

Appendix 4.10

Detail Calculation of
On-site Operation Noise
(Un-mitigated Scenario)

Project: North-east New Territories (NENT) Landfill Extension
 Title: Operation Noise Assessment (Unmitigated) during the earlier stage of landfill operation

Noise Sensitive Receiver: SR1 Wo Keng Shan Tsuen

Source ID	Description	Source Type	SWL	Distance (1hr)	Adjustment			Duration of activity as percentage of 30mins	Duration of activity, min	Resultant Leq dB(A)
					Distance (m)	Screening (m)	Air Absorption (m)			
S1	Leachate treatment plant	Fixed	75	379	-60	-10	-1.1	100%	30	73
S2	Ammonia scrapping	Fixed	88	396	-60	-10	-1.2	100%	30	26
S5a	Waste filling	National	119	557	-63	-10	-1.7	100%	30	48
S5b	Phase 2 National	National	119	873	-67	-10	-2.6	100%	30	43
S5c	Phase 3 National	National	119	539	-64	-10	-1.9	100%	30	45

Source ID	Description	Source Type	SWL	No. of Vehicle (1hr)	No. of Vehicle (30min)	Vehicle Speed	Distance	View Angle	No. of Vehicle	Speed	Adjustment		Resultant Leq dB(A)
											View Angle	View Angle	
S4	Rettise vehicle II	Mobile	87	180	30	20	116	86	20	13	-3	3	45

Source ID	Description	Source Type	Resultant Leq dB(A)
S1	Leachate treatment plant	Fixed	33
S2	Ammonia scrapping	Fixed	26
S4	Rettise vehicle	Mobile	45
S5	Waste filling	National	48
Total CNL Leq(30min) dB(A)			50
Daytime noise criteria dB(A)			51
Completed			Yes

Note:

- (1) Haul Road Traffic within the site
 BS5228 Pt 1:1997, D.3.5.2 Method for mobile plant using a regular well defined route (haul roads)
 $L_{Aeq, 1hr} = L_{wa} - 33 + 10 \log Q - 10 \log d + 10 \log(AV/180) + FE$
 where
 L_{wa} = sound power level of the plant (truck)
 Q = number of vehicles (truck) per hr
 V = average vehicle speed (km/hr)
 d = distance of receiving position from centre of haul road
 AV = view angle to the haul road segment
 FE = facade effect
- (2) Predicted noise level at waste filling is based on the maximum SPL of S5a, S5b & S5c, as there is no overlapping between the different phases.
- (3) Distance correction for fixed plant and national source = $-20 \log r - \beta$ based on hemi-spherical radiation, where r = distance.
- (4) 10dB(A) reduction for total screening from natural topography, 5dB(A) reduction for partial screening from the hill slope.
- (5) Assuming typical Relative Humidity is at 70% and Temperature is at 25°C, based on ISO 9613 "Method for calculation of the Absorption of Sound by the Atmosphere", the air absorption is -3dB / km

Project: Northeast New Territories (NENT) Landfill Extension
 Title: Operator Noise Assessment (Unmitigated) during the earlier stage of landfill operation

Noise Sensitive Receiver: SR2 Village houses at Junction of Ng Cheu Road and Wo Keng Shek Road

Source ID	Description	Source Type	SWL	Distance		Adjustments		No. of Vehicle (hr)	No. of Vehicle (30min)	Vehicle Speed	View Angle	No. of Vehicle	Facade	Duration of activity (min)	Duration of activity as percentage of working hours	Resultant Leq dB(A)
				Distance (m)	Screening (dB)	Air absorption (dB)	View Angle									
S1	Leachate treatment plant	Fixed	75	1012	-88	-3.0	-	180	30	20	30	20	3	30	100%	3
S2	Air mobile screening	Fixed	88	1034	-68	-3.1	-	180	30	20	30	20	3	30	100%	16
S5	Waste filling	Nonfixed	119	1110	-69	-3.3	-	180	30	20	30	20	3	30	100%	40
S5a	Phase 1	Nonfixed	118	1143	-69	-3.4	-	180	30	20	30	20	3	30	100%	40
S5b	Phase 2	Nonfixed	118	1143	-69	-3.4	-	180	30	20	30	20	3	30	100%	40
S5c	Phase 3	Nonfixed	119	1181	-69	-3.5	-	180	30	20	30	20	3	30	100%	39

Source ID	Description	Source Type	SWL	No. of Vehicle (hr)	No. of Vehicle (30min)	Vehicle Speed	Distance	View Angle	No. of Vehicle	Speed	Distance	Adjustments		Resultant Leq dB(A)
												Screening (dB)	Air absorption (dB)	
S4	Roadside vehicle (H)	Mobile	97	180	30	20	744	30	20	43	-29	-10	-8	27

Source ID	Description	Source Type	Resultant Leq dB(A)	Compliance
S1	Leachate treatment plant	Fixed	3	Yes
S2	Ammonia scrubbing	Fixed	16	Yes
S4	Roadside vehicle	Mobile	27	Yes
S5	Waste filling	Nonfixed	40	Yes
	Total CNL Leq (30min) dB(A)		40	
	Daytime noise criteria dB(A)		57	

Note:

- Haul Road Traffic within the site.
 $L_{eq}(hr) = L_{ve} + 10 \log \left(\frac{N}{1000} \right) + 10 \log \left(\frac{V}{1000} \right) + 10 \log \left(\frac{D}{1000} \right) + 10 \log \left(\frac{A}{1000} \right) + 10 \log \left(\frac{R}{1000} \right) + 10 \log \left(\frac{S}{1000} \right) + 10 \log \left(\frac{C}{1000} \right) + 10 \log \left(\frac{E}{1000} \right)$
 where:
 L_{ve} = sound power level of the plant (truck)
 N = number of vehicles (trucks) per hr
 V = average vehicle speed (km/hr)
 D = distance of receiving position from centre of haul road
 A = view angle to the haul road segment
 R = facade effect
- Predicted noise level at waste filling is based on the maximum SPL of S5a, S5b & S5c, as there is no overlapping between the different phases.
- Distance correction for fixed plant and Nonfixed source = $-20 \log r - 8$ based on hemispherical radiation, where r = distance.
- Total dB(A) reduction for total screening from natural topography, SdB(A) reduction for facade screening from the fill slope.
- Assuming typical Relative Humidity is at 70% and Temperature is at 25°C, based on ISO 9613-1 Method for calculation of the Absorption of Sound by the Atmosphere, the air absorption is 0.002 dB/km.

Project: North-east New Territories (NENT) Landfill Extension
 Title: Operation Noise Assessment (Unmitigated) during the earlier stage of landfill operation

Noise Sensitive Receiver: SR3 Cheung Shan Wu Tse

Source ID	Description	Source Type	SWL	Adjustments			Duration of activity as percentage of 30mins	Resultant, Leq dB(A)
				Air Absorption	Screening	Distance		
S1	Leachate treatment plant	Fixed	75	-4.0	-10	1336	100%	0
S2	Ammonia scrapping	Fixed	88	-4.0	-10	1338	100%	12
S5a	Waste filling	Notional	119	-3.2	-10	1076	100%	41
S5b	Phase 2	Notional	119	-3.1	-10	1020	100%	41
S5c	Phase 3	Notional	119	-3.2	-10	1082	100%	41

Source ID	Description	Type	SWL	No. of Vehicle (1hr)	No. of Vehicle (30mins)	Vehicle Speed	Adjustments			Screening	Air Absorption	Resultant, Leq dB(A)
							Distance	View Angle	No. of Vehicle			
S1	Leachate treatment plant	Fixed	75	180	90	20	969	-67	20	-10	23	26
S2	Ammonia scrapping	Fixed	88	180	90	20	969	-67	20	-10	23	26
S5a	Waste filling	Notional	119	180	90	20	969	-67	20	-10	23	26
S5b	Phase 2	Notional	119	180	90	20	969	-67	20	-10	23	26
S5c	Phase 3	Notional	119	180	90	20	969	-67	20	-10	23	26

Source ID	Description	Type	Resultant, Leq dB(A)
S1	Leachate treatment plant	Fixed	0
S2	Ammonia scrapping	Fixed	12
S4	Reuse vehicle	Mobile	26
S5	Waste filling	Notional	41
Total (all Leq (sum)) dB(A)			41
Daytime noise criteria, dB(A)			55
Compliance			Yes

Note:

- Head Road Traffic within the site
 BSS228 Pt 1:1987, D.3.5.2 Method for mobile plant using a regular well defined route (haul roads)
 $L_{Aeq, 1hr} = L_{wa-33} + 10 \log V - 10 \log V - 10 \log d + 10 \log (Av/180) + FE$
 where
 L_{wa} = sound power level of the plant (truck)
 Q = number of vehicles (truck) per hr
 V = average vehicle speed (km/hr)
 d = distance of receiving position from centre of haul road
 Av = view angle to the haul road segment
 FE = facade effect
- Predicted noise level at waste filling is based on the maximum SPL of S5a, S5b & S5c, as there is no overlapping between the different phases.
- Distance correction for fixed plant and notional source = $-20 \log r - 8$ based on hemi-spherical radiation, where r = distance.
- 10dB(A) reduction for total screening from natural topography, 5dB(A) reduction for partial screening from the hill slope.
- Assuming typical Relative Humidity is at 70% and Temperature is at 25°C, based on ISO 9613 Method for calculation of the Absorption of Sound by the Atmosphere, the air absorption is $-3dB / km$

Project: North-east New Territories (NENT) Landfill Extension
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Noise Sensitive Receiver: SR4 MiU Keng

Source ID	Description	Source Type	SWL	Distance (m)	Adjustments			Total	Duration of activity, min.	Duration of activity as percentage of 30mins	Resultant, Leq, dB(A)
					Distance ⁽¹⁾	Screening ⁽²⁾	Air absorption ⁽³⁾				
S1	Leachate treatment plant	Fixed	75	1953	-74	-10	-5.9	6	30	100%	7
S2	Ammonia scrapping	Fixed	88	1960	-74	-10	-5.9	6	30	100%	7
S5	Waste filling	Phase 1 National	119	1435	-71	-10	-4.3	0	30	100%	37
S5a	Phase 2 National	119	1397	-71	-10	-4.2	0	30	30	100%	37
S5b	Phase 3 National	119	1340	-71	-10	-4.0	0	30	30	100%	38

Source ID	Description	Source Type	SWL	No. of Vehicle (1hr)	No. of Vehicle (30min)	Vehicle Speed (km/hr)	Distance (m)	View Angle	No. of Vehicle	Spotted	Distance (m)	View Angle	Adjustments	Screening ⁽⁴⁾	Air absorption ⁽⁵⁾	Resultant, Leq, dB(A)
S4	Refuse vehicles	Mobile	97	180	90	20	1189	50	20	-13	31	-5	-10	-3.6	24	

Source ID	Description	Source Type	Resultant, Leq, dB(A)
S1	Leachate treatment plant	Fixed	0
S2	Ammonia scrapping	Fixed	7
S4	Refuse vehicles	Mobile	24
S5	Waste filling	National	38
Total CNL, Leq (30min) dB(A)			38
Daytime noise criteria, dB(A)			53
Compliance			Yes

Note:

- Haul Road Traffic within the site
 BSS228 Pt 1:1997, D.3.3.2 Method for mobile plant using a regular well defined route (haul roads)
 $L_{Aeq, 1hr} = L_{wa} - 33 + 10 \log Q - 10 \log V - 10 \log d + 10 \log(Av/180) + FE$
 where
 L_{wa} = sound power level of the plant (truck)
 Q = number of vehicles (truck) per hr
 V = average vehicle speed (km/hr)
 d = distance of receiving position from centre of haul road
 Av = view angle to the haul road segment
 FE = facade effect
- Predicted noise level at waste filling is based on the maximum SPL of S5a, S5b & S5c, as there is no overlapping between the different phases.
- Distance correction for fixed plant and national source = -20 log r - 8 based on hemi-spherical radiation, where r = distance.
- 10dB(A) reduction for total screening from natural topography, 5dB(A) reduction for partial screening from the hill slope.
- Assuming typical Relative Humidity is at 70% and Temperature is at 25°C, based on ISO 9613 "Method for calculation of the Absorption of Sound By the Atmosphere", the air absorption is -3dB / km

Project: North-east New Territories (NENT) Landfill Extension
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Noise Sensitive Receiver: SRS Wing Fai Yuen

Source ID	Description	Source Type	SWL	Distance (m)	Adjustments		View Angle	Total	Duration of activity, min	Duration of activity, % percentage of 24 hours	Residual Leq dB(A)
					Screening in	Air Absorption in					
S1	Leachate treatment plant	Fixed	75	-73	-5.0	-	6	30	100%	6	
S2	Ammunition scrapping	Fixed	89	-72	-5.0	-	6	30	100%	6	
S5	Waste filling	Nonlocal	119	-70	-3.8	-	0	30	100%	33	
S5a	Phase 1	Nonlocal	119	-70	-3.6	-	0	30	100%	33	
S5b	Phase 2	Nonlocal	119	-70	-3.6	-	0	30	100%	33	
S5c	Phase 3	Nonlocal	119	-70	-3.6	-	0	30	100%	33	

Source ID	Description	Source Type	SWL	No. of Vehicle (hr)	No. of Vehicle (30min)	Vehicle Speed (km/hr)	Adjustments		View Angle	Distance	Screening in	Air Absorption in	Total	Distance	Screening in	Air Absorption in	Residual Leq dB(A)
							Distance	Distance									
S4	Refuse vehicle (1)	Mobile	97	180	30	20	58	1185	58	-73	-10	-3.8	20	-31	-10	-3.8	24

Source ID	Description	Source Type	Residual Leq dB(A)
S1	Leachate treatment plant	Fixed	0
S2	Ammunition scrapping	Fixed	9
S4	Refuse vehicle	Mobile	24
S5	Waste filling	Nonlocal	39
Total CNL, Leq(30min) dB(A)			39
Daytime noise criteria, dB(A)			58
Compliance			Yes

Note:

- Haul Road Traffic within the site
 BS5228 Pt 1:1997, D.3.3.2 Method for mobile plant using a regular well defined route (haul roads)
 $L_{Aeq, 1hr} = L_{Aeq, 30} + 10 \log Q - 10 \log V - 10 \log d + 10 \log (Av/180) + FE$
 where:
 $L_{Aeq, 30}$ = sound power level of the plant (truck)
 Q = number of vehicles (truck) per hr
 V = average vehicle speed (km/hr)
 d = distance of receiving position from centre of haul road
 Av = view angle (to the haul road segment)
 FE = facade effect
- Predicted noise level at waste filling is based on the maximum SPL of S5a, S5b & S5c as there is no comparison between the different phases.
- Distance correction for fixed plant and nonlocal source = $-20 \log r - 8$ based on hemi-spherical radiation, where r = distance.
- 10dB(A) reduction for total screening from natural topography, 5dB(A) reduction for partial screening from the hill slope.
- Assuming typical Relative Humidity is at 70% and temperature is at 25°C, based on ISO 9613 Method for calculation of the Absorption of Sound By the Atmosphere, the air absorption is $-0.8dB/km$.

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 Title: Operation Noise Assessment (Unmitigated) during the earlier stage of landfill operation

Noise Sensitive Receiver: SRS Heung Yuen Wai

Source ID	Description	Source Type	SWL	Adjustments		Adjustments		Duration of activity as percentage of 30mins	Resultant, Leq dB(A)
				Distance (m)	Screening (dB)	View Angle	Air absorption (dB)		
S1	Leachate treatment plant	Fixed	75	1487	-10	-4.4	-	30	0
S2	Ammonia scrapping	Fixed	88	1466	-10	-4.4	-	30	11
S5a	Waste filling Phase 1	Notional	119	1511	-10	-4.5	-	30	36
S5b	Waste filling Phase 2	Notional	119	2095	-10	-6.3	-	30	32
S5c	Waste filling Phase 3	Notional	119	4311	-10	-3.9	-	30	38

Source ID	Description	Source Type	SWL	No. of Vehicle (1hr)	No. of Vehicle (30min)	Vehicle Speed	Adjustments		Distance	View Angle	No. of Vehicle	Speed	Distance	View Angle	Adjustments	Resultant, Leq dB(A)
							Distance	Air absorption								
S4	Refuse vehicle 11	Mobile	97	180	30	20	1287	-3.4	-31	-3.4	20	43	-31	-3.4	38	
Total (N, Leq 30min) dB(A) = 38 Daytime noise criteria dB(A) = 48 Compliance: Yes																

Source ID	Description	Source Type	Resultant, Leq dB(A)
S1	Leachate treatment plant	Fixed	0
S2	Ammonia scrapping	Fixed	11
S4	Refuse vehicle	Mobile	21
S5	Waste filling	Notional	38
Total (N, Leq 30min) dB(A)			38
Daytime noise criteria dB(A)			48
Compliance			Yes

Note:

- Haul Road Traffic within the site
 B55228 Pt.1:1997, D.3.5.2 Method for mobile plant using a regular well defined route (haul roads)
 $L_{Aeq, 1hr} = L_{wa} - 33 + 10 \log Q - 10 \log V - 10 \log d + 10 \log(AV/180) + FE$
 where
 L_{wa} = sound power level of the plant (truck)
 Q = number of vehicles (truck) per hr
 V = average vehicle speed (km/hr)
 d = distance of receiving position from centre of haul road
 AV = view angle to the haul road segment
 FE = facade effect
- Predicted noise level at waste filling is based on the maximum SPL of S5a, S5b & S5c, as there is no overlapping between the different phases.
- Distance correction for fixed plant and notional source = $-20 \log r - 8$ based on hemi-spherical radiation, where r = distance.
- 10dB(A) reduction for total screening from natural topography, 5dB(A) reduction for partial screening from the hill slope.
- Assuming typical Relative Humidity is at 70% and Temperature is at 25°C, based on ISO 9613 Method for calculation of the Absorption of Sound by the Atmosphere, the air absorption is $-3dB / km$

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Noise Sensitive Receiver: SR7 Tsung Yuen Ha

Source ID	Description	Source Type	SWL	Distance (1hr)	Distance (30min)	Screening (dB)	Air Absorption (dB)	View Angle	Top	Facade	Duration of activity (min)	Duration of activity as percentage of 30mins	Resultant Leq (dB(A))
S1	Leachate treatment plant	Fixed	75	1848	-73	-10	-5.5		6	3	30	100%	8
S2	Ammonia scrubbing	Fixed	88	1861	-73	-10	-5.6		0	3	30	100%	32
S5	Waste filling	Notional	119	2022	-74	-10	-6.1		0	3	30	100%	26
S5a	Phase 1	Notional	119	2624	-76	-10	-7.9		0	3	30	100%	26
S5b	Phase 2	Notional	119	1950	-73	-10	-5.6		0	3	30	100%	34
S5c	Phase 3	Notional	119	1950	-73	-10	-5.6		0	3	30	100%	34

Source ID	Description	Source Type	SWL	No. of Vehicle (1hr)	No. of Vehicle (30min)	Vehicle Speed	Distance	View Angle	No. of Vehicle	Speed	Distance	Adjustments: View Angle	Screening (dB)	Air Absorption (dB)	Resultant Leq (dB(A))
S4	Refuse vehicle	Mobile	87	180	30	20	1813	38	20	33	33	-6	-10	-5.4	37

Source ID	Description	Source Type	Resultant Leq (dB(A))	Compliance
S1	Leachate treatment plant	Fixed	6	Yes
S2	Ammonia scrubbing	Fixed	8	Yes
S4	Refuse vehicle	Mobile	17	Yes
S5	Waste filling	Notional	34	Yes
Total (ENL Leq (30min) dB(A))				34
30min noise criteria (dB(A))				32

Note:

- Haul Road Traffic within the site
 B55228 Pt 1:1997, D.3.5.2 Method for mobile plant using a regular well defined route (haul roads)
 $L_{Aeq, 1hr} = L_{wa} - 33 + 10 \log Q - 10 \log V - 10 \log d + 10 \log (Av/180) + FE$
 where
 L_{wa} = sound power level of the plant (truck)
 Q = number of vehicles (truck) per hr
 V = average vehicle speed (km/hr)
 d = distance of receiving position from centre of haul road
 Av = view angle to the haul road segment
 FE = facade effect
- Predicted noise level at waste filling is based on the maximum SPL of S5a, S5b, S5c, S5d, S5e, S5f, S5g, S5h, S5i, S5j, S5k, S5l, S5m, S5n, S5o, S5p, S5q, S5r, S5s, S5t, S5u, S5v, S5w, S5x, S5y, S5z, as there is no overlapping between the different phases.
- Distance correction for fixed plant and notional source = -20 log r - 8 based on hemi-spherical radiation, where r = distance.
- 10dB(A) reduction for total screening from natural topography, 5dB(A) reduction for partial screening from the hill slope.
- Assuming typical Relative Humidity is at 70% and Temperature is at 25°C, based on ISO 9613 Method for calculation of the Absorption of Sound by the Atmosphere, the air absorption is -3dB / km

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Noise Sensitive Receiver: SR8 Ha Heung Yuen

Source ID	Description	Source Type	SWL	Distance (m)	Absorption			Duration of activity as percentage of 30mins	Resultant, Leq dB(A)
					Screening (d)	View Angle (a)	Facade		
S1	Leachate treatment plant	Fixed	75	1484	-71	-4.5	3	100%	0
S2	Ammonia scrubbing	Fixed	86	1488	-71	-4.5	3	100%	11
S5	Waste filling	Notional	119	1565	-10	-4.8	3	100%	36
S5a	Phase 1	Notional	119	2177	-75	-6.5	3	100%	31
S5b	Phase 2	Notional	119	2177	-75	-6.5	3	100%	31
S5c	Phase 3	Notional	119	1398	-71	-4.2	3	100%	37

Source ID	Description	Source Type	SWL	No. of Vehicle (1hr)	No. of Vehicle (30min)	Vehicle Speed (km/hr)	Absorption			Distance	View Angle	Adjustments	Screening	Facade	Resultant, Leq dB(A)
							Distance	View Angle	Speed						
S4	Mobile vehicle II	Mobile	97	180	90	20	1398	33	20	-31	-7	-10	3	21	

Source ID	Description	Source Type	Resultant, Leq dB(A)
S1	Leachate treatment plant	Fixed	0
S2	Ammonia scrubbing	Fixed	11
S4	Mobile vehicle II	Mobile	21
S5	Waste filling	Notional	37
Total CNL Leq (sum of dB(A))			37
Daytime noise criteria dB(A)			44
Compliance			Yes

Note:

- Haul Road Traffic within the site
 BSE228 Pt 1:1997, D.3.5.2 Method for mobile plant using a regular well defined route (haul roads)
 $LA_{eq, 1hr} = L_{wa} - 33 + 10 \log Q - 10 \log V - 10 \log d + 10 \log (AV/180) + FE$
 where
 L_{wa} = sound power level of the plant (truck)
 Q = number of vehicles (truck) per hr
 V = average vehicle speed (km/hr)
 d = distance of receiving position from centre of haul road
 AV = view angle to the haul road segment
 FE = facade effect
- Predicted noise level at waste filling is based on the maximum SPL of S5a, S5b & S5c, as there is no overlapping between the different phases.
- Distance correction for fixed plant and notional source = -20 log r - 8 based on hemispherical radiation, where r = distance.
- 10dB(A) reduction for total screening from natural topography, 5dB(A) reduction for partial screening from the hill slope.
- Assuming typical Relative Humidity is at 70% and Temperature is at 25°C, based on ISO 9613 "Method for calculation of the Absorption of Sound By the Atmosphere", the air absorption is -3dB / km

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Noise Sensitive Receiver: SR9 Lin Ma Hang

Source ID	Description	Source Type	SWL	Distance (1hr)	Adjustments			Resultant Leq (dB(A))
					Air absorption (dB)	Screening (dB)	Distance (dB)	
S1	Leachate treatment plant	Fixed	75	1662	-5.0	-10	-	0
S2	Ammonia scrapping	Fixed	80	1821	-4.9	-10	-	10
S5a	Waste filling	Notional	119	1171	-3.5	-10	-	40
S5b	Phase 1	Notional	119	1124	-3.4	-10	-	40
S5c	Phase 2	Notional	119	897	-2.7	-10	-	43
S5c	Phase 3	Notional	119	897	-2.7	-10	-	43

Source ID	Description	Source Type	SWL	No. of Vehicle (1hr)	No. of Vehicle (30min)	Vehicle Speed	Adjustments			Resultant Leq (dB(A))
							Distance (dB)	View Angle	No. of Vehicle	
S4	Reverse Vehicle U	Mobile	97	180	80	20	7.1	832	43	28

Source ID	Description	Source Type	Resultant Leq (dB(A))
S1	Leachate treatment plant	Fixed	0
S2	Ammonia scrapping	Fixed	10
S4	Reverse Vehicle	Mobile	28
S5	Waste filling	Notional	43
	Total (NLT, Leq(Drain)) (dB(A))		43
	Daytime Noise criteria (dB(A))		34
	Compliance	Yes	

Note:

- [1] Haul Road Traffic within the site
 $LS_{eq} = L_{wa} - 33 + 10 \log Q - 10 \log V - 10 \log d + 10 \log (AV/180) + FE$
 where
 L_{wa} = sound power level of the plant (truck)
 Q = number of vehicles (trucks) per hr
 V = average vehicle speed (km/hr)
 d = distance or receiving position from centre of haul road
 AV = view angle to the haul road segment
 FE = façade effect
- [2] Predicted noise level at waste filling is based on the maximum SPL of S5a, S5b & S5c, as there is no overlapping between the different phases.
- [3] Distance correction for fixed plant and notional source = $-20 \log r - 8$ based on hemi-spherical radiation, where r = distance.
- [4] 10dB(A) reduction for total screening from natural topography, 5dB(A) reduction for partial screening from the hill slope.
- [5] Assuming typical Relative Humidity is at 70% and Temperature is at 25°C, based on ISO 9613 "Method for calculation of the Absorption of Sound By the Atmosphere", the air absorption is $-3dB/km$

Project: North-east New Territories (NENT) Landfill Extension
 Title: Operation Noise Assessment (Unmitigated) during the earlier stage of landfill operation

Noise Sensitive Receiver: SR10 Tung Lo Hang

Source ID	Description	Source Type	SWL	Adjustments			Duration of activity, min	Duration of activity, min	Resultant, Leq dB(A)
				Distance (m)	Screening (dB)	Air Absorption (dB)			
S1	Leachate treatment plant	Fixed	75	-86	-10	-2.3	30	19	
S2	Ammonia scrubbing	Fixed	88	-66	-10	-2.3	30	19	
S5a	Waste filling Phase 1	Nonlocal	119	-68	-10	-3.0	30	42	
S5b	Waste filling Phase 2	Nonlocal	119	-72	-10	-4.8	30	35	
S5c	Waste filling Phase 3	Nonlocal	119	-67	-10	-2.6	30	43	

Source ID	Description	Source Type	SWL	No. of Vehicle (1hr)	No. of Vehicle (30min)	Vehicle Speed	Distance (m)	View Angle (°)	Adjustments			Resultant, Leq dB(A)
									No. of Vehicle	View Angle	Screening	
S4	Refuse vehicle (1)	Mobile	97	180	90	20	813	56	13	28	27	37

Source ID	Description	Source Type	Resultant Leq dB(A)	Compliance
S1	Leachate treatment plant	Fixed	19	Yes
S2	Ammonia scrubbing	Fixed	19	Yes
S4	Refuse vehicle	Mobile	27	Yes
S5	Waste filling	Nonlocal	43	Yes
Total (LWL, Leq(Arms)) dB(A)			43	
Daytime noise criteria, dB(A)			53	
Compliance			Yes	

Note:

- Haul Road Traffic within the site
 BS2228 Pt 1:1997, D.3.5.2 Method for mobile plant using a regular well defined route (haul roads)
 $L_{Aeq, 1hr} = L_{wa} - 33 + 10 \log Q - 10 \log V - 10 \log (Av/r180) + FE$
 where
 L_{wa} = sound power level of the plant (truck)
 Q = number of vehicles (truck) per hr
 V = average vehicle speed (km/hr)
 d = distance of receiving position from centre of haul road
 Av = view angle to the haul road segment
 FE = facade effect
- Predicted noise level at waste filling is based on the maximum SPL of S5a, S5b & S5c, as there is no overlapping between the different phases.
- Distance correction for fixed plant and nonlocal source = $-20 \log r - 8$ based on hemi-spherical radiation, where r = distance.
- 100dB(A) reduction for total screening from natural topography, 5dB(A) reduction for partial screening from the hill slope.
- Assuming typical Relative Humidity is at 70% and Temperature is at 25°C, based on ISO 9613 "Method for calculation of the Absorption of Sound By the Atmosphere", the air absorption is $-3dB / km$

Project: North-east New Territories (NENT) Landfill Extension
 Title: Operation Noise Assessment (Unmitigated) at the latest stage of landfill operation

Noise Sensitive Receiver: SR2 Village houses at Junction of Ng Chow Road and Wo Keng Shan Road

Source ID	Description	Source Type	SWL	Distance (1hr)	Distance (30min)	Adjustments		Duration of activity min.	Duration of activity as percentage of 30mins	Resultant Leq dB(A)
						Screening ⁽⁴⁾	Air Absorption ⁽⁵⁾			
S1	Leachate treatment plant	Fixed	75	1012	-66	-10	-3.0	30	100%	3
S2	Ammonia scrapping	Fixed	68	1034	-68	-10	-3.1	30	100%	16
S5	Waste filling	Fixed	119	1110	-69	-10	-3.3	30	100%	40
S5a	Phase 1	Notional	119	1143	-69	-10	-3.4	30	100%	40
S5b	Phase 2	Notional	119	1181	-69	-10	-3.5	30	100%	39
S5c	Phase 3	Notional	119							

Source ID	Description	Source Type	SWL	No. of Vehicle (1hr)	No. of Vehicle (30min)	Vehicle Speed	Distance	View Angle	No. of Vehicle	Speed	Distance	Adjustments		Resultant Leq dB(A)
												View Angle	Air Absorption ⁽⁵⁾	
S4	Refuse vehicle	Mobile	97	180	90	20	344	-50	20	-13	-29	-10	-2.2	27

Source ID	Description	Source Type	Resultant Leq dB(A)
S1	Leachate treatment plant	Fixed	3
S2	Ammonia scrapping	Fixed	16
S4	Refuse vehicle	Mobile	27
S5	Waste filling	Notional	40
Total ONL Leq(30min) dB(A)			40
Daytime noise criteria dB(A)			57
Compliance			Yes

Note:

- [1] Haul Road Traffic within the site
 BS5228 Pt 1:1997, D.3.5.2 Method for mobile plant using a regular well defined route (haul roads)
 $L_{Aeq, 1hr} = L_{wa} - 33 + 10 \log Q - 10 \log V - 10 \log d + 10 \log (AV/180) + FE$
 where
 L_{wa} = sound power level of the plant (truck)
 Q = number of vehicles (truck) per hr
 V = average vehicle speed (km/hr)
 d = distance of receiving position from centre of haul road
 AV = view angle to the haul road segment
 FE = façade effect
- [2] Predicted noise level at waste filling is based on the maximum SPL of S5a, S5b & S5c, as there is no overlapping between the different phases.
- [3] Distances correction for fixed plant and notional sources = $-20 \log r - 8$ based on hemi-spherical radiation, where r = distance.
- [4] 10dB(A) reduction for total screening from natural topography, 5dB(A) reduction for partial screening from the hill slope.
- [5] Assuming typical Relative Humidity is at 70% and Temperature is at 25°C, based on ISO 9613 "Method for calculation of the Absorption of Sound By the Atmosphere", the air absorption is $-3dB/km$

Project: North-east New Territories (NENT) Landfill Extension
Title: Operation Noise Assessment (Unmitigated) at the latest stage of landfill operation

Noise Sensitive Receiver: SR3 Cheung Shan Wu Tse

Source ID	Description	Source Type	SWL	Distance (1hr)	Distance (30min)	Screening (dB)	Adjustments		Duration of activity, min.	Duration of activity as percentage of 30mins	Resultant, Leq dB(A)
							Air Absorption (dB)	View Angle			
S1	Leachate treatment plant	Fixed	75	1338	-71	-10	-4.0	-	30	100%	12
S2	Ammonia scrapping	Fixed	88	1338	-71	-10	-4.0	-	30	100%	12
S5	Waste filling	Notional	119	1076	-69	-10	-3.2	-	30	100%	41
SSa	Phase 1	Notional	119	1020	-68	-10	-3.1	-	30	100%	41
SSb	Phase 2	Notional	119	1020	-68	-10	-3.1	-	30	100%	41
SSc	Phase 3	Notional	119	1082	-69	-10	-3.2	-	30	100%	41

Source ID	Description	Type	SWL	No. of Vehicle (1hr)	No. of Vehicle (30min)	Vehicle Speed (km/h)	Distance (m)	View Angle	No. of Vehicle	Speed	Distance	View Angle	No. of Vehicle	Speed	Distance	View Angle	Adjustments	Resultant, Leq dB(A)
S4	Mobile vehicle	Mobile	87	180	30	20	969	67	20	-18	969	67	20	-18	969	67	-10	26

Source ID	Description	Type	Resultant, Leq dB(A)
S1	Leachate treatment plant	Fixed	9
S2	Ammonia scrapping	Fixed	12
S4	Mobile vehicle	Mobile	26
SS	Waste filling	Notional	41
	Total CNL Leq (30min) dB(A)		43
	Daytime noise forecast, dB(A)		55
	Compliance		Yes

Note:

- Haul Road Traffic within the site
 BS5228 Pt 1:1997, D.3.5.2 Method for mobile plant using a regular wall defined route (haul roads)
 $L_{Aeq, 1hr} = L_{wa} - 33 + 10 \log Q - 10 \log V - 10 \log d + 10 \log(Av/180) + FE$
 where
 L_{wa} = sound power level of the plant (truck)
 Q = number of vehicles (truck) per hr
 V = average vehicle speed (km/hr)
 d = distance of receiving position from centre of haul road
 Av = view angle to the haul road segment
 FE = façade effect
- Predicted noise level at waste filling is based on the maximum SPL of SSa, SSb & SSc, as there is no overlapping between the different phases.
- Distance correction for fixed plant and notional source = $-20 \log r - B$ based on hemi-spherical radiation, where r = distance.
- 10dB(A) reduction for total screening from natural topography. 5dB(A) reduction for partial screening from the hill slope.
- Assuming typical Relative Humidity is at 70% and Temperature is at 25°C, based on ISO 9613 "Method for calculation of the Absorption of Sound By the Atmosphere", the air absorption is $-3dB/km$

Project: North-east New Territories (NENT) Landfill Extension
 Title: Operation Noise Assessment (Unmitigated) at the latest stage of landfill operation

Noise Sensitive Receiver: SR4 Miu Keng

Source ID	Description	Source Type	SWL	Distance (1hr)	Adjustments			Duration of activity as percentage of 30mins	Duration of activity/min	Resultant, Leq dB(A)
					Distance ⁽¹⁾	Screening ⁽²⁾	Air Absorption ⁽³⁾			
S1	Leachate treatment plant	Fixed	76	1968	-74	-10	-5.9	100%	30	0
S2	Ammonia scrubbing	Fixed	86	1960	-74	-10	-5.9	100%	30	7
S5a	Waste filling Phase 1	Notional	119	1435	-71	-10	-4.3	100%	30	37
S5b	Phase 2	Notional	119	1397	-71	-10	-4.2	100%	30	37
S5c	Phase 3	Notional	119	1340	-71	-10	-4.0	100%	30	38

Source ID	Description	Source Type	SWL	No. of Vehicles (1hr)	No. of Vehicle (30min)	Vehicle Speed	Distance	View Angle	No. of Vehicle	Speed	Distance	Adjustments		Resultant, Leq dB(A)
												Screening ⁽²⁾	Air Absorption ⁽³⁾	
S4	Refuse vehicle	Mobile	97	180	80	20	1199	50	20	43	31	-10	-6	34

Source ID	Description	Source Type	Resultant, Leq dB(A)
S1	Leachate treatment plant	Fixed	0
S2	Ammonia scrubbing	Fixed	7
S4	Refuse vehicle	Mobile	24
S5	Waste filling	Notional	38
Total (GM, L&S(30min)) dB(A)			38
Daytime noise criteria dB(A)			55
Compliance			Yes

Note:

- Haul Road Traffic within the site
 $L_{Aeq, 1hr} = L_{wa} - 33 + 10 \log Q - 10 \log V - 10 \log d + 10 \log (AV/180) + FE$
 where
 L_{wa} = sound power level of the plant (truck)
 Q = number of vehicles (truck) per hr
 V = average vehicle speed (km/hr)
 d = distance of receiving position from centre of haul road
 AV = view angle to the haul road segment
 FE = facade effect
- Predicted noise level at waste filling is based on the maximum SPL of S5a, S5b & S5c, as there is no overlapping between the different phases.
- Distance correction for fixed plant and notional source = $-20 \log r - 8$ based on hemi-spherical radiation, where r = distance.
- 10dB(A) reduction for total screening from natural topography, 5dB(A) reduction for partial screening from the hill slope.
- Assuming typical Relative Humidity is at 70% and Temperature is at 25°C, based on ISO 9613 Method for calculation of the Absorption of Sound By the Atmosphere*, the air absorption is $-3dB / km$

Project: North-east New Territories (NENT) Landfill Extension
 Title: Operation Noise Assessment (Unmitigated) at the latest stage of landfill operation

Noise Sensitive Receiver: SRS Wing Fat Yuen

Source ID	Description	Source Type	SWL	Distance (m)	Adjustments:			Duration of activity, min.	Duration of activity as percentage of 30mins	Resultant, Leq dB(A)
					Distance (1)	Screening (2)	Air Absorption (3)			
S1	Leachate treatment plant	Fixed	75	1680	-73	-10	-5.0	30	100%	70
S2	Ammonia scrapping	Fixed	88	1676	-72	-10	-5.0	30	100%	8
S5a	Waste filling Phase 1	Nonlocal	119	1263	-70	-10	-3.8	30	100%	39
S5b	Waste filling Phase 2	Nonlocal	119	1213	-70	-10	-3.8	30	100%	39
S5c	Waste filling Phase 3	Nonlocal	119	1214	-70	-10	-3.6	30	100%	39

Source ID	Description	Source Type	SWL	No. of Vehicle (1hr)	No. of Vehicle (30min)	Vehicle Speed	Distance	View Angle	No. of Vehicle	Screening (1)	Air Absorption (3)	Adjustments: View Angle	Distance	Speed	Facade	Resultant, Leq dB(A)
S4	Refuse vehicle (1)	Mobile	97	180	80	20	1155	58	20	10	-3.8	-3	30	13	37	24

Source ID	Description	Source Type	Resultant, Leq dB(A)	Compliance
S1	Leachate treatment plant	Fixed	0	Yes
S2	Ammonia scrapping	Fixed	9	Yes
S4	Refuse vehicle	Mobile	24	Yes
S5	Waste filling (1)	Nonlocal	39	Yes
Total CNL Leq(30min) dB(A)			39	
Daytime noise criteria, dB(A)			58	

Note:

- Haul Road Traffic within the site
 BS5228 Pt 1:1997, D3.3.2 Method for mobile plant using a regular well defined route (haul roads)
 $L_{Aeq, 1hr} = L_{wa} - 33 + 10 \log Q - 10 \log V - 10 \log d + 10 \log(AW/180) + FE$
 where
 L_{wa} = sound power level of the plant (truck)
 Q = number of vehicles (truck) per hr
 V = average vehicle speed (km/hr)
 d = distance of receiving position from centre of haul road
 AW = view angle to the haul road segment
 FE = facade effect
- Predicted noise level at waste filling is based on the maximum SPL of S5a, S5b & S5c, as there is no overlapping between the different phases.
- Distance correction for fixed plant and nonlocal source = $-20 \log r - 8$ based on hemi-spherical radiation, where r = distance.
- 10dB(A) reduction for total screening from natural topography, 5dB(A) reduction for partial screening from the hill slope.
- Assuming typical Relative Humidity is at 70% and Temperature is at 25°C, based on ISO 9613 "Method for calculation of the Absorption of Sound by the Atmosphere", the air absorption is $-3.0B / km$.

Project: North-east New Territories (NENT) Landfill Extension
 Title: Operation Noise Assessment (Unmitigated) at the latest stage of landfill operation

Noise Sensitive Receiver: SR6 Heung Yuen Wai

Source ID	Description	Source Type	SWL	Distance (1hr)	Distance (30min)	Screening (a)	Air Absorption (a)	View Angle	Total	Facade	Duration of activity (min)	Duration of activity as percentage of 30min	Resultant, Leq (dB(A))
S1	Leachate treatment plant	Fixed	75	1467	-71	-10	-4.4	-	6	3	30	100%	0
S2	Ammonia scrapping	Fixed	88	1466	-71	-10	-4.4	-	6	3	30	100%	11
S3	Waste filling	Notional	119	1511	-72	-10	-4.5	-	0	3	30	100%	36
SSa	Phase 1	Notional	119	2086	-74	-10	-6.3	-	0	3	30	100%	32
SSb	Phase 2	Notional	119	1311	-70	-10	-3.9	-	0	3	30	100%	39
SSc	Phase 3	Notional	119	1311	-70	-10	-3.9	-	0	3	30	100%	39

Source ID	Description	Source Type	SWL	No. of Vehicle (1hr)	No. of Vehicle (30min)	Vehicle Speed	Distance	Misw Angle	Nis. of Vehicle	Speed	Distance	View Angle	Adjustments	Screening (a)	Facade	Resultant, Leq (dB(A))
S4	Refuse vehicle	Mobile	97	180	38	20	1287	34	28	15	31	7	-10	3	39	

Source ID	Description	Source Type	Resultant, Leq (dB(A))
S1	Leachate treatment plant	Fixed	0
S2	Ammonia scrapping	Fixed	11
S3	Refuse vehicle	Mobile	21
SS	Waste filling	Notional	39
Total CNL Leq(30min) (dB(A))			38
Daytime noise criteria (dB(A))			43
Compliance			Yes

- Note:
- Haul Road Traffic within the site
 - BSS228 Pt 1:1997, D.3.5.2 Method for mobile plant using a regular well defined route (haul roads)
 $LA_{eq, 1hr} = L_{wa} - 33 + 10 \log Q - 10 \log V - 10 \log d + 10 \log (Av/180) + FE$
 where
 L_{wa} = sound power level of the plant (truck)
 Q = number of vehicles (truck) per hr
 V = average vehicle speed (km/hr)
 d = distance of receiving position from centre of haul road
 Av = view angle to the haul road segment
 FE = facade effect
 - Predicted noise level at waste filling is based on the maximum SPL of SSa, SSb & SSc, as there is no overlapping between the different phases.
 - Distance correction for fixed plant and notional source = $-20 \log r - 8$ based on hemi-spherical radiation, where r = distance.
 - 10dB(A) reduction for total screening from natural topography, 5dB(A) reduction for partial screening from the hill slope.
 - Assuming typical Relative Humidity is at 70% and Temperature is at 25°C, based on ISO 9613. Method for calculation of the Absorption of Sound By the Atmosphere, the air absorption is $-3dB / km$

Project North-east New Territories (NENT) Landfill Extension
 Title: Operation Noise Assessment (Unmitigated) at the latest stage of landfill operation

Noise Sensitive Receiver: SR7 Tsung Yuen Ha

Source ID	Description	Source Type	SWL	Distance (m)	Distance (ft)	Screening (dB)	Air Absorption (dB)	Adjustments	No. of Vehicle (Unit)	No. of Vehicle (Approx)	Vehicle Speed (km/hr)	Distance (m)	Distance (ft)	Screening (dB)	Air Absorption (dB)	Adjustments	Duration of activity, min	Duration of activity as percentage of 30mins	Resultant, Leq (dB(A))
S1	Leachate treatment plant	Fixed	75	1848	-73	-10	-5.5										30	100%	0
S2	Ammonia scrubbing	Fixed	88	1861	-73	-10	-5.5										30	100%	8
S5a	Waste filling Phase 1	Notional	119	2022	-74	-10	-6.1										30	100%	32
S5b	Waste filling Phase 2	Notional	119	2624	-76	-10	-7.9										30	100%	28
S5c	Waste filling Phase 3	Notional	119	1850	-73	-10	-5.6										30	100%	34

Source ID	Description	Source Type	SWL	No. of Vehicle (Unit)	No. of Vehicle (Approx)	Vehicle Speed (km/hr)	Distance (m)	Distance (ft)	Screening (dB)	Air Absorption (dB)	Adjustments	Duration of activity, min	Duration of activity as percentage of 30mins	Resultant, Leq (dB(A))
S4	Refuse vehicle (H)	Mobile	97	180	90	20	1813	5943	-10	-13	-8	30	100%	37

Source ID	Description	Source Type	Resultant, Leq (dB(A))
S1	Leachate treatment plant	Fixed	0
S2	Ammonia scrubbing	Fixed	8
S4	Refuse vehicle	Mobile	17
S5	Waste filling (H)	Notional	34
Total (Cumulative) (dB(A))			34
Daytime Noise criteria (dB(A))			52
Compliance			Yes

Note:

- Haul Road Traffic within the site
 BS5228 Pt.1:1997, D.3.5.2 Method for mobile plant using a regular well defined route (haul roads)
 $L_{Aeq, 1hr} = L_{wa} - 33 + 10 \log Q - 10 \log V - 10 \log d + 10 \log (AW/180) + FE$
 where
 L_{wa} = sound power level of the plant (truck)
 Q = number of vehicles (truck) per hr
 V = average vehicle speed (km/hr)
 d = distance of receiving position from centre of haul road
 AW = view angle to the haul road segment
 FE = facade effect
- Predicted noise level at waste filling is based on the maximum SPL of S5a, S5b & S5c, as there is no overlapping between the different phases.
- Distance correction for fixed plant and notional source = $-20 \log r - 8$ based on hemi-spherical radiation, where r = distance.
- 10 dB(A) reduction for total screening, from natural topography, 5 dB(A) reduction for partial screening from the hill slope.
- Assuming typical Relative Humidity is at 70% and Temperature is at 25°C, based on ISO 9613 "Method for calculation of the Absorption of Sound By the Atmosphere", the air absorption is -3 dB/km

Project: North-east New Territories (NENT) Landfill Extension
 Title: Operation Noise Assessment (Unmitigated) at the latest stage of landfill operation

Noise Sensitive Receiver: SR8 Ha Heung Yuen

Source ID	Description	Source Type	SWL	Distance (1hr)	No. of Vehicle (30min)	Vehicle Speed	Distance	Air Absorption	Adjustment	View Angle	Tonal	Facade	Duration of activity, min.	Duration of activity as percentage of 30mins	Resultant, Leq dB(A)
S1	Leachate treatment plant	Fixed	75	1498	-71	-10	-4.5	-	-	-	6	3	30	100%	0
S2	Ammonia scrubbing	Fixed	88	1488	-71	-10	-4.5	-	-	-	6	3	30	100%	11
S5a	Waste filling Phase 1	Notional	119	1585	-72	-10	-4.8	-	-	-	0	3	30	100%	35
S5b	Waste filling Phase 2	Notional	119	2177	-75	-10	-6.5	-	-	-	0	3	30	100%	31
S5c	Waste filling Phase 3	Notional	119	1388	-71	-10	-4.2	-	-	-	0	3	30	100%	37

Source ID	Description	Source Type	SWL	No. of Vehicle (1hr)	No. of Vehicle (30min)	Vehicle Speed	Distance	Air Absorption	Adjustment	View Angle	No. of Vehicle	Speed	Distance	Screening	Adjustment	Resultant, Leq dB(A)
S4	Refuse vehicle lift	Mobile	97	180	90	20	1388	-	-	33	20	13	31	-10	-4.2	37

Source ID	Description	Source Type	Resultant, Leq dB(A)
S1	Leachate treatment plant	Fixed	0
S2	Ammonia scrubbing	Fixed	11
S4	Refuse Vehicle	Mobile	21
S5	Waste filling	Notional	37
Total ONL Leq (30min) [dB(A)]			37
Daytime noise criteria [dB(A)]			44
Compliance			Yes

Notes:

- Haul Road Traffic within the site
 BS5228 Pt 1:1997, D.3.5.2 Method for mobile plant using a regular well defined route (haul roads)
 $LA_{eq, 1hr} = L_{wa} - 33 + 10 \log Q - 10 \log V - 10 \log d + 10 \log(Av/180) + FE$
 where
 L_{wa} = sound power level of the plant (truck)
 Q = number of vehicles (truck) per hr
 V = average vehicle speed (km/hr)
 d = distance of receiving position from centre of haul road
 Av = view angle to the haul road segment
 FE = facade effect
- Predicted noise level at waste filling is based on the maximum SPL of S5a, S5b & S5c, as there is no overlapping between the different phases.
- Distance correction for fixed plant and notional source = -20 log r - 8 based on hemi-spherical radiation, where r = distance.
- 10dB(A) reduction for total screening from natural topography, 5dB(A) reduction for partial screening from the hill slope.
- Assuming typical Relative Humidity is at 70% and Temperature is at 25°C, based on ISO 9613 "Method for calculation of the Absorption of Sound By the Atmosphere", the air absorption is -3dB / km

Project: North-east New Territories (NENT) Landfill Extension
Title: Operation Noise Assessment (Unmitigated) at the latest stage of landfill operation

Noise Sensitive Receiver: SR9 Lin Ma Hang

Source ID	Description	Source Type	SWL	Distance (m)	Distance (ft)	Screening (dB)	Air Absorption (dB)	View Angle (°)	Tonal	Facade	Duration of activity (min)	Duration of activity as percentage of 30mins	Resultant Leq (dB(A))
S1	Leachate treatment plant	Fixed	75	1652	-72	-10	-5.0	-	8	3	30	100%	8
S2	Ammonia scrubbing	Fixed	68	1621	-72	-10	-4.9	-	6	3	30	100%	10
S5a	Waste filling Phase 1	Notional	119	1171	-69	-5	-3.5	-	0	3	30	100%	45
S5b	Waste filling Phase 2	Notional	119	1124	-69	-5	-3.4	-	0	3	30	100%	45
S5c	Waste filling Phase 3	Notional	119	897	-67	-5	-2.7	-	0	3	30	100%	48

Source ID	Description	Source Type	SWL	No. of Vehicle (1hr)	No. of Vehicle (30min)	Vehicle Speed (km/h)	Distance (m)	View Angle (°)	No. of Vehicle	Speed (km/h)	Distance (m)	Adjustments (View Angle)	Screening (dB)	Facade	Resultant Leq (dB(A))
S4	Reverse vehicle	Mobile	97	180	90	20	897	71	20	20	897	-4	-10	3	28

Source ID	Description	Source Type	Resultant Leq (dB(A))
S1	Leachate treatment plant	Fixed	9
S2	Ammonia scrubbing	Fixed	10
S4	Reverse vehicle	Mobile	28
S5	Waste filling	Notional	48
Total (N) Leq (30min) (dB(A))			38
Daytime noise sphere (dB(A))			44
Compliance			No

Note:

- [1] Haul Road Traffic within the site
- [2] BSS228 Pt 1:1997, D.3.5.2 Method for mobile plant using a regular well defined route (haul roads)
 $LA_{eq, 1hr} = L_{wa} - 33 + 10 \log Q - 10 \log V - 10 \log d + 10 \log (AW/100) + FE$
 where
 L_{wa} = sound power level of the plant (truck)
 Q = number of vehicles (truck) per hr
 V = average vehicle speed (km/hr)
 d = distance of receiving position from centre of haul road
 AW = view angle to the haul road segment
 FE = facade effect
- [3] Predicted noise level at waste filling is based on the maximum SPL of S5a, S5b & S5c, as there is no overlapping between the different phases.
- [4] Distance correction for fixed plant and notional source = $-20 \log r - 8$ based on hemi-spherical radiation, where r = distance.
- [5] 10dB(A) reduction for total screening from natural topography, 5dB(A) reduction for partial screening from the fill slope.
- [6] Assuming typical Relative Humidity is at 70% and Temperature is at 25°C, based on ISO 9613 Method for calculation of the Absorption of Sound By the Atmosphere*, the air absorption is $-3dB / km$

Project: North-east New Territories (NENT) Landfill Extension
 Title: Operation Noise Assessment (Unmitigated) at the latest stage of landfill operation

Noise Sensitive Receiver: SR10 Tung Lo Hang

Source ID	Description	Source Type	SWL	Distance (m)	Adjustments		View Angle	Tonal	Facade	Duration of activity (min)	Duration of activity as percentage of 30mins	Resultant, Leq dB(A)
					Screening (m)	Air absorption (m)						
S1	Leachate treatment plant	Fixed	75	761	-10	-2.3	-	6	3	30	100%	6
S2	Ammonia scrubbing	Fixed	88	780	-10	-2.3	-	6	3	30	100%	19
S5	Waste filling	Phase 1 National	119	891	-10	-3.0	-	0	3	30	100%	42
S5a	Phase 2 National	119	813	-10	-4.8	-	0	3	3	30	100%	35
S5b	Phase 3 National	118	882	-10	-2.6	-	0	3	3	30	100%	43

Source ID	Description	Source Type	SWL	No. of Vehicle (1hr)	No. of Vehicle (30min)	Vehicle Speed	Distance (m)	View Angle	No. of Vehicle	Screening (m)	Air absorption (m)	Adjustments View Angle	Facade	Resultant, Leq dB(A)
S4	Refuse vehicle	Mobile	97	150	50	20	813	58	20	29	-5	3	27	

Source ID	Description	Source Type	Resultant, Leq dB(A)
S1	Leachate treatment plant	Fixed	6
S2	Ammonia scrubbing	Fixed	19
S4	Refuse Vehicle	Mobile	27
S5	Waste filling	National	43
Total SNL Leq(30min) dB(A)			43
Daytime noise criteria, dB(A)			53
Compliance			Yes

Notes:

- Haul Road Traffic within the site
 S5S2B Pt 1:1997, D.3.5.2 Method for mobile plant using a regular well defined route (haul roads)
 $L_{Aeq, 1hr} = L_{wa} - 33 + 10 \log Q - 10 \log V - 10 \log d + 10 \log(Av/180) + FE$
 where
 L_{wa} = sound power level of the plant (truck)
 Q = number of vehicles (truck) per hr
 d = average vehicle speed (km/hr)
 d = distance of receiving position (from centre of haul road
 Av = view angle to the haul road segment
 FE = facade effect
- Predicted noise level at waste filling is based on the maximum SPL of S5a, S5b & S5c, as there is no overlapping between the different phases.
- Distance correction for fixed plant and national source = $-20 \log r - 8$ based on hemi-spherical radiation, where r = distance.
- 10dB(A) reduction for total screening from natural topography, 5dB(A) reduction for partial screening from the hill slope.
- Assuming typical Relative Humidity is at 70% and Temperature is at 25°C, based on ISO 9613. Method for calculation of the Absorption of Sound By the Atmosphere, the air absorption is $-3dB/km$.