

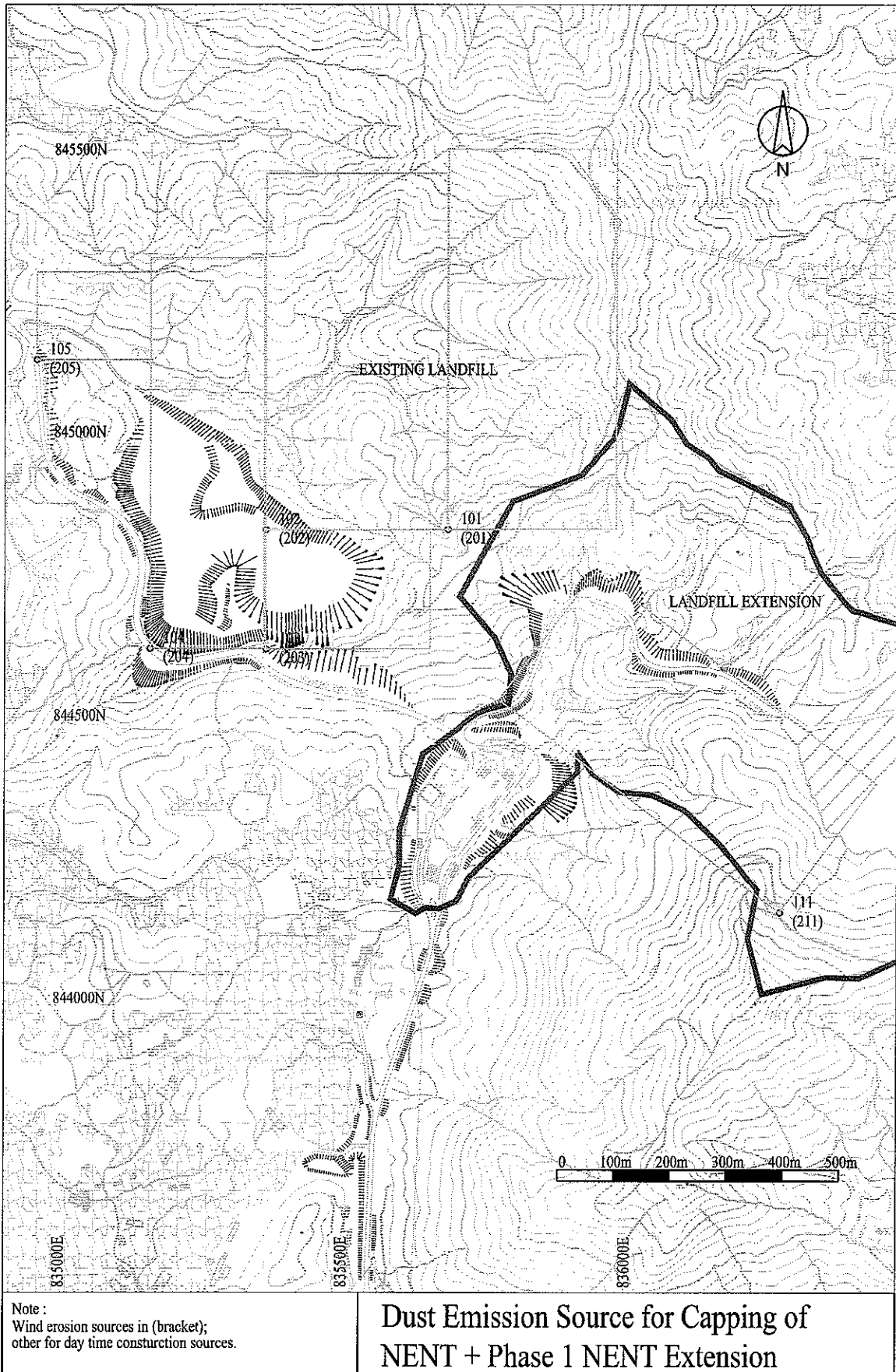
Appendix 3.1

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**Construction Dust  
Assessment**

# Appendix 3.1

## Construction Dust Assessment



Appendix 3.1a: Emission Rate for Heavy Construction Activities (NENT under restoration and Phase 1 of NENT Extension in operation)  
**Calculation of Emission factor for Heavy Construction**

E = 1.2tons/acre/month of activity (ref. AP-42 S13.2.3.3)  
 or = 2.69Mg/hectare/month of activity

Where

E = Emission Factor

Assume

Active operational area (m <sup>2</sup> )	3000	provided by engineer based on the construction schedule
Mitigation efficiency (%)	50	*0% for Do-nothing, 50% efficiency for watering twice daily
E (g/sq.m/day)	10.3462	Assume 26 working days per month and 12 working hours a day
E (g/sq.m/s)	<b>0.000119747</b>	calculated, 12 working hours per day

Appendix 3.1b: Emission Factor for Heavy Construction Activities  
(NENT under restoration and Phase 1 of NENT Extension in operation)  
Heavy Construction

ID	Description	Source	X-coordinate	Y-coordinate	Z-coordinate	Emission (g)	Equity Emission Rate (g/m <sup>2</sup> /hr)	Total Work Area (m <sup>2</sup> )	Release Height (m)	Plume Length (m)	Plume Width (m)	Plume Height (m)	Total Area (m <sup>2</sup> )	Active Area (m <sup>2</sup> )	Total Area (m <sup>2</sup> )	Total NENT Area (m <sup>2</sup> )
T11																33625
E1	101 AREA	836293.0	844171.0	65.0	4.265992E-03	2.99449E-05	178.25	35625	0.5	205	625	-50	178.25	20.00%	35625	33625
E2	101 AREA	835704.0	844847.0	180.0	1.136706E-01	5.697132E-07	199881	9493	0.5	297	673	0	199881	0.47%	9493	3000
E3	103 AREA	835383.0	844847.0	120.0	1.146495E-01	5.688602E-07	201600	957.4	0.5	350	630	0	201600	0.47%	957.4	3000
E4	104 AREA	835180.0	844636.0	120.0	3.463098E-02	5.688513E-07	60900	239.2	0.5	290	210	0	60900	0.47%	239.2	3000
E5	105 AREA	834978.0	845147.0	60.0	7.848228E-02	5.697132E-07	139000	655.4	0.5	200	690	0	139000	0.47%	655.4	3000
					1.780640E-02	5.687139E-07	31310	148.7	0.5	202	185	0	31310	0.47%	148.7	3000

(20% of Phase 1 for stockpiling and site formation at NENT Extension = 35625m<sup>2</sup>)  
(800m<sup>2</sup> for covering/stockpiling for NENT)

Appendix 3.1c: Emission Rate for Wind Erosion(NENT under restoration and Phase 1 of NENT Extension in operation)  
**Calculation of Emission factor for Wind Erosion**

E = 0.85Mg/hectare/yr (ref : AP-42 S11.9, Table 11.9.4)

Where

E = Emission Factor

Assume

Active operational area (m2)	3000	provided by engineer based on the construction schedule
Mitigation efficiency (%)	50	*0% for Do-nothing, 50% efficiency for watering twice daily
E (g/sqm/day)	0.232876712	calculated as in AP-42 (S11.9, Table 11.9.4)
E (g/sq.m/s)	<b>1.34767E-06</b>	calculated, 24-hour emission

Appendix 3.1c: Emission Factor for Wind Erosion  
(NENT under restoration and Phase 1 of NENT Extension in operation)

Wind Erosion

ID	Source	X-coordinate	Y-coordinate	Z-coordinate	Emission	Equip. Emission Rate	Total Work Area	Release Height	X Length	Y Length	Angle	Plume Height	Total Area	% of Active Area	Total NENT Area
E1 - E	211 AREA	835293.0	844171.0	65.0	4.807091E-04	2.895332E-07	6400506E-09	0.5	285	625	-50.0	178125	35625	20.00%	691691
E2 - E	201 AREA	835704.0	844847.0	180.0	1.278339E-03	6.400506E-09	6400771E-09	0.5	287	673	0.0	198881	949.3	0.47%	3000
E3 - E	202 AREA	835383.0	844847.0	120.0	1.290266E-03	6.400771E-09	6397751E-09	0.5	320	630	0.0	201600	957.4	0.47%	3000
E4 - E	203 AREA	835383.0	844636.0	120.0	3.897451E-04	6.397751E-09	6400436E-09	0.5	290	210	0.0	60500	289.2	0.47%	3000
E5 - E	204 AREA	835160.0	844637.0	90.0	8.832646E-04	6.400436E-09	6400446E-09	0.5	200	690	0.0	138000	655.4	0.47%	3000
E5 - E	205 AREA	834978.0	845147.0	60.0	2.003800E-04	6.399446E-09	6400446E-09	0.5	202	155	0.0	31310	148.7	0.47%	3000

(20% of Phase 1 for stockpiling and site formation at NENT Extension = 35625m<sup>2</sup>)  
(300m<sup>2</sup> for corening/stockpiling for NENT)