Appendix 3.1c - Details of Dust Emission Sources for 1-hour and Daily TSP Assessment (Tier 2)

Northern Section

Location	Sources	Emission Factors	Parameter			Remarks
Boundary Control Point	Cut & Cover Area Source ID: G1 - G3	Heavy construction	Percentage active area, p	100	%	The 30% active areas are assumed to be located closest to selected ASRs
			Mitigation efficiency	87.5	%	Water suppression 8 times a day
			No. of working days per month, d	26	days	
			No. of working hours per day, h	12	hours	
			Emission Factor	2.69	Mg/hectare/month of activity	AP42, Section 13.2.3.3
			Emission Rate	0.000239494	g/m²/s (unmitigated)	=2.69*1000000/(10000*d*h*60*60)*p/100
				2.99368E-05	g/m²/s (mitigated)	
		Wind erosion	Percentage active area, p	100	%	
			Emission Factor	0.85	Mg/hectare/year	AP42, Table 11.9-4
			Emission Rate	2.69533E-06	g/m²/s	=0.85*1000000/(10000*365*24*60*60)*p/100
	Stock Pile Source ID: BCP6	Material handling and storage piles	Percentage open stockpile area, p	20	%	80% stockpiling area is covered by impervious sheets and all dusty material should be sprayed with water immediately prior to any loading or transfer operation so as to keep the dusty material wet.
			Particle size multiplier, k	0.74		k (particle size < 30μm)
			Moisture content, M	5	%	From engineering information, worst case scenario
			Average wind speed, U	1.9	m/s	Annual mean wind speed recorded at Ta Kwu Ling in 2008
			Emission Factor, E	0.00027131	kg/Mg	E=k*0.0016*[(U/2.2)^1.3/(M/2)^1.4]
			Maximum daily output	1106.5	m^3/day	From engineer Total volume of output: (127872+1086500)+(9497+3675+12466+4236)+(850+249+3015+21624)+(70062+309828+17451+116298) = 1783623m^3 BCP construction duration: 62 months (assume 26 working days per month)
			Maximum hourly output, op	92	m^3/hr	12 hours per day
				231	Mg/hr	Assume capacity of dump truck is 6m^3 and 15 tons
			Area of the stockpile, A	19575	m^2	Assumption made by consultant
			Emission Rate	8.8748E-07	g/m²/s (unmitigated)	=E*1000*op/(A*60*60)
				1.77496E-07	g/m²/s (mitigated)	=E*1000*op/(A*60*60)*p/100
		Wind erosion	Percentage open stockpile area, p	100	% (unmitigated)	
				20	% (mitigated)	80% stockpiling area is covered by impervious sheets and all dusty material should be sprayed with water immediately prior to any loading or transfer operation so as to keep the dusty material wet.
			Emission Factor	0.85	Mg/hectare/year	AP42, Section 11.9.4
			Emission Rate	2.69533E-06	g/m²/s (unmitigated)	=0.85*1000000/(10000*365*24*60*60)*p/100
				5.39066E-07	g/m²/s (mitigated)	
	Slope Cutting Source: G4	Slope cutting works	Percentage active area, p	100	%	The 30% active areas are assumed to be located closest to selected ASRs
			Mitigation efficiency	87.5	%	Water suppression 8 times a day
			No. of working days per month, d	26	days	
			No. of working hours per day, h	12	hours	
			Emission Factor	2.69	Mg/hectare/month of activity	AP42, Section 13.2.3.3
			Emission Rate	0.000239494	g/m²/s (unmitigated)	=2.69*1000000/(10000*d*h*60*60)*p/100
				2.99368E-05	g/m²/s (mitigated)	
		Wind erosion	Percentage active area, p	100	%	
			Emission Factor	0.85	Mg/hectare/year	AP42, Section 11.9.4
			Emission Rate	2.69533E-06	g/m²/s	=0.85*1000000/(10000*365*24*60*60)*p/100
Connecting Road to BCP (Lin Ma Hang FLA Section + Wo Keng Shan to Ping Yeung Section)	Construction of Connecting Road Source: G5-G11	Heavy construction	Percentage active area, p	100	%	The 30% active areas are assumed to be located closest to selected ASRs
			Mitigation efficiency	87.5	%	Water suppression 8 times a day
			No. of working days per month, d	26	days	
			No. of working hours per day, h	12	hours	
			Emission Factor	2.69	Mg/hectare/month of activity	AP42, Section 13.2.3.3
			Emission Rate	0.000239494	g/m²/s (unmitigated)	=2.69*1000000/(10000*d*h*60*60)*p/100
				2.99368E-05	g/m²/s (mitigated)	
		Wind erosion	Percentage active area, p	100	%	
			Emission Factor	0.85	Mg/hectare/year	AP42, Table 11.9-4
			Emission Rate	2.69533E-06	g/m²/s	=0.85*1000000/(10000*365*24*60*60)*p/100

Appendix 3.1c - Details of Dust Emission Sources for 1-hour and Daily TSP Assessment (Tier 2)

Concurrent Projects

Location	Sources	Emission Factors	Parameter	Remarks
Regulation of Shenzhen River Stage IV	Construction works Source ID: W1N - W4N, W1S - W4S	Heavy construction	2.99E-04 g/m²/s (unmitigated) 2.99E-05 g/m²/s (mitigated)	Extract from Draft Final EIA Report of Regulation of Shenzhen River Stage 4 (Sep 2010) (Annex A1(a)) Source ID in the draft report: A5, B1-B8, C1-C5, D1-D3
		Wind erosion	2.69E-06 g/m²/s (unmitigated)	Extract from Draft Final EIA Report of Regulation of Shenzhen River Stage 4 (Sep 2010) (Annex A1(a)) Source ID in the draft report: A5, B1-B8, C1-C5, D1-D3
	Stockpiling area	Earth handling/ loading & unloading Source ID: SZR2-SZR3	2.62E-06 g/m²/s (unmitigated) 7.88E-07 g/m²/s (mitigated)	Extract from Draft Final EIA Report of Regulation of Shenzhen River Stage 4 (Sep 2010) (Annex A1(a)) Source ID in the draft report: SP11-SP12
		Earth handling/ loading & unloading Source ID: SZR7	2.17E-06 g/m²/s (unmitigated) 6.50E-07 g/m²/s (mitigated)	Extract from Draft Final EIA Report of Regulation of Shenzhen River Stage 4 (Sep 2010) (Annex A1(a)) Source ID in the draft report: SP21
		Earth handling/ loading & unloading Source ID: SZR20, SZR21	6.56E-06 g/m²/s (unmitigated) 1.97E-06 g/m²/s (mitigated)	Extract from Draft Final EIA Report of Regulation of Shenzhen River Stage 4 (Sep 2010) (Annex A1(a)) Source ID in the draft report: SP31, SP32
		Wind erosion Source ID: SZR2-SZR3, SZR7, SZR20-SZR21	2.69E-06 g/m²/s (unmitigated) 8.09E-07 g/m²/s (mitigated)	Extract from Draft Final EIA Report of Regulation of Shenzhen River Stage 4 (Sep 2010) (Annex A1(a)) Source ID in the draft report: SP11-SP12, SP21, SP31-SP32

Appendix 3.1c - Details of Dust Emission Sources for 1-hour and Daily TSP Assessment (Tier 2)
Refer to Figure 3.3.1 - 3.3.2
BCP, Lin Ma Hang to Frontier Closed Area and Ping Yeung to Wo Keng Shan (for ASRs - TYHP & TYH)- input data

No. of source	Type of Source	ID	Emission (g/m²/s)	X-coordinate	Y-coordinate	Length (m)	Width (m)	Height (m)	Angle		Decription
1	Area	G1	0.000029937	833978.3	845962.9	109	66	0	0		Heavy construction (BCP)
2	Area		0.000002696	833978.3	845962.9	109	66	0	0		wind erosion (BCP)
3	Area	G2	0.000029937	833812.0	845825.0	205	81.4	0	0		Heavy construction (BCP)
4	Area		0.000002696	833812.0	845825.0	205	81.4	0	0		wind erosion (BCP)
5	Area	G3	0.000029937	833800.0	845632.1	353	62.8	0	0		Heavy construction (BCP)
6	Area		0.000002696	833800.0	845632.1	353	62.8	0	0		wind erosion (BCP)
7	Area	BCP6	0.000000178	833979.0	845796.0	265	123	0	90		Material handling & storage pile (BCP)
8	Area		0.000000540	833979.0	845796.0	265	123	0	90		wind erosion (BCP)
9	Area	G4	0.000029937	833820.0	845470.0	40	30	0	59		Slope cutting (BCP)
10	Area		0.000002696	833820.0	845470.0	40	30	0	59		wind erosion (BCP)
11	Area	G5	0.000029937	833766.3	845300.0	220	12.7	0	-79		Heavy construction (BCP)
12	Area		0.000002696	833766.3	845300.0	220	12.7	0	-79		wind erosion (BCP)
13	Area	G6	0.000029937	833760.0	845160.0	63.7	20	0	90		Heavy construction (BCP)
14	Area		0.000002696	833760.0	845160.0	63.7	20	0	90		wind erosion (BCP)
15	Area	G7	0.000029937	833977.3	845105.0	67.5	16.1	0	15		Heavy construction (BCP)
16	Area		0.000002696	833977.3	845105.0	67.5	16.1	0	15		wind erosion (BCP)
17	Area	G8	0.000029937	833785.0	844925.0	128.3	25	0	-72		Heavy construction (BCP)
18	Area		0.000002696	833785.0	844925.0	128.3	25	0	-72		wind erosion (BCP)
19	Area	G9	0.000029937	834023.7	844609.2	253.9	30	0	-42		Heavy construction (BCP)
20	Area		0.000002696	834023.7	844609.2	253.9	30	0	-42		wind erosion (BCP)
21	Area	G10	0.000029937	833676.2	845015.2	134	15	0	64		Heavy construction (BCP)
22	Area		0.000002696	833676.2	845015.2	134	15	0	64		wind erosion (BCP)
23	Area	G11	0.000029937	833500.0	844650.0	66.6	15	0	42		Heavy construction (BCP)
24	Area		0.000002696	833500.0	844650.0	66.6	15	0	42		wind erosion (BCP)
25	Area	SZR2	0.000000788	834190.0	846208.0	93	18	0	68		Stockpiling (Regulation of Shenzhen River)
26	Area		0.000000809	834190.0	846208.0	93	18	0	68		wind erosion (Regulation of Shenzhen River)
27	Area	SZR3	0.000000788	834158.0	846178.0	38	20	0	68		Stockpiling (Regulation of Shenzhen River)
28	Area		0.000000809	834158.0	846178.0	38	20	0	68		wind erosion (Regulation of Shenzhen River)
29	Area	W1N	0.000029900	833987.5	846072.9	150	70.4	0	21		Heavy construction (Regulation of Shenzhen River)
30	Area		0.000002690	833987.5	846072.9	150	70.4	0	21		wind erosion (Regulation of Shenzhen River)
31	Area	SZR7	0.000000650	833750.0	846065.0	70	45	0	24		Stockpiling (Regulation of Shenzhen River)
32	Area		0.000000809	833750.0	846065.0	70	45	0	24		wind erosion (Regulation of Shenzhen River)
33	Area	W2N	0.000029900	833679.0	845927.3	150	71.1	0	81		Heavy construction (Regulation of Shenzhen River)
34	Area		0.000002690	833679.0	845927.3	150	71.1	0	81		wind erosion (Regulation of Shenzhen River)
35	Area	W3N	0.000029900	833482.6	845475.1	150	90.8	0	-86.5		Heavy construction (Regulation of Shenzhen River)
36	Area		0.000002690	833482.6	845475.1	150	90.8	0	-86.5		wind erosion (Regulation of Shenzhen River)
37	Area	W4N	0.000029900	833347.3	844869.5	150	67.8	0	72.5		Heavy construction (Regulation of Shenzhen River)
38	Area		0.000002690	833347.3	844869.5	150	67.8	0	72.5		wind erosion (Regulation of Shenzhen River)
39	Area	SZR20	0.000001970	833321.0	844726.0	66	21	0	-78.5		Stockpiling (Regulation of Shenzhen River)
40	Area		0.000000809	833321.0	844726.0	66	21	0	-78.5		wind erosion (Regulation of Shenzhen River)
41	Area	SZR21	0.000001970	833278.2	844685.4	81	6	0	15		Stockpiling (Regulation of Shenzhen River)
42	Area		0.000000809	833278.2	844685.4	81	6	0	15		wind erosion (Regulation of Shenzhen River)

Appendix 3.1c - Details of Dust Emission Sources for 1-hour and Daily TSP Assessment (Tier 2)
Refer to Figure 3.3.3 - 3.3.4
BCP, Lin Ma Hang to Frontier Closed Area and Ping Yeung to Wo Keng Shan (for ASRs - KL1 TKL1 & TKL2)- input data

No. of source	Type of Source	ID	Emission ($g/m^2/s$)	X-coordinate	Y-coordinate	Length (m)	Width (m)	Height (m)	Angle		Decription
1	Area	G1	0.000029937	833853.1	845958.5	109	66	0	0		Heavy construction (BCP)
2	Area		0.000002696	833853.1	845958.5	109	66	0	0		wind erosion (BCP)
3	Area	G2	0.000029937	833814	845701.3	205.6	79.5	0	0		Heavy construction (BCP)
4	Area		0.000002696	833814	845701.3	205.6	79.5	0	0		wind erosion (BCP)
5	Area	G3	0.000029937	833707	845505.2	191	112.5	0	90		Heavy construction (BCP)
6	Area		0.000002696	833707	845505.2	191	112.5	0	90		wind erosion (BCP)
7	Area	BCP6	0.000000178	833979	845796	265	123	0	90		Material handling & storage pile (BCP)
8	Area		0.000000540	833979	845796	265	123	0	90		wind erosion (BCP)
9	Area	G4	0.000029937	833775.2	845402	40	30	0	57		Slope cutting (BCP)
10	Area		0.000002696	833775.2	845402	40	30	0	57		wind erosion (BCP)
11	Area	G5	0.000029937	833766.2	845301.4	220	12.7	0	-79		Heavy construction (BCP)
12	Area		0.000002696	833766.2	845301.4	220	12.7	0	-79		wind erosion (BCP)
13	Area	G6	0.000029937	833764.3	845022	61.7	20	0	90		Heavy construction (BCP)
14	Area		0.000002696	833764.3	845022	61.7	20	0	90		wind erosion (BCP)
15	Area	G7	0.000029937	833821.9	845104.3	90	12.1	0	-47		Heavy construction (BCP)
16	Area		0.000002696	833821.9	845104.3	90	12.1	0	-47		wind erosion (BCP)
17	Area	G8	0.000029937	833907.4	844730.7	78.3	41	0	-50		Heavy construction (BCP)
18	Area		0.000002696	833907.4	844730.7	78.3	41	0	-50		wind erosion (BCP)
19	Area	G9	0.000029937	834019.1	844613.1	254	30	0	-42		Heavy construction (BCP)
20	Area		0.000002696	834019.1	844613.1	254	30	0	-42		wind erosion (BCP)
21	Area	G10	0.000029937	833549.3	844749	134	15	0	64		Heavy construction (BCP)
22	Area		0.000002696	833549.3	844749	134	15	0	64		wind erosion (BCP)
23	Area	G11	0.000029937	833440.5	844596.1	66.6	15	0	44		Heavy construction (BCP)
24	Area		0.000002696	833440.5	844596.1	66.6	15	0	44		wind erosion (BCP)
25	Area	SZR2	0.000000788	834190	846208	93	18	0	68		Stockpiling (Regulation of Shenzhen River)
26	Area		0.000000809	834190	846208	93	18	0	68		wind erosion (Regulation of Shenzhen River)
27	Area	SZR3	0.000000788	834158	846178	38	20	0	68		Stockpiling (Regulation of Shenzhen River)
28	Area		0.000000809	834158	846178	38	20	0	68		wind erosion (Regulation of Shenzhen River)
29	Area	W1S	0.000029900	833987.5	846072.9	150	70.4	0	21		Heavy construction (Regulation of Shenzhen River)
30	Area		0.000002690	833987.5	846072.9	150	70.4	0	21		wind erosion (Regulation of Shenzhen River)
31	Area	SZR7	0.000000650	833750	846065	70	45	0	24		Stockpiling (Regulation of Shenzhen River)
32	Area		0.000000809	833750	846065	70	45	0	24		wind erosion (Regulation of Shenzhen River)
33	Area	W2S	0.000029900	833504.9	845595.8	150	77.2	0	77.5		Heavy construction (Regulation of Shenzhen River)
34	Area		0.000002690	833504.9	845595.8	150	77.2	0	77.5		wind erosion (Regulation of Shenzhen River)
35	Area	W3S	0.000029900	833384.2	844939.2	150	62.2	0	53.5		Heavy construction (Regulation of Shenzhen River)
36	Area		0.000002690	833384.2	844939.2	150	62.2	0	53.5		wind erosion (Regulation of Shenzhen River)
37	Area	SZR20	0.000001970	833321	844726	66	21	0	-78.5		Heavy construction (Regulation of Shenzhen River)
38	Area		0.000000809	833321	844726	66	21	0	-78.5		wind erosion (Regulation of Shenzhen River)
39	Area	SZR21	0.000001970	833278.2	844685.4	81	6	0	15		Stockpiling (Regulation of Shenzhen River)
40	Area		0.000000809	833278.2	844685.4	81	6	0	15		wind erosion (Regulation of Shenzhen River)
41	Area	W4S	0.000029900	833210.5	844639.7	150	58.7	0	16.7		Stockpiling (Regulation of Shenzhen River)
42	Area		0.000002690	833210.5	844639.7	150	58.7	0	16.7		wind erosion (Regulation of Shenzhen River)

Appendix 3.1c - Details of Dust Emission Sources for 1-hour and Daily TSP Assessment (Tier 2)
Refer to Figure 3.3.5 - 3.3.6
BCP, Lin Ma Hang to Frontier Closed Area and Ping Yeung to Wo Keng Shan (for ASR - KTW2 & KTW4)- input data

No. of source	Type of Source	ID	Emission (g/m²/s)	X-coordinate	Y-coordinate	Length (m)	Width (m)	Height (m)	Angle		Decription
1	Area	G1	0.000029937	833978.3	845962.9	109	66	0	0		Heavy construction (BCP)
2	Area		0.000002696	833978.3	845962.9	109	66	0	0		wind erosion (BCP)
3	Area	G2	0.000029937	833814.1	845701.3	210	79.5	0	0		Heavy construction (BCP)
4	Area		0.000002696	833814.1	845701.3	210	79.5	0	0		wind erosion (BCP)
5	Area	G3	0.000029937	833707	845505.2	191	112.6	0	90		Heavy construction (BCP)
6	Area		0.000002696	833707	845505.2	191	112.6	0	90		wind erosion (BCP)
7	Area	BCP6	0.000000178	833979	845796	265	123	0	90		Material handling & storage pile (BCP)
8	Area		0.000000540	833979	845796	265	123	0	90		wind erosion (BCP)
9	Area	G4	0.000029937	833775.2	845402	40	30	0	57		Slope cutting (BCP)
10	Area		0.000002696	833775.2	845402	40	30	0	57		wind erosion (BCP)
11	Area	G5	0.000029937	833766.2	845301.4	220	12.8	0	-79		Heavy construction (BCP)
12	Area		0.000002696	833766.2	845301.4	220	12.8	0	-79		wind erosion (BCP)
13	Area	G6	0.000029937	833764.3	845022	61.8	20	0	90		Heavy construction (BCP)
14	Area		0.000002696	833764.3	845022	61.8	20	0	90		wind erosion (BCP)
15	Area	G7	0.000029937	833919.1	845089.4	72.8	15	0	15		Heavy construction (BCP)
16	Area		0.000002696	833919.1	845089.4	72.8	15	0	15		wind erosion (BCP)
17	Area	G8	0.000029937	833907.4	844730.7	78.3	41	0	-50		Heavy construction (BCP)
18	Area		0.000002696	833907.4	844730.7	78.3	41	0	-50		wind erosion (BCP)
19	Area	G9	0.000029937	834023.8	844609.3	255.7	29.8	0	-42		Heavy construction (BCP)
20	Area		0.000002696	834023.8	844609.3	255.7	29.8	0	-42		wind erosion (BCP)
21	Area	G10	0.000029937	833549.3	844751.2	140	15	0	64		Heavy construction (BCP)
22	Area		0.000002696	833549.3	844751.2	140	15	0	64		wind erosion (BCP)
23	Area	G11	0.000029937	833495.9	844650.5	66.6	15	0	44		Heavy construction (BCP)
24	Area		0.000002696	833495.9	844650.5	66.6	15	0	44		wind erosion (BCP)
25	Area	SZR2	0.000000788	834190	846208	93	18	0	68		Stockpiling (Regulation of Shenzhen River)
26	Area		0.000000809	834190	846208	93	18	0	68		wind erosion (Regulation of Shenzhen River)
27	Area	SZR3	0.000000788	834158	846178	38	20	0	68		Stockpiling (Regulation of Shenzhen River)
28	Area		0.000000809	834158	846178	38	20	0	68		wind erosion (Regulation of Shenzhen River)
29	Area	W1S	0.000029900	833987.5	846072.9	150	70.4	0	21		Heavy construction (Regulation of Shenzhen River)
30	Area		0.000002690	833987.5	846072.9	150	70.4	0	21		wind erosion (Regulation of Shenzhen River)
31	Area	SZR7	0.000000650	833750	846065	70	45	0	24		Stockpiling (Regulation of Shenzhen River)
32	Area		0.000000809	833750	846065	70	45	0	24		wind erosion (Regulation of Shenzhen River)
33	Area	W2S	0.000029900	833504.9	845595.8	150	77.2	0	77.5		Heavy construction (Regulation of Shenzhen River)
34	Area		0.000002690	833504.9	845595.8	150	77.2	0	77.5		wind erosion (Regulation of Shenzhen River)
35	Area	W3S	0.000029900	833384.2	844939.2	150	62.2	0	53.5		Heavy construction (Regulation of Shenzhen River)
36	Area		0.000002690	833384.2	844939.2	150	62.2	0	53.5		wind erosion (Regulation of Shenzhen River)
37	Area	SZR20	0.000001970	833321	844726	66	21	0	-78.5		Stockpiling (Regulation of Shenzhen River)
38	Area		0.000000809	833321	844726	66	21	0	-78.5		wind erosion (Regulation of Shenzhen River)
39	Area	SZR21	0.000001970	833278.2	844685.4	81	6	0	15		Stockpiling (Regulation of Shenzhen River)
40	Area		0.000000809	833278.2	844685.4	81	6	0	15		wind erosion (Regulation of Shenzhen River)
41	Area	W4S	0.000029900	833210.5	844639.7	150	58.7	0	16.7		Heavy construction (Regulation of Shenzhen River)
42	Area		0.000002690	833210.5	844639.7	150	58.7	0	16.7		wind erosion (Regulation of Shenzhen River)

Appendix 3.1c - Details of Dust Emission Sources for 1-hour and Daily TSP Assessment (Tier 2)
Refer to Figure 3.3.7 - 3.3.8
BCP, Lin Ma Hang to Frontier Closed Area and Ping Yeung to Wo Keng Shan (for ASRs - V1 & V2) - input data

No. of source	Type of Source	ID	Emission ($g/m^2/s$)	X-coordinate	Y-coordinate	Length (m)	Width (m)	Height (m)	Angle		Decription
1	Area	G1	0.000029937	833915.8	845944.6	235	30.6	0	0		Heavy construction (BCP)
2	Area		0.000002696	833915.8	845944.6	235	30.6	0	0		wind erosion (BCP)
3	Area	G2	0.000029937	833814.1	845701.6	210	79.5	0	0		Heavy construction (BCP)
4	Area		0.000002696	833814.1	845701.6	210	79.5	0	0		wind erosion (BCP)
5	Area	G3	0.000029937	833706.9	845505.5	197	112.5	0	90		Heavy construction (BCP)
6	Area		0.000002696	833706.9	845505.5	197	112.5	0	90		wind erosion (BCP)
7	Area	BCP6	0.000000178	833979	845796	265	123	0	90		Material handling & storage pile (BCP)
8	Area		0.000000540	833979	845796	265	123	0	90		wind erosion (BCP)
9	Area	G4	0.000029937	833778.4	845406.5	40	30	0	57		Slope cutting (BCP)
10	Area		0.000002696	833778.4	845406.5	40	30	0	57		wind erosion (BCP)
11	Area	G5	0.000029937	833766.3	845301.4	220	12.7	0	-79		Heavy construction (BCP)
12	Area		0.000002696	833766.3	845301.4	220	12.7	0	-79		wind erosion (BCP)
13	Area	G6	0.000029937	833762.8	845077.8	60.6	21	0	90		Heavy construction (BCP)
14	Area		0.000002696	833762.8	845077.8	60.6	21	0	90		wind erosion (BCP)
15	Area	G7	0.000029937	833919.1	845089.4	72.8	15	0	15		Heavy construction (BCP)
16	Area		0.000002696	833919.1	845089.4	72.8	15	0	15		wind erosion (BCP)
17	Area	G8	0.000029937	833785.6	844927.2	128.3	25	0	-69		Heavy construction (BCP)
18	Area		0.000002696	833785.6	844927.2	128.3	25	0	-69		wind erosion (BCP)
19	Area	G9	0.000029937	834024	844610	253.9	30	0	-42		Heavy construction (BCP)
20	Area		0.000002696	834024	844610	253.9	30	0	-42		wind erosion (BCP)
21	Area	G10	0.000029937	833676.1	845008.2	134	15	0	64		Heavy construction (BCP)
22	Area		0.000002696	833676.1	845008.2	134	15	0	64		wind erosion (BCP)
23	Area	G11	0.000029937	833495.8	844650.8	66.6	15	0	44		Heavy construction (BCP)
24	Area		0.000002696	833495.8	844650.8	66.6	15	0	44		wind erosion (BCP)
25	Area	SZR2	0.000000788	834190	846208	93	18	0	68		Stockpiling (Regulation of Shenzhen River)
26	Area		0.000000809	834190	846208	93	18	0	68		wind erosion (Regulation of Shenzhen River)
27	Area	SZR3	0.000000788	834158	846178	38	20	0	68		Stockpiling (Regulation of Shenzhen River)
28	Area		0.000000809	834158	846178	38	20	0	68		wind erosion (Regulation of Shenzhen River)
29	Area	W1S	0.000029900	833987.5	846072.9	150	70.4	0	21		Heavy construction (Regulation of Shenzhen River)
30	Area		0.000002690	833987.5	846072.9	150	70.4	0	21		wind erosion (Regulation of Shenzhen River)
31	Area	SZR7	0.000000650	833750	846065	70	45	0	24		Stockpiling (Regulation of Shenzhen River)
32	Area		0.000000809	833750	846065	70	45	0	24		wind erosion (Regulation of Shenzhen River)
33	Area	W2S	0.000029900	833504.9	845595.8	150	77.2	0	77.5		Heavy construction (Regulation of Shenzhen River)
34	Area		0.000002690	833504.9	845595.8	150	77.2	0	77.5		wind erosion (Regulation of Shenzhen River)
35	Area	W3S	0.000029900	833384.2	844939.2	150	62.2	0	53.5		Heavy construction (Regulation of Shenzhen River)
36	Area		0.000002690	833384.2	844939.2	150	62.2	0	53.5		wind erosion (Regulation of Shenzhen River)
37	Area	SZR20	0.000001970	833321	844726	66	21	0	-78.5		Stockpiling (Regulation of Shenzhen River)
38	Area		0.000000809	833321	844726	66	21	0	-78.5		wind erosion (Regulation of Shenzhen River)
39	Area	SZR21	0.000001970	833278.2	844685.4	81	6	0	15		Stockpiling (Regulation of Shenzhen River)
40	Area		0.000000809	833278.2	844685.4	81	6	0	15		wind erosion (Regulation of Shenzhen River)
41	Area	W4S	0.000029900	833210.5	844639.7	150	58.7	0	16.7		Heavy construction (Regulation of Shenzhen River)
42	Area		0.000002690	833210.5	844639.7	150	58.7	0	16.7		wind erosion (Regulation of Shenzhen River)

Appendix 3.1c - Details of Dust Emission Sources for 1-hour and Daily TSP Assessment (Tier 2)
Refer to Figure 3.3.9
BCP, Lin Ma Hang to Frontier Closed Area and Ping Yeung to Wo Keng Shan (for ASR - WKS7) - input data

No. of source	Type of Source	ID	Emission ($g/m^2/s$)	X-coordinate	Y-coordinate	Length (m)	Width (m)	Height (m)	Angle		Decription
1	Area	G1	0.000029937	835519.0	843582.0	69.7	29	0	-57		Heavy construction (BCP)
2	Area		0.000002696	835519.0	843582.0	69.7	29	0	-57		wind erosion (BCP)
3	Area	G2	0.000029937	835628.1	843412.7	58.2	29	0	-57		Heavy construction (BCP)
4	Area		0.000002696	835628.1	843412.7	58.2	29	0	-57		wind erosion (BCP)
5	Area	G3	0.000029937	835472.9	843604.6	36.9	25	0	-57		Slope cutting (BCP)
6	Area		0.000002696	835472.9	843604.6	36.9	25	0	-57		wind erosion (BCP)
7	Area	G4	0.000029937	835750.4	843333.2	47	12.6	0	44		Slope cutting (BCP)
8	Area		0.000002696	835750.4	843333.2	47	12.6	0	44		wind erosion (BCP)
9	Area	G5	0.000029937	835660.2	843366.6	53.7	25	0	-45		Heavy construction (BCP)
10	Area		0.000002696	835660.2	843366.6	53.7	25	0	-45		wind erosion (BCP)
11	Area	G6	0.000029937	835707.1	843258.6	88.5	43	0	-45		Slope cutting (BCP)
12	Area		0.000002696	835707.1	843258.6	88.5	43	0	-45		wind erosion (BCP)

Appendix 3.1c - Details of Dust Emission Sources for 1-hour and Daily TSP Assessment (Tier 1)

Sha Tau Kok Section

Location	Sources	Emission Factors	Parameter			Remarks
Loi Tung (Sha Tau Kok Road Section)	Cut & Cover Area Source ID: G2-G11, G13, G15-G16	Heavy construction	Percentage active area, p	100	%	The 30% active areas are assumed to be located closest to selected ASRs
			Mitigation efficiency	87.5	%	Water suppression 8 times a day
			No. of working days per month, d	26	days	
			No. of working hours per day, h	12	hours	
			Emission Factor	2.69	Mg/hectare/month of activity	AP42, Section 13.2.3.3
			Emission Rate	0.000239494	g/m²/s (unmitigated)	=2.69*1000000/(10000*d*h*60*60)*p/100
				2.99368E-05	g/m²/s (mitigated)	
		Wind erosion	Percentage active area, p	100	%	
			Emission Factor	0.85	Mg/hectare/year	AP42, Table 11.9-4
			Emission Rate	2.69533E-06	g/m²/s	=0.85*1000000/(10000*365*24*60*60)*p/100
	Stock Pile Source ID: LTR7	Material handling and storage piles	Percentage open stockpile area, p	20	%	80% stockpiling area is covered by impervious sheets and all dusty material should be sprayed with water immediately prior to any loading or transfer operation so as to keep the dusty material wet.
			Particle size multiplier, k	0.74		k (particle size < 30μm)
			Moisture content, M	5	%	From engineering information, worst case scenario
			Average wind speed, U	1.9	m/s	Annual mean wind speed recorded at Ta Kwu Ling in 2008
			Emission Factor, E	0.00027131	kg/Mg	E=k*0.0016*[(U/2.2)^1.3/(M/2)^1.4]
			Maximum daily output	787.9818376	m^3/day	From engineer Total volume of output: (43071+12501+187708+8889+45404) + (63602+18750+281252+17094+59280) = 737551m^3 STKRd construction duration: 36 months (assume 26 working days per month)
			Maximum hourly output, op	66	m^3/hr	12 hours per day
				164	Mg/hr	Assume capacity of dump truck is 6m^3 and 15 tons
			Area of the stockpile, A	20000	m^2	From engineer
			Emission Rate	6.18598E-07	g/m²/s (unmitigated)	=E*1000*op/(A*60*60)
				1.2372E-07	g/m²/s (mitigated)	=E*1000*op/(A*60*60)*p/100
		Wind erosion	Percentage open stockpile area, p	100	% (unmitigated)	
				20	% (mitigated)	80% stockpiling area is covered by impervious sheets and all dusty material should be sprayed with water immediately prior to any loading or transfer operation so as to keep the dusty material wet.
			Emission Factor	0.85	Mg/hectare/year	AP42, Section 11.9.4
			Emission Rate	2.69533E-06	g/m²/s (unmitigated)	=0.85*1000000/(10000*365*24*60*60)*p/100
				5.39066E-07	g/m²/s (mitigated)	
	Slope Cutting Source: G1, G12, G14, G17	Slope cutting works	Percentage active area, p	100	%	The 30% active areas are assumed to be located closest to selected ASRs
			Mitigation efficiency	87.5	%	Water suppression 8 times a day
			No. of working days per month, d	26	days	
			No. of working hours per day, h	12	hours	
			Emission Factor	2.69	Mg/hectare/month of activity	AP42, Section 13.2.3.3
			Emission Rate	0.000239494	g/m²/s (unmitigated)	=2.69*1000000/(10000*d*h*60*60)*p/100
				2.99368E-05	g/m²/s (mitigated)	
		Wind erosion	Percentage active area, p	100	%	
			Emission Factor	0.85	Mg/hectare/year	AP42, Section 11.9.4
			Emission Rate	2.69533E-06	g/m²/s	=0.85*1000000/(10000*365*24*60*60)*p/100

Appendix 3.1c - Details of Dust Emission Sources for 1-hour and Daily TSP Assessment (Tier 2)
Refer to Figure 3.3.10 - 3.3.11
Sha Tau Kok Section (for ASRs - TTW1 & TTW3) - input data

No. of source	Type of Source	ID	Emission ($g/m^2/s$)	X-coordinate	Y-coordinate	Length (m)	Width (m)	Height (m)	Angle		Decription
1	3	G1	0.000029937	836297.0	842804.6	100	39	0	32		Slope cutting (Sha Tau Kok)
2	3		0.000002696	836297.0	842804.6	100	39	0	32		wind erosion (Sha Tau Kok)
3	3	G2	0.000029937	836387.4	842640.0	55.6	42.1	0	-58		Heavy construction (Sha Tau Kok)
4	3		0.000002696	836387.4	842640.0	55.6	42.1	0	-58		wind erosion (Sha Tau Kok)
5	3	G3	0.000029937	836380.7	842767.3	21.1	5.8	0	30		Heavy construction (Sha Tau Kok)
6	3		0.000002696	836380.7	842767.3	21.1	5.8	0	30		wind erosion (Sha Tau Kok)
7	3	G4	0.000029937	836469.6	842515.3	50	42	0	32		Heavy construction (Sha Tau Kok)
8	3		0.000002696	836469.6	842515.3	50	42	0	32		wind erosion (Sha Tau Kok)
9	3	G5	0.000029937	836335.4	842634.4	48.3	21.5	0	-59.3		Heavy construction (Sha Tau Kok)
10	3		0.000002696	836335.4	842634.4	48.3	21.5	0	-59.3		wind erosion (Sha Tau Kok)
11	3	G6	0.000029937	836384.6	842467.3	51.1	14.3	0	-76.2		Heavy construction (Sha Tau Kok)
12	3		0.000002696	836384.6	842467.3	51.1	14.3	0	-76.2		wind erosion (Sha Tau Kok)
13	3	G7	0.000029937	836444.2	842403.6	25	18	0	90		Heavy construction (Sha Tau Kok)
14	3		0.000002696	836444.2	842403.6	25	18	0	90		wind erosion (Sha Tau Kok)
15	3	G8	0.000029937	836545.7	842423.9	115	49.5	0	90		Heavy construction (Sha Tau Kok)
16	3		0.000002696	836545.7	842423.9	115	49.5	0	90		wind erosion (Sha Tau Kok)
17	3	LTR7	0.000000124	836585.0	842700.0	175	60	0	75		Stockpiling (Sha Tau Kok)
18	3		0.00000054	836585.0	842700.0	175	60	0	75		wind erosion (Sha Tau Kok)
19	3	G9	0.000029937	836511.4	842613.1	24	20	0	75		Heavy construction (Sha Tau Kok)
20	3		0.000002696	836511.4	842613.1	24	20	0	75		wind erosion (Sha Tau Kok)
21	3	G10	0.000029937	836581.3	842510.2	41.7	18.1	0	-73		Heavy construction (Sha Tau Kok)
22	3		0.000002696	836581.3	842510.2	41.7	18.1	0	-73		wind erosion (Sha Tau Kok)
23	3	G11	0.000029937	836644.3	842430.8	36.3	24	0	0		Heavy construction (Sha Tau Kok)
24	3		0.000002696	836644.3	842430.8	36.3	24	0	0		wind erosion (Sha Tau Kok)
25	3	G12	0.000029937	836677.7	842312.2	16.5	15	0	-46		Slope cutting (Sha Tau Kok)
26	3		0.000002696	836677.7	842312.2	16.5	15	0	-46		wind erosion (Sha Tau Kok)
27	3	G13	0.000029937	836616.8	842332.5	50	43.5	0	-46		Heavy construction (Sha Tau Kok)
28	3		0.000002696	836616.8	842332.5	50	43.5	0	-46		wind erosion (Sha Tau Kok)
29	3	G14	0.000029937	836611.7	842271.6	36	25.5	0	43		Slope cutting (Sha Tau Kok)
30	3		0.000002696	836611.7	842271.6	36	25.5	0	43		wind erosion (Sha Tau Kok)
31	3	G15	0.000029937	836718.3	842225.9	50	48	0	44		Heavy construction (Sha Tau Kok)
32	3		0.000002696	836718.3	842225.9	50	48	0	44		wind erosion (Sha Tau Kok)
33	3	G16	0.000029937	836824.9	842109.2	85	18	0	22		Heavy construction (Sha Tau Kok)
34	3		0.000002696	836824.9	842109.2	85	18	0	22		wind erosion (Sha Tau Kok)
35	3	G17	0.000029937	836818.0	842038.3	157.8	19.8	0	22		Slope cutting (Sha Tau Kok)
36	3		0.000002696	836818.0	842038.3	157.8	19.8	0	22		wind erosion (Sha Tau Kok)

Appendix 3.1c - Details of Dust Emission Sources for 1-hour and Daily TSP Assessment (Tier 1)

Fanling Section

Location	Sources	Emission Factors	Parameter			Remarks
Fanling Section	Cut & Cover Area Source ID: G2-G7	Heavy construction	Percentage active area, p	100	%	The 30% active areas are assumed to be located closest to selected ASRs
			Mitigation efficiency	87.5	%	Water suppression 8 times a day
			No. of working days per month, d	26	days	
			No. of working hours per day, h	12	hours	
			Emission Factor	2.69	Mg/hectare/month of activity	AP42, Section 13.2.3.3
			Emission Rate	0.000239494	g/m²/s (unmitigated)	=2.69*1000000/(10000*d*h*60*60)*p/100
				2.99368E-05	g/m²/s (mitigated)	
		Wind erosion	Percentage active area, p	100	%	
			Emission Factor	0.85	Mg/hectare/year	AP42, Table 11.9-4
			Emission Rate	2.69533E-06	g/m²/s	=0.85*1000000/(10000*365*24*60*60)*p/100
	Stock Pile Source ID: KLH3	Material handling and storage piles	Percentage open stockpile area,	20	%	80% stockpiling area is covered by impervious sheets and all dusty material should be sprayed with water immediately prior to any loading or transfer operation so as to keep the dusty material wet.
			Particle size multiplier, k	0.74		k (particle size < 30μm)
			Moisture content, M	5	%	From engineering information, worst case scenario
			Average wind speed, U	1.9	m/s	Annual mean wind speed recorded at Ta Kwu Ling in 2008
			Emission Factor, E	0.00027131	kg/Mg	E=k*0.0016*[(U/2.2)^1.3/(M/2)^1.4]
			Maximum daily output	169.1	m^3/day	From engineer Total volume of output: (32085+9464+141880+4446+14409) = 202284m^3 Fanling section construction duration: 46 months (assume 26 working days per month)
			Maximum hourly output, op	14	m^3/hr	12 hours per day
				35	Mg/hr	Assume capacity of dump truck is 6m^3 and 15 tons
			Area of the stockpile, A	6000	m^2	From engineer
			Emission Rate	4.4259E-07	g/m²/s (unmitigated)	=E*1000*op/(A*60*60)
				8.85179E-08	g/m²/s (mitigated)	=E*1000*op/(A*60*60)*p/100
		Wind erosion	Percentage open stockpile area,	100	% (unmitigated)	
				20	% (mitigated)	80% stockpiling area is covered by impervious sheets and all dusty material should be sprayed with water immediately prior to any loading or transfer operation so as to keep the dusty material wet.
			Emission Factor	0.85	Mg/hectare/year	AP42, Section 11.9.4
				2.69533E-06	g/m²/s (unmitigated)	=0.85*1000000/(10000*365*24*60*60)*p/100
				5.39066E-07	g/m²/s (mitigated)	
					e	
	Slope Cutting Source: G1	Slope cutting works	Percentage active area, p	100	%	The 30% active areas are assumed to be located closest to selected ASRs
			Mitigation efficiency	87.5	%	Water suppression 8 times a day
			No. of working days per month, d	26	days	
			No. of working hours per day, h	12	hours	
			Emission Factor	2.69	Mg/hectare/month of activity	AP42, Section 13.2.3.3
			Emission Rate	0.000239494	g/m²/s (unmitigated)	=2.69*1000000/(10000*d*h*60*60)*p/100
				2.99368E-05	g/m²/s (mitigated)	
		Wind erosion	Percentage active area, p	100	%	
			Emission Factor	0.85	Mg/hectare/year	AP42, Section 11.9.4
			Emission Rate	2.69533E-06	g/m²/s	=0.85*1000000/(10000*365*24*60*60)*p/100

Appendix 3.1c - Details of Dust Emission Sources for 1-hour and Daily TSP Assessment (Tier 2)
Refer to Figure 3.3.12 - 3.3.13
Fanling Section (for ASR - TH1) - input data

No. of source	Type of Source	ID	Emission ($g/m^2/s$)	X-coordinate	Y-coordinate	Length (m)	Width (m)	Height (m)	Angle		Decription
1	Area	G4	0.000029937	833926.9	838033.4	97	97	0	90		Heavy construction (Fanling)
2	Area		0.000002696	833926.9	838033.4	97	97	0	90		wind erosion (Fanling)
3	Area	G5	0.000029937	833954.3	837820.6	97	73.5	0	0		Heavy construction (Fanling)
4	Area		0.000002696	833954.3	837820.6	97	73.5	0	0		wind erosion (Fanling)
5	Area	G6	0.000029937	833865.4	837816.9	80	74.6	0	0		Heavy construction (Fanling)
6	Area		0.000002696	833865.4	837816.9	80	74.6	0	0		wind erosion (Fanling)
7	Area	G7	0.000029937	833918.8	837574.9	77.4	62	0	90		Heavy construction (Fanling)
8	Area		0.000002696	833918.8	837574.9	77.4	62	0	90		wind erosion (Fanling)
9	Area	G1	0.000029937	834116.2	838371.0	82	35.1	0	70		Slope cutting (Fanling)
10	Area		0.000002696	834116.2	838371.0	82	35.1	0	70		wind erosion (Fanling)
11	Area	G2	0.000029937	834059.9	838289.4	112	21.3	0	67		Slope cutting (Fanling)
12	Area		0.000002696	834059.9	838289.4	112	21.3	0	67		wind erosion (Fanling)
13	Area	KLH3	0.000000089	833960.2	838310.2	153	65	0	67		Material Handling + Storage pile (Fanling)
14	Area		0.00000054	833960.2	838310.2	153	65	0	67		wind erosion (Fanling)
15	Area	G3	0.000029937	833994.7	838221.2	48.7	42.1	0	67		Slope cutting (Fanling)
16	Area		0.000002696	833994.7	838221.2	48.7	42.1	0	67		wind erosion (Fanling)

Appendix 3.1c - Details of Dust Emission Sources for 1-hour and Daily TSP Assessment (Tier 2)
Refer to Figure 3.3.14 - 3.3.15
Fanling Section (for ASRs - NWP1 NWP2 NWP3) - input data

No. of source	Type of Source	ID	Emission ($g/m^2/s$)	X-coordinate	Y-coordinate	Length (m)	Width (m)	Height (m)	Angle		Decription
1	Area	G4	0.000029937	833928.5	837910.5	97	97.5	0	90		Heavy construction (Fanling)
2	Area		0.000002696	833928.5	837910.5	97	97.5	0	90		wind erosion (Fanling)
3	Area	G5	0.000029937	833917.6	837735.8	245	29.1	0	90		Heavy construction (Fanling)
4	Area		0.000002696	833917.6	837735.8	245	29.1	0	90		wind erosion (Fanling)
5	Area	G6	0.000029937	833835.9	837736.3	245	24.4	0	90		Heavy construction (Fanling)
6	Area		0.000002696	833835.9	837736.3	245	24.4	0	90		wind erosion (Fanling)
7	Area	G7	0.000029937	833902.0	837483.8	260	18.5	0	90		Heavy construction (Fanling)
8	Area		0.000002696	833902.0	837483.8	260	18.5	0	90		wind erosion (Fanling)
9	Area	G1	0.000029937	834065.4	838361.7	117	24.6	0	-20		Slope cutting (Fanling)
10	Area		0.000002696	834065.4	838361.7	117	24.6	0	-20		wind erosion (Fanling)
11	Area	G2	0.000029937	833962.7	838139.4	108.5	41.1	0	67		Heavy construction (Fanling)
12	Area		0.000002696	833962.7	838139.4	108.5	41.1	0	67		wind erosion (Fanling)
13	Area	KLH3	0.000000089	833960.2	838310.2	153	65	0	67		Material Handling + Storage pile (Fanling)
14	Area		0.00000054	833960.2	838310.2	153	65	0	67		wind erosion (Fanling)

Appendix 3.1c - Details of Dust Emission Sources for 1-hour and Daily TSP Assessment (Tier 2)
Refer to Figure 3.3.16 - 3.3.17
Fanling Section (for ASRs - KT1 KT2 KT3 & KLH1) - input data

No. of source	Type of Source	ID	Emission ($g/m^2/s$)	X-coordinate	Y-coordinate	Length (m)	Width (m)	Height (m)	Angle		Decription
1	Area	G4	0.000029937	833928.5	837910.5	97	97.5	0	90		Heavy construction (Fanling)
2	Area		0.000002696	833928.5	837910.5	97	97.5	0	90		wind erosion (Fanling)
3	Area	G5	0.000029937	833985.1	837736.3	245	29.1	0	90		Heavy construction (Fanling)
4	Area		0.000002696	833985.1	837736.3	245	29.1	0	90		wind erosion (Fanling)
5	Area	G6	0.000029937	833889.3	837735.8	245	24.4	0	90		Heavy construction (Fanling)
6	Area		0.000002696	833889.3	837735.8	245	24.4	0	90		wind erosion (Fanling)
7	Area	G7	0.000029937	833938.4	837483.8	260	18.5	0	90		Heavy construction (Fanling)
8	Area		0.000002696	833938.4	837483.8	260	18.5	0	90		wind erosion (Fanling)
9	Area	G1	0.000029937	834065.4	838361.7	117	24.6	0	-20		Slope cutting (Fanling)
10	Area		0.000002696	834065.4	838361.7	117	24.6	0	-20		wind erosion (Fanling)
11	Area	G2	0.000029937	833962.7	838139.4	108.5	41.1	0	67		Heavy construction (Fanling)
12	Area		0.000002696	833962.7	838139.4	108.5	41.1	0	67		wind erosion (Fanling)
13	Area	KLH3	0.000000089	833960.2	838310.2	153	65	0	67		Material Handling + Storage pile (Fanling)
14	Area		0.00000054	833960.2	838310.2	153	65	0	67		wind erosion (Fanling)