utility diversion	(06/2015 - 07/2015)	113	124	66																									
		Demolition of existing Wan Chai Ferry Pier footbridge	, ,																												
		> Stage 1	(06/2015 - 06/2016)	109	124	62																									
		> Stage 2	(01/2017)	115	124	68																					$\top$				
		Construction of temporary Wan Chai Ferry Pier footbridge	(09/2015 - 12/2016)	108	124	61																					$\top$				
		Construction of Permanent Wan Chai Ferry Pier footbridge (Superstructure)	(08/2019)	110	124	63														63											
		Demolition of Temporary Wan Chai Ferry Pier footbridge	(09/2019 - 12/2019)	117	124	70															70	70	70 70	)							
		Piling works (PPW and H-piles)	, ,																												
		> Stage 1 (TTM Stage 2)	(07/2015 - 04/2016)	109	124	62																					$\top$	+			
		> Stage 2 (TTM Stage 3a & 3b)	(06/2016 - 10/2016)	108	124	61																				-	+	_		+	
		> Stage 3 (TTM Stage 3C)	(12/2016 - 04/2017)	109	124	62																				-	+	_		+	
		Diaphragm wall construction	(,																							-	+	_		+	
		> Stage 1 (TTM Stage 2)	(08/2015 - 01/2016)	110	124	63																				-	+	_		+	
		> Stage 2 (TTM Stage 3a/3b/3c & 5)	(02/2016 - 03/2017)	109	124	62																				-	+	_		+	
		Excavation & ELS installation	(03/2017 - 05/2018)	116	124	69	69	69 69	69	69																-	+	+-	-	-	
		Construction of Internal Structure of Box Station	(06/2018 - 02/2019)	114	124	67	-	00 00			7 67	67 6	67	67 67	7 67	67										-	+	+-	-	-	
		Construction of Entrances and Structure	(03/2019 - 08/2019)	112	124	65				0.	. 01	0,	,, 0,	0, 0,	01		65 65	65	65	65 65						-	+	+-	-	-	
	Zone 2	Harbour Road Sports Centre Area	(00/2010 00/2010)			- 00								+ +	_		00 00	- 00	00	00 00				1		-	+-	+	-	+-	
	20110 2	Demolition of Harbour Road Sports Centre (HRSC)	(06/2017 - 09/2017)	107	92	63								+ +										_			+-	+-	-	-	
		Site Hoarding Erection & Pile Removal	(10/2017)	109	92	65																		-		-+	+-	+	$\vdash$	+-	
		Piling works (PPW and H-piles)	(11/2017 - 02/2018)	110	92	66	66	66																		-	+	+-	-	-	
		Excavation & ELS installation (drill-and-blast works with mechanical excavation)	(03/2018 - 01/2019)	113	92	69	00		69	69 60	9 60	69 6	69 69	69 69	69				$\vdash$		+	-		1	1 1	-	+-'	+	-+	+	1
		Construction of Internal Structure of Box Station	(02/2019 - 10/2019)	112	92	68	$\vdash$	03		30 0	03	00	03	00 00	00		68 68	68	68	68 68	68	68		1	1 1	-	+-'	+	-+	+	1
		Construction of Entrances and Ground structure	(11/2019 - 01/2020)	114	92	69	+		+					+ + -	+	30	00		30	55 00	00		69 69	69	+ +	-+	+'	+	$\Box$	+-	-
	Zone 3	Wan Chai Swimming Pool Area	(23.0 01/2020)			- 55		_							$\top$						$\top$	_		- 55			+-'	+	$\vdash$	-	+
		Demolition of Wan Chai Swimming Pool	(12/2015 - 03/2016)	105	100	60		_	+ +					+							+				+	-+	+	+	$\Box$	+-	1
		Site Hoarding Erection & Pile Removal	(08/2016 - 09/2016)	107	100	62		_						+ + -								-		1		$\overline{}$	+'	+		_	
		Piling works (H-piles)	(03/2016 - 04/2016)	108	100	63																		1		$\neg$	+-'	1		$\neg$	
		Diaphragm wall construction	(05/2016 - 07/2017)	106	100	61		_						+ + -								-		1		$\overline{}$	+'	+		_	
		Excavation & ELS installation	(08/2017 - 08/2018)	114	100	69	69	69 69	69	69 69	9 69	69										-				-	+	+		$\top$	1
		Construction of Internal Structure of Box Station	(09/2018 - 03/2019)	111	100	66	50	- 00	55		30	1	66 66	66 66	66	66	66			_		-+		1		$\overline{}$	+'	+		-	
		Construction of Vent Shaft and Ground structure	(04/2019 - 09/2019)	111	100	66							- 00		-			66	66	66 66	66			1		$\neg$	+-'	1		$\neg$	
	Zone 4	Wan Chai Sports Ground Area		<u> </u>	T			$\neg$		-				$\overline{}$	$\top$						1			1		-	$\top$	+	$\Box$	$\neg$	
		Piling works (H-piles) - Wan Chai Sports Ground (WCSG)	(08/2016)	115	124	68																-				-	+	+		$\top$	1
		Diaphragm wall construction - Phase 1 WCSG	(12/2015 - 07/2016)	106	124	59		_						<del>                                     </del>						_		-+		1		$\overline{}$	+'	+		-	
		Piling works (PPW and H-piles) - Tonnochy Road	(12/2016 - 06/2017)	110	124	63																		1		$\neg$	+-'	1		$\neg$	
		Excavation & ELS installation	1	1		1																				$\neg \vdash$	$\top$	$\Box$		$\neg$	
		> Underground (no noise cover)	(06/2017 - 07/2018)	113	124	66	66	66 66	66	66 66	66																				
		> Underground (with full noise cover over Tonnochy Road)	(08/2018 - 04/2019)	106	124	59							59 59	59 59	59	59	59 59				$\top$	- 1				-	$\top$	1		$\top$	
		> At surface	(08/2018 - 04/2019)	112	124	65								65 65										1		$\neg$	+-'	1		$\neg$	
		Construction of Internal Structure of Box Station	(10/2018 - 04/2019)	108	124	61								61 61										1		$\neg$	+-'	1		$\neg$	
		Reprovision of WCSG grandstand	(05/2019 - 09/2020)	115	124	68							0,1						68	68 68	68	68	68 68	68	68	68 68	68	68	68 6	8 68	
			Noise Level from Works				: 74	74 75	75	75 74	4 74	74	74 74	74 74	74	74	73 73														
	Construction of	1			1	ľ	+ - 7 +	. 7 13	- 10	/	. , , 4	+	, , , , ,	+   15	/ -		10 13	13	,,,	. 5 / 74	+		/4	1'2	100	30 00	- 30	100	00 00	- 00	+-
	Harbour Road	Site Hoarding Erection for Harbour Road Sports Centre	(08/2015)	106	77	63																					- [ '	1 1	1		
		Demolition of Wan Chai Swimming Pool and filtration plant room	(09/2015 - 12/2015)	106	77	63	+	_	+	_	_	+ +	_	+ +	+			_	<del>                                     </del>	_	+	-+		+	+ +	-+	+-'	+	-	+-	+
	Sports Centre [4]	Piling works for Harbour Road Sports Centre	(12/2015 - 12/2016)	106	77	66	$\vdash$	_	+	_	_	+ +	_	+ +	+			_	<del>                                     </del>	_	+	-		+	+	-+	+'	+	$\vdash$	+-	+
		Superstructure for Harbour Road Sports Centre	(06/2016 - 02/2017)		77	59	$\vdash$	-	+	-	_	+ +	-	+ +	+		-	_	$\vdash$	-	+	-+	_	1	+	-	+'	+	$\vdash$	+-	1
									+ +			+ +	_	+	+					_	+			+	+		+'	+	-	+-	+
		Noise Level from Constru  Cumulative Noise Level from Works Contract 1123 and Constru									4		74 -	74 -		- 74		-		70 -	1 -	- 74	74 -	-	-		<del>-</del> -	1-			-
		Luminative Moise Level from Works Contract 1123 and Constron	iuon of Harbour Road Sp	orts Cent	re, ∟eq (30mi	11), aB(A):	14	14   /5	75	10   /4	+   /4	/4	4   74	14   74	+   /4	14	13   13	13	13	13   14	/4	74	14   14	- 1/2	66	00   68	' 80 ا د	βσ	<u>  00   6'</u>	ა ნ8	-
ont							1			- 1																			-		
ent			Noise Level from Constru	uction of V	VDII, L <sub>eq (30min</sub>	, dB(A) <sup>[3]</sup> :	: -	-   -	-	-   -	-	-	-   -	-   -	-	-	-   -	-	-		-	-		-	-		-	-	- T-	-	-

- For the calculation of sound pressure levels (SPL), the PMEs are assumed to be placed at the notional source position according to the "Technical Memorandum on Noise from Construction Work other than Percussive Piling" by EPD.

  [2] Works further than 300 m from the NSR would not be assessed due to the large distance attentuation.

  [3] The maximum mitigated noise level predicted at EX1 in the approved EIA Report for "Wan Chai Development Phase II and Central-Wan Chai Bypass" (WDII&CWB EIA Report) (Register No.: AEIAR-125/2008) has been adopted in this assessment.

  Based on the construction programmes in the latest available monthly EM&A Report for WDII&CWB project (Sep 2017), the major construction works of WDII within 300m of the NSR were completed in May 2017.
- Noise impact from construction of Harbour Road Sports Centre was retrieved from the CNMMP for Works Contract 1126 as presented in Appendix D.

# Appendix F Details of the Sound Proof Sheet

# Appendix F - Details of the Sound Proof Sheet



# **Details of Acoustic Baffles**

# "MODERN" SOUND PROOF SHEET

"現代"隔音帆布

# **FEATURE**

Reduce Noise Level

Obstruct Dust

• Fire Retardant

• Light Weight and Foldable

 Comply to Standard of Japanese Product, Direct Import from Factory

• Tested under British Standard BS EN ISO 140-3:1995 w/certificate

• Grey Color, Range of Sizes Available 灰色, 不同尺寸以供選購

降低噪音水平 阻隔灰塵

阻燃

輕便及可摺合收藏 符合日本產品標準,直接

從廠家入口, 價廉物美

經過英國標準測試及証書 BS EN ISO 140-3:1995

# COMPOSITION

• PVC Resin PVC 樹脂

 Plasticizer 增塑劑

 Polyester Fiber 聚酯纖維

• Fire Retardant 阻燃劑

# APPLICATION ON SOUND SOURCE

- DRILLING / MINING
- CONCRETE BREAKER
- GENERATOR

# **SPECIFICATION**

Brand	Product Code	Size W x H (m)	Density (kg/m²)	Thickness (mm)	Tensile S (N/5	Control of the Contro		trength 5cm)	Elong (%	
	coue	W X II (III)	(Kg/III )	(11111)	Vert.	Hori.	Vert.	Hori.	Vert.	Hori.
	SPS2030-10	2 x 3	1.2	1.0	1,617	1,330	117	155	24	24
MODERN 現 代	SPS1834-10	1.8 x 3.4	1.2	1.0	1,617	1,330	117	155	24	24
->0   14	SPS2030-04	2 x 3	0.5	0.4	808	670	50	65	24	23

**TEST REPORT** 

**TEST STANDARD:** BS EN ISO 140-3:1995



SPS2030-04 (0.5kg/m<sup>2</sup>, 0.4mm thick) SOUND REDUCTION INDEX, Rw = 12dB



SPS2030-10 (1.2kg/m<sup>2</sup>, 1.0mm thick) SOUND REDUCTION INDEX, Rw = 16dB



SETUP UNDER TEST (SOURCE ROOM)



SETUP UNDER TEST (RECEIVING ROOM)



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北京 Tel: **(86) 10 8782 5196** Fax: **(86) 10 8782 5696** E-mail: benny\_huang@163.net

Guangdong 廣東 Tel: (86) 20 3492 0789 Fax: (86) 20 3492 0778

# Appendix F - Details of the Sound Proof Sheet



# "MODERN" SOUND PROOF SHEET

# "現代"隔音帆布

# **DIMENSION**

# MADO TAPE 40x100 EVE HOLE 60x00 INTERVAL TABLE 40x100 THE STATE A0x100 STATE A0x

# **MANAGEMENT & MAINTENANCE**

- Please check each tie position on each sheet at least once every month
- In case of typhoon or strong wind ≥ 15m/s, please take off the sheets or detach one side of the sheet then fold them up and tighten to prevent the wind effect
- Please check the damages on fabric after each hot work. Please replace new once any damages to maintain the performance
- After in use, please keep the sheet in dry and open area
- Please do not use the sheet as a catch net or fall arresting net
- Please do not dispose the sheet by burning

# NOISE CONTROL ORDINANCE IN HONG KONG

SECTION 9 OF NOISE CONTROL ORDINANCE – AREA SENSITIVITY RATINGS

	All days during the eveni & general holidays (0		All days during tl (2300 to 020	
Area sensitivity ratings, dB(A)	Within Designated Areas	Others	Within Designated Areas	Others
(1) Rural area	45 – 50	60 – 65	30 – 35	45 – 50
(2) Low density residential area	45 – 55	60 – 70	30 – 40	45 – 55
(3) Urban area	50 – 55	65 – 70	35 – 40	50 – 55
(4) Area other than those above	50 - 55	65 - 70	35 - 40	50 - 55

# SIMPLE CALCULATION OF SOUND INSULATION

For a case that distance of source sound level 95dB to receiver = 20m

Distance decreasing effect: 20log20=26dB

Sound proof sheet effect: Rw=16dB (SPS2030-10)

Total sound level reduction: 42dB Final sound level to receiver: 95dB – 42dB = 53dB

Tips: If Sound Proof Sheet does not achieve the target sound level value, try the following method to get better sound insulation effect:

- (1) make sound blocking wall higher
- (2) install the sheet double
- (3) install the sheet closer to sound source



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Appendix 4.2

