

Appendix 4.11 - Operational Noise Assessment (Unmitigated)

A) Calculation of Noise Levels at N2

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

Plant Item	Locations	No. of PME	SWL, dB(A)	Sub-total SWL, dB(A)	Distance between Source to NSR	Correction, dB(A)					CNL ⁽¹⁾ of individual PME, dB(A)	Overall CNL, dB(A)	Daytime Criteria, dB(A)	Compliance	Night-time Criteria, dB(A)	Compliance	
						Cdist	Façade	Tonality ⁽²⁾	Attenuation due to building structure ⁽³⁾	Outside line of sight ⁽⁴⁾							Acoustic Louvers
Option 1																	
Flood pump motor	Pump room	1	86	86	48	-42	3	6	-30	0	0	23	52	48	NO	45	NO
Flood pump motor	Pump room	1	86	86	47	-41	3	6	-30	0	0	24					
Flood pump motor	Pump room	1	86	86	47	-41	3	6	-30	0	0	24					
Flood pump motor	Pump room	1	86	86	47	-41	3	6	-30	0	0	24					
Ventilation fan (A) facing to the corridor	Deodorization Room	1	71	71	56	-43	3	6	0	-10	0	27					
Ventilation fan (B) facing to the corridor	Deodorization Room	1	71	71	56	-43	3	6	0	-10	0	27					
Ventilation fan (H) facing to the corridor	Plumbing Pumps and Tanks Room & Store Room	1	71	71	56	-43	3	6	0	-10	0	27					
Ventilation fan (F1) facing to the corridor	Motor Room	1	89	89	43	-41	3	6	0	-10	0	47					
Ventilation fan (F2) facing to the corridor	Motor Room	1	89	89	43	-41	3	6	0	-10	0	47					
Ventilation fan (F3) facing to the corridor	Motor Room	1	89	89	43	-41	3	6	0	-10	0	47					
Ventilation fan (D) facing to the southeast	Fuel tank room	0	71		71				0	-10	0						
Ventilation fan (E) facing to the southeast	Generator Room	0	71		78				0	-10	0						
Ventilation fan (G) facing to the southeast	CLP Transformer Room	1	71	71	61	-44	3	6	0	-10	0	26					
Ventilation fan (C1) facing to the southwest	Equipment Hall	1	71	71	84	-46	3	6	0	-10	0	24					
Ventilation fan (C2) facing to the southwest	Equipment Hall	1	71	71	84	-46	3	6	0	-10	0	24					
Ventilation fan (C3) facing to the southwest	Equipment Hall	1	71	71	83	-46	3	6	0	-10	0	24					
Ventilation fan (C4) facing to the southwest	Equipment Hall	1	71	71	83	-46	3	6	0	-10	0	24					
Ventilation fan (C5) facing to the southwest	Equipment Hall	1	71	71	83	-46	3	6	0	-10	0	24					
Ventilation fan (C6) facing to the southwest	Equipment Hall	1	71	71	83	-46	3	6	0	-10	0	24					
Ventilation fan (C7) facing to the southwest	Equipment Hall	1	71	71	82	-46	3	6	0	-10	0	24					
Ventilation fan (C8) facing to the southwest	Equipment Hall	1	71	71	82	-46	3	6	0	-10	0	24					
Ventilation fan (C9) facing to the southwest	Equipment Hall	1	71	71	82	-46	3	6	0	-10	0	24					
Option 2																	
Flood pump motor	Pump room	1	86	86	48	-42	3	6	-30	0	0	23	52	48	NO	45	NO
Flood pump motor	Pump room	1	86	86	47	-41	3	6	-30	0	0	24					
Flood pump motor	Pump room	1	86	86	47	-41	3	6	-30	0	0	24					
Flood pump motor	Pump room	1	86	86	47	-41	3	6	-30	0	0	24					
Ventilation fan (A) facing to the corridor	Deodorization Room	1	71	71	56	-43	3	6	0	-10	0	27					
Ventilation fan (B) facing to the corridor	Deodorization Room	1	71	71	56	-43	3	6	0	-10	0	27					
Ventilation fan (H) facing to the corridor	Plumbing Pumps and Tanks Room & Store Room	1	71	71	56	-43	3	6	0	-10	0	27					
Ventilation fan (F1) facing to the corridor	Motor Room	1	89	89	43	-41	3	6	0	-10	0	47					
Ventilation fan (F2) facing to the corridor	Motor Room	1	89	89	43	-41	3	6	0	-10	0	47					
Ventilation fan (F3) facing to the corridor	Motor Room	1	89	89	43	-41	3	6	0	-10	0	47					
Ventilation fan (D) facing to the southeast	Fuel tank room	1	71	71	71	-45	3	6	0	-10	0	25					
Ventilation fan (E) facing to the southeast	Generator 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	Equipment Hall	1	71	71	84	-46	3	6	0	-10	0	24					
Ventilation fan (C2) facing to the southwest	Equipment Hall	1	71	71	84	-46	3	6	0	-10	0	24					
Ventilation fan (C3) facing to the southwest	Equipment Hall	1	71	71	83	-46	3	6	0	-10	0	24					
Ventilation fan (C4) facing to the southwest	Equipment Hall	1	71	71	83	-46	3	6	0	-10	0	24					
Ventilation fan (C5) facing to the southwest	Equipment Hall	1	71	71	83	-46	3	6	0	-10	0	24					
Ventilation fan (C6) facing to the southwest	Equipment Hall	1	71	71	83	-46	3	6	0	-10	0	24					
Ventilation fan (C7) facing to the southwest	Equipment Hall	1	71	71	82	-46	3	6	0	-10	0	24					
Ventilation fan (C8) facing to the southwest	Equipment Hall	1	71	71	82	-46	3	6	0	-10	0	24					
Ventilation fan (C9) facing to the southwest	Equipment Hall	1	71	71	82	-46	3	6	0	-10	0	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

Plant Item	Locations	No. of PME	SWL, dB(A)	Sub-total SWL, dB(A)	Distance between Source to NSR	Correction, dB(A)					CNL ⁽¹⁾ of individual PME, dB(A)	Overall CNL, dB(A)	Daytime Criteria, dB(A)	Compliance	Night-time Criteria, dB(A)	Compliance	
						Cdist	Façade	Tonality ⁽²⁾	Attenuation due to building structure ⁽³⁾	Outside line of sight ⁽⁴⁾							Acoustic Louvers
Option 1																	
Flood pump motor	Pump room	1	86	86	48	-42	3	6	-30	0	0	23	60	48	NO	45	NO
Flood pump motor	Pump room	1	86	86	45	-41	3	6	-30	0	0	24					
Flood pump motor	Pump room	1	86	86	42	-40	3	6	-30	0	0	25					
Flood pump motor	Pump room	1	86	86	39	-40	3	6	-30	0	0	25					
Ventilation fan (A) facing to the corridor	Deodorization Room	1	71	71	36	-39	3	6	0	-10	0	30					
Ventilation fan (B) facing to the corridor	Deodorization Room	1	71	71	36	-39	3	6	0	-10	0	30					
Ventilation fan (H) facing to the corridor	Plumbing Pumps and Tanks Room & Store Room	1	71	71	36	-39	3	6	0	-10	0	30					
Ventilation fan (F1) facing to the corridor	Motor Room	1	89	89	41	-40	3	6	0	-10	0	47					
Ventilation fan (F2) facing to the corridor	Motor Room	1	89	89	37	-39	3	6	0	-10	0	48					
Ventilation fan (F3) facing to the corridor	Motor Room	1	89	89	34	-39	3	6	0	0	0	59					
Ventilation fan (D) facing to the southeast	Fuel tank room	0	71		16				0	0	0						
Ventilation fan (E) facing to the southeast	Generator Room	0	71		13				0	0	0						
Ventilation fan (G) facing to the southeast	CLP Transformer Room	1	71	71	25	-36	3	6	0	0	0	44					
Ventilation fan (C1) facing to the southwest	Equipment Hall	1	71	71	43	-41	3	6	0	0	0	39					
Ventilation fan (C2) facing to the southwest	Equipment Hall	1	71	71	42	-40	3	6	0	0	0	40					
Ventilation fan (C3) facing to the southwest	Equipment Hall	1	71	71	39	-40	3	6	0	0	0	40					
Ventilation fan (C4) facing to the southwest	Equipment Hall	1	71	71	37	-39	3	6	0	0	0	41					
Ventilation fan (C5) facing to the southwest	Equipment Hall	1	71	71	36	-39	3	6	0	0	0	41					
Ventilation fan (C6) facing to the southwest	Equipment Hall	1	71	71	34	-39	3	6	0	0	0	41					
Ventilation fan (C7) facing to the southwest	Equipment Hall	1	71	71	34	-39	3	6	0	0	0	41					
Ventilation fan (C8) facing to the southwest	Equipment Hall	1	71	71	31	-38	3	6	0	0	0	42					
Ventilation fan (C9) facing to the southwest	Equipment Hall	1	71	71	29	-37	3	6	0	0	0	43					
Option 2																	
Flood pump motor	Pump room	1	86	86	48	-42	3	6	-30	0	0	23	61	48	NO	45	NO
Flood pump motor	Pump room	1	86	86	45	-41	3	6	-30	0	0	24					
Flood pump motor	Pump room	1	86	86	42	-40	3	6	-30	0	0	25					
Flood pump motor	Pump room	1	86	86	39	-40	3	6	-30	0	0	25					
Ventilation fan (A) facing to the corridor	Deodorization Room	1	71	71	36	-39	3	6	0	-10	0	30					
Ventilation fan (B) facing to the corridor	Deodorization Room	1	71	71	36	-39	3	6	0	-10	0	30					
Ventilation fan (H) facing to the corridor	Plumbing Pumps and Tanks Room & Store Room	1	71	71	36	-39	3	6	0	-10	0	30					
Ventilation fan (F1) facing to the corridor	Motor Room	1	89	89	41	-40	3	6	0	-10	0	47					
Ventilation fan (F2) facing to the corridor	Motor Room	1	89	89	37	-39	3	6	0	-10	0	48					
Ventilation fan (F3) facing to the corridor	Motor Room	1	89	89	34	-39	3	6	0	0	0	59					
Ventilation fan (D) facing to the southeast	Fuel tank room	1	71	71	16	-32	3	6	0	0	0	48					
Ventilation fan (E) facing to the southeast	Generator Room	1	71	71	13	-30	3	6	0	0	0	50					
Ventilation fan (G) facing to the southeast	CLP Transformer Room	0	71		25				0	0	0						
Ventilation fan (C1) facing to the southwest	Equipment Hall	1	71	71	43	-41	3	6	0	0	0	39					
Ventilation fan (C2) facing to the southwest	Equipment Hall	1	71	71	42	-40	3	6	0	0	0	40					
Ventilation fan (C3) facing to the southwest	Equipment Hall	1	71	71	39	-40	3	6	0	0	0	40					
Ventilation fan (C4) facing to the southwest	Equipment Hall	1	71	71	37	-39	3	6	0	0	0	41					
Ventilation fan (C5) facing to the southwest	Equipment Hall	1	71	71	36	-39	3	6	0	0	0	41					
Ventilation fan (C6) facing to the southwest	Equipment Hall	1	71	71	34	-39	3	6	0	0	0	41					
Ventilation fan (C7) facing to the southwest	Equipment Hall	1	71	71	34	-39	3	6	0	0	0	41					
Ventilation fan (C8) facing to the southwest	Equipment Hall	1	71	71	31	-38	3	6	0	0	0	42					
Ventilation fan (C9) facing to the southwest	Equipment Hall	1	71	71	29	-37	3	6	0	0	0	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.