Appendix 9.13 Cumulative Construction Noise Assessment for Hong Kong Island - Mitigated Scenario

CH1 - Hoi Deen Court

Mitigated

Package	Construction Activity	Work Site No. [1]	SWL	Dist [2] (m)	SPL [3]	Building Screening	2013 Jan (1)	Feb (2)	Mar (3)	Apr (4)	May (5)	Jun (6)	Jul (7)	Aug (8)	Sep (9)	Oct (10)	Nov (11)	Dec (12)
10 IMT to SOV POC	**Construction of cut and cover tunnel section (inside breakwater - SCL 3.2)**																	
	Dredging	50103	120	270	66	0												
	Rockfill to temporary seawall	50103	120	270	66	0												
	Temporary Seawall Construction	50103	120	270	66	0												
	Filling behind temporary seawall	50103	120	270	66	0												
	Diaphragm Wall Construction	50103	108	270	54	0												
	Soil Excavation	50103	112	270	58	0												
	Tunnel Box Construction	50103	112	270	58	0												
	Backfilling	50103	111	270	58	0												
	Diaphragm Wall Removal	50103	113	270	59	0												
09 SOV POC	**SOV Construction**																	
	Installing Hoarding	401	104	108	58	0												
	Demolition of existing POC building	401	110	108	65	0												
	Diaphragm Wall Construction	401	111	108	65	0												
	Excavation work at SOV	401	115	108	70	0												
	Construction of TBM launching shaft / SOV	401	112	108	66	0												
	SOV Construction	401	103	108	57	0												
	Construction of cut and cover tunnel section (SCL 1.4)																	
	Diaphragm Wall Construction	50105	108	101	63	0												
	Excavation Works	50105	115	101	70	0												
	Tunnel Box Construction	50105	112	101	67	0												
	Backfilling	50105	111	101	66	0												
	Diaphragm Wall Removal	50105	113	101	68	0												
	New POC Construction																	
	Piling: 610mm Diameter Pre-Bored H-Pile (Without SOV Basement)	401	102	108	56	0												
	Construction of new POC building	401	100	108	55	0												
	E&M Installation	401	102	108	56	0												
	Dismantle Hoarding	401	111	108	66	0												
08 Tunnels SOV to EXH	**Reconstruct of Percival Street Footbridge**																	
	Site clearance and hoarding and utility diversion	302	108	173	58	0												
	Construction of temporary footbridge	301	104	209	52	0												
	Demolish of portion of existing footbridge	302	111	173	61	0												
	Removal of clased and potential clased piles	302	107	173	57	0												
	Reconstruction of permanent footbridge	302	99	173	50	0												
	Temporary bridge removal and reinstate landscaping	301	104	209	53	0												
	Underpinning of Canal Road Flyover																	
	Site clearance and hoarding and utility diversion	303	108	353	52	0												
	Excavation and construction of pre-bored H-piles	303	108	353	52	0												
	Construct new pile cap and ground beams	303	103	353	47	0												
	Backfill and reinstatement	303	102	353	46	0												
	Diversion of Canal Road Culvert & Removal of Piles																	
	Site clearance and hoarding and utility diversion	310	108	320	53	0												
	Culvert diversion	310	100	320	45	0												
	Remove of piles	310	108	320	53	0												
	Pile Removal at Wan Shing Street Footbridge																	
	Site clearance and hoarding and utility diversion	305	108	398	51	0												
	Construction of new footbridge																	
	SubArea 1 (Work Site 30401)	30401	105	391	48	0												
	SubArea 2 (Work Site 30402)	30402	105	438	47	0												
	Demolition of existing footbridge	305	110	398	53	0												
	Removal of piles for existing footbridge & abandoned box culvert	305	120	398	63	0												
	Reinstatement	305	103	398	46	0												
	Underpinning of Pier of Causeway Flyover																	
	Site clearance and hoarding and utility diversion	306	108	186	58	0												
	Excavation and construction of new piles	306	108	186	58	0												
	Construct pile cap	306	101	186	51	0												
	Remove piles	306	108	186	58	0												
	Backfill and reinstatement	306	103	186	53	0												
	Underpinning of Abutment of Causeway Flyover																	
	Site clearance and hoarding and utility diversion	307	108	138	60	0												
	Excavation and construction of new piles	307	108	138	60	0												
	Construct pile cap	307	101	138	53	0												
	Remove piles	307	108	138	60	0												
	Backfill and reinstatement	307	103	138	55	0												
	Grouting Work for DSD 1.8m Truck Sewers																	
	Site clearance and hoarding and utility diversion	308	106	442	48	0												
	Temp Access Shaft - Diaphragm wall	308	102	442	44	0												
	Temp Access Shaft - Excavation	308	104	442	47	0												
	Grouting from within the shaft	308	97	442	39	0												
	Backfilling and Reinstatement	308	105	442	47	0												
	Demolition & Reprovisioning of Cross Harbour Tunnel Footbridge																	
	Site clearance and hoarding and utility diversion	309	108	142	60	0												
	Construction of temporary footbridge	309	104	142	56	0												
	Demolish of existing footbridge	309	111	142	63	0												
	TBM Assemble, First and Second Drive and Retrieval																	
	TBM Assembly	401	114	108	69	0												
	1st Retrieval and reasseambly TBM	401	116	108	70	0												
	2nd Retrieval of TBM	401	116	108	70	0												
	Overall Noise Level (Phase II), Leq (30min), dB(A)						-	-	-	-	-	-	-	-	-	-	-	-
WDII	Construction of WDII	-	-	-	-	-	62	62	68	66	63	66	66	66	66	66	66	66
	Overall Noise Level (SCL(HUH-ADM) and WDII), Leq (30min), dB(A)						62	62	68	66	63	66	66	66	66	66	66	66

Package	Construction Activity	2014 Jan (13)	Feb (14)	Mar (15)	Apr (16)	May (17)	Jun (18)	Jul (19)	Aug (20)	Sep (21)	Oct (22)	Nov (23)	Dec (24)
10 IMT to SOV POC	**Construction of cut and cover tunnel section (inside breakwater - SCL 3.2)**												
	Dredging												
	Rockfill to temporary seawall												
	Temporary Seawall Construction												
	Filling behind temporary seawall												
	Diaphragm Wall Construction												
	Soil Excavation												
	Tunnel Box Construction												
	Backfilling												
	Diaphragm Wall Removal												
09 SOV POC	**SOV Construction**												
	Installing Hoarding										58	58	58
	Demolition of existing POC building										65	65	65
	Diaphragm Wall Construction												
	Excavation work at SOV												
	Construction of TBM launching shaft / SOV												
	SOV Construction												
	Construction of cut and cover tunnel section (SCL 1.4)												
	Diaphragm Wall Construction												
	Excavation Works												
	Tunnel Box Construction												
	Backfilling												
	Diaphragm Wall Removal												
	New POC Construction												
	Piling: 610mm Diameter Pre-Bored H-Pile (Without SOV Basement)												
	Construction of new POC building												
	E&M Installation												
	Dismantle Hoarding												
08 Tunnels SOV to EXH	**Reconstruct of Percival Street Footbridge**												
	Site clearance and hoarding and utility diversion												
	Construction of temporary footbridge			52									
	Demolish of portion of existing footbridge				61	61	61	61					
	Removal of clased and potential clased piles								57	57			
	Reconstruction of permanent footbridge										50	50	50
	Temporary bridge removal and reinstate landscaping												
	Underpinning of Canal Road Flyover												
	Site clearance and hoarding and utility diversion												
	Excavation and construction of pre-bored H-piles												
	Construct new pile cap and ground beams												
	Backfill and reinstatement												
	Diversion of Canal Road Culvert & Removal of Piles												
	Site clearance and hoarding and utility diversion												
	Culvert diversion												
	Remove of piles												
	Pile Removal at Wan Shing Street Footbridge												
	Site clearance and hoarding and utility diversion												
	Construction of new footbridge												
	SubArea 1 (Work Site 30401)												
	SubArea 2 (Work Site 30402)												
	Demolition of existing footbridge												
	Removal of piles for existing footbridge & abandoned box culvert												
	Reinstatement												
	Underpinning of Pier of Causeway Flyover												
	Site clearance and hoarding and utility diversion												
	Excavation and construction of new piles												
	Construct pile cap												
	Remove piles												
	Backfill and reinstatement												
	Underpinning of Abutment of Causeway Flyover												
	Site clearance and hoarding and utility diversion												
	Excavation and construction of new piles												
	Construct pile cap												
	Remove piles												
	Backfill and reinstatement												
	Grouting Work for DSD 1.8m Truck Sewers												
	Site clearance and hoarding and utility diversion												
	Temp Access Shaft - Diaphragm wall												
	Temp Access Shaft - Excavation												
	Grouting from within the shaft												
	Backfilling and Reinstatement												
	Demolition & Reprovisioning of Cross Harbour Tunnel Footbridge												
	Site clearance and hoarding and utility diversion										60	60	60
	Construction of temporary footbridge												
	Demolish of existing footbridge												
	TBM Assemble, First and Second Drive and Retrieval												
	TBM Assembly												
	1st Retrieval and reasseambly TBM												
	2nd Retrieval of TBM												
	Overall Noise Level (Phase II), Leq (30min), dB(A)	-	-	52	61	61	61	61	57	57	67	67	67
WDII	Construction of WDII	63	66	66	66	66	66	63	63	63	63	63	58
	Overall Noise Level (SCL(HUH-ADM) and WDII), Leq (30min), dB(A)	63	66	66	67	67	67	65	64	64	68	68	67

Package	Construction Activity	2015 Jan (25)	Feb (26)	Mar (27)	Apr (28)	May (29)	Jun (30)	Jul (31)	Aug (32)	Sep (33)	Oct (34)	Nov (35)	Dec (36)
10 IMT to SOV POC	**Construction of cut and cover tunnel section (inside breakwater - SCL 3.2)**												
	Dredging												
	Rockfill to temporary seawall												
	Temporary Seawall Construction												
	Filling behind temporary seawall												
	Diaphragm Wall Construction												
	Soil Excavation												
	Tunnel Box Construction												
	Backfilling												
	Diaphragm Wall Removal												
09 SOV POC	**SOV Construction**												
	Installing Hoarding												
	Demolition of existing POC building												
	Diaphragm Wall Construction	65	65	65	65								
	Excavation work at SOV					70	70	70	70	70			
	Construction of TBM launching shaft / SOV										66	66	66
	SOV Construction												
	Construction of cut and cover tunnel section (SCL 1.4)												
	Diaphragm Wall Construction			63	63	63							
	Excavation Works						70	70	70	70			
	Tunnel Box Construction										67	67	67
	Backfilling												
	Diaphragm Wall Removal												
	New POC Construction												
	Piling: 610mm Diameter Pre-Bored H-Pile (Without SOV Basement)												
	Construction of new POC building												
	E&M Installation												
	Dismantle Hoarding												
08 Tunnels SOV to EXH	**Reconstruct of Percival Street Footbridge**												
	Site clearance and hoarding and utility diversion												
	Construction of temporary footbridge												
	Demolish of portion of existing footbridge												
	Removal of clased and potential clased piles												
	Reconstruction of permanent footbridge	50	50	50									
	Temporary bridge removal and reinstate landscaping				53	53	53	53	53	53			
	Underpinning of Canal Road Flyover												
	Site clearance and hoarding and utility diversion												
	Excavation and construction of pre-bored H-piles												
	Construct new pile cap and ground beams												
	Backfill and reinstatement												
	Diversion of Canal Road Culvert & Removal of Piles												
	Site clearance and hoarding and utility diversion												
	Culvert diversion												
	Remove of piles												
	Pile Removal at Wan Shing Street Footbridge												
	Site clearance and hoarding and utility diversion												
	Construction of new footbridge												
	SubArea 1 (Work Site 30401)												
	SubArea 2 (Work Site 30402)												
	Demolition of existing footbridge												
	Removal of piles for existing footbridge & abandoned box culvert												
	Reinstatement												
	Underpinning of Pier of Causeway Flyover												
	Site clearance and hoarding and utility diversion					58							
	Excavation and construction of new piles						58	58	58	58	58	58	58
	Construct pile cap									51	51	51	51
	Remove piles												
	Backfill and reinstatement												
	Underpinning of Abutment of Causeway Flyover												
	Site clearance and hoarding and utility diversion					60							
	Excavation and construction of new piles						60	60	60	60	60	60	60
	Construct pile cap									53	53	53	53
	Remove piles												
	Backfill and reinstatement												
	Grouting Work for DSD 1.8m Truck Sewers												
	Site clearance and hoarding and utility diversion												
	Temp Access Shaft - Diaphragm wall												
	Temp Access Shaft - Excavation												
	Grouting from within the shaft												
	Backfilling and Reinstatement												
	Demolition & Reprovisioning of Cross Harbour Tunnel Footbridge												
	Site clearance and hoarding and utility diversion												
	Construction of temporary footbridge	56	56	56									
	Demolish of existing footbridge				63								
	TBM Assemble, First and Second Drive and Retrieval												
	TBM Assembly												
	1st Retrieval and reasseambly TBM												
	2nd Retrieval of TBM												
	Overall Noise Level (Phase II), Leq (30min), dB(A)	66	66	68	69	71	73	73	73	73	70	70	70
WDII	Construction of WDII	58	62	62	62	62	63	63	63	63	66	66	66
	Overall Noise Level (SCL(HUH-ADM) and WDII), Leq (30min), dB(A)	66	67	69	69	72	74	74	74	74	72	72	72

Package	Construction Activity	2016 Jan (37)	Feb (38)	Mar (39)	Apr (40)	May (41)	Jun (42)	Jul (43)	Aug (44)	Sep (45)	Oct (46)	Nov (47)	Dec (48)
10 IMT to SOV POC	**Construction of cut and cover tunnel section (inside breakwater - SCL 3.2)**												
	Dredging												
	Rockfill to temporary seawall												
	Temporary Seawall Construction												
	Filling behind temporary seawall												
	Diaphragm Wall Construction												
	Soil Excavation												
	Tunnel Box Construction												
	Backfilling												
	Diaphragm Wall Removal												
09 SOV POC	**SOV Construction**												
	Installing Hoarding												
	Demolition of existing POC building												
	Diaphragm Wall Construction												
	Excavation work at SOV												
	Construction of TBM launching shaft / SOV	66	66	66	66								
	SOV Construction					57	57	57	57	57	57	57	57
	Construction of cut and cover tunnel section (SCL 1.4)												
	Diaphragm Wall Construction												
	Excavation Works												
	Tunnel Box Construction												
	Backfilling	66											
	Diaphragm Wall Removal		68	68	68								
	New POC Construction												
	Piling: 610mm Diameter Pre-Bored H-Pile (Without SOV Basement)												
	Construction of new POC building												
	E&M Installation												
	Dismantle Hoarding												
08 Tunnels SOV to EXH	**Reconstruct of Percival Street Footbridge**												
	Site clearance and hoarding and utility diversion												
	Construction of temporary footbridge												
	Demolish of portion of existing footbridge												
	Removal of clased and potential clased piles												
	Reconstruction of permanent footbridge												
	Temporary bridge removal and reinstate landscaping												
	Underpinning of Canal Road Flyover												
	Site clearance and hoarding and utility diversion												
	Excavation and construction of pre-bored H-piles												
	Construct new pile cap and ground beams												
	Backfill and reinstatement												
	Diversion of Canal Road Culvert & Removal of Piles												
	Site clearance and hoarding and utility diversion												
	Culvert diversion												
	Remove of piles												
	Pile Removal at Wan Shing Street Footbridge												
	Site clearance and hoarding and utility diversion												
	Construction of new footbridge												
	SubArea 1 (Work Site 30401)												
	SubArea 2 (Work Site 30402)												
	Demolition of existing footbridge												
	Removal of piles for existing footbridge & abandoned box culvert												
	Reinstatement												
	Underpinning of Pier of Causeway Flyover												
	Site clearance and hoarding and utility diversion												
	Excavation and construction of new piles	58	58	58	58	58	58	58					
	Construct pile cap	51	51	51	51	51	51	51	51				
	Remove piles				58	58	58	58	58	58			
	Backfill and reinstatement										53		
	Underpinning of Abutment of Causeway Flyover												
	Site clearance and hoarding and utility diversion												
	Excavation and construction of new piles	60	60	60	60	60	60						
	Construct pile cap	53	53	53	53	53	53	53					
	Remove piles				60	60	60	60	60	60			
	Backfill and reinstatement										55		
	Grouting Work for DSD 1.8m Truck Sewers												
	Site clearance and hoarding and utility diversion												
	Temp Access Shaft - Diaphragm wall												
	Temp Access Shaft - Excavation												
	Grouting from within the shaft												
	Backfilling and Reinstatement												
	Demolition & Reprovisioning of Cross Harbour Tunnel Footbridge												
	Site clearance and hoarding and utility diversion												
	Construction of temporary footbridge												
	Demolish of existing footbridge												
	TBM Assemble, First and Second Drive and Retrieval												
	TBM Assembly							69	69	69	69		
	1st Retrieval and reasseambly TBM												
	2nd Retrieval of TBM												
	Overall Noise Level (Phase II), Leq (30min), dB(A)	70	71	71	71	66	66	64	70	70	70	69	57
WDII	Construction of WDII	66	66	69	68	68	64	64	64	64			
	Overall Noise Level (SCL(HUH-ADM) and WDII), Leq (30min), dB(A)	72	72	73	73	70	68	67	71	71	70	69	57

Remarks:

[1] The Works Area with length to width ratio exceeding 5 : 1 is divided into Subareas.

[2] Noise source at more than 300m from the sensitive receiver are not considered in the noise assessment due to large distance attenuation effect.

[3] 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.

[5] Construction activities would not be conducted simultaneously, therefore max SPL among these activities would be used for calcualtion of that particular month. These activities include: Demolition of staircase & relocation of oil tank, Demolition of staircase of exisitng FB linking Causeway Center and Harbour Centre, Demolition of elevated walkway to Harbour Road Sports Centre and Demolition of staircase of existing FB across Harbour Road near Sun Hung Kei Centre in month 31.

Appendix 9.13 Cumulative Construction Noise Assessment for Hong Kong Island - Mitigated Scenario

CH1 - Hoi Deen Court

Mitigated

Package	Construction Activity	Work Site No. [1]	SWL	Dist [2] (m)	SPL [3]	Building Screening	2017 Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	2018 Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	2019 Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
							49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84
	Construction of cut and cover tunnel section (inside breakwater - SCL 3.2)																																									
10 IMT to SOV POC	Dredging	50103	120	270	66	0			66																																	
	Rockfill to temporary seawall	50103	120	270	66	0				66																																
	Temporary Seawall Construction	50103	120	270	66	0					66	66																														
	Filling behind temporary seawall	50103	120	270	66	0							66																													
	Diaphragm Wall Construction	50103	108	270	54	0								54	54	54	54																									
	Soil Excavation	50103	112	270	58	0												58	58																							
	Tunnel Box Construction	50103	112	270	58	0														58	58	58	58																			
	Backfilling	50103	111	270	58	0																		58	58	58																
	Diaphragm Wall Removal	50103	113	270	59	0																		59	59	59																
09 SOV POC	**SOV Construction**																																									
	Installing Hoarding	401	104	108	58	0																																				
	Demolition of existing POC building	401	110	108	65	0																																				
	Diaphragm Wall Construction	401	111	108	65	0																																				
	Excavation work at SOV	401	115	108	70	0																																				
	Construction of TBM launching shaft / SOV	401	112	108	66	0																																				
	SOV Construction	401	103	108	57	0	57	57	57	57	57	57	57	57	57	57	57	57																								
	Construction of cut and cover tunnel section (SCL 1.4)																																									
	Diaphragm Wall Construction	50105	108	101	63	0																																				
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	Tunnel Box Construction	50105	112	101	67	0																																				
	Backfilling	50105	111	101	66	0																																				
	Diaphragm Wall Removal	50105	113	101	68	0																																				
	New POC Construction																																									
	Piling: 610mm Diameter Pre-Bored H-Pile (Without SOV Basement)	401	102	108	56	0													56	56	56	56																				
	Construction of new POC building	401	100	108	55	0																	55	55	55	55	55	55	55														
	E&M Installation	401	102	108	56	0																							56	56	56	56	56	56	56	56	56					
	Dismantle Hoarding	401	111	108	66	0																																66				
08 Tunnels SOV to EXH	**Reconstruct of Percival Street Footbridge**																																									
	Site clearance and hoarding and utility diversion	302	108	173	58	0																																				
	Construction of temporary footbridge	301	104	209	52	0																																				
	Demolish of portion of existing footbridge	302	111	173	61	0																																				
	Removal of clased and potential clased piles	302	107	173	57	0																																				
	Reconstruction of permanent footbridge	302	99	173	50	0																																				
	Temporary bridge removal and reinstate landscaping	301	104	209	53	0																																				
	Underpinning of Canal Road Flyover																																									
	Site clearance and hoarding and utility diversion	303	108	353	52	0																																				
	Excavation and construction of pre-bored H-piles	303	108	353	52	0																																				
	Construct new pile cap and ground beams	303	103	353	47	0																																				
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	Site clearance and hoarding and utility diversion	310	108	320	53	0																																				
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	Site clearance and hoarding and utility diversion	305	108	398	51	0																																				
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	SubArea 1 (Work Site 30401)	30401	105	391	48	0																																				
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	Demolition of existing footbridge	305	110	398	53	0																																				
	Removal of piles for existing footbridge & abandoned box culvert	305	120	398	63	0																																				
	Reinstatement	305	103	398	46	0																																				
	Underpinning of Pier of Causeway Flyover																																									
	Site clearance and hoarding and utility diversion	306	108	186	58	0																																				
	Excavation and construction of new piles	306	108	186	58	0																																				
	Construct pile cap	306	101	186	51	0																																				
	Remove piles	306	108	186	58	0																																				
	Backfill and reinstatement	306	103	186	53	0																																				
	Underpinning of Abutment of Causeway Flyover																																									
	Site clearance and hoarding and utility diversion	307	108	138	60	0																																				
	Excavation and construction of new piles	307	108	138	60	0																																				
	Construct pile cap	307	101	138	53	0																																				
	Remove piles	307	108	138	60	0																																				
	Backfill and reinstatement	307	103	138	55	0																																				
	Grouting Work for DSD 1.8m Truck Sewers																																									
	Site clearance and hoarding and utility diversion	308	106	442	48	0																																				
	Temp Access Shaft - Diaphragm wall	308	102	442	44	0																																				
	Temp Access Shaft - Excavation	308	104	442	47	0																																				
	Grouting from within the shaft	308	97	442	39	0																																				
	Backfilling and Reinstatement	308	105	442	47	0																																				
	Demolition & Reprovisioning of Cross Harbour Tunnel Footbridge																																									
	Site clearance and hoarding and utility diversion	309	108	142	60	0																																				
	Construction of temporary footbridge	309	104	142	56	0																																				
	Demolish of existing footbridge	309	111	142	63	0																																				
	TBM Assemble, First and Second Drive and Retrieval																																									
	TBM Assembly	401	114	108	69	0																																				
	1st Retrieval and reasseambly TBM	401	116	108	70	0			70	70	70	70	70																													
	2nd Retrieval of TBM	401	116	108	70	0											70	70																								
	Overall Noise Level (Phase II), Leq (30min), dB(A)						57	57	72	72	72	72	72	59	59	59	70	70	60	60	60	60	60	62	62	62	55	55	59	56	56	56	56	56	56	56	66	-	-	-	-
WDII	Construction of WDII	-	-	-	-	-																																				
	Overall Noise Level (SCL(HUH-ADM) and WDII), Leq (30min), dB(A)						57	57	72	72	72	72	72	59	59	59	70	70	60	60	60	60	60	62	62	62	55	55	59	56	56	56	56	56	56	56	66	-	-	-	-

Remarks:

[1] The Works Area with length to width ratio exceeding 5 : 1 is divided into Subareas.

[2] Noise source at more than 300m from the sensitive receiver are not considered in the noise assessment due to large distance attenuation effect.

[3] 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.

[5] Construction activities would not be conducted simultaneously, therefore max SPL among these activities would be used for calcualtion of that particular month. These activities include: Demolition of staircase & relocation of oil tank, Demolition of staircase of exisitng FB linking Causeway Center and Harbour Centre, Demolition of elevated walkway to Harbour Road Sports Centre and Demolition of staircase of existing FB across Harbour Road near Sun Hung Kei Centre in month 31.

Appendix 9.13 Cumulative Construction Noise Assessment for Hong Kong Island - Mitigated Scenario

CH2 - Hoi Kung Court

Mitigated

Package	Construction Activity	Work Site No. [1]	SWL	Dist [2] (m)	SPL [3]	Building Screening
10 IMT to SOV POC	**Construction of cut and cover tunnel section (inside breakwater - SCL 3.2)**					
	Dredging	50103	120	305	65	0
	Rockfill to temporary seawall	50103	120	305	65	0
	Temporary Seawall Construction	50103	120	305	65	0
	Filling behind temporary seawall	50103	120	305	65	0
	Diaphragm Wall Construction	50103	108	305	53	0
	Soil Excavation	50103	112	305	57	0
	Tunnel Box Construction	50103	112	305	57	0
	Backfilling	50103	111	305	57	0
	Diaphragm Wall Removal	50103	113	305	58	0
09 SOV POC	**SOV Construction**					
	Installing Hoarding	401	104	81	61	0
	Demolition of existing POC building	401	110	81	67	0
	Diaphragm Wall Construction	401	111	81	68	0
	Excavation work at SOV	401	115	81	72	0
	Construction of TBM launching shaft / SOV	401	112	81	69	0
	SOV Construction	401	103	81	60	0
	Construction of cut and cover tunnel section (SCL 1.4)					
	Diaphragm Wall Construction	50105	108	103	62	0
	Excavation Works	50105	115	103	70	0
	Tunnel Box Construction	50105	112	103	66	0
	Backfilling	50105	111	103	66	0
	Diaphragm Wall Removal	50105	113	103	68	0
	New POC Construction					
	Piling: 610mm Diameter Pre-Bored H-Pile (Without SOV Basement)	401	102	81	58	0
	Construction of new POC building	401	100	81	57	0
	E&M Installation	401	102	81	59	0
	Dismantle Hoarding	401	111	81	68	0
08 Tunnels SOV to EXH	**Reconstruct of Percival Street Footbridge**					
	Site clearance and hoarding and utility diversion	302	108	115	62	0
	Construction of temporary footbridge	301	104	152	55	0
	Demolish of portion of existing footbridge	302	111	115	64	0
	Removal of clased and potential clased piles	302	107	115	61	0
	Reconstruction of permanent footbridge	302	99	115	53	0
	Temporary bridge removal and reinstate landscaping	301	104	152	55	0
	Underpinning of Canal Road Flyover					
	Site clearance and hoarding and utility diversion	303	108	294	54	0
	Excavation and construction of pre-bored H-piles	303	108	294	53	0
	Construct new pile cap and ground beams	303	103	294	49	0
	Backfill and reinstatement	303	102	294	47	0
	Diversion of Canal Road Culvert & Removal of Piles					
	Site clearance and hoarding and utility diversion	310	108	261	55	0
	Culvert diversion	310	100	261	47	0
	Remove of piles	310	108	261	55	0
	Pile Removal at Wan Shing Street Footbridge					
	Site clearance and hoarding and utility diversion	305	108	339	53	0
	Construction of new footbridge					
	SubArea 1 (Work Site 30401)	30401	105	330	49	0
	SubArea 2 (Work Site 30402)	30402	105	378	48	0
	Demolition of existing footbridge	305	110	339	55	0
	Removal of piles for existing footbridge & abandoned box culvert	305	120	339	65	0
	Reinstatement	305	103	339	48	0
	Underpinning of Pier of Causeway Flyover					
	Site clearance and hoarding and utility diversion	306	108	132	61	0
	Excavation and construction of new piles	306	108	132	61	0
	Construct pile cap	306	101	132	54	0
	Remove piles	306	108	132	61	0
	Backfill and reinstatement	306	103	132	56	0
	Underpinning of Abutment of Causeway Flyover					
	Site clearance and hoarding and utility diversion	307	108	82	65	0
	Excavation and construction of new piles	307	108	82	65	0
	Construct pile cap	307	101	82	58	0
	Remove piles	307	108	82	65	0
	Backfill and reinstatement	307	103	82	60	0
	Grouting Work for DSD 1.8m Truck Sewers					
	Site clearance and hoarding and utility diversion	308	106	385	49	0
	Temp Access Shaft - Diaphragm wall	308	102	385	45	0
	Temp Access Shaft - Excavation	308	104	385	48	0
	Grouting from within the shaft	308	97	385	40	0
	Backfilling and Reinstatement	308	105	385	49	0
	Demolition & Reprovisioning of Cross Harbour Tunnel Footbridge					
	Site clearance and hoarding and utility diversion	309	108	91	64	0
	Construction of temporary footbridge	309	104	91	60	0
	Demolish of existing footbridge	309	111	91	66	0
	TBM Assemble, First and Second Drive and Retrieval					
	TBM Assembly	401	114	81	71	0
	1st Retrieval and reasseambly TBM	401	116	81	73	0
	2nd Retrieval of TBM	401	116	81	73	0
	Overall Noise Level (Phase II), Leq (30min), dB(A)					
WDII	Construction of WDII	-	-	-	-	-
	Overall Noise Level (SCL(HUH-ADM) and WDII), Leq (30min), dB(A)					

Construction Activity	2013 Jan 1	Feb 2	Mar 3	Apr 4	May 5	Jun 6	Jul 7	Aug 8	Sep 9	Oct 10	Nov 11	Dec 12
Construction of cut and cover tunnel section (inside breakwater - SCL 3.2)												
Dredging												
Rockfill to temporary seawall												
Temporary Seawall Construction												
Filling behind temporary seawall												
Diaphragm Wall Construction												
Soil Excavation												
Tunnel Box Construction												
Backfilling												
Diaphragm Wall Removal												
SOV Construction												
Installing Hoarding												
Demolition of existing POC building												
Diaphragm Wall Construction												
Excavation work at SOV												
Construction of TBM launching shaft / SOV												
SOV Construction												
Construction of cut and cover tunnel section (SCL 1.4)												
Diaphragm Wall Construction												
Excavation Works												
Tunnel Box Construction												
Backfilling												
Diaphragm Wall Removal												
New POC Construction												
Piling: 610mm Diameter Pre-Bored H-Pile (Without SOV Basement)												
Construction of new POC building												
E&M Installation												
Dismantle Hoarding												
Reconstruct of Percival Street Footbridge												
Site clearance and hoarding and utility diversion												
Construction of temporary footbridge												
Demolish of portion of existing footbridge												
Removal of clased and potential clased piles												
Reconstruction of permanent footbridge												
Temporary bridge removal and reinstate landscaping												
Underpinning of Canal Road Flyover												
Site clearance and hoarding and utility diversion												
Excavation and construction of pre-bored H-piles												
Construct new pile cap and ground beams												
Backfill and reinstatement												
Diversion of Canal Road Culvert & Removal of Piles												
Site clearance and hoarding and utility diversion												
Culvert diversion												
Remove of piles												
Pile Removal at Wan Shing Street Footbridge												
Site clearance and hoarding and utility diversion												
Construction of new footbridge												
SubArea 1 (Work Site 30401)												
SubArea 2 (Work Site 30402)												
Demolition of existing footbridge												
Removal of piles for existing footbridge & abandoned box culvert												
Reinstatement												
Underpinning of Pier of Causeway Flyover												
Site clearance and hoarding and utility diversion												
Excavation and construction of new piles												
Construct pile cap												
Remove piles												
Backfill and reinstatement												
Underpinning of Abutment of Causeway Flyover												
Site clearance and hoarding and utility diversion												
Excavation and construction of new piles												
Construct pile cap												
Remove piles												
Backfill and reinstatement												
Grouting Work for DSD 1.8m Truck Sewers												
Site clearance and hoarding and utility diversion												
Temp Access Shaft - Diaphragm wall												
Temp Access Shaft - Excavation												
Grouting from within the shaft												
Backfilling and Reinstatement												
Demolition & Reprovisioning of Cross Harbour Tunnel Footbridge												
Site clearance and hoarding and utility diversion												
Construction of temporary footbridge												
Demolish of existing footbridge												
TBM Assemble, First and Second Drive and Retrieval												
TBM Assembly												
1st Retrieval and reasseambly TBM												
2nd Retrieval of TBM												
Overall Noise Level (Phase II), Leq (30min), dB(A)	-	-	-	-	-	-	-	-	-	-	-	-
Construction of WDII	-	-	-	-	-	-	-	-	-	-	-	-
Overall Noise Level (SCL(HUH-ADM) and WDII), Leq (30min), dB(A)	62	62	68	66	63	66	66	66	66	66	66	66

Construction Activity	2014 Jan 13	Feb 14	Mar 15	Apr 16	May 17	Jun 18	Jul 19	Aug 20	Sep 21	Oct 22	Nov 23	Dec 24
Construction of cut and cover tunnel section (inside breakwater - SCL 3.2)												
Dredging												
Rockfill to temporary seawall												
Temporary Seawall Construction												
Filling behind temporary seawall												
Diaphragm Wall Construction												
Soil Excavation												
Tunnel Box Construction												
Backfilling												
Diaphragm Wall Removal												
SOV Construction												
Installing Hoarding										61	61	61
Demolition of existing POC building										67	67	67
Diaphragm Wall Construction												
Excavation work at SOV												
Construction of TBM launching shaft / SOV												
SOV Construction												
Construction of cut and cover tunnel section (SCL 1.4)												
Diaphragm Wall Construction												
Excavation Works												
Tunnel Box Construction												
Backfilling												
Diaphragm Wall Removal												
New POC Construction												
Piling: 610mm Diameter Pre-Bored H-Pile (Without SOV Basement)												
Construction of new POC building												
E&M Installation												
Dismantle Hoarding												
Reconstruct of Percival Street Footbridge												
Site clearance and hoarding and utility diversion												
Construction of temporary footbridge			55									
Demolish of portion of existing footbridge				64	64	64	64					
Removal of clased and potential clased piles								61	61			
Reconstruction of permanent footbridge										53	53	53
Temporary bridge removal and reinstate landscaping												
Underpinning of Canal Road Flyover												
Site clearance and hoarding and utility diversion												
Excavation and construction of pre-bored H-piles												
Construct new pile cap and ground beams												
Backfill and reinstatement												
Diversion of Canal Road Culvert & Removal of Piles												
Site clearance and hoarding and utility diversion		55	55									
Culvert diversion				47	47	47	47	47	47	47	47	47
Remove of piles									55	55	55	55
Pile Removal at Wan Shing Street Footbridge												
Site clearance and hoarding and utility diversion		55	55									
Construction of new footbridge												
SubArea 1 (Work Site 30401)												
SubArea 2 (Work Site 30402)												
Demolition of existing footbridge												
Removal of piles for existing footbridge & abandoned box culvert												
Reinstatement												
Underpinning of Pier of Causeway Flyover												
Site clearance and hoarding and utility diversion												
Excavation and construction of new piles												
Construct pile cap												
Remove piles												
Backfill and reinstatement												
Underpinning of Abutment of Causeway Flyover												
Site clearance and hoarding and utility diversion												
Excavation and construction of new piles												
Construct pile cap												
Remove piles												
Backfill and reinstatement												
Grouting Work for DSD 1.8m Truck Sewers												
Site clearance and hoarding and utility diversion												
Temp Access Shaft - Diaphragm wall												
Temp Access Shaft - Excavation												
Grouting from within the shaft												
Backfilling and Reinstatement												
Demolition & Reprovisioning of Cross Harbour Tunnel Footbridge												
Site clearance and hoarding and utility diversion												
Construction of temporary footbridge												
Demolish of existing footbridge												
TBM Assemble, First and Second Drive and Retrieval												
TBM Assembly												
1st Retrieval and reasseambly TBM												
2nd Retrieval of TBM												
Overall Noise Level (Phase II), Leq (30min), dB(A)	-	-	55	58	64	64	64	64	61	62	70	70	70
Construction of WDII	-	-	66	66	66	66	66	63	63	63	63	63	58
Overall Noise Level (SCL(HUH-ADM) and WDII), Leq (30min), dB(A)	63	66	67	68	68	68	67	65	66	71	71	70

Construction Activity	2015 Jan 25	Feb 26	Mar 27	Apr 28	May 29	Jun 30	Jul 31	Aug 32	Sep 33	Oct 34	Nov 35	Dec 36
Construction of cut and cover tunnel section (inside breakwater - SCL 3.2)												
Dredging												
Rockfill to temporary seawall												
Temporary Seawall Construction												
Filling behind temporary seawall												
Diaphragm Wall Construction												
Soil Excavation												
Tunnel Box Construction												
Backfilling												
Diaphragm Wall Removal												
SOV Construction												
Installing Hoarding												
Demolition of existing POC building												
Diaphragm Wall Construction	68	68	68	68								
Excavation work at SOV					72	72	72	72	72			
Construction of TBM launching shaft / SOV										69	69	69
SOV Construction												
Construction of cut and cover tunnel section (SCL 1.4)												
Diaphragm Wall Construction			62	62	62							
Excavation Works						70	70	70	70			
Tunnel Box Construction										66	66	66
Backfilling												
Diaphragm Wall Removal												
New POC Construction												
Piling: 610mm Diameter Pre-Bored H-Pile (Without SOV Basement)												
Construction of new POC building												
E&M Installation												
Dismantle Hoarding												
Reconstruct of Percival Street Footbridge												
Site clearance and hoarding and utility diversion												
Construction of temporary footbridge												
Demolish of portion of existing footbridge												
Removal of clased and potential clased piles												
Reconstruction of permanent footbridge	53	53	53									
Temporary bridge removal and reinstate landscaping				55	55	55	55	55	55			
Underpinning of Canal Road Flyover												
Site clearance and hoarding and utility diversion					54							
Excavation and construction of pre-bored H-piles						53	53	53	53	53	53	53
Construct new pile cap and ground beams												
Backfill and reinstatement												
Diversion of Canal Road Culvert & Removal of Piles												
Site clearance and hoarding and utility diversion												
Culvert diversion	47	47	47	47								
Remove of piles	55	55										
Pile Removal at Wan Shing Street Footbridge												
Site clearance and hoarding and utility diversion												
Construction of new footbridge												
SubArea 1 (Work Site 30401)												
SubArea 2 (Work Site 30402)												
Demolition of existing footbridge						61						
Removal of piles for existing footbridge & abandoned box culvert							61	61	61			
Reinstatement										61		
Underpinning of Pier of Causeway Flyover												
Site clearance and hoarding and utility diversion					61							
Excavation and construction of new piles						61	61	61	61	61	61	61
Construct pile cap									54	54	54	54
Remove piles												
Backfill and reinstatement												
Underpinning of Abutment of Causeway Flyover												
Site clearance and hoarding and utility diversion					65							
Excavation and construction of new piles						65	65	65	65	65	65	65
Construct pile cap									58	58	58	58
Remove piles												
Backfill and reinstatement												
Grouting Work for DSD 1.8m Truck Sewers												
Site clearance and hoarding and utility diversion												
Temp Access Shaft - Diaphragm wall												
Temp Access Shaft - Excavation												
Grouting from within the shaft												
Backfilling and Reinstatement												
Demolition & Reprovisioning of Cross Harbour Tunnel Footbridge												
Site clearance and hoarding and utility diversion												
Construction of temporary footbridge	60	60	60									
Demolish of existing footbridge				66								
TBM Assemble, First and Second Drive and Retrieval												
TBM Assembly												
1st Retrieval and reasseambly TBM												
2nd Retrieval of TBM												
Overall Noise Level (Phase II), Leq (30min), dB(A)	69	69	70	71	74	75	75	75	75	72	72	72
Construction of WDII	58	62	62	62	62	63	63	63	63	66	66	66
Overall Noise Level (SCL(HUH-ADM) and WDII), Leq (30min), dB(A)	69	70	70	71	74	75	75	75	75	73	73	73

Construction Activity	2016 Jan 37	Feb 38	Mar 39	Apr 40	May 41	Jun 42	Jul 43	Aug 44	Sep 45	Oct 46	Nov 47	Dec 48
Construction of cut and cover tunnel section (inside breakwater - SCL 3.2)												
Dredging												
Rockfill to temporary seawall												
Temporary Seawall Construction												
Filling behind temporary seawall												
Diaphragm Wall Construction												
Soil Excavation												
Tunnel Box Construction												
Backfilling												
Diaphragm Wall Removal												
SOV Construction												
Installing Hoarding												
Demolition of existing POC building												
Diaphragm Wall Construction												
Excavation work at SOV												
Construction of TBM launching shaft / SOV	69	69	69	69								
SOV Construction					60	60	60	60	60	60	60	60
Construction of cut and cover tunnel section (SCL 1.4)												
Diaphragm Wall Construction												
Excavation Works												
Tunnel Box Construction												
Backfilling	66											
Diaphragm Wall Removal		68	68	68								
New POC Construction												
Piling: 610mm Diameter Pre-Bored H-Pile (Without SOV Basement)												
Construction of new POC building												
E&M Installation												
Dismantle Hoarding												
Reconstruct of Percival Street Footbridge												
Site clearance and hoarding and utility diversion												
Construction of temporary footbridge												
Demolish of portion of existing footbridge												
Removal of clased and potential clased piles												
Reconstruction of permanent footbridge												
Temporary bridge removal and reinstate landscaping												
Underpinning of Canal Road Flyover												
Site clearance and hoarding and utility diversion												
Excavation and construction of pre-bored H-piles	53	53										
Construct new pile cap and ground beams			49	49	49	49	49	49	49			
Backfill and reinstatement										47		
Diversion of Canal Road Culvert & Removal of Piles												
Site clearance and hoarding and utility diversion												
Culvert diversion												
Remove of piles												
Pile Removal at Wan Shing Street Footbridge												
Site clearance and hoarding and utility diversion												
Construction of new footbridge												
SubArea 1 (Work Site 30401)												
SubArea 2 (Work Site 30402)												
Demolition of existing footbridge												
Removal of piles for existing footbridge & abandoned box culvert												
Reinstatement												
Underpinning of Pier of Causeway Flyover												
Site clearance and hoarding and utility diversion												
Excavation and construction of new piles	61	61	61	61	61	61						
Construct pile cap	54	54	54	54	54	54	54					
Remove piles					61	61	61	61	61	61		
Backfill and reinstatement											56	
Underpinning of Abutment of Causeway Flyover												
Site clearance and hoarding and utility diversion												
Excavation and construction of new piles	65	65	65	65	65	65						
Construct pile cap	58	58	58	58	58	58	58					
Remove piles					65	65	65	65	65	65		
Backfill and reinstatement											60	
Grouting Work for DSD 1.8m Truck Sewers												
Site clearance and hoarding and utility diversion												
Temp Access Shaft - Diaphragm wall												
Temp Access Shaft - Excavation												
Grouting from within the shaft												
Backfilling and Reinstatement												
Demolition & Reprovisioning of Cross Harbour Tunnel Footbridge												
Site clearance and hoarding and utility diversion												
Construction of temporary footbridge												
Demolish of existing footbridge												
TBM Assemble, First and Second Drive and Retrieval												
TBM Assembly								71	71	71	71	
1st Retrieval and reasseambly TBM												
2nd Retrieval of TBM												
Overall Noise Level (Phase II), Leq (30min), dB(A)	72	72	73	73	74	70	70	68	73	73	72	71
Construction of WDII	66	66	69	68	68	64	64	64	64			
Overall Noise Level (SCL(HUH-ADM) and WDII), Leq (30min), dB(A)	73	73	74	74	75	72	71	69	73	73	72	71

Remarks:

[1] The Works Area with length to width ratio exceeding 5 : 1 is divided into Subareas.

[2] Noise source at more than 300m from the sensitive receiver are not considered in the noise assessment due to large distance attenuation effect.

[3] 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.

[5] Construction activities would not be conducted simultaneously, therefore max SPL among these activities would be used for calcualtion of that particular month. These activities include: Demolition of staircase & relocation of oil tank, Demolition of staircase of exisitng FB linking Causeway Center and Harbour Centre, Demolition of elevated walkway to Harbour Road Sports Centre and Demolition of staircase of existing FB across Harbour Road near Sun Hung Kei Centre in month 31.

Appendix 9.13 Cumulative Construction Noise Assessment for Hong Kong Island - Mitigated Scenario

CH2 - Hoi Kung Court

Mitigated

Package	Construction Activity	Work Site No. [1]	SWL	Dist [2] (m)	SPL [3]	Building Screening	2017 Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
							49	50	51	52	53	54	55	56	57	58	59	60
	Construction of cut and cover tunnel section (inside breakwater - SCL 3.2)																	
10 IMT to SOV POC	Dredging	50103	120	305	65	0												
	Rockfill to temporary seawall	50103	120	305	65	0												
	Temporary Seawall Construction	50103	120	305	65	0												
	Filling behind temporary seawall	50103	120	305	65	0												
	Diaphragm Wall Construction	50103	108	305	53	0												
	Soil Excavation	50103	112	305	57	0												
	Tunnel Box Construction	50103	112	305	57	0												
	Backfilling	50103	111	305	57	0												
	Diaphragm Wall Removal	50103	113	305	58	0												
09 SOV POC	**SOV Construction**																	
	Installing Hoarding	401	104	81	61	0												
	Demolition of existing POC building	401	110	81	67	0												
	Diaphragm Wall Construction	401	111	81	68	0												
	Excavation work at SOV	401	115	81	72	0												
	Construction of TBM launching shaft / SOV	401	112	81	69	0												
	SOV Construction	401	103	81	60	0	60	60	60	60	60	60	60	60	60	60	60	60
	Construction of cut and cover tunnel section (SCL 1.4)																	
	Diaphragm Wall Construction	50105	108	103	62	0												
	Excavation Works	50105	115	103	70	0												
	Tunnel Box Construction	50105	112	103	66	0												
	Backfilling	50105	111	103	66	0												
	Diaphragm Wall Removal	50105	113	103	68	0												
	New POC Construction																	
	Piling: 610mm Diameter Pre-Bored H-Pile (Without SOV Basement)	401	102	81	58	0												
	Construction of new POC building	401	100	81	57	0												
	E&M Installation	401	102	81	59	0												
	Dismantle Hoarding	401	111	81	68	0												
08 Tunnels SOV to EXH	**Reconstruct of Percival Street Footbridge**																	
	Site clearance and hoarding and utility diversion	302	108	115	62	0												
	Construction of temporary footbridge	301	104	152	55	0												
	Demolish of portion of existing footbridge	302	111	115	64	0												
	Removal of clased and potential clased piles	302	107	115	61	0												
	Reconstruction of permanent footbridge	302	99	115	53	0												
	Temporary bridge removal and reinstate landscaping	301	104	152	55	0												
	Underpinning of Canal Road Flyover																	
	Site clearance and hoarding and utility diversion	303	108	294	54	0												
	Excavation and construction of pre-bored H-piles	303	108	294	53	0												
	Construct new pile cap and ground beams	303	103	294	49	0												
	Backfill and reinstatement	303	102	294	47	0												
	Diversion of Canal Road Culvert & Removal of Piles																	
	Site clearance and hoarding and utility diversion	310	108	261	55	0												
	Culvert diversion	310	100	261	47	0												
	Remove of piles	310	108	261	55	0												
	Pile Removal at Wan Shing Street Footbridge																	
	Site clearance and hoarding and utility diversion	305	108	339	53	0												
	Construction of new footbridge																	
	SubArea 1 (Work Site 30401)	30401	105	330	49	0												
	SubArea 2 (Work Site 30402)	30402	105	378	48	0												
	Demolition of existing footbridge	305	110	339	55	0												
	Removal of piles for existing footbridge & abandoned box culvert	305	120	339	65	0												
	Reinstatement	305	103	339	48	0												
	Underpinning of Pier of Causeway Flyover																	
	Site clearance and hoarding and utility diversion	306	108	132	61	0												
	Excavation and construction of new piles	306	108	132	61	0												
	Construct pile cap	306	101	132	54	0												
	Remove piles	306	108	132	61	0												
	Backfill and reinstatement	306	103	132	56	0												
	Underpinning of Abutment of Causeway Flyover																	
	Site clearance and hoarding and utility diversion	307	108	82	65	0												
	Excavation and construction of new piles	307	108	82	65	0												
	Construct pile cap	307	101	82	58	0												
	Remove piles	307	108	82	65	0												
	Backfill and reinstatement	307	103	82	60	0												
	Grouting Work for DSD 1.8m Truck Sewers																	
	Site clearance and hoarding and utility diversion	308	106	385	49	0												
	Temp Access Shaft - Diaphragm wall	308	102	385	45	0												
	Temp Access Shaft - Excavation	308	104	385	48	0												
	Grouting from within the shaft	308	97	385	40	0												
	Backfilling and Reinstatement	308	105	385	49	0												
	Demolition & Reprovisioning of Cross Harbour Tunnel Footbridge																	
	Site clearance and hoarding and utility diversion	309	108	91	64	0												
	Construction of temporary footbridge	309	104	91	60	0												
	Demolish of existing footbridge	309	111	91	66	0												
	TBM Assemble, First and Second Drive and Retrieval																	
	TBM Assembly	401	114	81	71	0												
	1st Retrieval and reasseambly TBM	401	116	81	73	0			73	73	73	73	73					
	2nd Retrieval of TBM	401	116	81	73	0											73	73
	Overall Noise Level (Phase II), Leq (30min), dB(A)						60	60	73	73	73	73	73	60	60	60	73	73
WDII	Construction of WDII	-	-	-	-	-												
	Overall Noise Level (SCL(HUH-ADM) and WDII), Leq (30min), dB(A)						60	60	73	73	73	73	73	60	60	60	73	73

Package	Construction Activity	2018 Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
		61	62	63	64	65	66	67	68	69	70	71	72
	Construction of cut and cover tunnel section (inside breakwater - SCL 3.2)												
10 IMT to SOV POC	Dredging												
	Rockfill to temporary seawall												
	Temporary Seawall Construction												
	Filling behind temporary seawall												
	Diaphragm Wall Construction												
	Soil Excavation												
	Tunnel Box Construction												
	Backfilling												
	Diaphragm Wall Removal												
09 SOV POC	**SOV Construction**												
	Installing Hoarding												
	Demolition of existing POC building												
	Diaphragm Wall Construction												
	Excavation work at SOV												
	Construction of TBM launching shaft / SOV												
	SOV Construction												
	Construction of cut and cover tunnel section (SCL 1.4)												
	Diaphragm Wall Construction												
	Excavation Works												
	Tunnel Box Construction												
	Backfilling												
	Diaphragm Wall Removal												
	New POC Construction												
	Piling: 610mm Diameter Pre-Bored H-Pile (Without SOV Basement)	58	58	58	58								
	Construction of new POC building					57	57	57	57	57	57	57	
	E&M Installation											59	59
	Dismantle Hoarding												
08 Tunnels SOV to EXH	**Reconstruct of Percival Street Footbridge**												
	Site clearance and hoarding and utility diversion												
	Construction of temporary footbridge												
	Demolish of portion of existing footbridge												
	Removal of clased and potential clased piles												
	Reconstruction of permanent footbridge												
	Temporary bridge removal and reinstate landscaping												
	Underpinning of Canal Road Flyover												
	Site clearance and hoarding and utility diversion												
	Excavation and construction of pre-bored H-piles												
	Construct new pile cap and ground beams												
	Backfill and reinstatement												
	Diversion of Canal Road Culvert & Removal of Piles												
	Site clearance and hoarding and utility diversion												
	Culvert diversion												
	Remove of piles												
	Pile Removal at Wan Shing Street Footbridge												
	Site clearance and hoarding and utility diversion												
	Construction of new footbridge												
	SubArea 1 (Work Site 30401)												
	SubArea 2 (Work Site 30402)												
	Demolition of existing footbridge												
	Removal of piles for existing footbridge & abandoned box culvert												
	Reinstatement												
	Underpinning of Pier of Causeway Flyover												
	Site clearance and hoarding and utility diversion												
	Excavation and construction of new piles												
	Construct pile cap												
	Remove piles												
	Backfill and reinstatement												
	Underpinning of Abutment of Causeway Flyover												
	Site clearance and hoarding and utility diversion												
	Excavation and construction of new piles												
	Construct pile cap												
	Remove piles												
	Backfill and reinstatement												
	Grouting Work for DSD 1.8m Truck Sewers												
	Site clearance and hoarding and utility diversion												
	Temp Access Shaft - Diaphragm wall												
	Temp Access Shaft - Excavation												
	Grouting from within the shaft												
	Backfilling and Reinstatement												
	Demolition & Reprovisioning of Cross Harbour Tunnel Footbridge												
	Site clearance and hoarding and utility diversion												
	Construction of temporary footbridge												
	Demolish of existing footbridge												
	TBM Assemble, First and Second Drive and Retrieval												
	TBM Assembly												
	1st Retrieval and reasseambly TBM												
	2nd Retrieval of TBM												
	Overall Noise Level (Phase II), Leq (30min), dB(A)	58	58	58	58	57	57	57	57	57	57	61	59
WDII	Construction of WDII												
	Overall Noise Level (SCL(HUH-ADM) and WDII), Leq (30min), dB(A)	58	58	58	58	57	57	57	57	57	57	61	59

Package	Construction Activity	2019 Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
		73	74	75	76	77	78	79	80	81	82	83	84
	Construction of cut and cover tunnel section (inside breakwater - SCL 3.2)												
10 IMT to SOV POC	Dredging												
	Rockfill to temporary seawall												
	Temporary Seawall Construction												
	Filling behind temporary seawall												
	Diaphragm Wall Construction												
	Soil Excavation												
	Tunnel Box Construction												
	Backfilling												
	Diaphragm Wall Removal												
09 SOV POC	**SOV Construction**												
	Installing Hoarding												
	Demolition of existing POC building												
	Diaphragm Wall Construction												
	Excavation work at SOV												
	Construction of TBM launching shaft / SOV												
	SOV Construction												
	Construction of cut and cover tunnel section (SCL 1.4)												
	Diaphragm Wall Construction												
	Excavation Works												
	Tunnel Box Construction												
	Backfilling												
	Diaphragm Wall Removal												
	New POC Construction												
	Piling: 610mm Diameter Pre-Bored H-Pile (Without SOV Basement)												
	Construction of new POC building												
	E&M Installation	59	59	59	59	59	59	59					
	Dismantle Hoarding								68				
08 Tunnels SOV to EXH	**Reconstruct of Percival Street Footbridge**												
	Site clearance and hoarding and utility diversion												
	Construction of temporary footbridge												
	Demolish of portion of existing footbridge												
	Removal of clased and potential clased piles												
	Reconstruction of permanent footbridge												
	Temporary bridge removal and reinstate landscaping												
	Underpinning of Canal Road Flyover												
	Site clearance and hoarding and utility diversion												
	Excavation and construction of pre-bored H-piles												
	Construct new pile cap and ground beams												
	Backfill and reinstatement												
	Diversion of Canal Road Culvert & Removal of Piles												
	Site clearance and hoarding and utility diversion												
	Culvert diversion												
	Remove of piles												
	Pile Removal at Wan Shing Street Footbridge												
	Site clearance and hoarding and utility diversion												
	Construction of new footbridge												
	SubArea 1 (Work Site 30401)												
	SubArea 2 (Work Site 30402)												
	Demolition of existing footbridge												
	Removal of piles for existing footbridge & abandoned box culvert												
	Reinstatement												
	Underpinning of Pier of Causeway Flyover												
	Site clearance and hoarding and utility diversion												
	Excavation and construction of new piles												
	Construct pile cap												
	Remove piles												
	Backfill and reinstatement												
	Underpinning of Abutment of Causeway Flyover												
	Site clearance and hoarding and utility diversion												
	Excavation and construction of new piles												
	Construct pile cap												
	Remove piles												
	Backfill and reinstatement												
	Grouting Work for DSD 1.8m Truck Sewers												
	Site clearance and hoarding and utility diversion												
	Temp Access Shaft - Diaphragm wall												
	Temp Access Shaft - Excavation												
	Grouting from within the shaft												
	Backfilling and Reinstatement												
	Demolition & Reprovisioning of Cross Harbour Tunnel Footbridge												
	Site clearance and hoarding and utility diversion												
	Construction of temporary footbridge												
	Demolish of existing footbridge												
	TBM Assemble, First and Second Drive and Retrieval												
	TBM Assembly												
	1st Retrieval and reasseambly TBM												
	2nd Retrieval of TBM												
	Overall Noise Level (Phase II), Leq (30min), dB(A)	59	59	59	59	59	59	59	68	-	-	-	-
WDII	Construction of WDII												
	Overall Noise Level (SCL(HUH-ADM) and WDII), Leq (30min), dB(A)	59	59	59	59	59	59	59	68	-	-	-	-

Remarks:

[1] The Works Area with length to width ratio exceeding 5 : 1 is divided into Subareas.

[2] Noise source at more than 300m from the sensitive receiver are not considered in the noise assessment due to large distance attenuation effect.

[3] 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.

[5] Construction activities would not be conducted simultaneously, therefore max SPL among these activities would be used for calcualtion of that particular month. These activities include: Demolition of staircase & relocation of oil tank, Demolition of staircase of exisitng FB linking Causeway Center and Harbour Centre, Demolition of elevated walkway to Harbour Road Sports Centre and Demolition of staircase of existing FB across Harbour Road near Sun Hung Kei Centre in month 31.

Appendix 9.13 Cumulative Construction Noise Assessment for Hong Kong Island - Mitigated Scenario

CH3 - Elizabeth House, Block C

Mitigated

Package	Construction Activity	Work Site No. [1]	SWL	Dist [2] (m)	SPL [3]	Building Screening	2013 Jan (1)	Feb (2)	Mar (3)	Apr (4)	May (5)	Jun (6)	Jul (7)	Aug (8)	Sep (9)	Oct (10)	Nov (11)	Dec (12)	2014 Jan (13)	Feb (14)	Mar (15)	Apr (16)	May (17)	Jun (18)	Jul (19)	Aug (20)	Sep (21)	Oct (22)	Nov (23)	Dec (24)	2015 Jan (25)	Feb (26)	Mar (27)	Apr (28)	May (29)	Jun (30)	Jul (31)	Aug (32)	Sep (33)	Oct (34)	Nov (35)	Dec (36)	2016 Jan (37)	Feb (38)	Mar (39)	Apr (40)	May (41)	Jun (42)	Jul (43)	Aug (44)	Sep (45)	Oct (46)	Nov (47)	Dec (48)
	Construction of cut and cover tunnel section (inside breakwater - SCL 3.2)																																																					
10 IMT to SOV POC	Dredging	50103	120	417	62	0																																																
	Rockfill to temporary seawall	50103	120	417	62	0																																																
	Temporary Seawall Construction	50103	120	417	62	0																																																
	Filling behind temporary seawall	50103	120	417	62	0																																																
	Diaphragm Wall Construction	50103	108	417	50	0																																																
	Soil Excavation	50103	112	417	54	0																																																
	Tunnel Box Construction	50103	112	417	54	0																																																
	Backfilling	50103	111	417	54	0																																																
	Diaphragm Wall Removal	50103	113	417	56	0																																																
09 SOV POC	**SOV Construction**																																																					
	Installing Hoarding	401	104	151	56	0																						56	56	56																									
	Demolition of existing POC building	401	110	151	62	0																						62	62	62																									
	Diaphragm Wall Construction	401	111	151	62	0																									62	62	62	62																					
	Excavation work at SOV	401	115	151	67	0																													67	67	67	67	67																
	Construction of TBM launching shaft / SOV	401	112	151	64	0																																		64	64	64	64	64	64	64									
	SOV Construction	401	103	151	54	0																																								54	54	54	54	54	54	54	54	
	Construction of cut and cover tunnel section (SCL 1.4)																																																					
	Diaphragm Wall Construction	50105	108	204	56	0																											56	56	56																				
	Excavation Works	50105	115	204	64	0																														64	64	64	64																
	Tunnel Box Construction	50105	112	204	60	0																																		60	60	60														
	Backfilling	50105	111	204	60	0																																					60												
	Diaphragm Wall Removal	50105	113	204	62	0																																						62	62	62									
	New POC Construction																																																					
	Piling: 610mm Diameter Pre-Bored H-Pile (Without SOV Basement)	401	102	151	53	0																																																
	Construction of new POC building	401	100	151	52	0																																																
	E&M Installation	401	102	151	53	0																																																
	Dismantle Hoarding	401	111	151	63	0																																																
08 Tunnels SOV to EXH	**Reconstruct of Percival Street Footbridge**																																																					
	Site clearance and hoarding and utility diversion	302	108	64	67	0																																																
	Construction of temporary footbridge	301	104	78	61	0															61																																	
	Demolish of portion of existing footbridge	302	111	64	69	0																69	69	69	69																													
	Removal of clased and potential clased piles	302	107	64	66	0																				66	66																											
	Reconstruction of permanent footbridge	302	99	64	58	0																						58	58	58	58	58	58																					
	Temporary bridge removal and reinstate landscaping	301	104	78	61	0																												61	61	61	61	61	61															
	Underpinning of Canal Road Flyover																																																					
	Site clearance and hoarding and utility diversion	303	108	177	58	0																													58																				
	Excavation and construction of pre-bored H-piles	303	108	177	58	0																														58	58	58	58	58	58	58	58	58										
	Construct new pile cap and ground beams	303	103	177	53	0																																							53	53	53	53	53	53	53			
	Backfill and reinstatement	303	102	177	52	0																																														52		
	Diversion of Canal Road Culvert & Removal of Piles																																																					
	Site clearance and hoarding and utility diversion	310	108	142	60	0														60	60																																	
	Culvert diversion	310	100	142	52	0																52	52	52	52	52	52	52	52	52	52	52	52	52																				
	Remove of piles	310	108	142	60	0																				60	60	60	60	60	60	60																						
	Pile Removal at Wan Shing Street Footbridge																																																					
	Site clearance and hoarding and utility diversion	305	108	213	57	0														57	57																																	
	Construction of new footbridge																																																					
	SubArea 1 (Work Site 30401)	30401	105	196	54	0																54	54	54	54	54	54	54	54	54	54	54	54	54																				
	SubArea 2 (Work Site 30402)	30402	105	252	52	0																52	52	52	52	52	52	52	52	52	52	52	52	52																				
	Demolition of existing footbridge	305	110	213	59	0																														59																		
	Removal of piles for existing footbridge & abandoned box culvert	305	120	213	69	0																															69	69	69															
	Reinstatement	305	103	213	52	0																																		52															
	Underpinning of Pier of Causeway Flyover																																																					
	Site clearance and hoarding and utility diversion	306	108	88	64	0																													64																				
	Excavation and construction of new piles	306	108	88	64	0																														64	64	64	64	64	64	64	64	64	64	64	64	64						
	Construct pile cap	306	101	88	57	0																																	57	57	57	57	57	57	57	57	57	57	57					
	Remove piles	306	108	88	64	0																																							64	64	64	64	64	64				
	Backfill and reinstatement	306	103	88	59	0																																													59		
	Underpinning of Abutment of Causeway Flyover																																																					
	Site clearance and hoarding and utility diversion	307	108	85	65	0																													65																				
	Excavation and construction of new piles	307	108	85	64	0																														64	64	64	64	64	64	64	64	64	64	64	64	64						
	Construct pile cap	307	101	85	57	0																																	57	57	57	57	57	57	57	57	57	57	57					
	Remove piles	307	108	85	64	0																																							64	64	64	64	64	64				
	Backfill and reinstatement	307	103	85	60	0																																													60		
	Grouting Work for DSD 1.8m Truck Sewers																																																					
	Site clearance and hoarding and utility diversion	308	106	270	52	0																				52																												
	Temp Access Shaft - Diaphragm wall	308	102	270	48	0																						48	48	48	48	48	48																					
	Temp Access Shaft - Excavation	308	104	270	51	0																											51	51																				
	Grouting from within the shaft	308	97	270	43	0																													43	43																		
	Backfilling and Reinstatement	308	105	270	52	0																															52	52																
	Demolition & Reprovisioning of Cross Harbour Tunnel Footbridge																																																					
	Site clearance and hoarding and utility diversion	309	108	102	63	0																						63	63	63																									
	Construction of temporary footbridge	309	104	102	59	0																									59	59	59																						
	Demolish of existing footbridge	309	111	102	65	0																												65																					
	TBM Assemble, First and Second Drive and Retrieval																																																					
	TBM Assembly	401	114	151	66	0																																													66	66	66	66	
	1st Retrieval and reasseambly TBM	401	116	151	67	0																																																
	2nd Retrieval of TBM	401	116	151	67	0																																																
	Overall Noise Level (Phase II), Leq (30min), dB(A)						-	-	-	-	-	-	-	-	-	-	-	-	-	62	64	69	69	69	69	67	68	68	68	68	67	67	66	69	71	72	74	74	74	70	70	70	70	70	70	72	71	71	68	70	70	68	66	54
WDII	Construction of WDII	-	-	-	-	-	62	62	68	66	63	66	66	66	66	66	66	63	66	66	66	66	66	63	63	63	63	63	63	58	58	62	62	62	62	63	63	63	66	66	66	66	66	69	68	68	64	64	64	64			
	Overall Noise Level (SCL(HUH-ADM) and WDII), Leq (30min), dB(A)						62	62	68	66	63	66	66	66	66	66	66	63	67	67	68	71	71	71	70	68	69	69	69	68	67	68	67	69	72	72	74	74	74	72	72	72	72	72	73	73	72	71	70	71	71	68	66	54

Remarks:

[1] The Works Area with length to width ratio exceeding 5 : 1 is divided into Subareas.

[2] Noise source at more than 300m from the sensitive receiver are not considered in the noise assessment due to large distance attenuation effect.

[3] 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.

[5] Construction activities would not be conducted simultaneously, therefore max SPL among these activities would be used for calcualtion of that particular month. These activities include: Demolition of staircase & relocation of oil tank, Demolition of staircase of exisiltng FB linking Causeway Center and Harbour Centre, Demolition of elevated walkway to Harbour Road Sports Centre and Demolition of staircase of existing FB across Harbour Road near Sun Hung Kei Centre in month 31.

Appendix 9.13 Cumulative Construction Noise Assessment for Hong Kong Island - Mitigated Scenario

CH3 - Elizabeth House, Block C

Mitigated

Package	Construction Activity	Work Site No. [1]	SWL	Dist [2] (m)	SPL [3]	Building Screening
	Construction of cut and cover tunnel section (inside breakwater - SCL 3.2)					
10 IMT to SOV POC	Dredging	50103	120	417	62	0
	Rockfill to temporary seawall	50103	120	417	62	0
	Temporary Seawall Construction	50103	120	417	62	0
	Filling behind temporary seawall	50103	120	417	62	0
	Diaphragm Wall Construction	50103	108	417	50	0
	Soil Excavation	50103	112	417	54	0
	Tunnel Box Construction	50103	112	417	54	0
	Backfilling	50103	111	417	54	0
	Diaphragm Wall Removal	50103	113	417	56	0
09 SOV POC	**SOV Construction**					
	Installing Hoarding	401	104	151	56	0
	Demolition of existing POC building	401	110	151	62	0
	Diaphragm Wall Construction	401	111	151	62	0
	Excavation work at SOV	401	115	151	67	0
	Construction of TBM launching shaft / SOV	401	112	151	64	0
	SOV Construction	401	103	151	54	0
	Construction of cut and cover tunnel section (SCL 1.4)					
	Diaphragm Wall Construction	50105	108	204	56	0
	Excavation Works	50105	115	204	64	0
	Tunnel Box Construction	50105	112	204	60	0
	Backfilling	50105	111	204	60	0
	Diaphragm Wall Removal	50105	113	204	62	0
	New POC Construction					
	Piling: 610mm Diameter Pre-Bored H-Pile (Without SOV Basement)	401	102	151	53	0
	Construction of new POC building	401	100	151	52	0
	E&M Installation	401	102	151	53	0
	Dismantle Hoarding	401	111	151	63	0
08 Tunnels SOV to EXH	**Reconstruct of Percival Street Footbridge**					
	Site clearance and hoarding and utility diversion	302	108	64	67	0
	Construction of temporary footbridge	301	104	78	61	0
	Demolish of portion of existing footbridge	302	111	64	69	0
	Removal of clased and potential clased piles	302	107	64	66	0
	Reconstruction of permanent footbridge	302	99	64	58	0
	Temporary bridge removal and reinstate landscaping	301	104	78	61	0
	Underpinning of Canal Road Flyover					
	Site clearance and hoarding and utility diversion	303	108	177	58	0
	Excavation and construction of pre-bored H-piles	303	108	177	58	0
	Construct new pile cap and ground beams	303	103	177	53	0
	Backfill and reinstatement	303	102	177	52	0
	Diversion of Canal Road Culvert & Removal of Piles					
	Site clearance and hoarding and utility diversion	310	108	142	60	0
	Culvert diversion	310	100	142	52	0
	Remove of piles	310	108	142	60	0
	Pile Removal at Wan Shing Street Footbridge					
	Site clearance and hoarding and utility diversion	305	108	213	57	0
	Construction of new footbridge					
	SubArea 1 (Work Site 30401)	30401	105	196	54	0
	SubArea 2 (Work Site 30402)	30402	105	252	52	0
	Demolition of existing footbridge	305	110	213	59	0
	Removal of piles for existing footbridge & abandoned box culvert	305	120	213	69	0
	Reinstatement	305	103	213	52	0
	Underpinning of Pier of Causeway Flyover					
	Site clearance and hoarding and utility diversion	306	108	88	64	0
	Excavation and construction of new piles	306	108	88	64	0
	Construct pile cap	306	101	88	57	0
	Remove piles	306	108	88	64	0
	Backfill and reinstatement	306	103	88	59	0
	Underpinning of Abutment of Causeway Flyover					
	Site clearance and hoarding and utility diversion	307	108	85	65	0
	Excavation and construction of new piles	307	108	85	64	0
	Construct pile cap	307	101	85	57	0
	Remove piles	307	108	85	64	0
	Backfill and reinstatement	307	103	85	60	0
	Grouting Work for DSD 1.8m Truck Sewers					
	Site clearance and hoarding and utility diversion	308	106	270	52	0
	Temp Access Shaft - Diaphragm wall	308	102	270	48	0
	Temp Access Shaft - Excavation	308	104	270	51	0
	Grouting from within the shaft	308	97	270	43	0
	Backfilling and Reinstatement	308	105	270	52	0
	Demolition & Reprovisioning of Cross Harbour Tunnel Footbridge					
	Site clearance and hoarding and utility diversion	309	108	102	63	0
	Construction of temporary footbridge	309	104	102	59	0
	Demolish of existing footbridge	309	111	102	65	0
	TBM Assemble, First and Second Drive and Retrieval					
	TBM Assembly	401	114	151	66	0
	1st Retrieval and reasseambly TBM	401	116	151	67	0
	2nd Retrieval of TBM	401	116	151	67	0
	Overall Noise Level (Phase II), Leq (30min), dB(A)					
WDII	Construction of WDII	-	-	-	-	-
	Overall Noise Level (SCL(HUH-ADM) and WDII), Leq (30min), dB(A)					

Construction Activity	2017 Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
	49	50	51	52	53	54	55	56	57	58	59	60
Construction of cut and cover tunnel section (inside breakwater - SCL 3.2)												
Dredging												
Rockfill to temporary seawall												
Temporary Seawall Construction												
Filling behind temporary seawall												
Diaphragm Wall Construction												
Soil Excavation												
Tunnel Box Construction												
Backfilling												
Diaphragm Wall Removal												
SOV Construction												
Installing Hoarding												
Demolition of existing POC building												
Diaphragm Wall Construction												
Excavation work at SOV												
Construction of TBM launching shaft / SOV												
SOV Construction	54	54	54	54	54	54	54	54	54	54	54	54
Construction of cut and cover tunnel section (SCL 1.4)												
Diaphragm Wall Construction												
Excavation Works												
Tunnel Box Construction												
Backfilling												
Diaphragm Wall Removal												
New POC Construction												
Piling: 610mm Diameter Pre-Bored H-Pile (Without SOV Basement)												
Construction of new POC building												
E&M Installation												
Dismantle Hoarding												
Reconstruct of Percival Street Footbridge												
Site clearance and hoarding and utility diversion												
Construction of temporary footbridge												
Demolish of portion of existing footbridge												
Removal of clased and potential clased piles												
Reconstruction of permanent footbridge												
Temporary bridge removal and reinstate landscaping												
Underpinning of Canal Road Flyover												
Site clearance and hoarding and utility diversion												
Excavation and construction of pre-bored H-piles												
Construct new pile cap and ground beams												
Backfill and reinstatement												
Diversion of Canal Road Culvert & Removal of Piles												
Site clearance and hoarding and utility diversion												
Culvert diversion												
Remove of piles												
Pile Removal at Wan Shing Street Footbridge												
Site clearance and hoarding and utility diversion												
Construction of new footbridge												
SubArea 1 (Work Site 30401)												
SubArea 2 (Work Site 30402)												
Demolition of existing footbridge												
Removal of piles for existing footbridge & abandoned box culvert												
Reinstatement												
Underpinning of Pier of Causeway Flyover												
Site clearance and hoarding and utility diversion												
Excavation and construction of new piles												
Construct pile cap												
Remove piles												
Backfill and reinstatement												
Underpinning of Abutment of Causeway Flyover												
Site clearance and hoarding and utility diversion												
Excavation and construction of new piles												
Construct pile cap												
Remove piles												
Backfill and reinstatement												
Grouting Work for DSD 1.8m Truck Sewers												
Site clearance and hoarding and utility diversion												
Temp Access Shaft - Diaphragm wall												
Temp Access Shaft - Excavation												
Grouting from within the shaft												
Backfilling and Reinstatement												
Demolition & Reprovisioning of Cross Harbour Tunnel Footbridge												
Site clearance and hoarding and utility diversion												
Construction of temporary footbridge												
Demolish of existing footbridge												
TBM Assemble, First and Second Drive and Retrieval												
TBM Assembly												
1st Retrieval and reasseambly TBM			67	67	67	67	67					
2nd Retrieval of TBM											67	67
Overall Noise Level (Phase II), Leq (30min), dB(A)	54	54	67	67	67	67	67	54	54	54	67	67
Construction of WDII												
Overall Noise Level (SCL(HUH-ADM) and WDII), Leq (30min), dB(A)	54	54	67	67	67	67	67	54	54	54	67	67

Construction Activity	2018 Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
	61	62	63	64	65	66	67	68	69	70	71	72
Construction of cut and cover tunnel section (inside breakwater - SCL 3.2)												
Dredging												
Rockfill to temporary seawall												
Temporary Seawall Construction												
Filling behind temporary seawall												
Diaphragm Wall Construction												
Soil Excavation												
Tunnel Box Construction												
Backfilling												
Diaphragm Wall Removal												
SOV Construction												
Installing Hoarding												
Demolition of existing POC building												
Diaphragm Wall Construction												
Excavation work at SOV												
Construction of TBM launching shaft / SOV												
SOV Construction												
Construction of cut and cover tunnel section (SCL 1.4)												
Diaphragm Wall Construction												
Excavation Works												
Tunnel Box Construction												
Backfilling												
Diaphragm Wall Removal												
New POC Construction												
Piling: 610mm Diameter Pre-Bored H-Pile (Without SOV Basement)	53	53	53	53								
Construction of new POC building					52	52	52	52	52	52	52	
E&M Installation											53	53
Dismantle Hoarding												
Reconstruct of Percival Street Footbridge												
Site clearance and hoarding and utility diversion												
Construction of temporary footbridge												
Demolish of portion of existing footbridge												
Removal of clased and potential clased piles												
Reconstruction of permanent footbridge												
Temporary bridge removal and reinstate landscaping												
Underpinning of Canal Road Flyover												
Site clearance and hoarding and utility diversion												
Excavation and construction of pre-bored H-piles												
Construct new pile cap and ground beams												
Backfill and reinstatement												
Diversion of Canal Road Culvert & Removal of Piles												
Site clearance and hoarding and utility diversion												
Culvert diversion												
Remove of piles												
Pile Removal at Wan Shing Street Footbridge												
Site clearance and hoarding and utility diversion												
Construction of new footbridge												
SubArea 1 (Work Site 30401)												
SubArea 2 (Work Site 30402)												
Demolition of existing footbridge												
Removal of piles for existing footbridge & abandoned box culvert												
Reinstatement												
Underpinning of Pier of Causeway Flyover												
Site clearance and hoarding and utility diversion												
Excavation and construction of new piles												
Construct pile cap												
Remove piles												
Backfill and reinstatement												
Underpinning of Abutment of Causeway Flyover												
Site clearance and hoarding and utility diversion												
Excavation and construction of new piles												
Construct pile cap												
Remove piles												
Backfill and reinstatement												
Grouting Work for DSD 1.8m Truck Sewers												
Site clearance and hoarding and utility diversion												
Temp Access Shaft - Diaphragm wall												
Temp Access Shaft - Excavation												
Grouting from within the shaft												
Backfilling and Reinstatement												
Demolition & Reprovisioning of Cross Harbour Tunnel Footbridge												
Site clearance and hoarding and utility diversion												
Construction of temporary footbridge												
Demolish of existing footbridge												
TBM Assemble, First and Second Drive and Retrieval												
TBM Assembly												
1st Retrieval and reasseambly TBM												
2nd Retrieval of TBM												
Overall Noise Level (Phase II), Leq (30min), dB(A)	53	53	53	53	52	52	52	52	52	52	56	53
Construction of WDII												
Overall Noise Level (SCL(HUH-ADM) and WDII), Leq (30min), dB(A)	53	53	53	53	52	52	52	52	52	52	56	53

Construction Activity	2019 Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
	73	74	75	76	77	78	79	80	81	82	83	84
Construction of cut and cover tunnel section (inside breakwater - SCL 3.2)												
Dredging												
Rockfill to temporary seawall												
Temporary Seawall Construction												
Filling behind temporary seawall												
Diaphragm Wall Construction												
Soil Excavation												
Tunnel Box Construction												
Backfilling												
Diaphragm Wall Removal												
SOV Construction												
Installing Hoarding												
Demolition of existing POC building												
Diaphragm Wall Construction												
Excavation work at SOV												
Construction of TBM launching shaft / SOV												
SOV Construction												
Construction of cut and cover tunnel section (SCL 1.4)												
Diaphragm Wall Construction												
Excavation Works												
Tunnel Box Construction												
Backfilling												
Diaphragm Wall Removal												
New POC Construction												
Piling: 610mm Diameter Pre-Bored H-Pile (Without SOV Basement)												
Construction of new POC building												
E&M Installation	53	53	53	53	53	53	53					
Dismantle Hoarding								63				
Reconstruct of Percival Street Footbridge												
Site clearance and hoarding and utility diversion												
Construction of temporary footbridge												
Demolish of portion of existing footbridge												
Removal of clased and potential clased piles												
Reconstruction of permanent footbridge												
Temporary bridge removal and reinstate landscaping												
Underpinning of Canal Road Flyover												
Site clearance and hoarding and utility diversion												
Excavation and construction of pre-bored H-piles												
Construct new pile cap and ground beams												
Backfill and reinstatement												
Diversion of Canal Road Culvert & Removal of Piles												
Site clearance and hoarding and utility diversion												
Culvert diversion												
Remove of piles												
Pile Removal at Wan Shing Street Footbridge												
Site clearance and hoarding and utility diversion												
Construction of new footbridge												
SubArea 1 (Work Site 30401)												
SubArea 2 (Work Site 30402)												
Demolition of existing footbridge												
Removal of piles for existing footbridge & abandoned box culvert												
Reinstatement												
Underpinning of Pier of Causeway Flyover												
Site clearance and hoarding and utility diversion												
Excavation and construction of new piles												
Construct pile cap												
Remove piles												
Backfill and reinstatement												
Underpinning of Abutment of Causeway Flyover												
Site clearance and hoarding and utility diversion												
Excavation and construction of new piles												
Construct pile cap												
Remove piles												
Backfill and reinstatement												
Grouting Work for DSD 1.8m Truck Sewers												
Site clearance and hoarding and utility diversion												
Temp Access Shaft - Diaphragm wall												
Temp Access Shaft - Excavation												
Grouting from within the shaft												
Backfilling and Reinstatement												
Demolition & Reprovisioning of Cross Harbour Tunnel Footbridge												
Site clearance and hoarding and utility diversion												
Construction of temporary footbridge												
Demolish of existing footbridge												
TBM Assemble, First and Second Drive and Retrieval												
TBM Assembly												
1st Retrieval and reasseambly TBM												
2nd Retrieval of TBM												
Overall Noise Level (Phase II), Leq (30min), dB(A)	53	53	53	53	53	53	53	63	-	-	-	-
Construction of WDII												
Overall Noise Level (SCL(HUH-ADM) and WDII), Leq (30min), dB(A)	53	53	53	53	53	53	53	63	-	-	-	-

Remarks:

[1] The Works Area with length to width ratio exceeding 5 : 1 is divided into Subareas.

[2] Noise source at more than 300m from the sensitive receiver are not considered in the noise assessment due to large distance attenuation effect.

[3] 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.

[5] Construction activities would not be conducted simultaneously, therefore max SPL among these activities would be used for calcualtion of that particular month. These activities include: Demolition of staircase & relocation of oil tank, Demolition of staircase of exisitng FB linking Causeway Center and Harbour Centre, Demolition of elevated walkway to Harbour Road Sports Centre and Demolition of staircase of existing FB across Harbour Road near Sun Hung Kei Centre in month 31.

Appendix 9.13 Cumulative Construction Noise Assessment for Hong Kong Island - Mitigated Scenario

CH4 - Marco Polo Mansion

Mitigated

Package	Construction Activity	Work Site No. [1]	SWL	Dist [4] (m)	SPL [5]	Building Screening
	Construction of cut and cover tunnel section (inside breakwater - SCL 3.2)					
10 IMT to SOV POC	Dredging	50103	120	235	68	0
	Rockfill to temporary seawall	50103	120	235	68	0
	Temporary Seawall Construction	50103	120	235	68	0
	Filling behind temporary seawall	50103	120	235	68	0
	Diaphragm Wall Construction	50103	108	235	55	0
	Soil Excavation	50103	112	235	59	0
	Tunnel Box Construction	50103	112	235	59	0
	Backfilling	50103	111	235	59	0
	Diaphragm Wall Removal	50103	113	235	61	0
09 SOV POC	**SOV Construction**					
	Installing Hoarding	401	104	317	49	0
	Demolition of existing POC building	401	110	317	55	0
	Diaphragm Wall Construction	401	111	317	56	0
	Excavation work at SOV	401	115	317	60	0
	Construction of TBM launching shaft / SOV	401	112	317	57	0
	SOV Construction	401	103	317	48	0
	Construction of cut and cover tunnel section (SCL 1.4)					
	Diaphragm Wall Construction	50105	108	276	54	0
	Excavation Works	50105	115	276	62	0
	Tunnel Box Construction	50105	112	276	58	0
	Backfilling	50105	111	276	58	0
	Diaphragm Wall Removal	50105	113	276	59	0
	New POC Construction					
	Piling: 610mm Diameter Pre-Bored H-Pile (Without SOV Basement)	401	102	317	46	0
	Construction of new POC building	401	100	317	45	0
	E&M Installation	401	102	317	47	0
	Dismantle Hoarding	401	111	317	56	0
08 Tunnels SOV to EXH	**Reconstruct of Percival Street Footbridge**					
	Site clearance and hoarding and utility diversion	302	108	415	51	0
	Construction of temporary footbridge	301	104	449	46	0
	Demolish of portion of existing footbridge	302	111	415	53	0
	Removal of clased and potential clased piles	302	107	415	49	0
	Reconstruction of permanent footbridge	302	99	415	42	0
	Temporary bridge removal and reinstate landscaping	301	104	449	46	0
	Underpinning of Canal Road Flyover					
	Site clearance and hoarding and utility diversion	303	108	593	48	0
	Excavation and construction of pre-bored H-piles	303	108	593	47	0
	Construct new pile cap and ground beams	303	103	593	43	0
	Backfill and reinstatement	303	102	593	41	0
	Diversion of Canal Road Culvert & Removal of Piles					
	Site clearance and hoarding and utility diversion	310	108	562	48	0
	Culvert diversion	310	100	562	40	0
	Remove of piles	310	108	562	48	0
	Pile Removal at Wan Shing Street Footbridge					
	Site clearance and hoarding and utility diversion	305	108	641	47	0
	Construction of new footbridge					
	SubArea 1 (Work Site 30401)	30401	105	636	44	0
	SubArea 2 (Work Site 30402)	30402	105	680	43	0
	Demolition of existing footbridge	305	110	641	49	0
	Removal of piles for existing footbridge & abandoned box culvert	305	120	641	59	0
	Reinstatement	305	103	641	42	0
	Underpinning of Pier of Causeway Flyover					
	Site clearance and hoarding and utility diversion	306	108	423	51	0
	Excavation and construction of new piles	306	108	423	50	0
	Construct pile cap	306	101	423	43	0
	Remove piles	306	108	423	50	0
	Backfill and reinstatement	306	103	423	46	0
	Underpinning of Abutment of Causeway Flyover					
	Site clearance and hoarding and utility diversion	307	108	378	52	0
	Excavation and construction of new piles	307	108	378	51	0
	Construct pile cap	307	101	378	44	0
	Remove piles	307	108	378	51	0
	Backfill and reinstatement	307	103	378	47	0
	Grouting Work for DSD 1.8m Truck Sewers					
	Site clearance and hoarding and utility diversion	308	106	679	44	0
	Temp Access Shaft - Diaphragm wall	308	102	679	40	0
	Temp Access Shaft - Excavation	308	104	679	43	0
	Grouting from within the shaft	308	97	679	35	0
	Backfilling and Reinstatement	308	105	679	44	0
	Demolition & Reprovisioning of Cross Harbour Tunnel Footbridge					
	Site clearance and hoarding and utility diversion	309	108	377	52	0
	Construction of temporary footbridge	309	104	377	47	0
	Demolish of existing footbridge	309	111	377	54	0
	TBM Assemble, First and Second Drive and Retrieval					
	TBM Assembly	401	114	317	59	0
	1st Retrieval and reasseambly TBM	401	116	317	61	0
	2nd Retrieval of TBM	401	116	317	61	0
	Overall Noise Level (Phase II), Leq (30min), dB(A)					
WDII	Construction of WDII	-	-	-	-	-
	Overall Noise Level (SCL(HUH-ADM) and WDII), Leq (30min), dB(A)					

Construction Activity	2013 Jan 1	Feb 2	Mar 3	Apr 4	May 5	Jun 6	Jul 7	Aug 8	Sep 9	Oct 10	Nov 11	Dec 12
Construction of cut and cover tunnel section (inside breakwater - SCL 3.2)												
Dredging												
Rockfill to temporary seawall												
Temporary Seawall Construction												
Filling behind temporary seawall												
Diaphragm Wall Construction												
Soil Excavation												
Tunnel Box Construction												
Backfilling												
Diaphragm Wall Removal												
SOV Construction												
Installing Hoarding												
Demolition of existing POC building												
Diaphragm Wall Construction												
Excavation work at SOV												
Construction of TBM launching shaft / SOV												
SOV Construction												
Construction of cut and cover tunnel section (SCL 1.4)												
Diaphragm Wall Construction												
Excavation Works												
Tunnel Box Construction												
Backfilling												
Diaphragm Wall Removal												
New POC Construction												
Piling: 610mm Diameter Pre-Bored H-Pile (Without SOV Basement)												
Construction of new POC building												
E&M Installation												
Dismantle Hoarding												
Reconstruct of Percival Street Footbridge												
Site clearance and hoarding and utility diversion												
Construction of temporary footbridge												
Demolish of portion of existing footbridge												
Removal of clased and potential clased piles												
Reconstruction of permanent footbridge												
Temporary bridge removal and reinstate landscaping												
Underpinning of Canal Road Flyover												
Site clearance and hoarding and utility diversion												
Excavation and construction of pre-bored H-piles												
Construct new pile cap and ground beams												
Backfill and reinstatement												
Diversion of Canal Road Culvert & Removal of Piles												
Site clearance and hoarding and utility diversion												
Culvert diversion												
Remove of piles												
Pile Removal at Wan Shing Street Footbridge												
Site clearance and hoarding and utility diversion												
Construction of new footbridge												
SubArea 1 (Work Site 30401)												
SubArea 2 (Work Site 30402)												
Demolition of existing footbridge												
Removal of piles for existing footbridge & abandoned box culvert												
Reinstatement												
Underpinning of Pier of Causeway Flyover												
Site clearance and hoarding and utility diversion												
Excavation and construction of new piles												
Construct pile cap												
Remove piles												
Backfill and reinstatement												
Underpinning of Abutment of Causeway Flyover												
Site clearance and hoarding and utility diversion												
Excavation and construction of new piles												
Construct pile cap												
Remove piles												
Backfill and reinstatement												
Grouting Work for DSD 1.8m Truck Sewers												
Site clearance and hoarding and utility diversion												
Temp Access Shaft - Diaphragm wall												
Temp Access Shaft - Excavation												
Grouting from within the shaft												
Backfilling and Reinstatement												
Demolition & Reprovisioning of Cross Harbour Tunnel Footbridge												
Site clearance and hoarding and utility diversion												
Construction of temporary footbridge												
Demolish of existing footbridge												
TBM Assemble, First and Second Drive and Retrieval												
TBM Assembly												
1st Retrieval and reasseambly TBM												
2nd Retrieval of TBM												
Overall Noise Level (Phase II), Leq (30min), dB(A)	-	-	-	-	-	-	-	-	-	-	-	-
Construction of WDII	67	63	63	66	68	68	68	68	63	63	63	66
Overall Noise Level (SCL(HUH-ADM) and WDII), Leq (30min), dB(A)	67	63	63	66	68	68	68	68	63	63	63	66

Construction Activity	2014 Jan 13	Feb 14	Mar 15	Apr 16	May 17	Jun 18	Jul 19	Aug 20	Sep 21	Oct 22	Nov 23	Dec 24
Construction of cut and cover tunnel section (inside breakwater - SCL 3.2)												
Dredging												
Rockfill to temporary seawall												
Temporary Seawall Construction												
Filling behind temporary seawall												
Diaphragm Wall Construction												
Soil Excavation												
Tunnel Box Construction												
Backfilling												
Diaphragm Wall Removal												
SOV Construction												
Installing Hoarding												
Demolition of existing POC building												
Diaphragm Wall Construction												
Excavation work at SOV												
Construction of TBM launching shaft / SOV												
SOV Construction												
Construction of cut and cover tunnel section (SCL 1.4)												
Diaphragm Wall Construction												
Excavation Works												
Tunnel Box Construction												
Backfilling												
Diaphragm Wall Removal												
New POC Construction												
Piling: 610mm Diameter Pre-Bored H-Pile (Without SOV Basement)												
Construction of new POC building												
E&M Installation												
Dismantle Hoarding												
Reconstruct of Percival Street Footbridge												
Site clearance and hoarding and utility diversion												
Construction of temporary footbridge												
Demolish of portion of existing footbridge												
Removal of clased and potential clased piles												
Reconstruction of permanent footbridge												
Temporary bridge removal and reinstate landscaping												
Underpinning of Canal Road Flyover												
Site clearance and hoarding and utility diversion												
Excavation and construction of pre-bored H-piles												
Construct new pile cap and ground beams												
Backfill and reinstatement												
Diversion of Canal Road Culvert & Removal of Piles												
Site clearance and hoarding and utility diversion												
Culvert diversion												
Remove of piles												
Pile Removal at Wan Shing Street Footbridge												
Site clearance and hoarding and utility diversion												
Construction of new footbridge												
SubArea 1 (Work Site 30401)												
SubArea 2 (Work Site 30402)												
Demolition of existing footbridge												
Removal of piles for existing footbridge & abandoned box culvert												
Reinstatement												
Underpinning of Pier of Causeway Flyover												
Site clearance and hoarding and utility diversion												
Excavation and construction of new piles												
Construct pile cap												
Remove piles												
Backfill and reinstatement												
Underpinning of Abutment of Causeway Flyover												
Site clearance and hoarding and utility diversion												
Excavation and construction of new piles												
Construct pile cap												
Remove piles												
Backfill and reinstatement												
Grouting Work for DSD 1.8m Truck Sewers												
Site clearance and hoarding and utility diversion												
Temp Access Shaft - Diaphragm wall												
Temp Access Shaft - Excavation												
Grouting from within the shaft												
Backfilling and Reinstatement												
Demolition & Reprovisioning of Cross Harbour Tunnel Footbridge												
Site clearance and hoarding and utility diversion												
Construction of temporary footbridge												
Demolish of existing footbridge												
TBM Assemble, First and Second Drive and Retrieval												
TBM Assembly												
1st Retrieval and reasseambly TBM												
2nd Retrieval of TBM												
Overall Noise Level (Phase II), Leq (30min), dB(A)	-	-	-	-	-	-	-	-	-	-	-	-
Construction of WDII	67	67	70	70	70	70	70	70	70	72	73	73
Overall Noise Level (SCL(HUH-ADM) and WDII), Leq (30min), dB(A)	67	67	70	70	70	70	70	70	70	72	73	73

Construction Activity	2015 Jan 25	Feb 26	Mar 27	Apr 28	May 29	Jun 30	Jul 31	Aug 32	Sep 33	Oct 34	Nov 35	Dec 36
Construction of cut and cover tunnel section (inside breakwater - SCL 3.2)												
Dredging												
Rockfill to temporary seawall												
Temporary Seawall Construction												
Filling behind temporary seawall												
Diaphragm Wall Construction												
Soil Excavation												
Tunnel Box Construction												
Backfilling												
Diaphragm Wall Removal												
SOV Construction												
Installing Hoarding												
Demolition of existing POC building												
Diaphragm Wall Construction												
Excavation work at SOV												
Construction of TBM launching shaft / SOV												
SOV Construction												
Construction of cut and cover tunnel section (SCL 1.4)												
Diaphragm Wall Construction			54	54	54							
Excavation Works						62	62	62	62			
Tunnel Box Construction										58	58	58
Backfilling												
Diaphragm Wall Removal												
New POC Construction												
Piling: 610mm Diameter Pre-Bored H-Pile (Without SOV Basement)												
Construction of new POC building												
E&M Installation												
Dismantle Hoarding												
Reconstruct of Percival Street Footbridge												
Site clearance and hoarding and utility diversion												
Construction of temporary footbridge												
Demolish of portion of existing footbridge												
Removal of clased and potential clased piles												
Reconstruction of permanent footbridge												
Temporary bridge removal and reinstate landscaping												
Underpinning of Canal Road Flyover												
Site clearance and hoarding and utility diversion												
Excavation and construction of pre-bored H-piles												
Construct new pile cap and ground beams												
Backfill and reinstatement												
Diversion of Canal Road Culvert & Removal of Piles												
Site clearance and hoarding and utility diversion												
Culvert diversion												
Remove of piles												
Pile Removal at Wan Shing Street Footbridge												
Site clearance and hoarding and utility diversion												
Construction of new footbridge												
SubArea 1 (Work Site 30401)												
SubArea 2 (Work Site 30402)												
Demolition of existing footbridge												
Removal of piles for existing footbridge & abandoned box culvert												
Reinstatement												
Underpinning of Pier of Causeway Flyover												
Site clearance and hoarding and utility diversion												
Excavation and construction of new piles												
Construct pile cap												
Remove piles												
Backfill and reinstatement												
Underpinning of Abutment of Causeway Flyover												
Site clearance and hoarding and utility diversion												
Excavation and construction of new piles												
Construct pile cap												
Remove piles												
Backfill and reinstatement												
Grouting Work for DSD 1.8m Truck Sewers												
Site clearance and hoarding and utility diversion												
Temp Access Shaft - Diaphragm wall												
Temp Access Shaft - Excavation												
Grouting from within the shaft												
Backfilling and Reinstatement												
Demolition & Reprovisioning of Cross Harbour Tunnel Footbridge												
Site clearance and hoarding and utility diversion												
Construction of temporary footbridge												
Demolish of existing footbridge												
TBM Assemble, First and Second Drive and Retrieval												
TBM Assembly												
1st Retrieval and reasseambly TBM												
2nd Retrieval of TBM												
Overall Noise Level (Phase II), Leq (30min), dB(A)	-	-	54	54	54	62	62	62	62	58	58	58
Construction of WDII	73	75	75	74	74	73	73	73	73	72	72	71
Overall Noise Level (SCL(HUH-ADM) and WDII), Leq (30min), dB(A)	73	75	75	75	75	73	73	73	73	72	72	71

Construction Activity	2016 Jan 37	Feb 38	Mar 39	Apr 40	May 41	Jun 42	Jul 43	Aug 44	Sep 45	Oct 46	Nov 47	Dec 48
Construction of cut and cover tunnel section (inside breakwater - SCL 3.2)												
Dredging												
Rockfill to temporary seawall												
Temporary Seawall Construction												
Filling behind temporary seawall												
Diaphragm Wall Construction												
Soil Excavation												
Tunnel Box Construction												
Backfilling												
Diaphragm Wall Removal												
SOV Construction												
Installing Hoarding												
Demolition of existing POC building												
Diaphragm Wall Construction												
Excavation work at SOV												
Construction of TBM launching shaft / SOV												
SOV Construction												
Construction of cut and cover tunnel section (SCL 1.4)												
Diaphragm Wall Construction												
Excavation Works												
Tunnel Box Construction												
Backfilling	58											
Diaphragm Wall Removal		59	59	59								
New POC Construction												
Piling: 610mm Diameter Pre-Bored H-Pile (Without SOV Basement)												
Construction of new POC building												
E&M Installation												
Dismantle Hoarding												
Reconstruct of Percival Street Footbridge												
Site clearance and hoarding and utility diversion												
Construction of temporary footbridge												
Demolish of portion of existing footbridge												
Removal of clased and potential clased piles												
Reconstruction of permanent footbridge												
Temporary bridge removal and reinstate landscaping												
Underpinning of Canal Road Flyover												
Site clearance and hoarding and utility diversion												
Excavation and construction of pre-bored H-piles												
Construct new pile cap and ground beams												
Backfill and reinstatement												
Diversion of Canal Road Culvert & Removal of Piles												
Site clearance and hoarding and utility diversion												
Culvert diversion												
Remove of piles												
Pile Removal at Wan Shing Street Footbridge												
Site clearance and hoarding and utility diversion												
Construction of new footbridge												
SubArea 1 (Work Site 30401)												
SubArea 2 (Work Site 30402)												
Demolition of existing footbridge												
Removal of piles for existing footbridge & abandoned box culvert												
Reinstatement												
Underpinning of Pier of Causeway Flyover												
Site clearance and hoarding and utility diversion												
Excavation and construction of new piles												
Construct pile cap												
Remove piles												
Backfill and reinstatement												
Underpinning of Abutment of Causeway Flyover												
Site clearance and hoarding and utility diversion												
Excavation and construction of new piles												
Construct pile cap												
Remove piles												
Backfill and reinstatement												
Grouting Work for DSD 1.8m Truck Sewers												
Site clearance and hoarding and utility diversion												
Temp Access Shaft - Diaphragm wall												
Temp Access Shaft - Excavation												
Grouting from within the shaft												
Backfilling and Reinstatement												
Demolition & Reprovisioning of Cross Harbour Tunnel Footbridge												
Site clearance and hoarding and utility diversion												
Construction of temporary footbridge												
Demolish of existing footbridge												
TBM Assemble, First and Second Drive and Retrieval												
TBM Assembly												
1st Retrieval and reasseambly TBM												
2nd Retrieval of TBM												
Overall Noise Level (Phase II), Leq (30min), dB(A)	58	59	59	59	-	-	-	-	-	-	-	-
Construction of WDII	66	66	66	66	64	64	64	64	64	69	63	63
Overall Noise Level (SCL(HUH-ADM) and WDII), Leq (30min), dB(A)	66	67	67	67	64	64	64	64	64	69	63	63

Remarks:

[1] The Works Area with length to width ratio exceeding 5 : 1 is divided into Subareas.

[2] Noise source at more than 300m from the sensitive receiver are not considered in the noise assessment due to large distance attenuation effect.

[3] 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.

[5] Construction activities would not be conducted simultaneously, therefore max SPL among these activities would be used for calcualtion of that particular month. These activities include: Demolition of staircase & relocation of oil tank, Demolition of staircase of exisitng FB linking Causeway Center and Harbour Centre, Demolition of elevated walkway to Harbour Road Sports Centre and Demolition of staircase of existing FB across Harbour Road near Sun Hung Kei Centre in month 31.

Appendix 9.13 Cumulative Construction Noise Assessment for Hong Kong Island - Mitigated Scenario

CH4 - Marco Polo Mansion

Mitigated

Package	Construction Activity	Work Site No. [1]	SWL	Dist [4] (m)	SPL [3]	Building Screening
	Construction of cut and cover tunnel section (inside breakwater - SCL 3.2)					
10 IMT to SOV POC	Dredging	50103	120	235	68	0
	Rockfill to temporary seawall	50103	120	235	68	0
	Temporary Seawall Construction	50103	120	235	68	0
	Filling behind temporary seawall	50103	120	235	68	0
	Diaphragm Wall Construction	50103	108	235	55	0
	Soil Excavation	50103	112	235	59	0
	Tunnel Box Construction	50103	112	235	59	0
	Backfilling	50103	111	235	59	0
	Diaphragm Wall Removal	50103	113	235	61	0
09 SOV POC	**SOV Construction**					
	Installing Hoarding	401	104	317	49	0
	Demolition of existing POC building	401	110	317	55	0
	Diaphragm Wall Construction	401	111	317	56	0
	Excavation work at SOV	401	115	317	60	0
	Construction of TBM launching shaft / SOV	401	112	317	57	0
	SOV Construction	401	103	317	48	0
	Construction of cut and cover tunnel section (SCL 1.4)					
	Diaphragm Wall Construction	50105	108	276	54	0
	Excavation Works	50105	115	276	62	0
	Tunnel Box Construction	50105	112	276	58	0
	Backfilling	50105	111	276	58	0
	Diaphragm Wall Removal	50105	113	276	59	0
	New POC Construction					
	Piling: 610mm Diameter Pre-Bored H-Pile (Without SOV Basement)	401	102	317	46	0
	Construction of new POC building	401	100	317	45	0
	E&M Installation	401	102	317	47	0
	Dismantle Hoarding	401	111	317	56	0
08 Tunnels SOV to EXH	**Reconstruct of Percival Street Footbridge**					
	Site clearance and hoarding and utility diversion	302	108	415	51	0
	Construction of temporary footbridge	301	104	449	46	0
	Demolish of portion of existing footbridge	302	111	415	53	0
	Removal of clased and potential clased piles	302	107	415	49	0
	Reconstruction of permanent footbridge	302	99	415	42	0
	Temporary bridge removal and reinstate landscaping	301	104	449	46	0
	Underpinning of Canal Road Flyover					
	Site clearance and hoarding and utility diversion	303	108	593	48	0
	Excavation and construction of pre-bored H-piles	303	108	593	47	0
	Construct new pile cap and ground beams	303	103	593	43	0
	Backfill and reinstatement	303	102	593	41	0
	Diversion of Canal Road Culvert & Removal of Piles					
	Site clearance and hoarding and utility diversion	310	108	562	48	0
	Culvert diversion	310	100	562	40	0
	Remove of piles	310	108	562	48	0
	Pile Removal at Wan Shing Street Footbridge					
	Site clearance and hoarding and utility diversion	305	108	641	47	0
	Construction of new footbridge					
	SubArea 1 (Work Site 30401)	30401	105	636	44	0
	SubArea 2 (Work Site 30402)	30402	105	680	43	0
	Demolition of existing footbridge	305	110	641	49	0
	Removal of piles for existing footbridge & abandoned box culvert	305	120	641	59	0
	Reinstatement	305	103	641	42	0
	Underpinning of Pier of Causeway Flyover					
	Site clearance and hoarding and utility diversion	306	108	423	51	0
	Excavation and construction of new piles	306	108	423	50	0
	Construct pile cap	306	101	423	43	0
	Remove piles	306	108	423	50	0
	Backfill and reinstatement	306	103	423	46	0
	Underpinning of Abutment of Causeway Flyover					
	Site clearance and hoarding and utility diversion	307	108	378	52	0
	Excavation and construction of new piles	307	108	378	51	0
	Construct pile cap	307	101	378	44	0
	Remove piles	307	108	378	51	0
	Backfill and reinstatement	307	103	378	47	0
	Grouting Work for DSD 1.8m Truck Sewers					
	Site clearance and hoarding and utility diversion	308	106	679	44	0
	Temp Access Shaft - Diaphragm wall	308	102	679	40	0
	Temp Access Shaft - Excavation	308	104	679	43	0
	Grouting from within the shaft	308	97	679	35	0
	Backfilling and Reinstatement	308	105	679	44	0
	Demolition & Reprovisioning of Cross Harbour Tunnel Footbridge					
	Site clearance and hoarding and utility diversion	309	108	377	52	0
	Construction of temporary footbridge	309	104	377	47	0
	Demolish of existing footbridge	309	111	377	54	0
	TBM Assemble, First and Second Drive and Retrieval					
	TBM Assembly	401	114	317	59	0
	1st Retrieval and reasseambly TBM	401	116	317	61	0
	2nd Retrieval of TBM	401	116	317	61	0
	Overall Noise Level (Phase II), Leq (30min), dB(A)					
WDII	Construction of WDII	-	-	-	-	-
	Overall Noise Level (SCL(HUH-ADM) and WDII), Leq (30min), dB(A)					

Construction Activity	2017 Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
	49	50	51	52	53	54	55	56	57	58	59	60
Construction of cut and cover tunnel section (inside breakwater - SCL 3.2)												
Dredging			68									
Rockfill to temporary seawall				68								
Temporary Seawall Construction					68	68						
Filling behind temporary seawall							68					
Diaphragm Wall Construction								55	55	55	55	
Soil Excavation												59
Tunnel Box Construction												
Backfilling												
Diaphragm Wall Removal												
SOV Construction												
Installing Hoarding												
Demolition of existing POC building												
Diaphragm Wall Construction												
Excavation work at SOV												
Construction of TBM launching shaft / SOV												
SOV Construction												
Construction of cut and cover tunnel section (SCL 1.4)												
Diaphragm Wall Construction												
Excavation Works												
Tunnel Box Construction												
Backfilling												
Diaphragm Wall Removal												
New POC Construction												
Piling: 610mm Diameter Pre-Bored H-Pile (Without SOV Basement)												
Construction of new POC building												
E&M Installation												
Dismantle Hoarding												
Reconstruct of Percival Street Footbridge												
Site clearance and hoarding and utility diversion												
Construction of temporary footbridge												
Demolish of portion of existing footbridge												
Removal of clased and potential clased piles												
Reconstruction of permanent footbridge												
Temporary bridge removal and reinstate landscaping												
Underpinning of Canal Road Flyover												
Site clearance and hoarding and utility diversion												
Excavation and construction of pre-bored H-piles												
Construct new pile cap and ground beams												
Backfill and reinstatement												
Diversion of Canal Road Culvert & Removal of Piles												
Site clearance and hoarding and utility diversion												
Culvert diversion												
Remove of piles												
Pile Removal at Wan Shing Street Footbridge												
Site clearance and hoarding and utility diversion												
Construction of new footbridge												
SubArea 1 (Work Site 30401)												
SubArea 2 (Work Site 30402)												
Demolition of existing footbridge												
Removal of piles for existing footbridge & abandoned box culvert												
Reinstatement												
Underpinning of Pier of Causeway Flyover												
Site clearance and hoarding and utility diversion												
Excavation and construction of new piles												
Construct pile cap												
Remove piles												
Backfill and reinstatement												
Underpinning of Abutment of Causeway Flyover												
Site clearance and hoarding and utility diversion												
Excavation and construction of new piles												
Construct pile cap												
Remove piles												
Backfill and reinstatement												
Grouting Work for DSD 1.8m Truck Sewers												
Site clearance and hoarding and utility diversion												
Temp Access Shaft - Diaphragm wall												
Temp Access Shaft - Excavation												
Grouting from within the shaft												
Backfilling and Reinstatement												
Demolition & Reprovisioning of Cross Harbour Tunnel Footbridge												
Site clearance and hoarding and utility diversion												
Construction of temporary footbridge												
Demolish of existing footbridge												
TBM Assemble, First and Second Drive and Retrieval												
TBM Assembly												
1st Retrieval and reasseambly TBM												
2nd Retrieval of TBM												
Overall Noise Level (Phase II), Leq (30min), dB(A)	-	-	68	68	68	68	68	55	55	55	55	59
Construction of WDII												
Overall Noise Level (SCL(HUH-ADM) and WDII), Leq (30min), dB(A)	-	-	68	68	68	68	68	55	55	55	55	59

Construction Activity	2018 Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
	61	62	63	64	65	66	67	68	69	70	71	72
Construction of cut and cover tunnel section (inside breakwater - SCL 3.2)												
Dredging												
Rockfill to temporary seawall												
Temporary Seawall Construction												
Filling behind temporary seawall												
Diaphragm Wall Construction												
Soil Excavation	59											
Tunnel Box Construction		59	59	59	59							
Backfilling						59	59	59				
Diaphragm Wall Removal						61	61	61				
SOV Construction												
Installing Hoarding												
Demolition of existing POC building												
Diaphragm Wall Construction												
Excavation work at SOV												
Construction of TBM launching shaft / SOV												
SOV Construction												
Construction of cut and cover tunnel section (SCL 1.4)												
Diaphragm Wall Construction												
Excavation Works												
Tunnel Box Construction												
Backfilling												
Diaphragm Wall Removal												
New POC Construction												
Piling: 610mm Diameter Pre-Bored H-Pile (Without SOV Basement)												
Construction of new POC building												
E&M Installation												
Dismantle Hoarding												
Reconstruct of Percival Street Footbridge												
Site clearance and hoarding and utility diversion												
Construction of temporary footbridge												
Demolish of portion of existing footbridge												
Removal of clased and potential clased piles												
Reconstruction of permanent footbridge												
Temporary bridge removal and reinstate landscaping												
Underpinning of Canal Road Flyover												
Site clearance and hoarding and utility diversion												
Excavation and construction of pre-bored H-piles												
Construct new pile cap and ground beams												
Backfill and reinstatement												
Diversion of Canal Road Culvert & Removal of Piles												
Site clearance and hoarding and utility diversion												
Culvert diversion												
Remove of piles												
Pile Removal at Wan Shing Street Footbridge												
Site clearance and hoarding and utility diversion												
Construction of new footbridge												
SubArea 1 (Work Site 30401)												
SubArea 2 (Work Site 30402)												
Demolition of existing footbridge												
Removal of piles for existing footbridge & abandoned box culvert												
Reinstatement												
Underpinning of Pier of Causeway Flyover												
Site clearance and hoarding and utility diversion												
Excavation and construction of new piles												
Construct pile cap												
Remove piles												
Backfill and reinstatement												
Underpinning of Abutment of Causeway Flyover												
Site clearance and hoarding and utility diversion												
Excavation and construction of new piles												
Construct pile cap												
Remove piles												
Backfill and reinstatement												
Grouting Work for DSD 1.8m Truck Sewers												
Site clearance and hoarding and utility diversion												
Temp Access Shaft - Diaphragm wall												
Temp Access Shaft - Excavation												
Grouting from within the shaft												
Backfilling and Reinstatement												
Demolition & Reprovisioning of Cross Harbour Tunnel Footbridge												
Site clearance and hoarding and utility diversion												
Construction of temporary footbridge												
Demolish of existing footbridge												
TBM Assemble, First and Second Drive and Retrieval												
TBM Assembly												
1st Retrieval and reasseambly TBM												
2nd Retrieval of TBM												
Overall Noise Level (Phase II), Leq (30min), dB(A)	59	59	59	59	59	63	63	63	-	-	-	-
Construction of WDII												
Overall Noise Level (SCL(HUH-ADM) and WDII), Leq (30min), dB(A)	59	59	59	59	59	63	63	63	-	-	-	-

Construction Activity	2019 Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
	73	74	75	76	77	78	79	80	81	82	83	84
Construction of cut and cover tunnel section (inside breakwater - SCL 3.2)												
Dredging												
Rockfill to temporary seawall												
Temporary Seawall Construction												
Filling behind temporary seawall												
Diaphragm Wall Construction												
Soil Excavation												
Tunnel Box Construction												
Backfilling												
Diaphragm Wall Removal												
SOV Construction												
Installing Hoarding												
Demolition of existing POC building												
Diaphragm Wall Construction												
Excavation work at SOV												
Construction of TBM launching shaft / SOV												
SOV Construction												
Construction of cut and cover tunnel section (SCL 1.4)												
Diaphragm Wall Construction												
Excavation Works												
Tunnel Box Construction												
Backfilling												
Diaphragm Wall Removal												
New POC Construction												
Piling: 610mm Diameter Pre-Bored H-Pile (Without SOV Basement)												
Construction of new POC building												
E&M Installation												
Dismantle Hoarding												
Reconstruct of Percival Street Footbridge												
Site clearance and hoarding and utility diversion												
Construction of temporary footbridge												
Demolish of portion of existing footbridge												
Removal of clased and potential clased piles												
Reconstruction of permanent footbridge												
Temporary bridge removal and reinstate landscaping												
Underpinning of Canal Road Flyover												
Site clearance and hoarding and utility diversion												
Excavation and construction of pre-bored H-piles												
Construct new pile cap and ground beams												
Backfill and reinstatement												
Diversion of Canal Road Culvert & Removal of Piles												
Site clearance and hoarding and utility diversion												
Culvert diversion												
Remove of piles												
Pile Removal at Wan Shing Street Footbridge												
Site clearance and hoarding and utility diversion												
Construction of new footbridge												
SubArea 1 (Work Site 30401)												
SubArea 2 (Work Site 30402)												
Demolition of existing footbridge												
Removal of piles for existing footbridge & abandoned box culvert												
Reinstatement												
Underpinning of Pier of Causeway Flyover												
Site clearance and hoarding and utility diversion												
Excavation and construction of new piles												
Construct pile cap												
Remove piles												
Backfill and reinstatement												
Underpinning of Abutment of Causeway Flyover												
Site clearance and hoarding and utility diversion												
Excavation and construction of new piles												
Construct pile cap												
Remove piles												
Backfill and reinstatement												
Grouting Work for DSD 1.8m Truck Sewers												
Site clearance and hoarding and utility diversion												
Temp Access Shaft - Diaphragm wall												
Temp Access Shaft - Excavation												
Grouting from within the shaft												
Backfilling and Reinstatement												
Demolition & Reprovisioning of Cross Harbour Tunnel Footbridge												
Site clearance and hoarding and utility diversion												
Construction of temporary footbridge												
Demolish of existing footbridge												
TBM Assemble, First and Second Drive and Retrieval												
TBM Assembly												
1st Retrieval and reasseambly TBM												
2nd Retrieval of TBM												
Overall Noise Level (Phase II), Leq (30min), dB(A)	-	-	-	-	-	-	-	-	-	-	-	-
Construction of WDII												
Overall Noise Level (SCL(HUH-ADM) and WDII), Leq (30min), dB(A)	-	-	-	-	-	-	-	-	-	-	-	-

Remarks:

[1] The Works Area with length to width ratio exceeding 5 : 1 is divided into Subareas.

[2] Noise source at more than 300m from the sensitive receiver are not considered in the noise assessment due to large distance attenuation effect.

[3] 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.

[5] Construction activities would not be conducted simultaneously, therefore max SPL among these activities would be used for calcualtion of that particular month. These activities include: Demolition of staircase & relocation of oil tank, Demolition of staircase of exisitng FB linking Causeway Center and Harbour Centre, Demolition of elevated walkway to Harbour Road Sports Centre and Demolition of staircase of existing FB across Harbour Road near Sun Hung Kei Centre in month 31.

Appendix 9.13 Cumulative Construction Noise Assessment for Hong Kong Island - Mitigated Scenario

EX1 - Causeway Centre, Block A

Mitigated

Package	Construction Activity	Work [1] Site No.	SWL	Dist [2] (m)	SPL [3]	Building Screening	2013 Jan (1)	Feb (2)	Mar (3)	Apr (4)	May (5)	Jun (6)	Jul (7)	Aug (8)	Sep (9)	Oct (10)	Nov (11)	Dec (12)
07 EXH	**Temporary PTI Construction**																	
	Temporary PTI Construction	208	101	257	48	0							48	48	48			
	EXH Structure																	
	(i) At Harbour Road Sports Centre / Wan Chai Swimming Pool																	
	Site Hoarding Erection	205	106	41	69	0						69						
	Demolition of staircase & relocation of oil tank [5]	210	109.1	88.5	65.0	0							65					
	Demolition of staircase of existing FB linking Causeway Center and Harbour Centre [5]	207	109.1	47.6	71.0	0							71					
	Demolition of elevated walkway to Harbour Road Sports Centre [5]	209	107.7	63.1	67.0	0							67					
	Temporary filtration plant room construction	203	104.3	96.7	60.0	-5							55	55	55	55	55	55
	Demolition of staircase of existing FB across Harbour Road near Sun Hung Kei Centre [5]	206	109.1	72.5	67.0	0							67					
	Piling works for Phase 1 structure	205	109.2	41.3	72.0	0							72	72	72	72	72	
	Superstructure for Phase 1 structure	205	104	41	67	0												67
	Piling works for Phase 2 structure	205	109	41	72	0												
	Superstructure for Phase 2 structure	205	102	41	64	0												
	Roof Truss Installation	205	101	41	64	0												
	Roof Truss Erection	205	94	41	57	0												
	E&M Installation	205	102	41	64	0												
	Installing Hoarding	203	104	97	59	-5												
	Demolition of Harbour Road Sports Centre & Wan Chai Swimming Pool	203	112	97	67	-5												
	Pile Removal	203	116	97	72	-5												
	Diaphragm Wall Construction	203	107	97	62	-5												
	Excavation	203	115	97	71	0												
	Construction of Internal Structures of Box Station	203	115	97	71	0												
	Construction of Station Box Roof Slab	203	105	97	60	-5												
	Construction of Entrance and Vent Shafts	203	106	97	61	-5												
	Backfilling and Reinstatement	203	110	97	65	-5												
	(ii) At PTI Area																	
	Site Hoarding Erection and utility diversion	202	109	126	62	-5					57	57						
	Construction of temporary Wan Chai Ferry Pier footbridge	202	112	126	65	-5							60	60	60	60	60	
	Demolition of existing Wan Chai Ferry Pier footbridge	202	117	126	70	-5												65
	Diaphragm Wall Construction	202	107	126	60	-5										55	55	55
	Roof Slab Construction	202	105	126	58	-5												
	Excavation	202	115	126	68	0												
	Construction of Internal Structures of Box Station	202	115	126	68	0												
	Construction of Entrance and Vent Shafts	202	106	126	59	-5												
	Construction of Station Box Roof Slab	202	105	126	58	-5												
	Backfilling and Reinstatement	202	110	126	63	-5												
	Site Hoarding Erection and utility diversion	202	109	126	62	-5												
	walkway system	202	116	126	69	-5												
	Deck construction for new FB linking to existing Wan Chai elevated walkway system	202	109	126	62	-5												
	Backfilling and Reinstatement	202	110	126	63	-5												
	(iii) At Fleming Road																	
	Site Hoarding Erection	201	109	249	56	-5												
	Diaphragm Wall Construction	201	107	249	54	-5												
	Roof Slab Construction	201	105	249	52	-5												
	Utility diversion	201	99	249	47	-5												
	Excavation	201	115	249	62	0												
	Construction of Internal Structures of Box Station	201	115	249	62	0												
	Construction of Entrance and Vent Shafts	201	106	249	53	-5												
	Construction of Station Box Roof Slab	201	105	249	52	-5												
	(iv) At Wan Chai Sports Ground/ Tonnochy Road Area																	
	Site Clearance, Fencing and Hoarding	204	106	127	59	0												
	Demolition & temporary re-provision of grandstand	204	108	127	61	0												
	Diaphragm Wall Construction	204	102	127	55	0												
	King Post Construction	204	108	127	61	0												
	Excavation	204	113	127	66	0												
	Retrieval of TBM (1st drive)	204	116	127	69	0												
	Retrieval of TBM (2nd drive)	204	116	127	69	0												
	Construction of Station Box Roof Slab	204	102	127	55	0												
	Construction of Internal Structures of Box Station	204	113	127	66	0												
	Re-provision of WCSP grandstand	204	102	127	55	0												
Barging Point	**Barging Point at Wan Chai Ex-PCWA**																	
	Spoil Removal	211	111	270	57	0												
	Overall Noise Level (Phase II), Leq (30min), dB(A)						-	-	-	-	57	69	75	72	72	72	72	69
WDII	Construction of WDII	-	-	-	-	-	70	70	69	68	69	68	67	67	67	67	67	67
	Overall Noise Level (SCL(HUH-ADM) and WDII), Leq (30min), dB(A)						70	70	69	68	69	72	75	73	73	73	74	71

Construction Activity	2014 Jan (13)	Feb (14)	Mar (15)	Apr (16)	May (17)	Jun (18)	Jul (19)	Aug (20)	Sep (21)	Oct (22)	Nov (23)	Dec (24)
Temporary PTI Construction												
Temporary PTI Construction												
EXH Structure												
(i) At Harbour Road Sports Centre / Wan Chai Swimming Pool												
Site Hoarding Erection												
Demolition of staircase & relocation of oil tank [5]												
Demolition of staircase of existing FB linking Causeway Center and Harbour Centre [5]												
Demolition of elevated walkway to Harbour Road Sports Centre [5]												
Temporary filtration plant room construction	55	55	55	55								
Demolition of staircase of existing FB across Harbour Road near Sun Hung Kei Centre [5]												
Piling works for Phase 1 structure												
Superstructure for Phase 1 structure	67	67	67	67	67	67	67	67	67	67	67	67
Piling works for Phase 2 structure						72	72					
Superstructure for Phase 2 structure								64	64	64	64	64
Roof Truss Installation												
Roof Truss Erection												
E&M Installation										64	64	64
Installing Hoarding												
Demolition of Harbour Road Sports Centre & Wan Chai Swimming Pool												
Pile Removal												
Diaphragm Wall Construction												
Excavation												
Construction of Internal Structures of Box Station												
Construction of Station Box Roof Slab												
Construction of Entrance and Vent Shafts												
Backfilling and Reinstatement												
(ii) At PTI Area												
Site Hoarding Erection and utility diversion												
Construction of temporary Wan Chai Ferry Pier footbridge												
Demolition of existing Wan Chai Ferry Pier footbridge												
Diaphragm Wall Construction	55	55	55	55	55	55	55					
Roof Slab Construction								53	53	53	53	53
Excavation												
Construction of Internal Structures of Box Station												
Construction of Entrance and Vent Shafts												
Construction of Station Box Roof Slab												
Backfilling and Reinstatement												
Site Hoarding Erection and utility diversion												
walkway system												
Deck construction for new FB linking to existing Wan Chai elevated walkway system												
Backfilling and Reinstatement												
(iii) At Fleming Road												
Site Hoarding Erection												
Diaphragm Wall Construction												
Roof Slab Construction												
Utility diversion												
Excavation												
Construction of Internal Structures of Box Station												
Construction of Entrance and Vent Shafts												
Construction of Station Box Roof Slab												
(iv) At Wan Chai Sports Ground/ Tonnochy Road Area												
Site Clearance, Fencing and Hoarding				59								
Demolition & temporary re-provision of grandstand					61	61	61	61	61			
Diaphragm Wall Construction										55	55	55
King Post Construction												
Excavation												
Retrieval of TBM (1st drive)												
Retrieval of TBM (2nd drive)												
Construction of Station Box Roof Slab												
Construction of Internal Structures of Box Station												
Re-provision of WCSP grandstand												
Barging Point at Wan Chai Ex-PCWA												
Spoil Removal												
Overall Noise Level (Phase II), Leq (30min), dB(A)	68	68	68	68	68	74	74	70	70	70	70	70
Construction of WDII	72	73	73	73	73	73	73	68	66	66	65	65
Overall Noise Level (SCL(HUH-ADM) and WDII), Leq (30min), dB(A)	74	74	74	74	76	76	72	71	72	71	71	70

Construction Activity	2015 Jan (25)	Feb (26)	Mar (27)	Apr (28)	May (29)	Jun (30)	Jul (31)	Aug (32)	Sep (33)	Oct (34)	Nov (35)	Dec (36)
Temporary PTI Construction												
Temporary PTI Construction												
EXH Structure												
(i) At Harbour Road Sports Centre / Wan Chai Swimming Pool												
Site Hoarding Erection												
Demolition of staircase & relocation of oil tank [5]												
Demolition of staircase of existing FB linking Causeway Center and Harbour Centre [5]												
Demolition of elevated walkway to Harbour Road Sports Centre [5]												
Temporary filtration plant room construction												
Demolition of staircase of existing FB across Harbour Road near Sun Hung Kei Centre [5]												
Piling works for Phase 1 structure												
Superstructure for Phase 1 structure												
Piling works for Phase 2 structure												
Superstructure for Phase 2 structure	64	64										
Roof Truss Installation		64										
Roof Truss Erection		57										
E&M Installation	64	64	64	64	64	64	64	64	64			
Installing Hoarding											54	
Demolition of Harbour Road Sports Centre & Wan Chai Swimming Pool												62
Pile Removal												
Diaphragm Wall Construction												
Excavation												
Construction of Internal Structures of Box Station												
Construction of Station Box Roof Slab												
Construction of Entrance and Vent Shafts												
Backfilling and Reinstatement												
(ii) At PTI Area												
Site Hoarding Erection and utility diversion												
Construction of temporary Wan Chai Ferry Pier footbridge												
Demolition of existing Wan Chai Ferry Pier footbridge												
Diaphragm Wall Construction												
Roof Slab Construction	53	53	53	53	53	53	53					
Excavation					68	68	68	68	68	68	68	68
Construction of Internal Structures of Box Station												
Construction of Entrance and Vent Shafts												
Construction of Station Box Roof Slab												
Backfilling and Reinstatement												
Site Hoarding Erection and utility diversion												
walkway system												
Deck construction for new FB linking to existing Wan Chai elevated walkway system												
Backfilling and Reinstatement												
(iii) At Fleming Road												
Site Hoarding Erection												
Diaphragm Wall Construction												
Roof Slab Construction												
Utility diversion												
Excavation												
Construction of Internal Structures of Box Station												
Construction of Entrance and Vent Shafts												
Construction of Station Box Roof Slab												
(iv) At Wan Chai Sports Ground/ Tonnochy Road Area												
Site Clearance, Fencing and Hoarding												
Demolition & temporary re-provision of grandstand												
Diaphragm Wall Construction	55	55	55	55								
King Post Construction					61	61	61					
Excavation								66	66	66	66	
Retrieval of TBM (1st drive)												
Retrieval of TBM (2nd drive)												
Construction of Station Box Roof Slab												
Construction of Internal Structures of Box Station												
Re-provision of WCSP grandstand												
Barging Point at Wan Chai Ex-PCWA												
Spoil Removal	57	57	57	57	57	57	57	57	57	57	57	57
Overall Noise Level (Phase II), Leq (30min), dB(A)	68	70	65	65	70	70	70	71	71	70	70	69
Construction of WDII	65	65	69	69	67	67	67	67	67	72	72	71
Overall Noise Level (SCL(HUH-ADM) and WDII), Leq (30min), dB(A)	70	71	71	71	72	72	72	73	73	74	74	73

Construction Activity	2016 Jan (37)	Feb (38)	Mar (39)	Apr (40)	May (41)	Jun (42)	Jul (43)	Aug (44)	Sep (45)	Oct (46)	Nov (47)	Dec (48)
Temporary PTI Construction												
Temporary PTI Construction												
EXH Structure												
(i) At Harbour Road Sports Centre / Wan Chai Swimming Pool												
Site Hoarding Erection												
Demolition of staircase & relocation of oil tank [5]												
Demolition of staircase of existing FB linking Causeway Center and Harbour Centre [5]												
Demolition of elevated walkway to Harbour Road Sports Centre [5]												
Temporary filtration plant room construction												
Demolition of staircase of existing FB across Harbour Road near Sun Hung Kei Centre [5]												
Piling works for Phase 1 structure												
Superstructure for Phase 1 structure												
Piling works for Phase 2 structure												
Superstructure for Phase 2 structure												
Roof Truss Installation												
Roof Truss Erection												
E&M Installation												
Installing Hoarding												
Demolition of Harbour Road Sports Centre & Wan Chai Swimming Pool	62											
Pile Removal	67	67										
Diaphragm Wall Construction	57	57	57	57								
Excavation					71	71	71	71	71			
Construction of Internal Structures of Box Station										71	71	71
Construction of Station Box Roof Slab												55
Construction of Entrance and Vent Shafts												
Backfilling and Reinstatement												
(ii) At PTI Area												
Site Hoarding Erection and utility diversion												
Construction of temporary Wan Chai Ferry Pier footbridge												
Demolition of existing Wan Chai Ferry Pier footbridge												
Diaphragm Wall Construction												
Roof Slab Construction												
Excavation	68	68	68	68	68							
Construction of Internal Structures of Box Station				54	54	54	54					
Construction of Entrance and Vent Shafts						53	53	53	53			
Construction of Station Box Roof Slab												
Backfilling and Reinstatement												
Site Hoarding Erection and utility diversion												
walkway system												
Deck construction for new FB linking to existing Wan Chai elevated walkway system												
Backfilling and Reinstatement												
(iii) At Fleming Road												
Site Hoarding Erection								51				
Diaphragm Wall Construction									49	49	49	49
Roof Slab Construction												
Utility diversion												
Excavation												
Construction of Internal Structures of Box Station												
Construction of Entrance and Vent Shafts												
Construction of Station Box Roof Slab												
(iv) At Wan Chai Sports Ground/ Tonnochy Road Area												
Site Clearance, Fencing and Hoarding												
Demolition & temporary re-provision of grandstand												
Diaphragm Wall Construction												
King Post Construction												
Excavation												
Retrieval of TBM (1st drive)											69	
Retrieval of TBM (2nd drive)												
Construction of Station Box Roof Slab												
Construction of Internal Structures of Box Station												
Re-provision of WCSP grandstand												
Barging Point at Wan Chai Ex-PCWA												
Spoil Removal	57	57	57	57	57	57	57	57	57	57	57	57
Overall Noise Level (Phase II), Leq (30min), dB(A)	71	71	71	71	71	71	71	71	71	71	73	71
Construction of WDII	71	71	71	71	71	71	71	71	71	65	65	
Overall Noise Level (SCL(HUH-ADM) and WDII), Leq (30min), dB(A)	74	74	74	73	73	75	74	74	74	72	74	71

Remarks:

[1] The Works Area with length to width ratio exceeding 5 : 1 is divided into Subareas.

[2] Noise source at more than 300m from the sensitive receiver are not considered in the noise assessment due to large distance attenuation effect.

[3] 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.

[5] Construction activities would not be conducted simultaneously, therefore max SPL among these activities would be used for calcualtion of that particular month. These activities include: Demolition of staircase & relocation of oil tank, Demolition of staircase of exisitng FB linking Causeway Center and Harbour Centre, Demolition of elevated walkway to Harbour Road Sports Centre and Demolition of staircase of existing FB across Harbour Road near Sun Hung Kei Centre in month 31.

Appendix 9.13 Cumulative Construction Noise Assessment for Hong Kong Island - Mitigated Scenari

EX1 - Causeway Centre, Block A

Mitigated

Package	Construction Activity	Work Site No. [1]	SWL	Dist [2] (m)	SPL [3]	Building Screening
07 EXH	**Temporary PTI Construction**					
	Temporary PTI Construction	208	101	257	48	0
	EXH Structure					
	(i) At Harbour Road Sports Centre / Wan Chai Swimming Pool					
	Site Hoarding Erection	205	106	41	69	0
	Demolition of staircase & relocation of oil tank [5]	210	109.1	88.5	65.0	0
	Demolition of staircase of existing FB linking Causeway Center and Harbour Centre [5]	207	109.1	47.6	71.0	0
	Demolition of elevated walkway to Harbour Road Sports Centre [5]	209	107.7	63.1	67.0	0
	Temporary filtration plant room construction	203	104.3	96.7	60.0	-5
	Demolition of staircase of existing FB across Harbour Road near Sun Hung Kei Centre [5]	206	109.1	72.5	67.0	0
	Piling works for Phase 1 structure	205	109.2	41.3	72.0	0
	Superstructure for Phase 1 structure	205	104	41	67	0
	Piling works for Phase 2 structure	205	109	41	72	0
	Superstructure for Phase 2 structure	205	102	41	64	0
	Roof Truss Installation	205	101	41	64	0
	Roof Truss Erection	205	94	41	57	0
	E&M Installation	205	102	41	64	0
	Installing Hoarding	203	104	97	59	-5
	Demolition of Harbour Road Sports Centre & Wan Chai Swimming Pool	203	112	97	67	-5
	Pile Removal	203	116	97	72	-5
	Diaphragm Wall Construction	203	107	97	62	-5
	Excavation	203	115	97	71	0
	Construction of Internal Structures of Box Station	203	115	97	71	0
	Construction of Station Box Roof Slab	203	105	97	60	-5
	Construction of Entrance and Vent Shafts	203	106	97	61	-5
	Backfilling and Reinstatement	203	110	97	65	-5
	(ii) At PTI Area					
	Site Hoarding Erection and utility diversion	202	109	126	62	-5
	Construction of temporary Wan Chai Ferry Pier footbridge	202	112	126	65	-5
	Demolition of existing Wan Chai Ferry Pier footbridge	202	117	126	70	-5
	Diaphragm Wall Construction	202	107	126	60	-5
	Roof Slab Construction	202	105	126	58	-5
	Excavation	202	115	126	68	0
	Construction of Internal Structures of Box Station	202	115	126	68	0
	Construction of Entrance and Vent Shafts	202	106	126	59	-5
	Construction of Station Box Roof Slab	202	105	126	58	-5
	Backfilling and Reinstatement	202	110	126	63	-5
	Site Hoarding Erection and utility diversion	202	109	126	62	-5
	walkway system	202	116	126	69	-5
	Deck construction for new FB linking to existing Wan Chai elevated walkway system	202	109	126	62	-5
	Backfilling and Reinstatement	202	110	126	63	-5
	(iii) At Fleming Road					
	Site Hoarding Erection	201	109	249	56	-5
	Diaphragm Wall Construction	201	107	249	54	-5
	Roof Slab Construction	201	105	249	52	-5
	Utility diversion	201	99	249	47	-5
	Excavation	201	115	249	62	0
	Construction of Internal Structures of Box Station	201	115	249	62	0
	Construction of Entrance and Vent Shafts	201	106	249	53	-5
	Construction of Station Box Roof Slab	201	105	249	52	-5
	(iv) At Wan Chai Sports Ground/ Tonnochy Road Area					
	Site Clearance, Fencing and Hoarding	204	106	127	59	0
	Demolition & temporary re-provision of grandstand	204	108	127	61	0
	Diaphragm Wall Construction	204	102	127	55	0
	King Post Construction	204	108	127	61	0
	Excavation	204	113	127	66	0
	Retrieval of TBM (1st drive)	204	116	127	69	0
	Retrieval of TBM (2nd drive)	204	116	127	69	0
	Construction of Station Box Roof Slab	204	102	127	55	0
	Construction of Internal Structures of Box Station	204	113	127	66	0
	Re-provision of WCSP grandstand	204	102	127	55	0
Barging Point	**Barging Point at Wan Chai Ex-PCWA**					
	Spoil Removal	211	111	270	57	0
	Overall Noise Level (Phase II), Leq (30min), dB(A)					
WDII	Construction of WDII	-	-	-	-	-
	Overall Noise Level (SCL(HUH-ADM) and WDII), Leq (30min), dB(A)					

Construction Activity	2017 Jan (49)	Feb (50)	Mar (51)	Apr (52)	May (53)	Jun (54)	Jul (55)	Aug (56)	Sep (57)	Oct (58)	Nov (59)	Dec (60)
Temporary PTI Construction												
Site Hoarding Erection												
Demolition of staircase & relocation of oil tank [5]												
Demolition of staircase of existing FB linking Causeway Center and Harbour Centre [5]												
Demolition of elevated walkway to Harbour Road Sports Centre [5]												
Temporary filtration plant room construction												
Demolition of staircase of existing FB across Harbour Road near Sun Hung Kei Centre [5]												
Piling works for Phase 1 structure												
Superstructure for Phase 1 structure												
Piling works for Phase 2 structure												
Superstructure for Phase 2 structure												
Roof Truss Installation												
Roof Truss Erection												
E&M Installation												
Installing Hoarding												
Demolition of Harbour Road Sports Centre & Wan Chai Swimming Pool												
Pile Removal												
Diaphragm Wall Construction												
Excavation												
Construction of Internal Structures of Box Station	71											
Construction of Station Box Roof Slab	55	55										
Construction of Entrance and Vent Shafts	56	56	56									
Backfilling and Reinstatement				60	60	60	60	60	60	60	60	
Site Hoarding Erection and utility diversion												
Construction of temporary Wan Chai Ferry Pier footbridge												
Demolition of existing Wan Chai Ferry Pier footbridge												
Diaphragm Wall Construction												
Roof Slab Construction												
Excavation												
Construction of Internal Structures of Box Station												
Construction of Entrance and Vent Shafts												
Construction of Station Box Roof Slab												
Backfilling and Reinstatement											58	58
Site Hoarding Erection and utility diversion						57	57					
walkway system								64	64	64		
Deck construction for new FB linking to existing Wan Chai elevated walkway system											57	57
Backfilling and Reinstatement												
Site Hoarding Erection												
Diaphragm Wall Construction	49											
Roof Slab Construction		47	47	47	47	47	47					
Utility diversion								42	42	42	42	
Excavation												62
Construction of Internal Structures of Box Station												
Construction of Entrance and Vent Shafts												
Construction of Station Box Roof Slab												
Site Clearance, Fencing and Hoarding												
Demolition & temporary re-provision of grandstand												
Diaphragm Wall Construction												
King Post Construction												
Excavation												
Retrieval of TBM (1st drive)												
Retrieval of TBM (2nd drive)								69				
Construction of Station Box Roof Slab									55	55	55	55
Construction of Internal Structures of Box Station												
Re-provision of WCSP grandstand												
Spoil Removal	57	57	57	57	57	57	57	57	57	57	57	57
Overall Noise Level (Phase II), Leq (30min), dB(A)	71	61	60	62	62	63	63	71	66	66	65	65
Overall Noise Level (SCL(HUH-ADM) and WDII), Leq (30min), dB(A)	71	61	60	62	62	63	63	71	66	66	65	65

Construction Activity	2018 Jan (61)	Feb (62)	Mar (63)	Apr (64)	May (65)	Jun (66)	Jul (67)	Aug (68)	Sep (69)	Oct (70)	Nov (71)	Dec (72)
Temporary PTI Construction												
Site Hoarding Erection												
Demolition of staircase & relocation of oil tank [5]												
Demolition of staircase of existing FB linking Causeway Center and Harbour Centre [5]												
Demolition of elevated walkway to Harbour Road Sports Centre [5]												
Temporary filtration plant room construction												
Demolition of staircase of existing FB across Harbour Road near Sun Hung Kei Centre [5]												
Piling works for Phase 1 structure												
Superstructure for Phase 1 structure												
Piling works for Phase 2 structure												
Superstructure for Phase 2 structure												
Roof Truss Installation												
Roof Truss Erection												
E&M Installation												
Installing Hoarding												
Demolition of Harbour Road Sports Centre & Wan Chai Swimming Pool												
Pile Removal												
Diaphragm Wall Construction												
Excavation												
Construction of Internal Structures of Box Station												
Construction of Station Box Roof Slab												
Construction of Entrance and Vent Shafts												
Backfilling and Reinstatement												
Site Hoarding Erection and utility diversion												
Construction of temporary Wan Chai Ferry Pier footbridge												
Demolition of existing Wan Chai Ferry Pier footbridge												
Diaphragm Wall Construction												
Roof Slab Construction												
Excavation												
Construction of Internal Structures of Box Station												
Construction of Entrance and Vent Shafts												
Construction of Station Box Roof Slab												
Backfilling and Reinstatement	58	58	58									
Site Hoarding Erection and utility diversion												
walkway system												
Deck construction for new FB linking to existing Wan Chai elevated walkway system												
Backfilling and Reinstatement	58											
Site Hoarding Erection												
Diaphragm Wall Construction												
Roof Slab Construction												
Utility diversion												
Excavation	62	62	62	62								
Construction of Internal Structures of Box Station					62	62	62	62				
Construction of Entrance and Vent Shafts							48	48	48			
Construction of Station Box Roof Slab								47	47	47		
Site Clearance, Fencing and Hoarding												
Demolition & temporary re-provision of grandstand												
Diaphragm Wall Construction												
King Post Construction												
Excavation												
Retrieval of TBM (1st drive)												
Retrieval of TBM (2nd drive)												
Construction of Station Box Roof Slab												
Construction of Internal Structures of Box Station	66	66	66	66								
Re-provision of WCSP grandstand					55	55	55	55				
Spoil Removal	57	57	57	57	57	57	57	57	57			
Overall Noise Level (Phase II), Leq (30min), dB(A)	69	68	68	68	64	64	64	60	57	-	-	-
Overall Noise Level (SCL(HUH-ADM) and WDII), Leq (30min), dB(A)	69	68	68	68	64	64	64	60	57	-	-	-

Construction Activity	2019 Jan (73)	Feb (74)	Mar (75)	Apr (76)	May (77)	Jun (78)	Jul (79)	Aug (80)	Sep (81)	Oct (82)	Nov (83)	Dec (84)
Temporary PTI Construction												
Site Hoarding Erection												
Demolition of staircase & relocation of oil tank [5]												
Demolition of staircase of existing FB linking Causeway Center and Harbour Centre [5]												
Demolition of elevated walkway to Harbour Road Sports Centre [5]												
Temporary filtration plant room construction												
Demolition of staircase of existing FB across Harbour Road near Sun Hung Kei Centre [5]												
Piling works for Phase 1 structure												
Superstructure for Phase 1 structure												
Piling works for Phase 2 structure												
Superstructure for Phase 2 structure												
Roof Truss Installation												
Roof Truss Erection												
E&M Installation												
Installing Hoarding												
Demolition of Harbour Road Sports Centre & Wan Chai Swimming Pool												
Pile Removal												
Diaphragm Wall Construction												
Excavation												
Construction of Internal Structures of Box Station												
Construction of Station Box Roof Slab												
Construction of Entrance and Vent Shafts												
Backfilling and Reinstatement												
Site Hoarding Erection and utility diversion												
Construction of temporary Wan Chai Ferry Pier footbridge												
Demolition of existing Wan Chai Ferry Pier footbridge												
Diaphragm Wall Construction												
Roof Slab Construction												
Excavation												
Construction of Internal Structures of Box Station												
Construction of Entrance and Vent Shafts												
Construction of Station Box Roof Slab												
Backfilling and Reinstatement												
Site Hoarding Erection and utility diversion												
walkway system												
Deck construction for new FB linking to existing Wan Chai elevated walkway system												
Backfilling and Reinstatement												
Site Hoarding Erection												
Diaphragm Wall Construction												
Roof Slab Construction												
Utility diversion												
Excavation												
Construction of Internal Structures of Box Station												
Construction of Entrance and Vent Shafts												
Construction of Station Box Roof Slab												
Site Clearance, Fencing and Hoarding												
Demolition & temporary re-provision of grandstand												
Diaphragm Wall Construction												
King Post Construction												
Excavation												
Retrieval of TBM (1st drive)												
Retrieval of TBM (2nd drive)												
Construction of Station Box Roof Slab												
Construction of Internal Structures of Box Station												
Re-provision of WCSP grandstand												
Spoil Removal												
Overall Noise Level (Phase II), Leq (30min), dB(A)	-	-	-	-	-	-	-	-	-	-	-	-
Overall Noise Level (SCL(HUH-ADM) and WDII), Leq (30min), dB(A)	-	-	-	-	-	-	-	-	-	-	-	-

Remarks:

[1] The Works Area with length to width ratio exceeding 5 : 1 is divided into Subareas.

[2] Noise source at more than 300m from the sensitive receiver are not considered in the noise assessment due to large distance attenuation effect.

[3] 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.

[5] Construction activities would not be conducted simultaneously, therefore max SPL among these activities would be used for calcualtion of that particular month. These activities include: Demolition of staircase & relocation of oil tank, Demolition of staircase of exisitng FB linking Causeway Center and Harbour Centre, Demolition of elevated walkway to Harbour Road Sports Centre and Demolition of staircase of existing FB across Harbour Road near Sun Hung Kei Centre in month 31.

Appendix 9.13 Cumulative Construction Noise Assessment for Hong Kong Island - Mitigated Scenario

EX5 - The Hong Kong Academy for Performing Arts (Open Arena)

Mitigated

Package	Construction Activity	Work Site No. [1]	SWL	Dist [2] (m)	SPL [3]	Building Screening
05 ADM to Shaft	**Demolition of Fleet Arcade**					
	Site Clearance	001	107	63	66	0
	Site Hoarding Erection	001	106	63	65	0
	Demolition of Fleet Arcade	001	107	63	66	0
	Pile Removal	001	109	63	68	0
	Demolition of Pump House and Pile Removal at West Sewage Sreening Plant					
	Site Formation	002	107	80	64	0
	Site Hoarding Erection	002	106	80	63	0
	Demolition of Pump House and Pile Removal	002	109	80	66	0
	TTMS & Lung King Street Culvert Diversion & Associated Pile Removal & Reinstatement					
	Site Formation	002	107	80	64	0
	Site Hoarding Erection	002	106	80	63	0
	Pile Removal and Reinstatement	002	109	80	66	0
	Reinstatement of Fleet Arcade					
	Foundation and Superstructure Construction	001	103	63	62	0
	Convention Avenue Launching Shaft Construction					
	Site Formation	003	107	154	58	0
	Site Hoarding Erection	003	106	154	57	0
	Diaphragm Wall Excavation	003	105	154	57	0
	Diaphragm Wall Reinforcement Fixing and Concrete Casting	003	105	154	56	0
	Shaft Excavation	003	110	154	61	0
	TBM Assembly	003	114	154	66	0
	TWL protection works from U/Track	003	115	154	66	0
	Retrieve & reasseamble TBM, Second Drive (D/Track), 2nd retrieval	003	116	154	67	0
	Completion of Structure after TBM retieval	003	112	154	63	0
	Backfilling and Reinstatement	003	108	154	59	0
06 EXH to Shaft	**Tunnel at West to EXH**					
	Site Formation	102	107	380	50	0
	Site Hoarding Erection	102	106	380	49	0
	Excavation and Tunnel Box Structure Construction					
	Excavation inside SCL tunnels protection works	101	110	281	56	-5
	Tunnel Box Structure Construction	101	112	281	58	-5
	Diaphragm Wall Construction	102	101	380	44	0
	Excavation and Tunnel Box Structure Construction					
	Excavation	102	110	380	54	0
	Tunnel Box Structure Construction	102	112	380	55	0
	Backfilling and Superstructure (including EAP)	102	108	380	51	0
	Overall Noise Level (Phase II), Leq (30min), dB(A)					
WDII	Construction of WDII	-	-	-	-	-
	Overall Noise Level (SCL(HUH-ADM) and WDII), Leq (30min), dB(A)					

Construction Activity	2013 Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
	1	2	3	4	5	6	7	8	9	10	11	12
Site Clearance												
Site Hoarding Erection												
Demolition of Fleet Arcade												
Pile Removal												
Site Formation												
Site Hoarding Erection												
Demolition of Pump House and Pile Removal												
Site Formation												
Site Hoarding Erection												
Pile Removal and Reinstatement												
Foundation and Superstructure Construction												
Site Formation												
Site Hoarding Erection												
Diaphragm Wall Excavation												
Diaphragm Wall Reinforcement Fixing and Concrete Casting												
Shaft Excavation												
TBM Assembly												
TWL protection works from U/Track												
Retrieve & reasseamble TBM, Second Drive (D/Track), 2nd retrieval												
Completion of Structure after TBM retieval												
Backfilling and Reinstatement												
Site Formation												
Site Hoarding Erection												
Excavation and Tunnel Box Structure Construction												
Excavation inside SCL tunnels protection works												
Tunnel Box Structure Construction												
Diaphragm Wall Construction												
Excavation and Tunnel Box Structure Construction												
Excavation												
Tunnel Box Structure Construction												
Backfilling and Superstructure (including EAP)												
Overall Noise Level (Phase II), Leq (30min), dB(A)	-	-	-	-	-	-	-	-	-	-	-	-
Construction of WDII	-	-	-	-	-	-	-	-	-	-	-	-
Overall Noise Level (SCL(HUH-ADM) and WDII), Leq (30min), dB(A)	69	69	69	68	68	68	67	67	67	63	63	63

Construction Activity	2014 Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
	13	14	15	16	17	18	19	20	21	22	23	24
Site Clearance						66	66					
Site Hoarding Erection								65				
Demolition of Fleet Arcade									66	66	66	66
Pile Removal												
Site Formation				64	64							
Site Hoarding Erection						63						
Demolition of Pump House and Pile Removal							66	66	66			
Site Formation							64					
Site Hoarding Erection								63				
Pile Removal and Reinstatement									66	66	66	66
Foundation and Superstructure Construction												
Site Formation			58	58								
Site Hoarding Erection					57							
Diaphragm Wall Excavation						57	57	57	57	57		
Diaphragm Wall Reinforcement Fixing and Concrete Casting						56	56	56	56	56		
Shaft Excavation											61	61
TBM Assembly												
TWL protection works from U/Track												
Retrieve & reasseamble TBM, Second Drive (D/Track), 2nd retrieval												
Completion of Structure after TBM retieval												
Backfilling and Reinstatement												
Site Formation												
Site Hoarding Erection												
Excavation and Tunnel Box Structure Construction												
Excavation inside SCL tunnels protection works												
Tunnel Box Structure Construction												
Diaphragm Wall Construction												
Excavation and Tunnel Box Structure Construction												
Excavation												
Tunnel Box Structure Construction												
Backfilling and Superstructure (including EAP)												
Overall Noise Level (Phase II), Leq (30min), dB(A)	-	-	58	65	65	68	71	70	71	69	70	70
Construction of WDII	65	65	65	65	65	70	70	69	69	69	69	69
Overall Noise Level (SCL(HUH-ADM) and WDII), Leq (30min), dB(A)	65	65	66	68	68	72	73	73	73	72	72	72

Construction Activity	2015 Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
	25	26	27	28	29	30	31	32	33	34	35	36
Site Clearance												
Site Hoarding Erection												
Demolition of Fleet Arcade	66											
Pile Removal		68										
Site Formation												
Site Hoarding Erection												
Demolition of Pump House and Pile Removal												
Site Formation												
Site Hoarding Erection												
Pile Removal and Reinstatement	66	66	66	66	66	66	66	66	66	66	66	66
Foundation and Superstructure Construction												
Site Formation												
Site Hoarding Erection												
Diaphragm Wall Excavation												
Diaphragm Wall Reinforcement Fixing and Concrete Casting												
Shaft Excavation	61	61	61	61	61	61	61	61				
TBM Assembly												
TWL protection works from U/Track												
Retrieve & reasseamble TBM, Second Drive (D/Track), 2nd retrieval												
Completion of Structure after TBM retieval												
Backfilling and Reinstatement												
Site Formation												
Site Hoarding Erection												
Excavation and Tunnel Box Structure Construction												
Excavation inside SCL tunnels protection works									51	51	51	51
Tunnel Box Structure Construction												
Diaphragm Wall Construction												
Excavation and Tunnel Box Structure Construction												
Excavation												
Tunnel Box Structure Construction												
Backfilling and Superstructure (including EAP)												
Overall Noise Level (Phase II), Leq (30min), dB(A)	70	71	67	67	67	67	67	67	66	66	66	66
Construction of WDII	69	69	72	70	70	70	69	69	69	69	69	69
Overall Noise Level (SCL(HUH-ADM) and WDII), Leq (30min), dB(A)	72	73	73	72	72	72	72	72	71	71	71	71

Construction Activity	2016 Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
	37	38	39	40	41	42	43	44	45	46	47	48
Site Clearance												
Site Hoarding Erection												
Demolition of Fleet Arcade												
Pile Removal												
Site Formation												
Site Hoarding Erection												
Demolition of Pump House and Pile Removal												
Site Formation												
Site Hoarding Erection												
Pile Removal and Reinstatement	66	66	66	66	66	66	66	66	66	66	66	
Foundation and Superstructure Construction												
Site Formation												
Site Hoarding Erection												
Diaphragm Wall Excavation												
Diaphragm Wall Reinforcement Fixing and Concrete Casting												
Shaft Excavation												
TBM Assembly					66	66	66	66	66	66	66	
TWL protection works from U/Track									66	66	66	
Retrieve & reasseamble TBM, Second Drive (D/Track), 2nd retrieval												67
Completion of Structure after TBM retieval												
Backfilling and Reinstatement												
Site Formation												
Site Hoarding Erection												
Excavation and Tunnel Box Structure Construction												
Excavation inside SCL tunnels protection works	51	51	51	51								
Tunnel Box Structure Construction					53	53	53	53	53	53		
Diaphragm Wall Construction												
Excavation and Tunnel Box Structure Construction												
Excavation												
Tunnel Box Structure Construction												
Backfilling and Superstructure (including EAP)												
Overall Noise Level (Phase II), Leq (30min), dB(A)	66	66	66	66	69	69	69	69	71	71	71	67
Construction of WDII	69	69	69	69	69	70	70	70	70	70	70	53
Overall Noise Level (SCL(HUH-ADM) and WDII), Leq (30min), dB(A)	71	71	71	71	72	72	72	72	73	73	73	67

Remarks:

[1] The Works Area with length to width ratio exceeding 5 : 1 is divided into Subareas.

[2] Noise source at more than 300m from the sensitive receiver are not considered in the noise assessment due to large distance attenuation effect.

[3] 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.

[5] Construction activities would not be conducted simultaneously, therefore max SPL among these activities would be used for calcualtion of that particular month. These activities include: Demolition of staircase & relocation of oil tank, Demolition of staircase of exisitng FB linking Causeway Center and Harbour Centre, Demolition of elevated walkway to Harbour Road Sports Centre and Demolition of staircase of existing FB across Harbour Road near Sun Hung Kei Centre in month 31.

Appendix 9.13 Cumulative Construction Noise Assessment for Hong Kong Island - Mitigated Scenario

EX5 - The Hong Kong Academy for Performing Arts (Open Arena)

Mitigated

Package	Construction Activity	Work Site No. [1]	SWL	Dist [2] (m)	SPL [3]	Building Screening	2017												2018												2019											
							Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
							49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84
05 ADM to Shaft	**Demolition of Fleet Arcade**																																									
	Site Clearance	001	107	63	66	0																																				
	Site Hoarding Erection	001	106	63	65	0																																				
	Demolition of Fleet Arcade	001	107	63	66	0																																				
	Pile Removal	001	109	63	68	0																																				
	Demolition of Pump House and Pile Removal at West Sewage Sreening Plant																																									
	Site Formation	002	107	80	64	0																																				
	Site Hoarding Erection	002	106	80	63	0																																				
	Demolition of Pump House and Pile Removal	002	109	80	66	0																																				
	TTMS & Lung King Street Culvert Diversion & Associated Pile Removal & Reinstatement																																									
	Site Formation	002	107	80	64	0																																				
	Site Hoarding Erection	002	106	80	63	0																																				
	Pile Removal and Reinstatement	002	109	80	66	0																																				
	Reinstatement of Fleet Arcade																																									
	Foundation and Superstructure Construction	001	103	63	62	0	62	62	62	62	62	62	62	62	62	62	62																									
	Convention Avenue Launching Shaft Construction																																									
	Site Formation	003	107	154	58	0																																				
	Site Hoarding Erection	003	106	154	57	0																																				
	Diaphragm Wall Excavation	003	105	154	57	0																																				
	Diaphragm Wall Reinforcement Fixing and Concrete Casting	003	105	154	56	0																																				
	Shaft Excavation	003	110	154	61	0																																				
	TBM Assembly	003	114	154	66	0																																				
	TWL protection works from U/Track	003	115	154	66	0																																				
	Retrieve & reasseamble TBM, Second Drive (D/Track), 2nd retrieval	003	116	154	67	0	67	67	67	67	67	67	67	67	67																											
	Completion of Structure after TBM retieval	003	112	154	63	0										63	63	63	63																							
	Backfilling and Reinstatement	003	108	154	59	0		59	59	59	59	59	59	59	59	59	59	59	59																							
06 EXH to Shaft	**Tunnel at West to EXH**																																									
	Site Formation	102	107	380	50	0																																				
	Site Hoarding Erection	102	106	380	49	0																																				
	Excavation and Tunnel Box Structure Construction																																									
	Excavation inside SCL tunnels protection works	101	110	281	56	-5																																				
	Tunnel Box Structure Construction	101	112	281	58	-5																																				
	Diaphragm Wall Construction	102	101	380	44	0																																				
	Excavation and Tunnel Box Structure Construction																																									
	Excavation	102	110	380	54	0																																				
	Tunnel Box Structure Construction	102	112	380	55	0																																				
	Backfilling and Superstructure (including EAP)	102	108	380	51	0																																				
	Overall Noise Level (Phase II), Leq (30min), dB(A)						68	69	69	69	69	69	69	69	69	66	66	64	64	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
WDII	Construction of WDII	-	-	-	-	-	53	53	53	53																																
	Overall Noise Level (SCL(HUH-ADM) and WDII), Leq (30min), dB(A)						68	69	69	69	69	69	69	69	69	66	66	64	64	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Remarks:

[1] The Works Area with length to width ratio exceeding 5 : 1 is divided into Subareas.

[2] Noise source at more than 300m from the sensitive receiver are not considered in the noise assessment due to large distance attenuation effect.

[3] 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.

[5] Construction activities would not be conducted simultaneously, therefore max SPL among these activities would be used for calcualtion of that particular month. These activities include: Demolition of staircase & relocation of oil tank, Demolition of staircase of exisitng FB linking Causeway Center and Harbour Centre, Demolition of elevated walkway to Harbour Road Sports Centre and Demolition of staircase of existing FB across Harbour Road near Sun Hung Kei Centre in month 31.

Appendix 9.13 Cumulative Construction Noise Assessment for Hong Kong Island - Mitigated Scenario

Cumulative Impact of SCL (HUH-ADM) and WDII

NSR	Noise Criteria	2013												2014												2015											
		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
CH1	75	62	62	68	66	63	66	66	66	66	66	66	66	63	66	66	67	67	67	65	64	64	68	68	67	66	67	69	69	72	74	74	74	74	72	72	72
CH2	75	62	62	68	66	63	66	66	66	66	66	66	66	63	66	67	68	68	68	67	65	66	71	71	70	69	70	70	71	74	75	75	75	75	73	73	73
CH3	75	62	62	68	66	63	66	66	66	66	66	66	66	63	67	68	71	71	71	70	68	69	69	69	68	67	68	67	69	72	72	74	74	74	72	72	72
CH4	75	67	63	63	66	68	68	68	68	63	63	63	66	67	67	70	70	70	70	70	70	70	72	73	73	73	75	75	75	75	73	73	73	73	72	72	71
EX1	75	70	70	69	68	69	72	75	73	73	73	74	71	70	74	74	74	74	**76**	**76**	72	71	72	71	71	70	71	71	71	72	72	72	73	73	74	74	73
EX5	75	69	69	69	68	68	68	67	67	67	63	63	63	65	65	66	68	68	72	73	73	73	72	72	72	72	73	73	72	72	72	72	72	71	71	71	71

NSR	Noise Criteria	2016												2017												2018											
		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
CH1	75	72	72	73	73	70	68	67	71	71	70	69	57	57	57	72	72	72	72	72	59	59	59	70	70	60	60	60	60	60	62	62	62	55	55	59	56
CH2	75	73	74	74	75	72	71	69	73	73	72	71	60	60	60	73	73	73	73	73	60	60	60	73	73	58	58	58	58	57	57	57	57	57	57	61	59
CH3	75	72	72	73	73	72	71	70	71	71	68	66	54	54	54	67	67	67	67	67	54	54	54	67	67	53	53	53	53	52	52	52	52	52	52	56	53
CH4	75	66	67	67	67	64	64	64	64	64	69	63	63	-	-	68	68	68	68	68	55	55	55	55	59	59	59	59	59	59	63	63	63	-	-	-	-
EX1	75	74	74	73	73	75	74	74	74	74	72	74	71	71	61	60	62	62	63	63	71	66	66	65	65	69	68	68	68	64	64	64	60	57	-	-	-
EX5	75	71	71	71	71	72	72	72	72	73	73	73	67	68	69	69	69	69	69	69	69	69	66	66	64	64	-	-	-	-	-	-	-	-	-	-	-

NSR	Noise Criteria	2019											
		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
CH1	75	56	56	56	56	56	56	56	66	-	-	-	-
CH2	75	59	59	59	59	59	59	59	68	-	-	-	-
CH3	75	53	53	53	53	53	53	53	63	-	-	-	-
CH4	75	-	-	-	-	-	-	-	-	-	-	-	-
EX1	75	-	-	-	-	-	-	-	-	-	-	-	-
EX5	75	-	-	-	-	-	-	-	-	-	-	-	-