Appendix 4.11 - Operational Noise Assessment (Unmitigated)

A) Calculation of Noise Levels at N2

								Corr	rection, dB(A)				'	1	'	1	i
			SWL,	Sub-total SWL,	Distance between Source				Attenuation due to building	Outside line of	Acoustic	CNL ⁽¹⁾ of individual	Overall CNL,	Daytime Criteria,		Night-time Criteria,	
Plant Item	Locations	No. of PME	dB(A)	dB(A)	to NSR	Cdist	Façade	Tonality (2)	structure (3)	sight (4)	Louvers	PME, dB(A)	dB(A)	dB(A)	Compliance	dB(A)	Compliance
Option 1																	
Flood pump motor Pump r	room	1	86	86	13	-30	3	6	-30	0	0	35	56	48	NO	45	NO
Flood pump motor Pump r	room	1	86	86	18	-33	3	6	-30	0	0	32					
Flood pump motor Pump r	room	1	86	86	23	-35	3	6	-30	0	0	30					
Flood pump motor Pump r	room	1	86	86	27	-37	3	6	-30	0	0	28					
Ventilation fan (A) facing to the corridor Deodor	rization Room	1	71	71	28	-37	3	6	0	0	0	43					
` ,	rization Room	1	71	71	28	-37	3	6	0	0	0	43					
Ventilation fan (H) facing to the corridor Plumbii Room	ing Pumps and Tanks Room & Store	1	71	71	28	-37	3	6	0	0	0	43					
Ventilation fan (F1) facing to the corridor Motor F	Room	1	89	89	25	-36	3	6	0	-10	0	52					
Ventilation fan (F2) facing to the corridor Motor F	Room	1	89	89	30	-38	3	6	0	-10	0	50					
Ventilation fan (F3) facing to the corridor Motor F	Room	1	89	89	36	-39	3	6	0	-10	0	48					
Ventilation fan (D) facing to the southeast Fuel tar	ank room	0	71		45				0	-10	0						
Ventilation fan (E) facing to the southeast Genera	ator Room	0	71		47				0	-10	0						
Ventilation fan (G) facing to the southeast CLP Tra	ransformer Room	1	71	71	42	-40	3	6	0	-10	0	30					
	nent Hall	1	71	71	37	-39	3	6	0	-10	0	31					
Ventilation fan (C2) facing to the southwest Equipm	nent Hall	1	71	71	38	-40	3	6	0	-10	0	30					
Ventilation fan (C3) facing to the southwest Equipm	ment Hall	1	71	71	38	-40	3	6	0	-10	0	30					
Ventilation fan (C4) facing to the southwest Equipm	ment Hall	1	71	71	39	-40	3	6	0	-10	0	30					
Ventilation fan (C5) facing to the southwest Equipm	ment Hall	1	71	71	39	-40	3	6	0	-10	0	30					
Ventilation fan (C6) facing to the southwest Equipm	ment Hall	1	71	71	40	-40	3	6	0	-10	0	30					
Ventilation fan (C7) facing to the southwest Equipm	ment Hall	1	71	71	42	-40	3	6	0	-10	0	30					
	ment Hall	1	71	71	42	-40	3	6	0	-10	0	30					
Ventilation fan (C9) facing to the southwest Equipm	ment Hall	1	71	71	43	-41	3	6	0	-10	0	29					
Option 2																	
Flood pump motor Pump r	room	1	86	86	13	-30	3	6	-30	0	0	35	56	48	NO	45	NO
Flood pump motor Pump r	room	1	86	86	18	-33	3	6	-30	0	0	32					
Flood pump motor Pump r	room	1	86	86	23	-35	3	6	-30	0	0	30					
Flood pump motor Pump r	room	1	86	86	27	-37	3	6	-30	0	0	28					
Ventilation fan (A) facing to the corridor Deodor	rization Room	1	71	71	28	-37	3	6	0	0	0	43					
Ventilation fan (B) facing to the corridor Deodor	rization Room	1	71	71	28	-37	3	6	0	0	0	43					
Ventilation fan (H) facing to the corridor Room	ing Pumps and Tanks Room & Store	1	71	71	28	-37	3	6	0	0	0	43					
Ventilation fan (F1) facing to the corridor Motor F	Room	1	89	89	25	-36	3	6	0	-10	0	52					
Ventilation fan (F2) facing to the corridor Motor F	Room	1	89	89	30	-38	3	6	0	-10	0	50					
Ventilation fan (F3) facing to the corridor Motor F	Room	1	89	89	36	-39	3	6	0	-10	0	48					
Ventilation fan (D) facing to the southeast Fuel tar	ank room	1	71	71	45	-41	3	6	0	-10	0	29					
Ventilation fan (E) facing to the southeast Genera	ator Room	1	71	71	47	-41	3	6	0	-10	0	29					
Ventilation fan (G) facing to the southeast CLP Tra	ransformer Room	0	71		42				0	-10	0						
Ventilation fan (C1) facing to the southwest Equipm	ment Hall	1	71	71	37	-39	3	6	0	-10	0	31					
Ventilation fan (C2) facing to the southwest Equipm		1	71	71	38	-40	3	6	0	-10	0	30					
Ventilation fan (C3) facing to the southwest Equipm		1	71	71	38	-40	3	6	0	-10	0	30					
Ventilation fan (C4) facing to the southwest Equipm		1	71	71	39	-40	3	6	0	-10	0	30					
Ventilation fan (C5) facing to the southwest Equipm		1	71	71	39	-40	3	6	0	-10	0	30					
Ventilation fan (C6) facing to the southwest Equipm		1	71	71	40	- 40	3	6	0	-10	0	30					
Ventilation fan (C7) facing to the southwest Equipm		1	71	71	42	-40	3	6	0	-10	0	30					
Ventilation fan (C8) facing to the southwest Equipm		1	71	71	42	- 40	3	6	0	-10	0	30					
Ventilation fan (C9) facing to the southwest Equipm		1	71	71	43	-41	3	6	0	-10	0	29					

Remarks:

¹⁾ Corrected Noise Level (CNL) = Max. SWL + distance correction + Barrier correction + façade correction

²⁾ In accordance with IND-TM, 6 dB(A) for tonality correction was applied to all equipment as a conservative approach.

³⁾ Reference has been made to the EIA for Yuen Long Barrage Scheme (AEIAR-228/2021) for at least 30dB(A) of noise attenuation with the PME fully enclosed within the building which has no openings (the door should be closed during operation of the PME) and its building material are 150mm reinforced concrete and 225m brick walls.

⁴⁾ A 10 dB(A) reduction is assumed for no direct line of sight to certain ventilation fans when viewing from NSRs.

Appendix 4.11 - Operational Noise Assessment (Unmitigated)

A) Calculation of Noise Levels at N4

								Corr	ection, dB(A)			_	1	1		1	1
				Sub-total	Distance between				Attenuation due to	Outside			Overall	Daytime		Night-time	
			SWL,	SWL,	Source				building	line of	Acoustic	CNL ⁽¹⁾ of individual	CNL,	Criteria,		Criteria,	
Plant Item	Locations	No. of PME	dB(A)	dB(A)	to NSR	Cdist	Façade	Tonality (2)	structure (3)	sight ⁽⁴⁾	Louvers	PME, dB(A)	dB(A)	dB(A)	Compliance	dB(A)	Complianc
Option 1			00	00	40	۱ ,,			00				50	40		45	
· · · · ·	p room	1	86	86	48	-42	3	6	-30	0	0	23	52	48	NO	45	NO
	p room	1	86	86	47	-41	3	6	-30	0	0	24					
1 1	p room	1	86	86	47	-41	3	6	-30	0	0	24					
	p room	1	86	86	47	-41	3	6	-30	0	0	24					
` ' '	dorization Room	1	71	71	56	-43	3	6	0	-10	0	27					
()	dorization Room	1	71	71	56	-43	3	6	0	-10	0	27					
Ventilation fan (H) facing to the corridor Pluml Room	nbing Pumps and Tanks Room & Store m	1	71	71	56	-43	3	6	0	-10	0	27					
Ventilation fan (F1) facing to the corridor Motor	or Room	1	89	89	43	-41	3	6	0	-10	0	47					
/entilation fan (F2) facing to the corridor Motor	or Room	1	89	89	43	-41	3	6	0	-10	0	47					
Ventilation fan (F3) facing to the corridor Motor	or Room	1	89	89	43	-41	3	6	0	-10	0	47					
Ventilation fan (D) facing to the southeast Fuel t	tank room	0	71		71				0	-10	0						
. ,	erator Room	0	71		78				0	-10	0						
()	Transformer Room	1	71	71	61	-44	3	6	0	-10	0	26					
` '	pment Hall	1	71	71	84	-46	3	6	0	-10	0	24					
	pment Hall	1	71	71	84	-46	3	6	0	-10	0	24					
	pment Hall	1	71	71	83	-46	3	6	0	-10	0	24					
	pment Hall	1	71	71	83	-46	3	6	0	-10	0	24					
` , •	pment Hall	1	71	71	83	-46	3	6	0	-10	0	24					
	pment Hall	'	71	71	83	-46	3	6	0	-10	0						
	pment Hall	'	71	71	82	-46	3	6	0	-10	0	24					
` ' " ' '	pment Hall	'	71	71	82	-46 -46	3	6	0	-10	0	24					
	'	1	71	71	82	ı	3	6	0	1	0	24					
1 / -	pment Hall	'	71	/ 1	02	-46	3	0	0	-10	ļ	24					
Option 2 Flood pump motor Pump	p room	1	86	86	48	-42	3	6	-30	0	0	22	52	48	NO	45	NO
	p room	' I	86	86	47	-41	3	6	-30	0	0	23	52	40	100	45	10
	•	1	86	86	47	l	3	6	-30	0	0	24					
	p room	'	86	86	47	-41	3	6	-30	0	0	24					
	p room	1				-41		*			1	24					
. , .	dorization Room	1	71	71	56	-43	3	6	0	-10	0	27					
` , •	dorization Room	1	71	71	56	-43	3	6	0	-10	0	27					
Ventilation fan (H) facing to the corridor Pluml Room	nbing Pumps and Tanks Room & Store m	1	71	71	56	-43	3	6	0	-10	0	27					
` ' "	or Room	1	89	89	43	-41	3	6	0	-10	0	47					
Ventilation fan (F2) facing to the corridor Motor	or Room	1	89	89	43	-41	3	6	0	-10	0	47					
Ventilation fan (F3) facing to the corridor Motor	or Room	1	89	89	43	-41	3	6	0	-10	0	47					
Ventilation fan (D) facing to the southeast Fuel t	tank room	1	71	71	71	-45	3	6	0	-10	0	25					
Ventilation fan (E) facing to the southeast Gene	erator Room	1	71	71	78	-46	3	6	0	-10	0	24					
Ventilation fan (G) facing to the southeast CLP	Transformer Room	0	71		61				0	-10	0						
Ventilation fan (C1) facing to the southwest Equip	pment Hall	1	71	71	84	-46	3	6	0	-10	0	24					
Ventilation fan (C2) facing to the southwest Equip	pment Hall	1	71	71	84	-46	3	6	0	-10	0	24					
· · · · · · · · · · · · · · · · · · ·	pment Hall	1	71	71	83	-46	3	6	0	-10	0	24					
` ' •	pment Hall	1	71	71	83	-46	3	6	0	-10	0	24					
Ventilation fan (C5) facing to the southwest Equip	·	1	71	71	83	-46	3	6	0	-10	0	24					
· · · · · ·	pment Hall	1 1	71	71	83	-46	3	6	0	-10	0	24					
Ventilation fan (C7) facing to the southwest Equip	·	1 1	71	71	82	-46	3	6	0	-10	0	24					
Ventilation fan (C8) facing to the southwest Equip		'	71	71	82	-46	3	6	0	-10	0	1					
Ventilation fan (C9) facing to the southwest Equip		<u>'</u>	71	71	82	-46 -46	3	6	0	-10	0	24 24					

Remarks:

¹⁾ Corrected Noise Level (CNL) = Max. SWL + distance correction + Barrier correction + façade correction

²⁾ In accordance with IND-TM, 6 dB(A) for tonality correction was applied to all equipment as a conservative approach.

³⁾ Reference has been made to the EIA for Yuen Long Barrage Scheme (AEIAR-228/2021) for at least 30dB(A) of noise attenuation with the PME fully enclosed within the building which has no openings (the door should be closed during operation of the PME) and its building material are 150mm reinforced concrete and 225m brick walls.

⁴⁾ A 10 dB(A) reduction is assumed for no direct line of sight to certain ventilation fans when viewing from NSRs.

Appendix 4.11 - Operational Noise Assessment (Unmitigated)

A) Calculation of Noise Levels at N16

								Corr	ection, dB(A)]		1	1	1	ı
			SWL,	Sub-total SWL,	Distance between Source				Attenuation due to building	Outside line of	Acoustic	CNL ⁽¹⁾ of individual	Overall CNL,	Daytime Criteria,		Night-time Criteria,	
Plant Item	Locations	No. of PME	dB(A)	dB(A)	to NSR	Cdist	Façade	Tonality (2)	structure (3)	sight ⁽⁴⁾	Louvers	PME, dB(A)	dB(A)	dB(A)	Compliance	dB(A)	Compliance
Option 1																	
· ·	ump room	1	86	86	48	-42	3	6	-30	0	0	23	60	48	NO	45	NO
Flood pump motor Pu	ump room	1	86	86	45	-41	3	6	-30	0	0	24					
	ump room	1	86	86	42	-40	3	6	-30	0	0	25					
	ump room	1	86	86	39	-40	3	6	-30	0	0	25					
Ventilation fan (A) facing to the corridor De	eodorization Room	1	71	71	36	-39	3	6	0	-10	0	30					
()	eodorization Room	1	71	71	36	-39	3	6	0	-10	0	30					
	umbing Pumps and Tanks Room & Store boom	1	71	71	36	-39	3	6	0	-10	0	30					
Ventilation fan (F1) facing to the corridor Mc	otor Room	1	89	89	41	- 40	3	6	0	-10	0	47					
Ventilation fan (F2) facing to the corridor Mo	otor Room	1	89	89	37	-39	3	6	0	-10	0	48					
Ventilation fan (F3) facing to the corridor Mo	otor Room	1	89	89	34	-39	3	6	0	0	0	59					
Ventilation fan (D) facing to the southeast Fu	iel tank room	0	71		16				0	0	0						
Ventilation fan (E) facing to the southeast Ge	enerator Room	0	71		13				0	0	0						
Ventilation fan (G) facing to the southeast CL	P Transformer Room	1	71	71	25	-36	3	6	0	0	0	44					
Ventilation fan (C1) facing to the southwest Eq	quipment Hall	1	71	71	43	-41	3	6	0	0	0	39					
Ventilation fan (C2) facing to the southwest Eq	quipment Hall	1	71	71	42	-40	3	6	0	0	0	40					
. , -	quipment Hall	1	71	71	39	-40	3	6	0	0	0	40					
	quipment Hall	1	71	71	37	-39	3	6	0	0	0	41					
Ventilation fan (C5) facing to the southwest Eq		1	71	71	36	-39	3	6	0	0	0	41					
Ventilation fan (C6) facing to the southwest Eq	· ·	1	71	71	34	-39	3	6	0	0	0	41					
, ,	quipment Hall	1	71	71	34	-39	3	6	0	0	0	41					
	quipment Hall	1	71	71	31	-38	3	6	0	0	0	42					
	quipment Hall	1	71	71	29	-37	3	6	0	0	0	43					
Option 2	1	-										10					
•	ımp room	1	86	86	48	-42	3	6	-30	0	0	23	61	48	NO	45	NO
Flood pump motor Pu	ımp room	1	86	86	45	-41	3	6	-30	0	0	24					
	imp room	1	86	86	42	-40	3	6	-30	0	0	25					
	imp room	1	86	86	39	-40	3	6	-30	0	0	25					
Ventilation fan (A) facing to the corridor De	eodorization Room	1	71	71	36	-39	3	6	0	-10	0	30					
Ventilation fan (B) facing to the corridor De	eodorization Room	1	71	71	36	-39	3	6	0	-10	0	30					
Ventilation fan (H) facing to the corridor Plu	umbing Pumps and Tanks Room & Store	1	71	71	36	-39	3	6	0	-10	0	30					
Ventilation fan (F1) facing to the corridor Mo	otor Room	1	89	89	41	-40	3	6	0	-10	0	47					
	otor Room	1	89	89	37	-39	3	6	0	-10	0	48					
Ventilation fan (F3) facing to the corridor Mo	otor Room	1	89	89	34	-39	3	6	0	0	0	59					
	iel tank room	1	71	71	16	-32	3	6	0	0	0	48					
	enerator Room	1	71	71	13	-30	3	6	0	0	0	50					
	P Transformer Room	0	71		25				0	0	0						
Ventilation fan (C1) facing to the southwest Eq		1	71	71	43	-41	3	6	0	0	0	39					
Ventilation fan (C2) facing to the southwest Eq		1	71	71	42	-40	3	6	0	0	0	40					
Ventilation fan (C3) facing to the southwest Eq		1	71	71	39	-40	3	6	0	0	0	40					
Ventilation fan (C4) facing to the southwest Eq		1	71	71	37	-39	3	6	0	0	0	41					
Ventilation fan (C5) facing to the southwest Eq		1	71	71	36	-39	3	6	0	0	0	41					
Ventilation fan (C6) facing to the southwest Eq		1	71	71	34	-39	3	6	0	0	0	41					
Ventilation fan (C7) facing to the southwest Eq		1	71	71	34	-39	3	6	0	0		41					
Ventilation fan (C8) facing to the southwest Eq		'1	71	71	31	-38	3	6	ا آ	0							
Ventilation fan (C9) facing to the southwest Eq		'1	71	71	29	-37	3	6	0	0		42 43					

Remarks:

¹⁾ Corrected Noise Level (CNL) = Max. SWL + distance correction + Barrier correction + façade correction

²⁾ In accordance with IND-TM, 6 dB(A) for tonality correction was applied to all equipment as a conservative approach.

³⁾ Reference has been made to the EIA for Yuen Long Barrage Scheme (AEIAR-228/2021) for at least 30dB(A) of noise attenuation with the PME fully enclosed within the building which has no openings (the door should be closed during operation of the PME) and its building material are 150mm reinforced concrete and 225m brick walls.

⁴⁾ A 10 dB(A) reduction is assumed for no direct line of sight to certain ventilation fans when viewing from NSRs.