

**Appendix 3.1 Calculation of Construction Dust Emission Source**

**Scenario 1**

**Construction Phase Year 2025**

Location	Source	Emission Rates	Unmitigated	Mitigated	Parameters	Remarks		
TME	Construction Activities	Heavy Construction Area Source (g/m <sup>2</sup> /s)	TSP	2.07562E-04	1.72276E-05	Emission Rate = (Emission Factor*10 <sup>6</sup> /10000)/(30*No. of Operation hour*60*60)*(Percentage Active/100)*(1-Dust Suppression%)		
						TSP emission factor (Mg/hectare/month of activity)	2.69	from AP-42, S13.2.3, 1/95 ed.
						Percentage area actively operating (%)	100	
		RSP	9.81767E-05	8.14867E-06	% of dust suppression	91.7	Assume watering once every 2 hours. Refer to the Calculation of Dust Supression Efficiency by Watering.	
					no. of operation hour (hr)	12	Assume typical working hours of work site (0700 - 1900)	
					Emission height (m)	0.5		
FSP	1.49444E-05	1.24039E-06	RSP emission factor (Mg/hectare/month of activity)	1.27237				
			% fraction of TSP	0.47	from USEPA AP-42, 5th ed. 11/06 ed. S13.2.4			
			FSP emission factor (Mg/hectare/month of activity)	0.19368				
			% fraction of TSP	0.07	from USEPA AP-42, 5th ed. 11/06 ed. S13.2.4			
TME	Construction Activities	Wind Erosion Area Source (g/m <sup>2</sup> /s)	TSP	2.69533E-06		Emission Rate = Emission Factor*10 <sup>6</sup> /((10000*365*24*60*60)*(Percentage Active/100)		
						TSP emission factor (Mg/hectare/yr)	0.85	AP-42, 5th ed., Table 11.9.4
						Percentage area actively operating (%)	100	
		RSP	1.27489E-06		Emission height (m)	0.5		
					RSP emission factor (Mg/hectare/yr)	0.40205		
					% fraction of TSP	0.47	from USEPA AP-42, 5th ed. 11/06 ed. S13.2.4	
FSP	1.94064E-07		FSP emission factor (Mg/hectare/yr)	0.0612				
			% fraction of TSP	0.07	from USEPA AP-42, 5th ed. 11/06 ed. S13.2.4			

**Appendix 3.1 Calculation of Construction Dust Emission Source**

**Scenario 1**

Emission Source Listing in AERMOD

Unmitigated Construction Dust Emission Sources

Source ID	Type	X1	Y1	X2	Y2	Angle of Rotation	Height (m)	No. of Vertices	Working Hour	TSP Emission Rate (g/m2-s)		RSP Emission Rate (g/m2-s)		FSP Emission Rate (g/m2-s)	
										Working hours	Non-working hours	Working hours	Non-working hours	Working hours	Non-working hours
SC01	AREAPOLY	814454.53	825958.68	-	-	-	0.5	6	07:00 - 19:00	2.07562E-04	2.69533E-06	9.81767E-05	1.27489E-06	1.49444E-05	1.94064E-07
SC02	AREAPOLY	814427.11	826049.04	-	-	-	0.5	15	07:00 - 19:00	2.07562E-04	2.69533E-06	9.81767E-05	1.27489E-06	1.49444E-05	1.94064E-07
SC03	AREAPOLY	814537.54	826114.19	-	-	-	0.5	13	07:00 - 19:00	2.07562E-04	2.69533E-06	9.81767E-05	1.27489E-06	1.49444E-05	1.94064E-07
SC04	AREAPOLY	814572.88	826268.57	-	-	-	0.5	15	07:00 - 19:00	2.07562E-04	2.69533E-06	9.81767E-05	1.27489E-06	1.49444E-05	1.94064E-07
SC05	AREAPOLY	814563.47	826231.42	-	-	-	0.5	12	07:00 - 19:00	2.07562E-04	2.69533E-06	9.81767E-05	1.27489E-06	1.49444E-05	1.94064E-07
SC06	AREAPOLY	814596.35	826552.72	-	-	-	0.5	19	07:00 - 19:00	2.07562E-04	2.69533E-06	9.81767E-05	1.27489E-06	1.49444E-05	1.94064E-07
SC07	AREAPOLY	814661.31	826610.14	-	-	-	0.5	15	07:00 - 19:00	2.07562E-04	2.69533E-06	9.81767E-05	1.27489E-06	1.49444E-05	1.94064E-07
SC08	AREAPOLY	814632.59	826629.35	-	-	-	0.5	19	07:00 - 19:00	2.07562E-04	2.69533E-06	9.81767E-05	1.27489E-06	1.49444E-05	1.94064E-07
SC09	AREAPOLY	814763.08	826887.48	-	-	-	0.5	19	07:00 - 19:00	2.07562E-04	2.69533E-06	9.81767E-05	1.27489E-06	1.49444E-05	1.94064E-07
SC10	AREAPOLY	814757.63	827098.96	-	-	-	0.5	9	07:00 - 19:00	2.07562E-04	2.69533E-06	9.81767E-05	1.27489E-06	1.49444E-05	1.94064E-07
SC12	AREAPOLY	814994.26	827412.99	-	-	-	0.5	6	07:00 - 19:00	2.07562E-04	2.69533E-06	9.81767E-05	1.27489E-06	1.49444E-05	1.94064E-07
SC13	AREAPOLY	815008.65	827445.99	-	-	-	0.5	20	07:00 - 19:00	2.07562E-04	2.69533E-06	9.81767E-05	1.27489E-06	1.49444E-05	1.94064E-07
SC14	AREAPOLY	815073.32	827536.22	-	-	-	0.5	20	07:00 - 19:00	2.07562E-04	2.69533E-06	9.81767E-05	1.27489E-06	1.49444E-05	1.94064E-07
SC15	AREAPOLY	815166.79	827747.26	-	-	-	0.5	13	07:00 - 19:00	2.07562E-04	2.69533E-06	9.81767E-05	1.27489E-06	1.49444E-05	1.94064E-07
SC16	AREAPOLY	815133.11	828038.25	-	-	-	0.5	15	07:00 - 19:00	2.07562E-04	2.69533E-06	9.81767E-05	1.27489E-06	1.49444E-05	1.94064E-07
SC17	AREAPOLY	815014.07	827632.51	-	-	-	0.5	13	07:00 - 19:00	2.07562E-04	2.69533E-06	9.81767E-05	1.27489E-06	1.49444E-05	1.94064E-07
SC18	AREAPOLY	814624.42	826533.93	-	-	-	0.5	6	07:00 - 19:00	2.07562E-04	2.69533E-06	9.81767E-05	1.27489E-06	1.49444E-05	1.94064E-07
SC19	AREAPOLY	814644.70	826557.88	-	-	-	0.5	4	07:00 - 19:00	2.07562E-04	2.69533E-06	9.81767E-05	1.27489E-06	1.49444E-05	1.94064E-07
SC20	AREAPOLY	814697.12	826770.15	-	-	-	0.5	4	07:00 - 19:00	2.07562E-04	2.69533E-06	9.81767E-05	1.27489E-06	1.49444E-05	1.94064E-07
SC21	AREAPOLY	814718.86	826888.27	-	-	-	0.5	4	07:00 - 19:00	2.07562E-04	2.69533E-06	9.81767E-05	1.27489E-06	1.49444E-05	1.94064E-07
SC22	AREAPOLY	814726.25	826959.00	-	-	-	0.5	4	07:00 - 19:00	2.07562E-04	2.69533E-06	9.81767E-05	1.27489E-06	1.49444E-05	1.94064E-07
SC23	AREAPOLY	814731.01	826999.23	-	-	-	0.5	4	07:00 - 19:00	2.07562E-04	2.69533E-06	9.81767E-05	1.27489E-06	1.49444E-05	1.94064E-07
SC24	AREAPOLY	814738.17	827038.81	-	-	-	0.5	4	07:00 - 19:00	2.07562E-04	2.69533E-06	9.81767E-05	1.27489E-06	1.49444E-05	1.94064E-07
SC25	AREAPOLY	814743.07	827072.62	-	-	-	0.5	4	07:00 - 19:00	2.07562E-04	2.69533E-06	9.81767E-05	1.27489E-06	1.49444E-05	1.94064E-07
SC26	AREAPOLY	814749.91	827103.76	-	-	-	0.5	4	07:00 - 19:00	2.07562E-04	2.69533E-06	9.81767E-05	1.27489E-06	1.49444E-05	1.94064E-07
SC27	AREAPOLY	814756.96	827129.55	-	-	-	0.5	4	07:00 - 19:00	2.07562E-04	2.69533E-06	9.81767E-05	1.27489E-06	1.49444E-05	1.94064E-07
SC28	AREAPOLY	814767.66	827154.80	-	-	-	0.5	6	07:00 - 19:00	2.07562E-04	2.69533E-06	9.81767E-05	1.27489E-06	1.49444E-05	1.94064E-07
SC29	AREAPOLY	814772.24	827161.97	-	-	-	0.5	6	07:00 - 19:00	2.07562E-04	2.69533E-06	9.81767E-05	1.27489E-06	1.49444E-05	1.94064E-07
SC30	AREAPOLY	814821.58	827247.87	-	-	-	0.5	8	07:00 - 19:00	2.07562E-04	2.69533E-06	9.81767E-05	1.27489E-06	1.49444E-05	1.94064E-07
SC31	AREAPOLY	814821.58	827247.87	-	-	-	0.5	8	07:00 - 19:00	2.07562E-04	2.69533E-06	9.81767E-05	1.27489E-06	1.49444E-05	1.94064E-07
SC32	AREAPOLY	814854.81	827293.37	-	-	-	0.5	6	07:00 - 19:00	2.07562E-04	2.69533E-06	9.81767E-05	1.27489E-06	1.49444E-05	1.94064E-07
SC33	AREAPOLY	814861.81	827303.46	-	-	-	0.5	6	07:00 - 19:00	2.07562E-04	2.69533E-06	9.81767E-05	1.27489E-06	1.49444E-05	1.94064E-07
SC34	AREAPOLY	814874.73	827323.69	-	-	-	0.5	6	07:00 - 19:00	2.07562E-04	2.69533E-06	9.81767E-05	1.27489E-06	1.49444E-05	1.94064E-07
SC35	AREAPOLY	814887.64	827343.92	-	-	-	0.5	6	07:00 - 19:00	2.07562E-04	2.69533E-06	9.81767E-05	1.27489E-06	1.49444E-05	1.94064E-07
SC36	AREAPOLY	814900.56	827364.14	-	-	-	0.5	6	07:00 - 19:00	2.07562E-04	2.69533E-06	9.81767E-05	1.27489E-06	1.49444E-05	1.94064E-07
SC37	AREAPOLY	814913.47	827384.37	-	-	-	0.5	6	07:00 - 19:00	2.07562E-04	2.69533E-06	9.81767E-05	1.27489E-06	1.49444E-05	1.94064E-07
SC38	AREAPOLY	814926.18	827404.29	-	-	-	0.5	6	07:00 - 19:00	2.07562E-04	2.69533E-06	9.81767E-05	1.27489E-06	1.49444E-05	1.94064E-07
SC39	AREAPOLY	814940.72	827395.00	-	-	-	0.5	6	07:00 - 19:00	2.07562E-04	2.69533E-06	9.81767E-05	1.27489E-06	1.49444E-05	1.94064E-07
SC40	AREAPOLY	814951.94	827393.39	-	-	-	0.5	4	07:00 - 19:00	2.07562E-04	2.69533E-06	9.81767E-05	1.27489E-06	1.49444E-05	1.94064E-07
SC41	AREAPOLY	814936.77	827365.97	-	-	-	0.5	4	07:00 - 19:00	2.07562E-04	2.69533E-06	9.81767E-05	1.27489E-06	1.49444E-05	1.94064E-07
SC42	AREAPOLY	814954.04	827428.64	-	-	-	0.5	4	07:00 - 19:00	2.07562E-04	2.69533E-06	9.81767E-05	1.27489E-06	1.49444E-05	1.94064E-07
SC43	AREAPOLY	814965.98	827424.93	-	-	-	0.5	4	07:00 - 19:00	2.07562E-04	2.69533E-06	9.81767E-05	1.27489E-06	1.49444E-05	1.94064E-07
SC44	AREAPOLY	814971.31	827421.45	-	-	-	0.5	4	07:00 - 19:00	2.07562E-04	2.69533E-06	9.81767E-05	1.27489E-06	1.49444E-05	1.94064E-07
SC45	AREAPOLY	814974.72	827460.51	-	-	-	0.5	4	07:00 - 19:00	2.07562E-04	2.69533E-06	9.81767E-05	1.27489E-06	1.49444E-05	1.94064E-07
SC46	AREAPOLY	814982.28	827455.11	-	-	-	0.5	4	07:00 - 19:00	2.07562E-04	2.69533E-06	9.81767E-05	1.27489E-06	1.49444E-05	1.94064E-07
SC47	AREAPOLY	814989.82	827449.73	-	-	-	0.5	4	07:00 - 19:00	2.07562E-04	2.69533E-06	9.81767E-05	1.27489E-06	1.49444E-05	1.94064E-07
SC48	AREAPOLY	815005.48	827493.67	-	-	-	0.5	4	07:00 - 19:00	2.07562E-04	2.69533E-06	9.81767E-05	1.27489E-06	1.49444E-05	1.94064E-07
SC49	AREAPOLY	815014.41	827486.40	-	-	-	0.5	4	07:00 - 19:00	2.07562E-04	2.69533E-06	9.81767E-05	1.27489E-06	1.49444E-05	1.94064E-07
SC50	AREAPOLY	815030.19	827519.42	-	-	-	0.5	4	07:00 - 19:00	2.07562E-04	2.69533E-06	9.81767E-05	1.27489E-06	1.49444E-05	1.94064E-07
SC51	AREAPOLY	815037.04	827514.09	-	-	-	0.5	4	07:00 - 19:00	2.07562E-04	2.69533E-06	9.81767E-05	1.27489E-06	1.49444E-05	1.94064E-07

**Appendix 3.1 Calculation of Construction Dust Emission Source**

**Scenario 1**

Emission Source Listing in AERMOD

Unmitigated Construction Dust Emission Sources

Source ID	Type	X1	Y1	X2	Y2	Angle of Rotation	Height (m)	No. of Vertices	Working Hour	TSP Emission Rate (g/m2-s)		RSP Emission Rate (g/m2-s)		FSP Emission Rate (g/m2-s)	
										Working hours	Non-working hours	Working hours	Non-working hours	Working hours	Non-working hours
SC52	AREAPOLY	815055.40	827548.78	-	-	-	0.5	4	07:00 - 19:00	2.07562E-04	2.69533E-06	9.81767E-05	1.27489E-06	1.49444E-05	1.94064E-07
SC53	AREAPOLY	815059.51	827545.63	-	-	-	0.5	4	07:00 - 19:00	2.07562E-04	2.69533E-06	9.81767E-05	1.27489E-06	1.49444E-05	1.94064E-07
SC54	AREAPOLY	815078.35	827579.80	-	-	-	0.5	4	07:00 - 19:00	2.07562E-04	2.69533E-06	9.81767E-05	1.27489E-06	1.49444E-05	1.94064E-07
SC55	AREAPOLY	815082.49	827577.01	-	-	-	0.5	4	07:00 - 19:00	2.07562E-04	2.69533E-06	9.81767E-05	1.27489E-06	1.49444E-05	1.94064E-07
SC56	AREAPOLY	815097.14	827609.56	-	-	-	0.5	4	07:00 - 19:00	2.07562E-04	2.69533E-06	9.81767E-05	1.27489E-06	1.49444E-05	1.94064E-07
SC57	AREAPOLY	815101.46	827607.17	-	-	-	0.5	4	07:00 - 19:00	2.07562E-04	2.69533E-06	9.81767E-05	1.27489E-06	1.49444E-05	1.94064E-07
SC58	AREAPOLY	815111.25	827638.51	-	-	-	0.5	4	07:00 - 19:00	2.07562E-04	2.69533E-06	9.81767E-05	1.27489E-06	1.49444E-05	1.94064E-07
SC59	AREAPOLY	815115.82	827636.45	-	-	-	0.5	4	07:00 - 19:00	2.07562E-04	2.69533E-06	9.81767E-05	1.27489E-06	1.49444E-05	1.94064E-07
SC60	AREAPOLY	815126.97	827677.37	-	-	-	0.5	4	07:00 - 19:00	2.07562E-04	2.69533E-06	9.81767E-05	1.27489E-06	1.49444E-05	1.94064E-07
SC61	AREAPOLY	815131.69	827675.73	-	-	-	0.5	4	07:00 - 19:00	2.07562E-04	2.69533E-06	9.81767E-05	1.27489E-06	1.49444E-05	1.94064E-07
SC62	AREAPOLY	815137.94	827715.35	-	-	-	0.5	4	07:00 - 19:00	2.07562E-04	2.69533E-06	9.81767E-05	1.27489E-06	1.49444E-05	1.94064E-07
SC63	AREAPOLY	815142.76	827714.16	-	-	-	0.5	4	07:00 - 19:00	2.07562E-04	2.69533E-06	9.81767E-05	1.27489E-06	1.49444E-05	1.94064E-07
SC64	AREAPOLY	815146.68	827754.38	-	-	-	0.5	4	07:00 - 19:00	2.07562E-04	2.69533E-06	9.81767E-05	1.27489E-06	1.49444E-05	1.94064E-07
SC65	AREAPOLY	815151.55	827753.29	-	-	-	0.5	4	07:00 - 19:00	2.07562E-04	2.69533E-06	9.81767E-05	1.27489E-06	1.49444E-05	1.94064E-07

Hourly Profile

Hour	TSP	RSP	FSP
Hour 1	0.01299	0.01299	0.01299
Hour 2	0.01299	0.01299	0.01299
Hour 3	0.01299	0.01299	0.01299
Hour 4	0.01299	0.01299	0.01299
Hour 5	0.01299	0.01299	0.01299
Hour 6	0.01299	0.01299	0.01299
Hour 7	0.01299	0.01299	0.01299
Hour 8	1.00000	1.00000	1.00000
Hour 9	1.00000	1.00000	1.00000
Hour 10	1.00000	1.00000	1.00000
Hour 11	1.00000	1.00000	1.00000
Hour 12	1.00000	1.00000	1.00000
Hour 13	1.00000	1.00000	1.00000
Hour 14	1.00000	1.00000	1.00000
Hour 15	1.00000	1.00000	1.00000
Hour 16	1.00000	1.00000	1.00000
Hour 17	1.00000	1.00000	1.00000
Hour 18	1.00000	1.00000	1.00000
Hour 19	1.00000	1.00000	1.00000
Hour 20	0.01299	0.01299	0.01299
Hour 21	0.01299	0.01299	0.01299
Hour 22	0.01299	0.01299	0.01299
Hour 23	0.01299	0.01299	0.01299
Hour 24	0.01299	0.01299	0.01299

Remark:

The construction period was assumed to be 12-hour between 07:00 and 19:00.

Only wind erosion was assumed for non-working hours, and the hourly ratio was calculated by wind erosion emission rate/heavy construction emission rate.

**Appendix 3.1 Calculation of Construction Dust Emission Source**

**Scenario 1**

Emission Source Listing in AERMOD

Mitigated Construction Dust Emission Sources

Source ID	Type	X1	Y1	X2	Y2	Angle of Rotation	Height (m)	No. of Vertices	Working Hour	TSP Emission Rate (g/m2-s)		RSP Emission Rate (g/m2-s)		FSP Emission Rate (g/m2-s)	
										Working hours	Non-working hours	Working hours	Non-working hours	Working hours	Non-working hours
SC01	AREAPOLY	814454.53	825958.68	-	-	-	0.5	6	07:00 - 19:00	1.72276E-05	2.69533E-06	8.14867E-06	1.27489E-06	1.24039E-06	1.94064E-07
SC02	AREAPOLY	814427.11	826049.04	-	-	-	0.5	15	07:00 - 19:00	1.72276E-05	2.69533E-06	8.14867E-06	1.27489E-06	1.24039E-06	1.94064E-07
SC03	AREAPOLY	814537.54	826114.19	-	-	-	0.5	13	07:00 - 19:00	1.72276E-05	2.69533E-06	8.14867E-06	1.27489E-06	1.24039E-06	1.94064E-07
SC04	AREAPOLY	814572.88	826268.57	-	-	-	0.5	15	07:00 - 19:00	1.72276E-05	2.69533E-06	8.14867E-06	1.27489E-06	1.24039E-06	1.94064E-07
SC05	AREAPOLY	814563.47	826231.42	-	-	-	0.5	12	07:00 - 19:00	1.72276E-05	2.69533E-06	8.14867E-06	1.27489E-06	1.24039E-06	1.94064E-07
SC06	AREAPOLY	814596.35	826552.72	-	-	-	0.5	19	07:00 - 19:00	1.72276E-05	2.69533E-06	8.14867E-06	1.27489E-06	1.24039E-06	1.94064E-07
SC07	AREAPOLY	814661.31	826610.14	-	-	-	0.5	15	07:00 - 19:00	1.72276E-05	2.69533E-06	8.14867E-06	1.27489E-06	1.24039E-06	1.94064E-07
SC08	AREAPOLY	814632.59	826629.35	-	-	-	0.5	19	07:00 - 19:00	1.72276E-05	2.69533E-06	8.14867E-06	1.27489E-06	1.24039E-06	1.94064E-07
SC09	AREAPOLY	814763.08	826887.48	-	-	-	0.5	19	07:00 - 19:00	1.72276E-05	2.69533E-06	8.14867E-06	1.27489E-06	1.24039E-06	1.94064E-07
SC10	AREAPOLY	814757.63	827098.96	-	-	-	0.5	9	07:00 - 19:00	1.72276E-05	2.69533E-06	8.14867E-06	1.27489E-06	1.24039E-06	1.94064E-07
SC12	AREAPOLY	814994.26	827412.99	-	-	-	0.5	6	07:00 - 19:00	1.72276E-05	2.69533E-06	8.14867E-06	1.27489E-06	1.24039E-06	1.94064E-07
SC13	AREAPOLY	815008.65	827445.99	-	-	-	0.5	20	07:00 - 19:00	1.72276E-05	2.69533E-06	8.14867E-06	1.27489E-06	1.24039E-06	1.94064E-07
SC14	AREAPOLY	815073.32	827536.22	-	-	-	0.5	20	07:00 - 19:00	1.72276E-05	2.69533E-06	8.14867E-06	1.27489E-06	1.24039E-06	1.94064E-07
SC15	AREAPOLY	815166.79	827747.26	-	-	-	0.5	13	07:00 - 19:00	1.72276E-05	2.69533E-06	8.14867E-06	1.27489E-06	1.24039E-06	1.94064E-07
SC16	AREAPOLY	815133.11	828038.25	-	-	-	0.5	15	07:00 - 19:00	1.72276E-05	2.69533E-06	8.14867E-06	1.27489E-06	1.24039E-06	1.94064E-07
SC17	AREAPOLY	815014.07	827632.51	-	-	-	0.5	13	07:00 - 19:00	1.72276E-05	2.69533E-06	8.14867E-06	1.27489E-06	1.24039E-06	1.94064E-07
SC18	AREAPOLY	814624.42	826533.93	-	-	-	0.5	6	07:00 - 19:00	1.72276E-05	2.69533E-06	8.14867E-06	1.27489E-06	1.24039E-06	1.94064E-07
SC19	AREAPOLY	814644.70	826557.88	-	-	-	0.5	4	07:00 - 19:00	1.72276E-05	2.69533E-06	8.14867E-06	1.27489E-06	1.24039E-06	1.94064E-07
SC20	AREAPOLY	814697.12	826770.15	-	-	-	0.5	4	07:00 - 19:00	1.72276E-05	2.69533E-06	8.14867E-06	1.27489E-06	1.24039E-06	1.94064E-07
SC21	AREAPOLY	814718.86	826888.27	-	-	-	0.5	4	07:00 - 19:00	1.72276E-05	2.69533E-06	8.14867E-06	1.27489E-06	1.24039E-06	1.94064E-07
SC22	AREAPOLY	814726.25	826959.00	-	-	-	0.5	4	07:00 - 19:00	1.72276E-05	2.69533E-06	8.14867E-06	1.27489E-06	1.24039E-06	1.94064E-07
SC23	AREAPOLY	814731.01	826999.23	-	-	-	0.5	4	07:00 - 19:00	1.72276E-05	2.69533E-06	8.14867E-06	1.27489E-06	1.24039E-06	1.94064E-07
SC24	AREAPOLY	814738.17	827038.81	-	-	-	0.5	4	07:00 - 19:00	1.72276E-05	2.69533E-06	8.14867E-06	1.27489E-06	1.24039E-06	1.94064E-07
SC25	AREAPOLY	814743.07	827072.62	-	-	-	0.5	4	07:00 - 19:00	1.72276E-05	2.69533E-06	8.14867E-06	1.27489E-06	1.24039E-06	1.94064E-07
SC26	AREAPOLY	814749.91	827103.76	-	-	-	0.5	4	07:00 - 19:00	1.72276E-05	2.69533E-06	8.14867E-06	1.27489E-06	1.24039E-06	1.94064E-07
SC27	AREAPOLY	814756.96	827129.55	-	-	-	0.5	4	07:00 - 19:00	1.72276E-05	2.69533E-06	8.14867E-06	1.27489E-06	1.24039E-06	1.94064E-07
SC28	AREAPOLY	814767.66	827154.80	-	-	-	0.5	6	07:00 - 19:00	1.72276E-05	2.69533E-06	8.14867E-06	1.27489E-06	1.24039E-06	1.94064E-07
SC29	AREAPOLY	814772.24	827161.97	-	-	-	0.5	6	07:00 - 19:00	1.72276E-05	2.69533E-06	8.14867E-06	1.27489E-06	1.24039E-06	1.94064E-07
SC30	AREAPOLY	814821.58	827247.87	-	-	-	0.5	8	07:00 - 19:00	1.72276E-05	2.69533E-06	8.14867E-06	1.27489E-06	1.24039E-06	1.94064E-07
SC31	AREAPOLY	814821.58	827247.87	-	-	-	0.5	8	07:00 - 19:00	1.72276E-05	2.69533E-06	8.14867E-06	1.27489E-06	1.24039E-06	1.94064E-07
SC32	AREAPOLY	814854.81	827293.37	-	-	-	0.5	6	07:00 - 19:00	1.72276E-05	2.69533E-06	8.14867E-06	1.27489E-06	1.24039E-06	1.94064E-07
SC33	AREAPOLY	814861.81	827303.46	-	-	-	0.5	6	07:00 - 19:00	1.72276E-05	2.69533E-06	8.14867E-06	1.27489E-06	1.24039E-06	1.94064E-07
SC34	AREAPOLY	814874.73	827323.69	-	-	-	0.5	6	07:00 - 19:00	1.72276E-05	2.69533E-06	8.14867E-06	1.27489E-06	1.24039E-06	1.94064E-07
SC35	AREAPOLY	814887.64	827343.92	-	-	-	0.5	6	07:00 - 19:00	1.72276E-05	2.69533E-06	8.14867E-06	1.27489E-06	1.24039E-06	1.94064E-07
SC36	AREAPOLY	814900.56	827364.14	-	-	-	0.5	6	07:00 - 19:00	1.72276E-05	2.69533E-06	8.14867E-06	1.27489E-06	1.24039E-06	1.94064E-07
SC37	AREAPOLY	814913.47	827384.37	-	-	-	0.5	6	07:00 - 19:00	1.72276E-05	2.69533E-06	8.14867E-06	1.27489E-06	1.24039E-06	1.94064E-07
SC38	AREAPOLY	814926.18	827404.29	-	-	-	0.5	6	07:00 - 19:00	1.72276E-05	2.69533E-06	8.14867E-06	1.27489E-06	1.24039E-06	1.94064E-07
SC39	AREAPOLY	814940.72	827395.00	-	-	-	0.5	6	07:00 - 19:00	1.72276E-05	2.69533E-06	8.14867E-06	1.27489E-06	1.24039E-06	1.94064E-07
SC40	AREAPOLY	814951.94	827393.39	-	-	-	0.5	4	07:00 - 19:00	1.72276E-05	2.69533E-06	8.14867E-06	1.27489E-06	1.24039E-06	1.94064E-07
SC41	AREAPOLY	814936.77	827365.97	-	-	-	0.5	4	07:00 - 19:00	1.72276E-05	2.69533E-06	8.14867E-06	1.27489E-06	1.24039E-06	1.94064E-07
SC42	AREAPOLY	814954.04	827428.64	-	-	-	0.5	4	07:00 - 19:00	1.72276E-05	2.69533E-06	8.14867E-06	1.27489E-06	1.24039E-06	1.94064E-07
SC43	AREAPOLY	814965.98	827424.93	-	-	-	0.5	4	07:00 - 19:00	1.72276E-05	2.69533E-06	8.14867E-06	1.27489E-06	1.24039E-06	1.94064E-07
SC44	AREAPOLY	814971.31	827421.45	-	-	-	0.5	4	07:00 - 19:00	1.72276E-05	2.69533E-06	8.14867E-06	1.27489E-06	1.24039E-06	1.94064E-07
SC45	AREAPOLY	814974.72	827460.51	-	-	-	0.5	4	07:00 - 19:00	1.72276E-05	2.69533E-06	8.14867E-06	1.27489E-06	1.24039E-06	1.94064E-07
SC46	AREAPOLY	814982.28	827455.11	-	-	-	0.5	4	07:00 - 19:00	1.72276E-05	2.69533E-06	8.14867E-06	1.27489E-06	1.24039E-06	1.94064E-07
SC47	AREAPOLY	814989.82	827449.73	-	-	-	0.5	4	07:00 - 19:00	1.72276E-05	2.69533E-06	8.14867E-06	1.27489E-06	1.24039E-06	1.94064E-07
SC48	AREAPOLY	815005.48	827493.67	-	-	-	0.5	4	07:00 - 19:00	1.72276E-05	2.69533E-06	8.14867E-06	1.27489E-06	1.24039E-06	1.94064E-07
SC49	AREAPOLY	815014.41	827486.40	-	-	-	0.5	4	07:00 - 19:00	1.72276E-05	2.69533E-06	8.14867E-06	1.27489E-06	1.24039E-06	1.94064E-07
SC50	AREAPOLY	815030.19	827519.42	-	-	-	0.5	4	07:00 - 19:00	1.72276E-05	2.69533E-06	8.14867E-06	1.27489E-06	1.24039E-06	1.94064E-07
SC51	AREAPOLY	815037.04	827514.09	-	-	-	0.5	4	07:00 - 19:00	1.72276E-05	2.69533E-06	8.14867E-06	1.27489E-06	1.24039E-06	1.94064E-07

**Appendix 3.1 Calculation of Construction Dust Emission Source**

**Scenario 1**

Emission Source Listing in AERMOD

Mitigated Construction Dust Emission Sources

Source ID	Type	X1	Y1	X2	Y2	Angle of Rotation	Height (m)	No. of Vertices	Working Hour	TSP Emission Rate (g/m2-s)		RSP Emission Rate (g/m2-s)		FSP Emission Rate (g/m2-s)	
										Working hours	Non-working hours	Working hours	Non-working hours	Working hours	Non-working hours
SC52	AREAPOLY	815055.40	827548.78	-	-	-	0.5	4	07:00 - 19:00	1.72276E-05	2.69533E-06	8.14867E-06	1.27489E-06	1.24039E-06	1.94064E-07
SC53	AREAPOLY	815059.51	827545.63	-	-	-	0.5	4	07:00 - 19:00	1.72276E-05	2.69533E-06	8.14867E-06	1.27489E-06	1.24039E-06	1.94064E-07
SC54	AREAPOLY	815078.35	827579.80	-	-	-	0.5	4	07:00 - 19:00	1.72276E-05	2.69533E-06	8.14867E-06	1.27489E-06	1.24039E-06	1.94064E-07
SC55	AREAPOLY	815082.49	827577.01	-	-	-	0.5	4	07:00 - 19:00	1.72276E-05	2.69533E-06	8.14867E-06	1.27489E-06	1.24039E-06	1.94064E-07
SC56	AREAPOLY	815097.14	827609.56	-	-	-	0.5	4	07:00 - 19:00	1.72276E-05	2.69533E-06	8.14867E-06	1.27489E-06	1.24039E-06	1.94064E-07
SC57	AREAPOLY	815101.46	827607.17	-	-	-	0.5	4	07:00 - 19:00	1.72276E-05	2.69533E-06	8.14867E-06	1.27489E-06	1.24039E-06	1.94064E-07
SC58	AREAPOLY	815111.25	827638.51	-	-	-	0.5	4	07:00 - 19:00	1.72276E-05	2.69533E-06	8.14867E-06	1.27489E-06	1.24039E-06	1.94064E-07
SC59	AREAPOLY	815115.82	827636.45	-	-	-	0.5	4	07:00 - 19:00	1.72276E-05	2.69533E-06	8.14867E-06	1.27489E-06	1.24039E-06	1.94064E-07
SC60	AREAPOLY	815126.97	827677.37	-	-	-	0.5	4	07:00 - 19:00	1.72276E-05	2.69533E-06	8.14867E-06	1.27489E-06	1.24039E-06	1.94064E-07
SC61	AREAPOLY	815131.69	827675.73	-	-	-	0.5	4	07:00 - 19:00	1.72276E-05	2.69533E-06	8.14867E-06	1.27489E-06	1.24039E-06	1.94064E-07
SC62	AREAPOLY	815137.94	827715.35	-	-	-	0.5	4	07:00 - 19:00	1.72276E-05	2.69533E-06	8.14867E-06	1.27489E-06	1.24039E-06	1.94064E-07
SC63	AREAPOLY	815142.76	827714.16	-	-	-	0.5	4	07:00 - 19:00	1.72276E-05	2.69533E-06	8.14867E-06	1.27489E-06	1.24039E-06	1.94064E-07
SC64	AREAPOLY	815146.68	827754.38	-	-	-	0.5	4	07:00 - 19:00	1.72276E-05	2.69533E-06	8.14867E-06	1.27489E-06	1.24039E-06	1.94064E-07
SC65	AREAPOLY	815151.55	827753.29	-	-	-	0.5	4	07:00 - 19:00	1.72276E-05	2.69533E-06	8.14867E-06	1.27489E-06	1.24039E-06	1.94064E-07

Hourly Profile

Hour	TSP	RSP	FSP
Hour 1	0.15645	0.15645	0.15645
Hour 2	0.15645	0.15645	0.15645
Hour 3	0.15645	0.15645	0.15645
Hour 4	0.15645	0.15645	0.15645
Hour 5	0.15645	0.15645	0.15645
Hour 6	0.15645	0.15645	0.15645
Hour 7	0.15645	0.15645	0.15645
Hour 8	1.00000	1.00000	1.00000
Hour 9	1.00000	1.00000	1.00000
Hour 10	1.00000	1.00000	1.00000
Hour 11	1.00000	1.00000	1.00000
Hour 12	1.00000	1.00000	1.00000
Hour 13	1.00000	1.00000	1.00000
Hour 14	1.00000	1.00000	1.00000
Hour 15	1.00000	1.00000	1.00000
Hour 16	1.00000	1.00000	1.00000
Hour 17	1.00000	1.00000	1.00000
Hour 18	1.00000	1.00000	1.00000
Hour 19	1.00000	1.00000	1.00000
Hour 20	0.15645	0.15645	0.15645
Hour 21	0.15645	0.15645	0.15645
Hour 22	0.15645	0.15645	0.15645
Hour 23	0.15645	0.15645	0.15645
Hour 24	0.15645	0.15645	0.15645

Remark:

The construction period was assumed to be 12-hour between 07:00 and 19:00.

Only wind erosion was assumed for non-working hours, and the hourly ratio was calculated by wind erosion emission rate/heavy construction emission rate.



**Appendix 3.1 Calculation of Construction Dust Emission Source**

**Scenario 1**

**Location of Vertices for AREAPOLY**

Source ID	Vertice 11		Vertice 12		Vertice 13		Vertice 14		Vertice 15		Vertice 16		Vertice 17		Vertice 18		Vertice 19		Vertice 20		
	X	Y	X	Y	X	Y	X	Y	X	Y	X	Y	X	Y	X	Y	X	Y	X	Y	
SC01																					
SC02	814488.04	826087.86	814474.51	826057.99	814469.35	826051.93	814462.29	826048.81	814427.38	826050.02											
SC03	814572.88	826268.57	814536.91	826126.58	814540.94	826125.50															
SC04	814588.80	826500.03	814579.35	826508.33	814582.58	826517.95	814642.71	826494.09	814614.57	826410.99											
SC05	814600.18	826351.97	814603.12	826371.88																	
SC06	814632.59	826629.35	814635.80	826625.32	814634.88	826618.92	814628.52	826615.79	814622.07	826603.44	814609.31	826587.94	814602.91	826581.30	814602.91	826574.70	814605.73	826561.93			
SC07	814710.92	826675.45	814712.70	826683.64	814712.39	826686.60	814684.02	826741.64	814632.59	826629.35											
SC08	814622.21	826730.14	814639.17	826728.03	814648.26	826729.29	814668.43	826738.68	814673.29	826761.22	814677.70	826754.62	814679.18	826752.27	814678.86	826746.12	814684.02	826741.64			
SC09	814867.54	827076.92	814871.05	827083.83	814845.09	827090.04	814786.92	827067.88	814759.09	827074.20	814752.64	827028.91	814752.50	826974.31	814749.10	826973.60	814753.03	826935.96			
SC10																					
SC12																					
SC13	815142.30	827476.38	815138.43	827488.40	815130.83	827497.04	815119.46	827501.60	815111.17	827501.60	815098.93	827496.12	815095.54	827512.59	815088.02	827531.77	815073.32	827536.22	815045.33	827492.97	
SC14	815158.67	827698.97	815143.17	827647.86	815144.00	827645.16	815142.20	827637.35	815131.57	827612.77	815132.48	827609.97	815127.37	827599.68	815121.84	827589.83	815118.53	827589.57	815101.37	827551.95	
SC15	815259.78	828238.67	815260.36	828231.59	815154.47	827749.39															
SC16	815178.27	828340.38	815179.99	828347.06	815189.56	828344.70	815201.74	828326.89	815135.29	828037.75											
SC17	815028.47	827660.74	815026.54	827659.79	815014.55	827632.37															
SC18																					
SC19																					
SC20																					
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**Appendix 3.1 Calculation of Construction Dust Emission Source**

**Scenario 2**

**Construction Phase Year 2028**

Location	Source	Emission Rates	Unmitigated	Mitigated	Parameters	Remarks		
TME	Construction Activities	Heavy Construction Area Source (g/m <sup>2</sup> /s)	TSP	2.07562E-04	1.72276E-05	Emission Rate = (Emission Factor*10 <sup>6</sup> /10000)/(30*No. of Operation hour*60*60)*(Percentage Active/100)*(1-Dust Suppression%)		
						TSP emission factor (Mg/hectare/month of activity)	2.69	from AP-42, S13.2.3, 1/95 ed.
						Percentage area actively operating (%)	100	
		RSP	9.81767E-05	8.14867E-06	% of dust suppression	91.7	Assume watering once every 2 hours. Refer to the Calculation of Dust Supression Efficiency by Watering.	
					no. of operation hour (hr)	12	Assume typical working hours of work site (0700 - 1900)	
					Emission height (m)	0.5		
FSP	1.49444E-05	1.24039E-06	RSP emission factor (Mg/hectare/month of activity)	1.27237				
			% fraction of TSP	0.47	from USEPA AP-42, 5th ed. 11/06 ed. S13.2.4			
			FSP emission factor (Mg/hectare/month of activity)	0.19368				
		% fraction of TSP	0.07	from USEPA AP-42, 5th ed. 11/06 ed. S13.2.4				
TME	Construction Activities	Wind Erosion Area Source (g/m <sup>2</sup> /s)	TSP	2.69533E-06		Emission Rate = Emission Factor*10 <sup>6</sup> /((10000*365*24*60*60)*(Percentage Active/100)		
						TSP emission factor (Mg/hectare/yr)	0.85	AP-42, 5th ed., Table 11.9.4
						Percentage area actively operating (%)	100	
		RSP	1.27489E-06		Emission height (m)	0.5		
					RSP emission factor (Mg/hectare/yr)	0.40205		
					% fraction of TSP	0.47	from USEPA AP-42, 5th ed. 11/06 ed. S13.2.4	
FSP	1.94064E-07		FSP emission factor (Mg/hectare/yr)	0.0612				
			% fraction of TSP	0.07	from USEPA AP-42, 5th ed. 11/06 ed. S13.2.4			



**Appendix 3.1 Calculation of Construction Dust Emission Source**

Scenario 2

Emission Source Listing in AERMOD

Unmitigated Construction Dust Emission Sources

Source ID	Type	X1	Y1	X2	Y2	Angle of Rotation	Height (m)	No. of Vertices	Working Hour	TSP Emission Rate (g/m2-s)		RSP Emission Rate (g/m2-s)		FSP Emission Rate (g/m2-s)	
										Working hours	Non-working hours	Working hours	Non-working hours	Working hours	Non-working hours
SC66	AREAPOLY	814783.16	827162.89	-	-	-	0.5	17	07:00 - 19:00	2.07562E-04	2.69533E-06	9.81767E-05	1.27489E-06	1.49444E-05	1.94064E-07
SC67	AREAPOLY	814993.92	827173.64	-	-	-	0.5	19	07:00 - 19:00	2.07562E-04	2.69533E-06	9.81767E-05	1.27489E-06	1.49444E-05	1.94064E-07
SC68	AREAPOLY	814470.87	825973.26	-	-	-	0.5	8	07:00 - 19:00	2.07562E-04	2.69533E-06	9.81767E-05	1.27489E-06	1.49444E-05	1.94064E-07
SC69	AREAPOLY	814472.60	825980.54	-	-	-	0.5	4	07:00 - 19:00	2.07562E-04	2.69533E-06	9.81767E-05	1.27489E-06	1.49444E-05	1.94064E-07
SC70	AREAPOLY	814478.23	826002.82	-	-	-	0.5	4	07:00 - 19:00	2.07562E-04	2.69533E-06	9.81767E-05	1.27489E-06	1.49444E-05	1.94064E-07
SC71	AREAPOLY	814490.74	826033.68	-	-	-	0.5	4	07:00 - 19:00	2.07562E-04	2.69533E-06	9.81767E-05	1.27489E-06	1.49444E-05	1.94064E-07
SC72	AREAPOLY	814510.38	826106.11	-	-	-	0.5	4	07:00 - 19:00	2.07562E-04	2.69533E-06	9.81767E-05	1.27489E-06	1.49444E-05	1.94064E-07
SC73	AREAPOLY	814518.42	826131.79	-	-	-	0.5	4	07:00 - 19:00	2.07562E-04	2.69533E-06	9.81767E-05	1.27489E-06	1.49444E-05	1.94064E-07
SC74	AREAPOLY	814530.94	826178.29	-	-	-	0.5	4	07:00 - 19:00	2.07562E-04	2.69533E-06	9.81767E-05	1.27489E-06	1.49444E-05	1.94064E-07
SC75	AREAPOLY	814537.24	826201.38	-	-	-	0.5	4	07:00 - 19:00	2.07562E-04	2.69533E-06	9.81767E-05	1.27489E-06	1.49444E-05	1.94064E-07
SC76	AREAPOLY	814541.99	826218.77	-	-	-	0.5	4	07:00 - 19:00	2.07562E-04	2.69533E-06	9.81767E-05	1.27489E-06	1.49444E-05	1.94064E-07
SC77	AREAPOLY	814548.23	826242.03	-	-	-	0.5	4	07:00 - 19:00	2.07562E-04	2.69533E-06	9.81767E-05	1.27489E-06	1.49444E-05	1.94064E-07
SC78	AREAPOLY	814567.31	826315.08	-	-	-	0.5	4	07:00 - 19:00	2.07562E-04	2.69533E-06	9.81767E-05	1.27489E-06	1.49444E-05	1.94064E-07
SC79	AREAPOLY	814573.24	826334.64	-	-	-	0.5	4	07:00 - 19:00	2.07562E-04	2.69533E-06	9.81767E-05	1.27489E-06	1.49444E-05	1.94064E-07
SC80	AREAPOLY	814591.41	826407.84	-	-	-	0.5	4	07:00 - 19:00	2.07562E-04	2.69533E-06	9.81767E-05	1.27489E-06	1.49444E-05	1.94064E-07
SC81	AREAPOLY	814596.69	826421.52	-	-	-	0.5	4	07:00 - 19:00	2.07562E-04	2.69533E-06	9.81767E-05	1.27489E-06	1.49444E-05	1.94064E-07
SC82	AREAPOLY	814697.12	826770.15	-	-	-	0.5	4	07:00 - 19:00	2.07562E-04	2.69533E-06	9.81767E-05	1.27489E-06	1.49444E-05	1.94064E-07
SC83	AREAPOLY	814718.86	826888.27	-	-	-	0.5	4	07:00 - 19:00	2.07562E-04	2.69533E-06	9.81767E-05	1.27489E-06	1.49444E-05	1.94064E-07
SC84	AREAPOLY	814726.25	826959.00	-	-	-	0.5	4	07:00 - 19:00	2.07562E-04	2.69533E-06	9.81767E-05	1.27489E-06	1.49444E-05	1.94064E-07
SC85	AREAPOLY	814772.24	827161.97	-	-	-	0.5	6	07:00 - 19:00	2.07562E-04	2.69533E-06	9.81767E-05	1.27489E-06	1.49444E-05	1.94064E-07
SC86	AREAPOLY	814767.66	827154.80	-	-	-	0.5	6	07:00 - 19:00	2.07562E-04	2.69533E-06	9.81767E-05	1.27489E-06	1.49444E-05	1.94064E-07
SC87	AREAPOLY	814821.58	827247.87	-	-	-	0.5	8	07:00 - 19:00	2.07562E-04	2.69533E-06	9.81767E-05	1.27489E-06	1.49444E-05	1.94064E-07
SC88	AREAPOLY	815202.68	827987.80	-	-	-	0.5	4	07:00 - 19:00	2.07562E-04	2.69533E-06	9.81767E-05	1.27489E-06	1.49444E-05	1.94064E-07
SC89	AREAPOLY	815197.83	827988.87	-	-	-	0.5	4	07:00 - 19:00	2.07562E-04	2.69533E-06	9.81767E-05	1.27489E-06	1.49444E-05	1.94064E-07
SC90	AREAPOLY	815193.47	827945.84	-	-	-	0.5	4	07:00 - 19:00	2.07562E-04	2.69533E-06	9.81767E-05	1.27489E-06	1.49444E-05	1.94064E-07
SC91	AREAPOLY	815188.58	827946.88	-	-	-	0.5	4	07:00 - 19:00	2.07562E-04	2.69533E-06	9.81767E-05	1.27489E-06	1.49444E-05	1.94064E-07
SC92	AREAPOLY	815185.71	827909.87	-	-	-	0.5	4	07:00 - 19:00	2.07562E-04	2.69533E-06	9.81767E-05	1.27489E-06	1.49444E-05	1.94064E-07
SC93	AREAPOLY	815180.81	827910.92	-	-	-	0.5	4	07:00 - 19:00	2.07562E-04	2.69533E-06	9.81767E-05	1.27489E-06	1.49444E-05	1.94064E-07
SC94	AREAPOLY	815177.12	827870.56	-	-	-	0.5	4	07:00 - 19:00	2.07562E-04	2.69533E-06	9.81767E-05	1.27489E-06	1.49444E-05	1.94064E-07
SC95	AREAPOLY	815172.26	827871.62	-	-	-	0.5	4	07:00 - 19:00	2.07562E-04	2.69533E-06	9.81767E-05	1.27489E-06	1.49444E-05	1.94064E-07
SC96	AREAPOLY	815168.47	827831.24	-	-	-	0.5	4	07:00 - 19:00	2.07562E-04	2.69533E-06	9.81767E-05	1.27489E-06	1.49444E-05	1.94064E-07
SC97	AREAPOLY	815163.75	827832.26	-	-	-	0.5	4	07:00 - 19:00	2.07562E-04	2.69533E-06	9.81767E-05	1.27489E-06	1.49444E-05	1.94064E-07
SC98	AREAPOLY	815159.42	827789.84	-	-	-	0.5	4	07:00 - 19:00	2.07562E-04	2.69533E-06	9.81767E-05	1.27489E-06	1.49444E-05	1.94064E-07
SC99	AREAPOLY	815154.56	827790.91	-	-	-	0.5	4	07:00 - 19:00	2.07562E-04	2.69533E-06	9.81767E-05	1.27489E-06	1.49444E-05	1.94064E-07
SC100	AREAPOLY	815204.93	828024.15	-	-	-	0.5	4	07:00 - 19:00	2.07562E-04	2.69533E-06	9.81767E-05	1.27489E-06	1.49444E-05	1.94064E-07
SC101	AREAPOLY	815210.25	828022.95	-	-	-	0.5	4	07:00 - 19:00	2.07562E-04	2.69533E-06	9.81767E-05	1.27489E-06	1.49444E-05	1.94064E-07

**Appendix 3.1 Calculation of Construction Dust Emission Source**

Scenario 2

Emission Source Listing in AERMOD

Unmitigated Construction Dust Emission Sources

Source ID	Type	X1	Y1	X2	Y2	Angle of Rotation	Height (m)	No. of Vertices	Working Hour	TSP Emission Rate (g/m <sup>2</sup> -s)		RSP Emission Rate (g/m <sup>2</sup> -s)		FSP Emission Rate (g/m <sup>2</sup> -s)	
										Working hours	Non-working hours	Working hours	Non-working hours	Working hours	Non-working hours
SC102	AREAPOLY	815243.25	828197.95	-	-	-	0.5	4	07:00 - 19:00	2.07562E-04	2.69533E-06	9.81767E-05	1.27489E-06	1.49444E-05	1.94064E-07
SC103	AREAPOLY	815223.84	828202.81	-	-	-	0.5	4	07:00 - 19:00	2.07562E-04	2.69533E-06	9.81767E-05	1.27489E-06	1.49444E-05	1.94064E-07
SC104	AREAPOLY	815236.41	828167.01	-	-	-	0.5	4	07:00 - 19:00	2.07562E-04	2.69533E-06	9.81767E-05	1.27489E-06	1.49444E-05	1.94064E-07
SC105	AREAPOLY	815217.63	828170.86	-	-	-	0.5	4	07:00 - 19:00	2.07562E-04	2.69533E-06	9.81767E-05	1.27489E-06	1.49444E-05	1.94064E-07
SC106	AREAPOLY	815229.03	828129.15	-	-	-	0.5	4	07:00 - 19:00	2.07562E-04	2.69533E-06	9.81767E-05	1.27489E-06	1.49444E-05	1.94064E-07
SC107	AREAPOLY	815213.18	828132.10	-	-	-	0.5	4	07:00 - 19:00	2.07562E-04	2.69533E-06	9.81767E-05	1.27489E-06	1.49444E-05	1.94064E-07
SC108	AREAPOLY	815221.83	828091.02	-	-	-	0.5	4	07:00 - 19:00	2.07562E-04	2.69533E-06	9.81767E-05	1.27489E-06	1.49444E-05	1.94064E-07
SC109	AREAPOLY	815210.02	828093.33	-	-	-	0.5	4	07:00 - 19:00	2.07562E-04	2.69533E-06	9.81767E-05	1.27489E-06	1.49444E-05	1.94064E-07
SC110	AREAPOLY	815214.51	828052.93	-	-	-	0.5	4	07:00 - 19:00	2.07562E-04	2.69533E-06	9.81767E-05	1.27489E-06	1.49444E-05	1.94064E-07
SC111	AREAPOLY	815206.84	828054.41	-	-	-	0.5	4	07:00 - 19:00	2.07562E-04	2.69533E-06	9.81767E-05	1.27489E-06	1.49444E-05	1.94064E-07
SC112	AREAPOLY	815231.26	828236.48	-	-	-	0.5	6	07:00 - 19:00	2.07562E-04	2.69533E-06	9.81767E-05	1.27489E-06	1.49444E-05	1.94064E-07
SC113	AREAPOLY	815250.80	828231.77	-	-	-	0.5	6	07:00 - 19:00	2.07562E-04	2.69533E-06	9.81767E-05	1.27489E-06	1.49444E-05	1.94064E-07

Hourly Profile

Hour	TSP	RSP	FSP
Hour 1	0.01299	0.01299	0.01299
Hour 2	0.01299	0.01299	0.01299
Hour 3	0.01299	0.01299	0.01299
Hour 4	0.01299	0.01299	0.01299
Hour 5	0.01299	0.01299	0.01299
Hour 6	0.01299	0.01299	0.01299
Hour 7	0.01299	0.01299	0.01299
Hour 8	1.00000	1.00000	1.00000
Hour 9	1.00000	1.00000	1.00000
Hour 10	1.00000	1.00000	1.00000
Hour 11	1.00000	1.00000	1.00000
Hour 12	1.00000	1.00000	1.00000
Hour 13	1.00000	1.00000	1.00000
Hour 14	1.00000	1.00000	1.00000
Hour 15	1.00000	1.00000	1.00000
Hour 16	1.00000	1.00000	1.00000
Hour 17	1.00000	1.00000	1.00000
Hour 18	1.00000	1.00000	1.00000
Hour 19	1.00000	1.00000	1.00000
Hour 20	0.01299	0.01299	0.01299
Hour 21	0.01299	0.01299	0.01299
Hour 22	0.01299	0.01299	0.01299
Hour 23	0.01299	0.01299	0.01299
Hour 24	0.01299	0.01299	0.01299

Remark:

The construction period was assumed to be 12-hour between 07:00 and 19:00.

Only wind erosion was assumed for non-working hours, and the hourly ratio was calculated by wind erosion emission rate/heavy construction emission rate.

**Appendix 3.1 Calculation of Construction Dust Emission Source**

Scenario 2

Emission Source Listing in AERMOD

Mitigated Construction Dust Emission Sources

Source ID	Type	X1	Y1	X2	Y2	Angle of Rotation	Height (m)	No. of Vertices	Working Hour	TSP Emission Rate (g/m2-s)		RSP Emission Rate (g/m2-s)		FSP Emission Rate (g/m2-s)	
										Working hours	Non-working hours	Working hours	Non-working hours	Working hours	Non-working hours
SC66	AREAPOLY	814783.16	827162.89	-	-	-	0.5	17	07:00 - 19:00	1.72276E-05	2.69533E-06	8.14867E-06	1.27489E-06	1.24039E-06	1.94064E-07
SC67	AREAPOLY	814993.92	827173.64	-	-	-	0.5	19	07:00 - 19:00	1.72276E-05	2.69533E-06	8.14867E-06	1.27489E-06	1.24039E-06	1.94064E-07
SC68	AREAPOLY	814470.87	825973.26	-	-	-	0.5	8	07:00 - 19:00	1.72276E-05	2.69533E-06	8.14867E-06	1.27489E-06	1.24039E-06	1.94064E-07
SC69	AREAPOLY	814472.60	825980.54	-	-	-	0.5	4	07:00 - 19:00	1.72276E-05	2.69533E-06	8.14867E-06	1.27489E-06	1.24039E-06	1.94064E-07
SC70	AREAPOLY	814478.23	826002.82	-	-	-	0.5	4	07:00 - 19:00	1.72276E-05	2.69533E-06	8.14867E-06	1.27489E-06	1.24039E-06	1.94064E-07
SC71	AREAPOLY	814490.74	826033.68	-	-	-	0.5	4	07:00 - 19:00	1.72276E-05	2.69533E-06	8.14867E-06	1.27489E-06	1.24039E-06	1.94064E-07
SC72	AREAPOLY	814510.38	826106.11	-	-	-	0.5	4	07:00 - 19:00	1.72276E-05	2.69533E-06	8.14867E-06	1.27489E-06	1.24039E-06	1.94064E-07
SC73	AREAPOLY	814518.42	826131.79	-	-	-	0.5	4	07:00 - 19:00	1.72276E-05	2.69533E-06	8.14867E-06	1.27489E-06	1.24039E-06	1.94064E-07
SC74	AREAPOLY	814530.94	826178.29	-	-	-	0.5	4	07:00 - 19:00	1.72276E-05	2.69533E-06	8.14867E-06	1.27489E-06	1.24039E-06	1.94064E-07
SC75	AREAPOLY	814537.24	826201.38	-	-	-	0.5	4	07:00 - 19:00	1.72276E-05	2.69533E-06	8.14867E-06	1.27489E-06	1.24039E-06	1.94064E-07
SC76	AREAPOLY	814541.99	826218.77	-	-	-	0.5	4	07:00 - 19:00	1.72276E-05	2.69533E-06	8.14867E-06	1.27489E-06	1.24039E-06	1.94064E-07
SC77	AREAPOLY	814548.23	826242.03	-	-	-	0.5	4	07:00 - 19:00	1.72276E-05	2.69533E-06	8.14867E-06	1.27489E-06	1.24039E-06	1.94064E-07
SC78	AREAPOLY	814567.31	826315.08	-	-	-	0.5	4	07:00 - 19:00	1.72276E-05	2.69533E-06	8.14867E-06	1.27489E-06	1.24039E-06	1.94064E-07
SC79	AREAPOLY	814573.24	826334.64	-	-	-	0.5	4	07:00 - 19:00	1.72276E-05	2.69533E-06	8.14867E-06	1.27489E-06	1.24039E-06	1.94064E-07
SC80	AREAPOLY	814591.41	826407.84	-	-	-	0.5	4	07:00 - 19:00	1.72276E-05	2.69533E-06	8.14867E-06	1.27489E-06	1.24039E-06	1.94064E-07
SC81	AREAPOLY	814596.69	826421.52	-	-	-	0.5	4	07:00 - 19:00	1.72276E-05	2.69533E-06	8.14867E-06	1.27489E-06	1.24039E-06	1.94064E-07
SC82	AREAPOLY	814697.12	826770.15	-	-	-	0.5	4	07:00 - 19:00	1.72276E-05	2.69533E-06	8.14867E-06	1.27489E-06	1.24039E-06	1.94064E-07
SC83	AREAPOLY	814718.86	826888.27	-	-	-	0.5	4	07:00 - 19:00	1.72276E-05	2.69533E-06	8.14867E-06	1.27489E-06	1.24039E-06	1.94064E-07
SC84	AREAPOLY	814726.25	826959.00	-	-	-	0.5	4	07:00 - 19:00	1.72276E-05	2.69533E-06	8.14867E-06	1.27489E-06	1.24039E-06	1.94064E-07
SC85	AREAPOLY	814772.24	827161.97	-	-	-	0.5	6	07:00 - 19:00	1.72276E-05	2.69533E-06	8.14867E-06	1.27489E-06	1.24039E-06	1.94064E-07
SC86	AREAPOLY	814767.66	827154.80	-	-	-	0.5	6	07:00 - 19:00	1.72276E-05	2.69533E-06	8.14867E-06	1.27489E-06	1.24039E-06	1.94064E-07
SC87	AREAPOLY	814821.58	827247.87	-	-	-	0.5	8	07:00 - 19:00	1.72276E-05	2.69533E-06	8.14867E-06	1.27489E-06	1.24039E-06	1.94064E-07
SC88	AREAPOLY	815202.68	827987.80	-	-	-	0.5	4	07:00 - 19:00	1.72276E-05	2.69533E-06	8.14867E-06	1.27489E-06	1.24039E-06	1.94064E-07
SC89	AREAPOLY	815197.83	827988.87	-	-	-	0.5	4	07:00 - 19:00	1.72276E-05	2.69533E-06	8.14867E-06	1.27489E-06	1.24039E-06	1.94064E-07
SC90	AREAPOLY	815193.47	827945.84	-	-	-	0.5	4	07:00 - 19:00	1.72276E-05	2.69533E-06	8.14867E-06	1.27489E-06	1.24039E-06	1.94064E-07
SC91	AREAPOLY	815188.58	827946.88	-	-	-	0.5	4	07:00 - 19:00	1.72276E-05	2.69533E-06	8.14867E-06	1.27489E-06	1.24039E-06	1.94064E-07
SC92	AREAPOLY	815185.71	827909.87	-	-	-	0.5	4	07:00 - 19:00	1.72276E-05	2.69533E-06	8.14867E-06	1.27489E-06	1.24039E-06	1.94064E-07
SC93	AREAPOLY	815180.81	827910.92	-	-	-	0.5	4	07:00 - 19:00	1.72276E-05	2.69533E-06	8.14867E-06	1.27489E-06	1.24039E-06	1.94064E-07
SC94	AREAPOLY	815177.12	827870.56	-	-	-	0.5	4	07:00 - 19:00	1.72276E-05	2.69533E-06	8.14867E-06	1.27489E-06	1.24039E-06	1.94064E-07
SC95	AREAPOLY	815172.26	827871.62	-	-	-	0.5	4	07:00 - 19:00	1.72276E-05	2.69533E-06	8.14867E-06	1.27489E-06	1.24039E-06	1.94064E-07
SC96	AREAPOLY	815168.47	827831.24	-	-	-	0.5	4	07:00 - 19:00	1.72276E-05	2.69533E-06	8.14867E-06	1.27489E-06	1.24039E-06	1.94064E-07
SC97	AREAPOLY	815163.75	827832.26	-	-	-	0.5	4	07:00 - 19:00	1.72276E-05	2.69533E-06	8.14867E-06	1.27489E-06	1.24039E-06	1.94064E-07
SC98	AREAPOLY	815159.42	827789.84	-	-	-	0.5	4	07:00 - 19:00	1.72276E-05	2.69533E-06	8.14867E-06	1.27489E-06	1.24039E-06	1.94064E-07
SC99	AREAPOLY	815154.56	827790.91	-	-	-	0.5	4	07:00 - 19:00	1.72276E-05	2.69533E-06	8.14867E-06	1.27489E-06	1.24039E-06	1.94064E-07
SC100	AREAPOLY	815204.93	828024.15	-	-	-	0.5	4	07:00 - 19:00	1.72276E-05	2.69533E-06	8.14867E-06	1.27489E-06	1.24039E-06	1.94064E-07
SC101	AREAPOLY	815210.25	828022.95	-	-	-	0.5	4	07:00 - 19:00	1.72276E-05	2.69533E-06	8.14867E-06	1.27489E-06	1.24039E-06	1.94064E-07

**Appendix 3.1 Calculation of Construction Dust Emission Source**

Scenario 2

Emission Source Listing in AERMOD

Mitigated Construction Dust Emission Sources

Source ID	Type	X1	Y1	X2	Y2	Angle of Rotation	Height (m)	No. of Vertices	Working Hour	TSP Emission Rate (g/m2-s)		RSP Emission Rate (g/m2-s)		FSP Emission Rate (g/m2-s)	
										Working hours	Non-working hours	Working hours	Non-working hours	Working hours	Non-working hours
SC102	AREAPOLY	815243.25	828197.95	-	-	-	0.5	4	07:00 - 19:00	1.72276E-05	2.69533E-06	8.14867E-06	1.27489E-06	1.24039E-06	1.94064E-07
SC103	AREAPOLY	815223.84	828202.81	-	-	-	0.5	4	07:00 - 19:00	1.72276E-05	2.69533E-06	8.14867E-06	1.27489E-06	1.24039E-06	1.94064E-07
SC104	AREAPOLY	815236.41	828167.01	-	-	-	0.5	4	07:00 - 19:00	1.72276E-05	2.69533E-06	8.14867E-06	1.27489E-06	1.24039E-06	1.94064E-07
SC105	AREAPOLY	815217.63	828170.86	-	-	-	0.5	4	07:00 - 19:00	1.72276E-05	2.69533E-06	8.14867E-06	1.27489E-06	1.24039E-06	1.94064E-07
SC106	AREAPOLY	815229.03	828129.15	-	-	-	0.5	4	07:00 - 19:00	1.72276E-05	2.69533E-06	8.14867E-06	1.27489E-06	1.24039E-06	1.94064E-07
SC107	AREAPOLY	815213.18	828132.10	-	-	-	0.5	4	07:00 - 19:00	1.72276E-05	2.69533E-06	8.14867E-06	1.27489E-06	1.24039E-06	1.94064E-07
SC108	AREAPOLY	815221.83	828091.02	-	-	-	0.5	4	07:00 - 19:00	1.72276E-05	2.69533E-06	8.14867E-06	1.27489E-06	1.24039E-06	1.94064E-07
SC109	AREAPOLY	815210.02	828093.33	-	-	-	0.5	4	07:00 - 19:00	1.72276E-05	2.69533E-06	8.14867E-06	1.27489E-06	1.24039E-06	1.94064E-07
SC110	AREAPOLY	815214.51	828052.93	-	-	-	0.5	4	07:00 - 19:00	1.72276E-05	2.69533E-06	8.14867E-06	1.27489E-06	1.24039E-06	1.94064E-07
SC111	AREAPOLY	815206.84	828054.41	-	-	-	0.5	4	07:00 - 19:00	1.72276E-05	2.69533E-06	8.14867E-06	1.27489E-06	1.24039E-06	1.94064E-07
SC112	AREAPOLY	815231.26	828236.48	-	-	-	0.5	6	07:00 - 19:00	1.72276E-05	2.69533E-06	8.14867E-06	1.27489E-06	1.24039E-06	1.94064E-07
SC113	AREAPOLY	815250.80	828231.77	-	-	-	0.5	6	07:00 - 19:00	1.72276E-05	2.69533E-06	8.14867E-06	1.27489E-06	1.24039E-06	1.94064E-07

Hourly Profile

Hour	TSP	RSP	FSP
Hour 1	0.15645	0.15645	0.15645
Hour 2	0.15645	0.15645	0.15645
Hour 3	0.15645	0.15645	0.15645
Hour 4	0.15645	0.15645	0.15645
Hour 5	0.15645	0.15645	0.15645
Hour 6	0.15645	0.15645	0.15645
Hour 7	0.15645	0.15645	0.15645
Hour 8	1.00000	1.00000	1.00000
Hour 9	1.00000	1.00000	1.00000
Hour 10	1.00000	1.00000	1.00000
Hour 11	1.00000	1.00000	1.00000
Hour 12	1.00000	1.00000	1.00000
Hour 13	1.00000	1.00000	1.00000
Hour 14	1.00000	1.00000	1.00000
Hour 15	1.00000	1.00000	1.00000
Hour 16	1.00000	1.00000	1.00000
Hour 17	1.00000	1.00000	1.00000
Hour 18	1.00000	1.00000	1.00000
Hour 19	1.00000	1.00000	1.00000
Hour 20	0.15645	0.15645	0.15645
Hour 21	0.15645	0.15645	0.15645
Hour 22	0.15645	0.15645	0.15645
Hour 23	0.15645	0.15645	0.15645
Hour 24	0.15645	0.15645	0.15645

Remark:

The construction period was assumed to be 12-hour between 07:00 and 19:00.

Only wind erosion was assumed for non-working hours, and the hourly ratio was calculated by wind erosion emission rate/heavy construction emission rate.

**Appendix 3.1 Calculation of Construction Dust Emission Source**

**Scenario 2**

**Location of Vertices for AREAPOLY**

Source ID	Vertice 1		Vertice 2		Vertice 3		Vertice 4		Vertice 5		Vertice 6		Vertice 7		Vertice 8		Vertice 9		Vertice 10	
	X	Y	X	Y	X	Y	X	Y	X	Y	X	Y	X	Y	X	Y	X	Y	X	Y
SC66	814783.16	827162.89	814797.64	827195.98	814819.96	827235.53	814839.44	827222.32	814835.30	827215.13	814844.40	827208.61	814870.73	827201.74	814993.92	827173.64	814989.75	827155.68	814985.29	827152.42
SC67	814993.92	827173.64	815000.00	827199.88	815000.00	827223.01	815015.30	827287.36	815015.10	827348.22	814951.95	827362.95	814948.60	827348.41	814944.82	827349.10	814944.00	827345.58	814939.99	827346.35
SC68	814470.87	825973.26	814469.00	825966.29	814474.48	825964.85	814471.38	825953.61	814478.36	825951.70	814481.57	825964.08	814484.23	825963.36	814485.83	825969.20				
SC69	814472.60	825980.54	814471.37	825976.22	814486.87	825972.12	814488.07	825976.43												
SC70	814478.23	826002.82	814474.60	825989.03	814490.66	825984.69	814494.31	825998.44												
SC71	814490.74	826033.68	814488.43	826024.92	814496.55	826022.77	814498.87	826031.53												
SC72	814510.38	826106.11	814495.14	826049.55	814510.46	826045.37	814525.71	826101.93												
SC73	814518.42	826131.79	814516.29	826123.66	814525.03	826121.34	814527.21	826129.50												
SC74	814530.94	826178.29	814522.24	826146.26	814531.19	826143.89	814539.83	826175.98												
SC75	814537.24	826201.38	814535.08	826193.20	814543.78	826190.95	814545.97	826199.08												
SC76	814541.99	826218.77	814539.77	826210.55	814548.45	826208.33	814550.66	826216.42												
SC77	814548.23	826242.03	814546.06	826233.83	814554.77	826231.57	814556.96	826239.70												
SC78	814567.31	826315.08	814550.39	826252.48	814559.77	826250.03	814576.70	826312.60												
SC79	814573.24	826334.64	814571.05	826326.44	814579.72	826324.19	814581.94	826332.36												
SC80	814591.41	826407.84	814603.50	826404.60	814585.73	826338.75	814573.67	826342.00												
SC81	814596.69	826421.52	814594.52	826413.36	814603.26	826411.14	814605.42	826419.21												
SC82	814697.12	826770.15	814687.33	826791.96	814699.75	826797.53	814709.53	826775.72												
SC83	814718.86	826888.27	814709.07	826910.07	814721.48	826915.64	814731.27	826893.84												
SC84	814726.25	826959.00	814724.72	826972.01	814734.95	826973.21	814736.47	826960.20												
SC85	814772.24	827161.97	814775.06	827168.92	814773.16	827169.69	814767.81	827168.95	814767.02	827167.01	814770.34	827162.74								
SC86	814767.66	827154.80	814770.48	827161.75	814768.58	827162.52	814763.23	827161.78	814762.44	827159.84	814765.68	827155.67								
SC87	814821.58	827247.87	814764.66	827158.91	814796.24	827138.70	814834.36	827198.27	814842.86	827192.84	814847.55	827200.16	814839.05	827205.60	814853.36	827227.97				
SC88	815202.68	827987.80	815203.38	827989.82	815205.40	827989.11	815204.70	827987.09												
SC89	815197.83	827988.87	815198.53	827990.89	815200.55	827990.18	815199.85	827988.16												
SC90	815193.47	827945.84	815194.99	827952.87	815197.46	827952.34	815195.94	827945.31												
SC91	815188.58	827946.88	815190.10	827953.91	815192.56	827953.38	815191.05	827946.35												
SC92	815185.71	827909.87	815186.42	827911.89	815188.43	827911.19	815187.73	827909.17												
SC93	815180.81	827910.92	815181.52	827912.94	815183.54	827912.23	815182.83	827910.21												
SC94	815177.12	827870.56	815177.82	827872.58	815179.84	827871.87	815179.13	827869.85												
SC95	815172.26	827871.62	815172.96	827873.64	815174.98	827872.94	815174.28	827870.92												
SC96	815168.47	827831.24	815169.18	827833.26	815171.20	827832.56	815170.49	827830.54												
SC97	815163.75	827832.26	815164.45	827834.28	815166.47	827833.57	815165.77	827831.55												
SC98	815159.42	827789.84	815160.91	827796.79	815163.44	827796.24	815161.94	827789.29												
SC99	815154.56	827790.91	815156.06	827797.86	815158.58	827797.32	815157.08	827790.37												
SC100	815204.93	828024.15	815205.64	828026.17	815207.66	828025.46	815206.95	828023.44												
SC101	815210.25	828022.95	815210.96	828024.97	815212.98	828024.27	815212.27	828022.25												
SC102	815243.25	828197.95	815246.25	828211.36	815252.00	828210.08	815249.00	828196.66												
SC103	815223.84	828202.81	815226.84	828216.23	815232.59	828214.94	815229.59	828201.53												
SC104	815236.41	828167.01	815239.41	828180.42	815245.17	828179.14	815242.17	828165.72												
SC105	815217.63	828170.86	815220.63	828184.28	815226.39	828182.99	815223.39	828169.58												
SC106	815229.03	828129.15	815232.03	828142.57	815237.78	828141.28	815234.78	828127.87												
SC107	815213.18	828132.10	815216.18	828145.52	815221.93	828144.23	815218.93	828130.81												
SC108	815221.83	828091.02	815224.82	828104.44	815230.58	828103.15	815227.58	828089.74												
SC109	815210.02	828093.33	815213.01	828106.75	815218.77	828105.46	815215.77	828092.04												
SC110	815214.51	828052.93	815217.51	828066.35	815223.26	828065.06	815220.26	828051.65												
SC111	815206.84	828054.41	815209.84	828067.83	815215.59	828066.54	815212.59	828053.13												
SC112	815231.26	828236.48	815237.58	828234.96	815238.20	828237.53	815237.02	828241.16	815234.59	828241.74	815231.88	828239.05								
SC113	815250.80	828231.77	815257.12	828230.24	815257.74	828232.82	815256.56	828236.45	815254.13	828237.03	815251.42	828234.34								

**Appendix 3.1 Calculation of Construction Dust Emission Source**

**Scenario 2**

**Location of Vertices for AREAPOLY**

Source ID	Vertice 11		Vertice 12		Vertice 13		Vertice 14		Vertice 15		Vertice 16		Vertice 17		Vertice 18		Vertice 19		Vertice 20		
	X	Y	X	Y	X	Y	X	Y	X	Y	X	Y	X	Y	X	Y	X	Y	X	Y	
SC66	814983.66	827145.52	814982.06	827145.13	814979.38	827133.51	814941.35	827142.30	814936.67	827122.59	814901.61	827130.77	814902.67	827135.31							
SC67	814930.30	827304.53	814904.48	827310.65	814898.11	827283.32	814902.16	827282.24	814894.70	827250.43	814889.65	827251.71	814887.01	827241.06	814879.01	827236.45	814870.73	827201.74			
SC68																					
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### Appendix 3.1 Calculation of Construction Dust Emission Source

#### Calculation of Dust Suppression Efficiency from Watering

Dust suppression efficiency is assumed to be 91.7%. Assumptions are stated as below.

With reference to the Equation (5-4) of USEPA's Control of Open Fugitive Dust Sources (EPA-450/3-98-008), dust suppression efficiency can be estimated by:

$$C = 100 - \frac{0.8 \cdot p \cdot d \cdot t}{i}$$

where

C = average control efficiency, in percent

p = potential average hourly daytime evaporation rate in mm/hour

d = average hourly daytime traffic rate in vehicles per hour

i = application intensity in L/m<sup>2</sup>

t = time between applications in hour (t = 1)

The following assumptions are made for assessment purpose:

#### Assumption 1:

Potential average hourly daytime evaporation rate p can be estimated by  $0.0049 \cdot e$ , where e is the mean annual average evaporation rate (inches). From past measurement data in Hong Kong's Observatory, evaporation recorded at King's Park between 1981 - 2010 is 1204.1 mm<sup>1</sup>. Therefore  $p = 0.0049 \cdot (1204.1 \text{ mm}) = 0.0049 \cdot (47.4055118 \text{ inches}) = 0.2323$ .

#### Assumption 2:

Estimate average hourly daytime traffic rate in vehicles per hour = 20. (d = 20)

#### Assumption 3:

Assume watering application intensity as 0.9 L/m<sup>2</sup>. (i = 0.9)

#### Assumption 4:

Assumes watering frequency as once every 2 hours. (t = 2)


With the above assumptions, dust suppression efficiency is calculated as below:

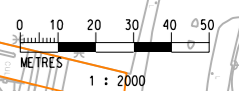
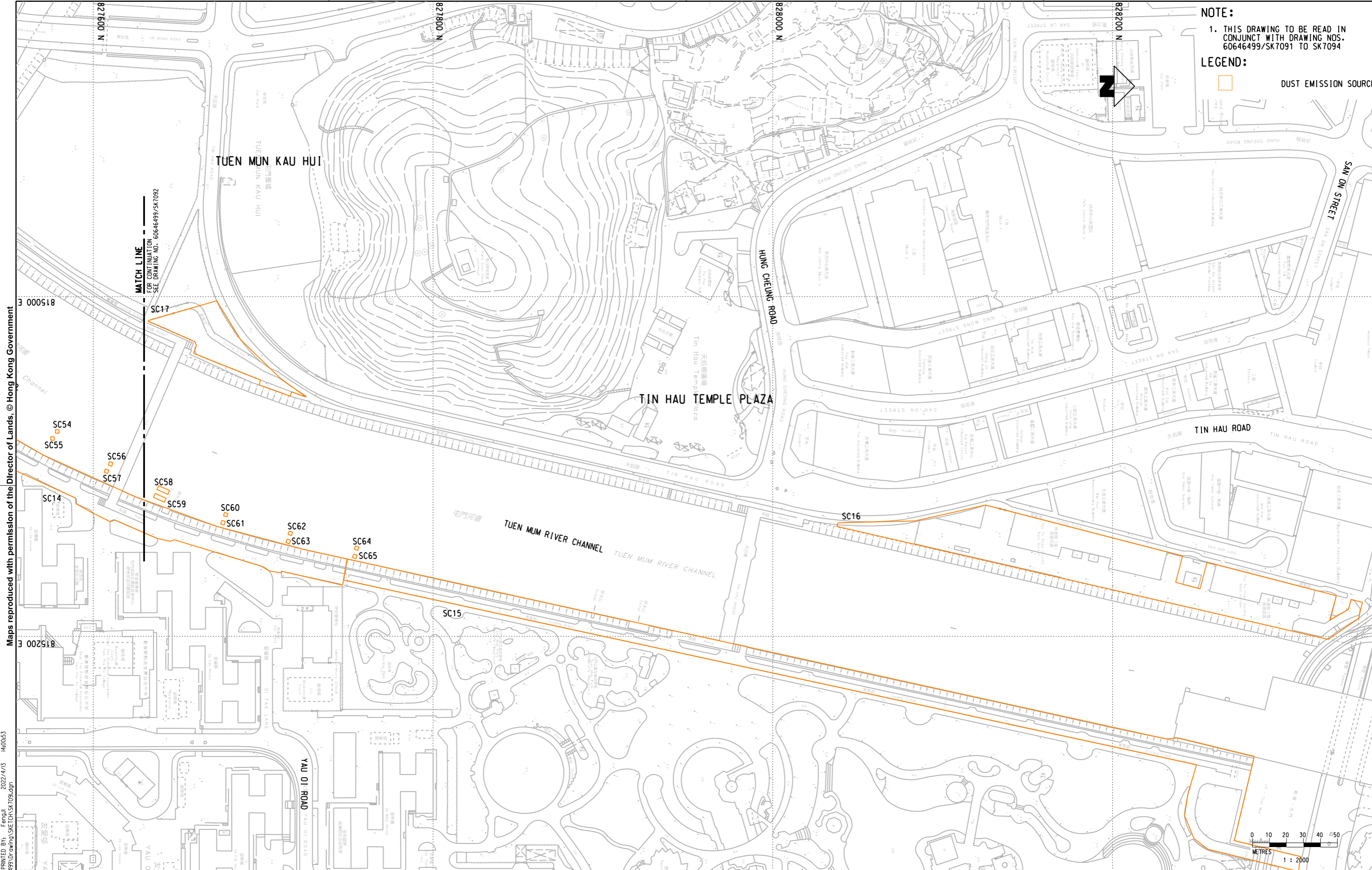
$$C = 100 - 0.8 \cdot (0.2323) \cdot (20) \cdot (2) / 0.9 = \mathbf{91.7\%}$$

<sup>1</sup> The Hong Kong's Observatory evaporation recorded at King's Park between 1991 to 2020 is taken from [http://www.weather.gov.hk/en/cis/normal/1991\\_2020/normals.htm#](http://www.weather.gov.hk/en/cis/normal/1991_2020/normals.htm#)



**NOTE:**  
 1. THIS DRAWING TO BE READ IN CONJUNCTION WITH DRAWING NOS. 60646499/SK7091 TO SK7094

**LEGEND:**  
 DUST EMISSION SOURCE



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**MTR**

TUEN MUN SOUTH EXTENSION

ORIGINATOR


**AECOM**

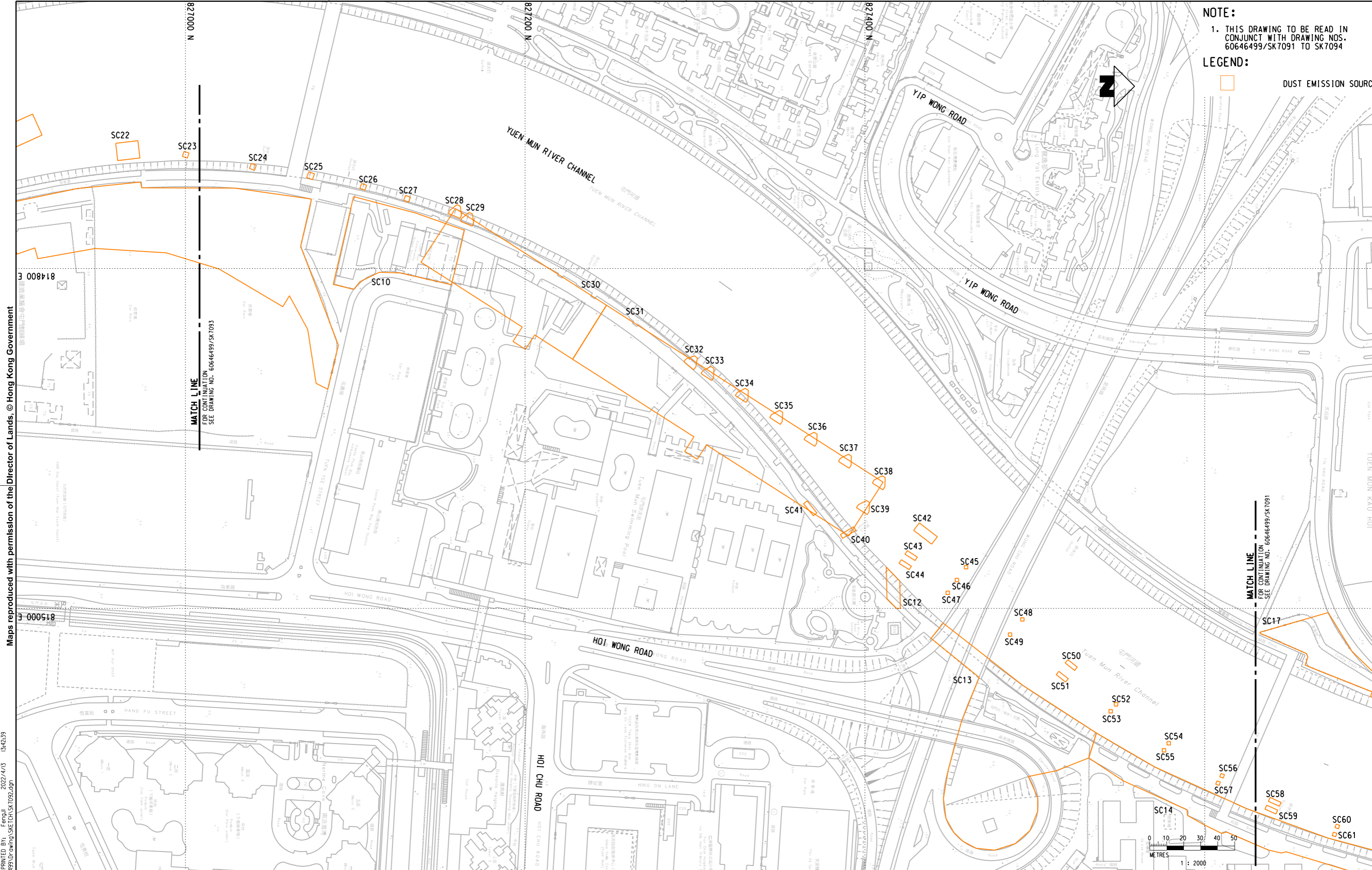
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<b>TITLE</b> C1502 TUEN MUN SOUTH EXTENSION LOCATION OF CONSTRUCTION DUST EMISSION SOURCE (SCENARIO 1 - YEAR 2025) (SHEET 1 OF 4)		SCALE 1 : 2000 (A3)	FIGURE NO. SK7091	REV. -
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**NOTE:**  
1. THIS DRAWING TO BE READ IN CONJUNCT WITH DRAWING NOS. 60646499/SK7091 TO SK7094

**LEGEND:**  
 DUST EMISSION SOURCE

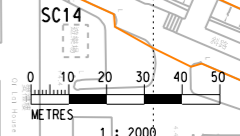


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**MTR**

TUEN MUN SOUTH EXTENSION

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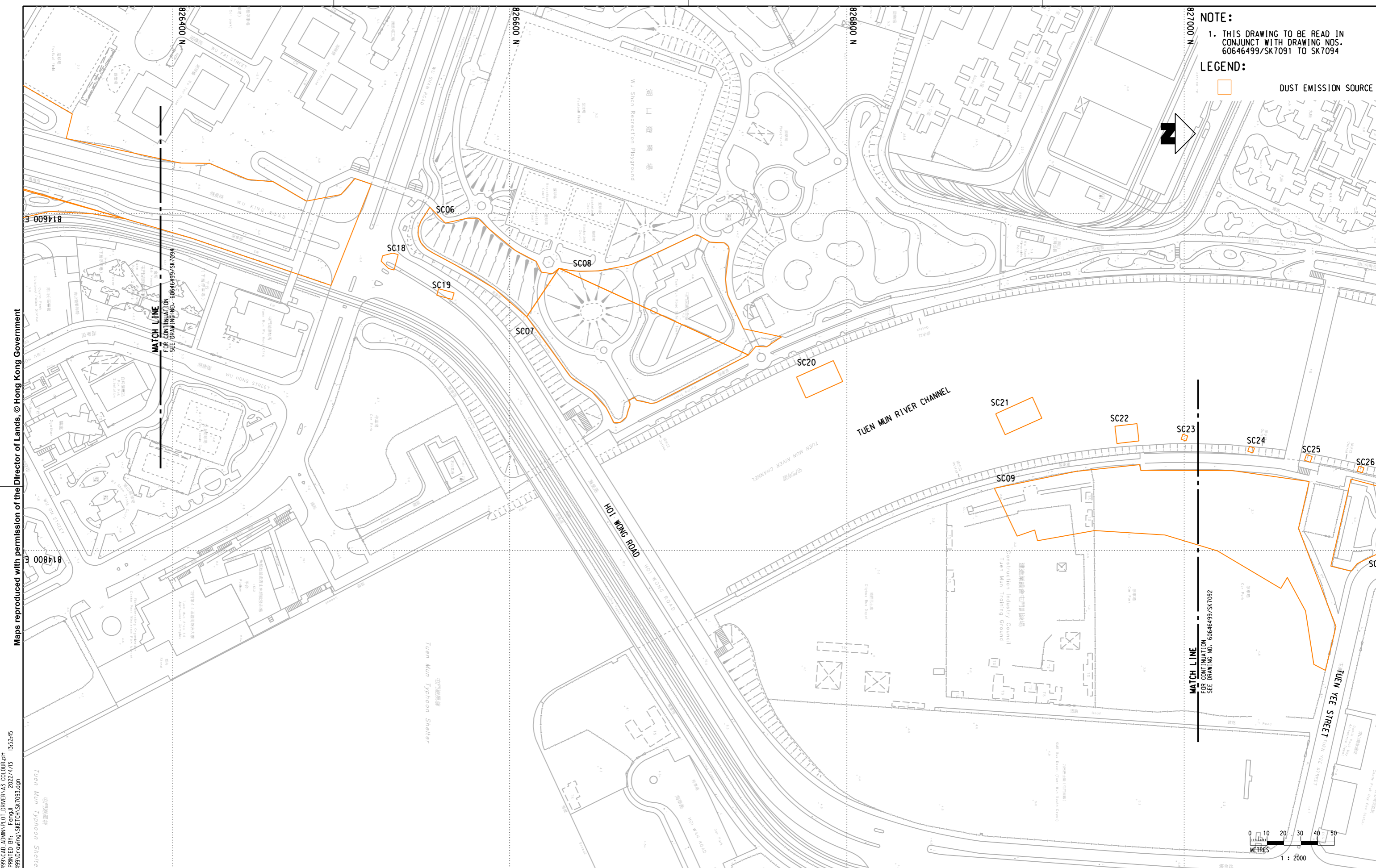
**C1502**  
**TUEN MUN SOUTH EXTENSION**  
**LOCATION OF CONSTRUCTION DUST EMISSION SOURCE**  
**(SCENARIO 1 - YEAR 2025)**  
**(SHEET 2 OF 4)**

SCALE 1 : 2000 (A3)

FIGURE NO. SK7092

REV. -



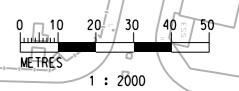


**NOTE:**  
 1. THIS DRAWING TO BE READ IN CONJUNCT WITH DRAWING NOS. 60646499/SK7091 TO SK7094

**LEGEND:**  
 [Orange outline] DUST EMISSION SOURCE

**MATCH LINE**  
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 SEE DRAWING NO. 60646499/SK7094

**MATCH LINE**  
 FOR CONTINUATION  
 SEE DRAWING NO. 60646499/SK7092



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**MTR**  
 TUEN MUN SOUTH EXTENSION  
  
**AECOM**

ORIGINATOR

CADD REF. SK7093.dgn


<b>TITLE</b> C1502 TUEN MUN SOUTH EXTENSION LOCATION OF CONSTRUCTION DUST EMISSION SOURCE (SCENARIO 1 - YEAR 2025) (SHEET 3 OF 4)	
SCALE 1 : 2000 (A3)	FIGURE NO. SK7093
REV.	

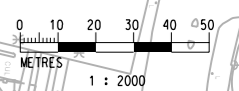
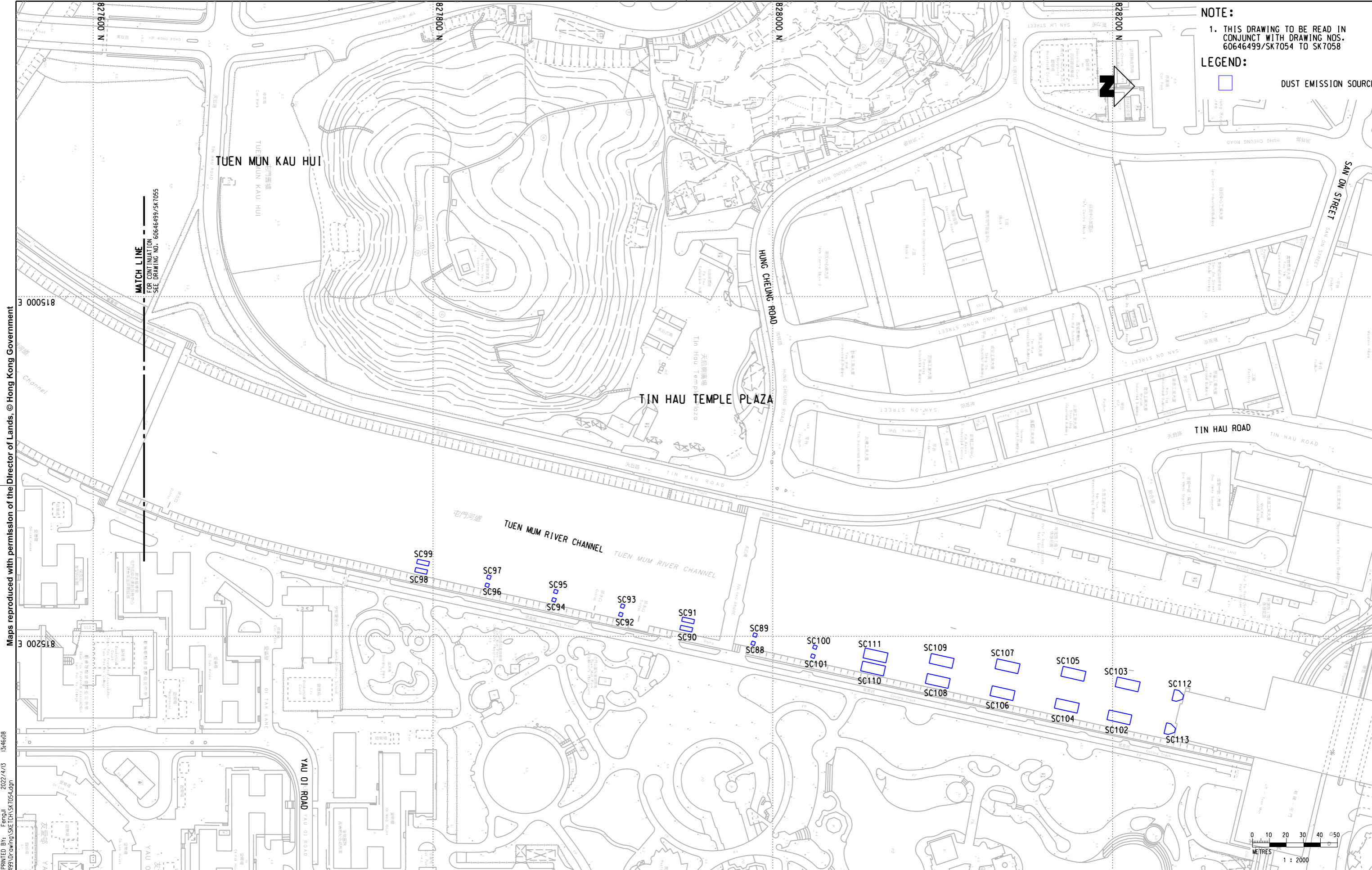






**NOTE:**  
 1. THIS DRAWING TO BE READ IN CONJUNCTION WITH DRAWING NOS. 60646499/SK7054 TO SK7058

**LEGEND:**  
 DUST EMISSION SOURCE



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 FILENAME: P:\PROJECTS\60646499\dwg SK7054.dgn  
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**MTR**

TUEN MUN SOUTH EXTENSION

ORIGINATOR

**AECOM**

CADD REF. SK7054.dgn

TITLE

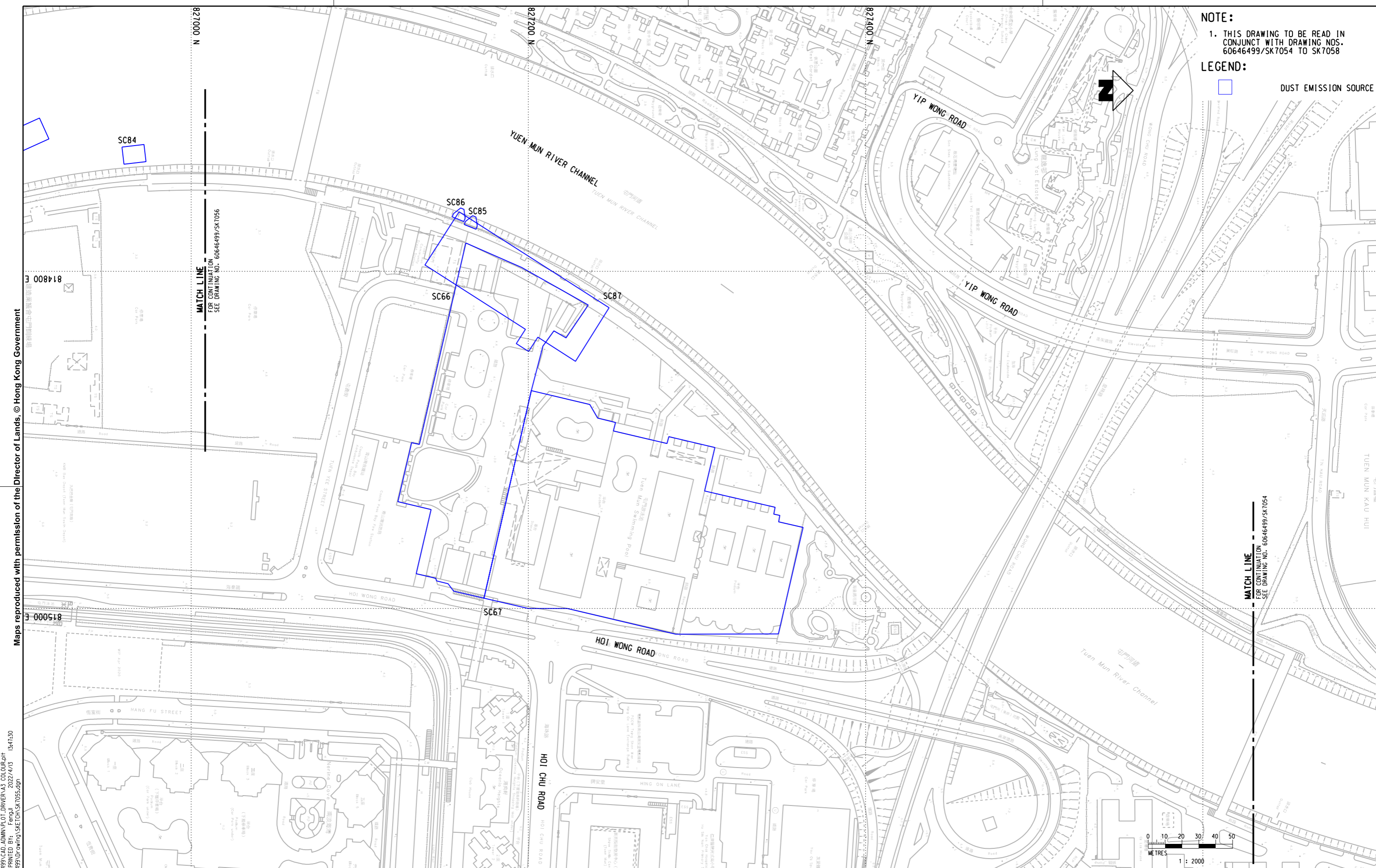
**C1502**  
 TUEN MUN SOUTH EXTENSION  
 LOCATION OF CONSTRUCTION DUST EMISSION SOURCE  
 (SCENARIO 2 - YEAR 2028)  
 (SHEET 1 OF 4)

SCALE 1 : 2000 (A3)

FIGURE NO. SK7054

REV. -





**NOTE:**  
 1. THIS DRAWING TO BE READ IN CONJUNCT WITH DRAWING NOS. 60646499/SK7054 TO SK7058

**LEGEND:**  
 DUST EMISSION SOURCE

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 SEE DRAWING NO. 60646499/SK7054

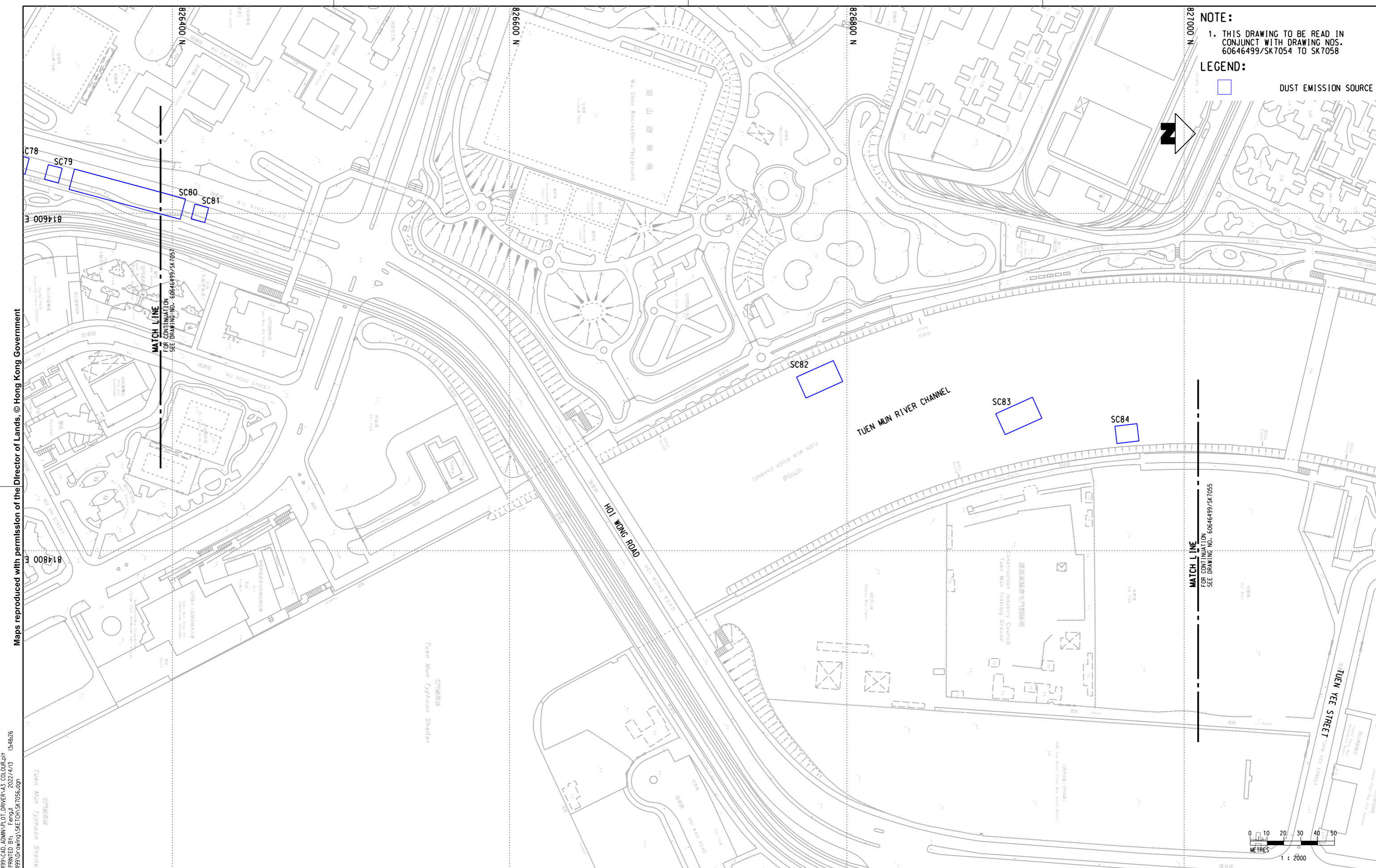
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**MTR**  
 TUEN MUN SOUTH EXTENSION  
 ORIGINATOR  
**AECOM**  
 CADD REF. SK7055.dgn

<b>TITLE</b> C1502 TUEN MUN SOUTH EXTENSION LOCATION OF CONSTRUCTION DUST EMISSION SOURCE (SCENARIO 2 - YEAR 2028) (SHEET 2 OF 4)		SCALE 1 : 2000 (A3)	FIGURE NO. SK7055	REV. -
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**NOTE:**  
 1. THIS DRAWING TO BE READ IN CONJUNCT WITH DRAWING NOS. 60646499/SK7054 TO SK7058

**LEGEND:**  
 DUST EMISSION SOURCE

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 SEE DRAWING NO. 60646499/SK7055

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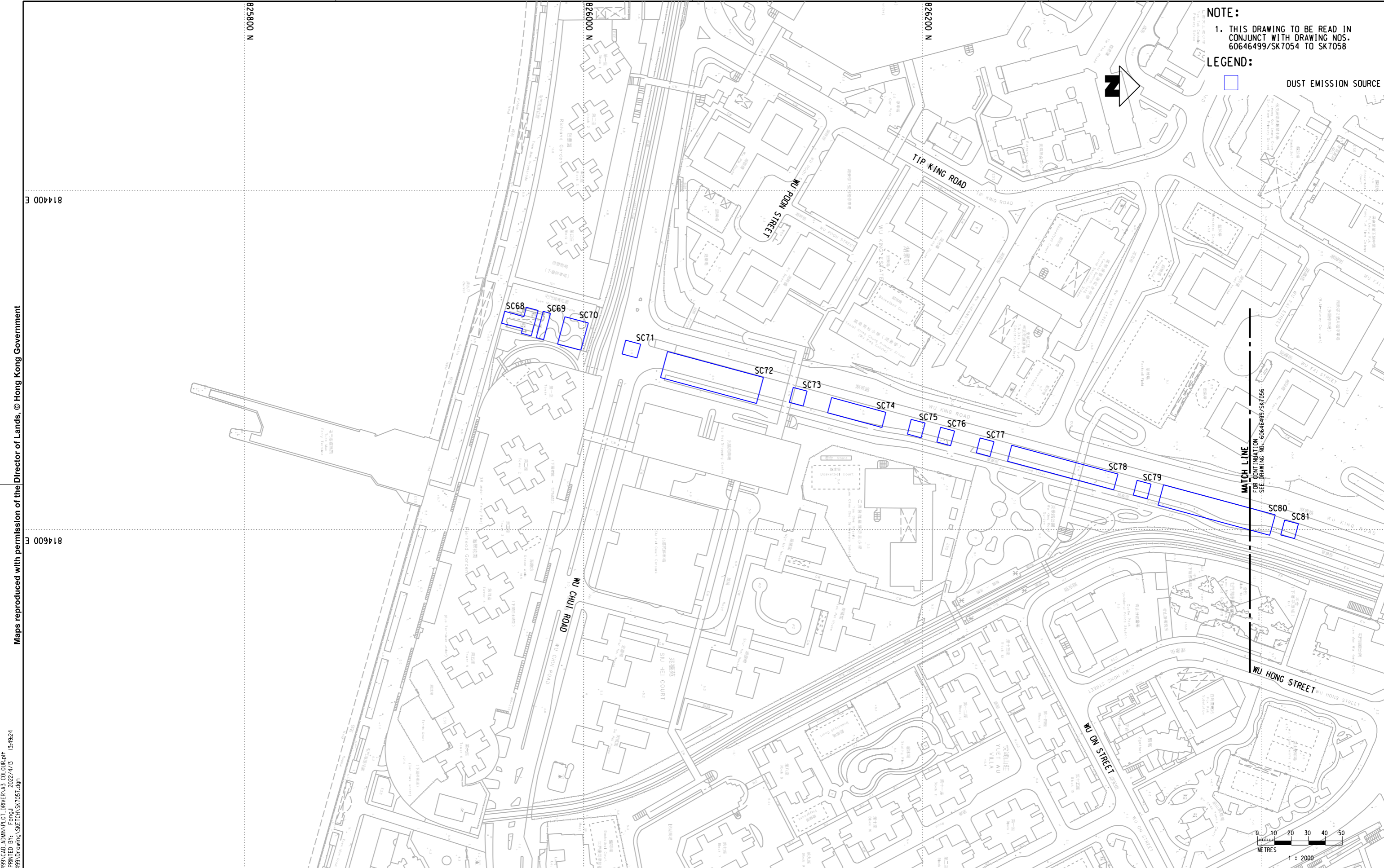
**MTR**  
 TUEN MUN SOUTH EXTENSION  
  
**AECOM**

ORIGINATOR

CADD REF. SK7056.dgn

<b>TITLE</b> C1502 TUEN MUN SOUTH EXTENSION LOCATION OF CONSTRUCTION DUST EMISSION SOURCE (SCENARIO 2 - YEAR 2028) (SHEET 3 OF 4)		SCALE 1 : 2000 (A3)	FIGURE NO. SK7056	REV. -
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**NOTE:**  
 1. THIS DRAWING TO BE READ IN CONJUNCT WITH DRAWING NOS. 60646499/SK7054 TO SK7058

**LEGEND:**  
 DUST EMISSION SOURCE

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N 008528  
 N 00928  
 N 826200  
 814400 E  
 814600 E

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**TUEN MUN SOUTH EXTENSION**  
 ORIGINATOR  
  
 CADD REF. SK7057.dgn

<b>TITLE</b> C1502 TUEN MUN SOUTH EXTENSION LOCATION OF CONSTRUCTION DUST EMISSION SOURCE (SCENARIO 2 - YEAR 2028) (SHEET 4 OF 4)	
SCALE 1 : 2000 (A3)	FIGURE NO. SK7057
REV.	