

Appendix 4-7E
Operational Noise Due to a Petrol Filling Station at
Fairview Park (Day-time)

Appendix 4-7E - Estimated Noise Level Due to Petrol Filling Station

Floor	NSR	Noise Source ID	Industrial Activities	Sound Power Level (SWL), dB(A) #	Horizontal Distance from Source to Receiver (m)	Slant Dist. from Source to Receiver, m	Dist. Corr., dB(A)	Façade Corr. dB(A)	Un-mitigated Noise level, dB(A)	Height of NSR		Dist. From Receiver to Barrier to Source (m)		Height of Barrier		Source mPD Level (1m above ground level)	b	a	c	Path Difference	At-receiver Barrier Correction dB(A)	Corrected Noise Level dB(A)	Noise Criteria	Comply with Noise Criteria or not	Remark
										Height of Receiver Above Ground mPD Level (m)	Receiver Ground Level, m	Dist. From Receiver to Barrier (m)	Dist. From Barrier to Source (m)	Height of At-receiver Barrier above Ground mPD Level, m	At-receiver Barrier Ground mPD Level										
1/F	N-ind5	Sp	Movement of heavy vehicle within Petrol Filling Station (one entering and one leaving the station)	89	35	35	-39	3	53	4.8	5.4	13	22	4.0	5.4	5.6	13	22	35	0.04937	-8	45	55	Yes	Based on 4m tall noise barrier at site boundary proposed for night-time noise assessment
1/F	N-ind5	Sp	Oil tanker at petrol filling station during Refilling	92	35	35	-39	3	56	4.8	5.4	13	22	4.0	5.4	5.6	13	22	35	0.04937	-8	48	55	Yes	
Cumulative Total @:									58													50	55		
Compliance with Noise Criteria or not:									Exceedance		Compliance with Noise Criteria or not:										Yes				

Note:

Only NSR locations that are within 300m radius from the identified industrial noise sources are included in the noise assessment as per Project Study Brief requirements.

Sound Power Level is based on site measurement during the operation of the concerned noise source.

* Barrier attenuation is calculated based on Path Difference Method. Maekawa equation is applied in the calculation of barrier effect.

Corrected Noise Level = Sound Power Level of the industrial plant + Dist. Corr. + Façade Corr. + Barrier Corr.

@ The cumulative noise level at the receiver point. Calculation is based on general acoustic principle using the equation = $10 \times \log ((L1/10)+(L2/10)+(L3/10)...+(Ln/10))$; where, L1, L2, L3, Ln are the respective noise level at the receiver due to individual noise source.

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Floor	NSR	Noise Source ID	Industrial Activities	Sound Power Level (SWL), dB(A) #	Horizontal Distance from Source to Receiver (m)	Slant Dist. from Source to Receiver, m	Dist. Corr., dB(A)	Façade Corr. dB(A)	Un-mitigated Noise level, dB(A)	Height of NSR		Height of Barrier		Source mPD Level (1m above ground level)	a	b	c	Path Difference	At-receiver Barrier Correction dB(A)	Corrected Noise Level dB(A)	Noise Criteria	Comply with Noise Criteria or not	Remark			
										Height of Receiver Above Ground mPD Level (m)	Receiver Ground mPD Level, m	Dist. From Receiver to Barrier (m)	Dist. From Barrier to Source (m)											Height of At-receiver Barrier above Ground mPD Level, m	At-receiver Barrier Ground mPD Level	
1/F	N-ind6	Sp	Movement of heavy vehicle within Petrol Filling Station (one entering and one leaving the station)	89	94	94	-47	3	45	4.8	5.4	0	0	0.0	0.0	5.6	10	6	94	-78.31249	0	45	55	Yes	No noise mitigation measure is required	
1/F	N-ind6	Sp	Oil tanker at petrol filling station during Refilling	92	94	94	-47	3	48	4.8	5.4	0	0	0.0	0.0	5.6	10	6	94	-78.31249	0	48	55	Yes	No noise mitigation measure is required	
Cumulative Total @:									50													Cumulative Total @:	50	55		
Compliance with Noise Criteria or not:									Yes													Compliance with Noise Criteria or not:	Yes			

Note:

Only NSR locations that are within 300m radius from the identified industrial noise sources are included in the noise assessment as per Project Study Brief requirements.

Sound Power Level is based on site measurement during the operation of the concerned noise source.

* Barrier attenuation is calculated based on Path Difference Method. Maekawa equation is applied in the calculation of barrier effect.

Corrected Noise Level = Sound Power Level of the industrial plant + Dist. Corr. + Façade Corr. + Barrier Corr.

@ The cumulative noise level at the receiver point. Calculation is based on general acoustic principle using the equation = $10 \times \log ((L1/10)+(L2/10)+(L3/10)...+(Ln/10))$; where, L1, L2, L3, Ln are the respective noise level at the receiver due to individual noise source.

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Floor	NSR	Noise Source ID	Industrial Activities	Sound Power Level (SWL), dB(A) #	Horizontal Distance from Source to Receiver (m)	Slant Dist. from Source to Receiver, m	Dist. Corr., dB(A)	Façade Corr. dB(A)	Un-mitigated Noise level, dB(A)	Height of NSR				Height of Barrier				Path Difference	At-receiver Barrier Correction dB(A)	Corrected Noise Level dB(A)	Noise Criteria	Comply with Noise Criteria or not	Remark		
										Height of Receiver Above Ground mPD Level (m)	Receiver Ground Level, m	Dist. From Receiver to Barrier (m)	Dist. From Barrier to Source (m)	Height of At-receiver Barrier above Ground mPD Level, m	At-receiver Barrier Ground mPD Level	Source mPD Level (1m above ground level)	a							b	c
1/F	N-ind7	Sp	Movement of heavy vehicle within Petrol Filling Station (one entering and one leaving the station)	89	37	37	-39	3	53	4.8	5.4	10	27	4.5	5.4	5.6	10	27	37	0.05991	-8	45	55	Yes	Based on 4.5m tall noise barrier at site boundary proposed for night-time noise assessment.
1/F	N-ind7	Sp	Oil tanker at petrol filling station during Refilling	92	37	37	-39	3	56	4.8	5.4	10	27	4.5	5.4	5.6	10	27	37	0.05991	-8	48	55	Yes	
Cumulative Total @:									58												Cumulative Total @:	50	55		
Compliance with Noise Criteria or not:									Exceedance												Compliance with Noise Criteria or not:	Yes			

Note:

Only NSR locations that are within 300m radius from the identified industrial noise sources are included in the noise assessment as per Project Study Brief requirements.

Sound Power Level is based on site measurement during the operation of the concerned noise source.

* Barrier attenuation is calculated based on Path Difference Method. Maekawa equation is applied in the calculation of barrier effect.

Corrected Noise Level = Sound Power Level of the industrial plant + Dist. Corr. + Façade Corr. + Barrier Corr.

@ The cumulative noise level at the receiver point. Calculation is based on general acoustic principle using the equation = $10 \times \log ((L1/10)+(L2/10)+(L3/10)...+(Ln/10))$; where, L1, L2, L3, Ln are the respective noise level at the receiver due to individual noise source.

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Floor	NSR	Noise Source ID	Industrial Activities	Sound Power Level (SWL), dB(A) #	Horizontal Distance from Source to Receiver (m)	Slant Dist. from Source to Receiver, m	Dist. Corr., dB(A)	Façade Corr. dB(A)	Un-mitigated Noise level, dB(A)	Height of NSR		Dist. From Receiver to Barrier to Source (m)		Height of Barrier		Source mPD Level (1m above ground level)	a	b	c	Path Difference	At-receiver Barrier Correction dB(A)	Corrected Noise Level dB(A)	Noise Criteria	Comply with Noise Criteria or not	Remark
										Height of Receiver Above Ground mPD Level (m)	Receiver Ground Level, m	Dist. From Receiver to Barrier (m)	Dist. From Barrier to Source (m)	Height of At-receiver Barrier above Ground mPD Level, m	At-receiver Barrier Ground mPD Level										
1/F	N-ind8	Sp	Movement of heavy vehicle within Petrol Filling Station (one entering and one leaving the station)	89	44	44	-41	3	51	4.8	5.4	6	38	4.5	5.4	5.6	6	38	44	0.01021	-6	45	55	Yes	Based on 4.5m tall noise barrier at site boundary proposed for night-time noise assessment.
1/F	N-ind8	Sp	Oil tanker at petrol filling station during Refilling	92	44	44	-41	3	54	4.8	5.4	6	38	4.5	5.4	5.6	6	38	44	0.01021	-6	48	55	Yes	
Cumulative Total @:									56												Cumulative Total @:	50	55		
Compliance with Noise Criteria or not:									Exceedance												Compliance with Noise Criteria or not:	Yes			

Note:

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Sound Power Level is based on site measurement during the operation of the concerned noise source.

* Barrier attenuation is calculated based on Path Difference Method. Maekawa equation is applied in the calculation of barrier effect.

Corrected Noise Level = Sound Power Level of the industrial plant + Dist. Corr. + Façade Corr. + Barrier Corr.

@ The cumulative noise level at the receiver point. Calculation is based on general acoustic principle using the equation = $10 \times \log ((L1/10)+(L2/10)+(L3/10)...+(Ln/10))$; where, L1, L2, L3, Ln are the respective noise level at the receiver due to individual noise source.

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Floor	NSR	Noise Source ID	Industrial Activities	Sound Power Level (SWL), dB(A) #	Horizontal Distance from Source to Receiver (m)	Slant Dist. from Source to Receiver, m	Dist. Corr., dB(A)	Façade Corr. dB(A)	Un-mitigated Noise level, dB(A)	Height of NSR		Dist. From Barrier to Source		Height of Barrier		Source mPD Level (1m above ground level)	a	b	c	Path Difference	At-receiver Barrier Correction dB(A)	Corrected Noise Level dB(A)	Noise Criteria	Comply with Noise Criteria or not	Remark
										Height of Receiver Above Ground mPD Level (m)	Receiver Ground mPD Level, m	Dist. From Receiver to Barrier (m)	Dist. From Barrier to Source (m)	Height of At-receiver above Ground mPD Level, m	At-receiver Barrier Ground mPD Level										
1/F	N-ind9	Sp	Movement of heavy vehicle within Petrol Filling Station (one entering and one leaving the station)	89	105	105	-48	3	44	4.8	5.4	78	27	4.0	5.4	5.6	78	27	105	0.16949	-11	33	55	Yes	No noise mitigation measure is required for this NSR as unmitigated noise level would comply with the relevant noise criteria.
1/F	N-ind9	Sp	Oil tanker at petrol filling station during Refilling	92	105	105	-48	3	47	4.8	5.4	78	27	4.0	5.4	5.6	78	27	105	0.16949	-11	36	55	Yes	However, since 4m tall noise barrier has been proposed for other NSRs (e.g. in front of N-Ind5), this NSR will also be benefited from the proposed noise barrier and the noise barrier effect has been taken into account in this noise calculation.
									Cumulative Total @:	49										Cumulative Total @:	38	55			
									Compliance with Noise Criteria or not:	Yes										Compliance with Noise Criteria or not:	Yes				

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Corrected Noise Level = Sound Power Level of the industrial plant + Dist. Corr. + Façade Corr. + Barrier Corr.

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										Height of Receiver Above Ground mPD Level (m)	Receiver Ground mPD Level, m			Height of At-receiver Barrier above Ground mPD Level, m	At-receiver Barrier Ground mPD Level											
1/F	N-ind2	Sp	Movement of heavy vehicle within Petrol Filling Station (one entering and one leaving the station)	89	124	124	-50	3	42	4.8	5.4	105	19	4.0	5.4	5.6	105	19	124	0.29403	-13	29	55	Yes	No noise mitigation measure is required for this NSR as unmitigated noise level would comply with the relevant noise criteria. However, since 4m tall noise barrier has been proposed for other NSRs (e.g. in front of N-Ind5), this NSR will also be benefited from the proposed noise barrier and the noise barrier effect has been taken into account in this noise calculation.	
1/F	N-ind2	Sp	Oil tanker at petrol filling station during Refilling	92	124	124	-50	3	45	4.8	5.4	105	19	4.0	5.4	5.6	105	19	124	0.29403	-13	32	55	Yes		
									Cumulative Total @:	47												Cumulative Total @:	34	55		
									Compliance with Noise Criteria or not:	Yes												Compliance with Noise Criteria or not:	Yes			

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										Height of Receiver Above Ground mPD Level (m)	Receiver Ground mPD Level, m	Dist. From Receiver to Barrier (m)	Dist. From Barrier to Source (m)	Height of At-receiver Barrier above Ground mPD Level, m	At-receiver Barrier Ground mPD Level											
1/F	N-ind2A	Sp	Movement of heavy vehicle within Petrol Filling Station (one entering and one leaving the station)	89	95	95	-48	3	44	4.8	5.4	76	19	4.0	5.4	5.6	76	19	95	0.26918	-13	31	55	Yes	No noise mitigation measure is required for this NSR as unmitigated noise level would comply with the relevant noise criteria. However, since 4m tall noise barrier has been proposed for other NSRs (e.g. in front of N-Ind5), this NSR will also be benefited from the proposed noise barrier and the noise barrier effect has been taken into account in this noise calculation.	
1/F	N-ind2A	Sp	Oil tanker at petrol filling station during Refilling	92	95	95	-48	3	47	4.8	5.4	76	19	4.0	5.4	5.6	76	19	95	0.26918	-13	34	55	Yes		
Cumulative Total @:									49														36	55		
Compliance with Noise Criteria or not:										Yes		Compliance with Noise Criteria or not:										Yes				

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