Appendix 4B

Details of Dust Emission Sources of T2

Appendix 4B

CE 38/2008(HY)
Kai Tak Development - Trunk Road T2 and Infrastructure at South Apron
Investigation, Design and Construction
Emission Rates and Locations of Dust Sources of Trunk Road T2
Source Emission Rates
Unmitigated Scenario

Heavy Construction

Work Item Related: Land clearing, excavation, cut and fill operations, equipment traffic, stockpile operations, mucking-out at jacking pits and hauling over the site area

Source IDs: WA3, WA4, TBL1, TBR1, CCT1, GDR1, VW1, VEP1

TSP Emission Factor	**2.6900**	***(Mg/ha/month activity)***	*from EPA AP-42, 5th ed. Sec13.2.3.3*
Source Emission Rate	**2.0756E-04**	***(g/m^2/s)***	*Assuming 30 working days per month and 12 hours per day*
Source Emission Rate	**2.0756E-04**	***(g/m^2/s)***	*Assuming 100% of Area Activity Operating*
Source Emission Rate (w/o. Mitigation)	**2.0756E-04**	***(g/m^2/s)***	*Assuming 0% of Dust Suppression*
			for watering once per hour

Wind Erosion of Exposed Areas for Daytime and Nighttime (Working)

Work Item Related: Land clearing, excavation, cut and fill operations, equipment traffic, stockpile operations, mucking-out at jacking pits and hauling over the site area

Source IDs: WA3, WA4, TBL1, TBR1, CCT1, GDR1, VW1, VEP1

TSP Emission Factor	**0.8500**	***(Mg/ha/Yr)***	*from EPA AP-42, 5th ed. Sec11 Table 11.9.4*
Source Emission Rate	**2.6953E-06**	***(g/m^2/s)***	*Assuming Wind Erosion in 365 days and 24 hrs per day*
Source Emission Rate	**2.6953E-06**	***(g/m^2/s)***	*Assuming 100% of Area Activity Operating*
Source Emission Rate (w/o. Mitigation)	**2.6953E-06**	***(g/m^2/s)***	*Assuming 0% of Dust Suppression*
			for watering once per hour

Wind Erosion of Exposed Areas for Nighttime (Non-Working)

Work Item Related: Land clearing, excavation, cut and fill operations, equipment traffic, stockpile operations, mucking-out at jacking pits and hauling over the site area

Source IDs: WA4, TBL1, TBR1, CCT1, GDR1, VW1, VEP1, HRE1, HRW1, HRW2, HRW3

TSP Emission Factor	**0.8500**	***(Mg/ha/Yr)***	*from EPA AP-42, 5th ed. Sec11 Table 11.9.4*
Source Emission Rate	**2.6953E-06**	***(g/m^2/s)***	*Assuming Wind Erosion in 365 days and 24 hrs per day*
Source Emission Rate	**2.6953E-06**	***(g/m^2/s)***	*Assuming 100% of Area Activity Operating*
Source Emission Rate (w/0. Mitigation)	**2.6953E-06**	***(g/m^2/s)***	*Assuming 0% of Dust Suppression*
			for no watering

Unloading from Trucks to Barge at Barging Point

Source IDs: DPT1

TSP Emission Factor	**0.0002**	***(kg/Mg)***	*k x (0.0016) x [(U/2.2)^1.3 / (M/2)^1.4], from EPA AP-42, 5th ed. Sec13.2.4.3*
Particle size multiplier, k	**0.7400**		*Particle size < 30 μm, from EPA AP-42, 5th ed. Sec13.2.4.3*
Material moisture content, M(%)	**10.0000**	***(%)***	*From Engineer*
Average wind speed, U (m/s)	**3.1779**	***(m/s)***	*From Hong Kong Observatory, Hong Kong Observatory Station in Year 2011*
Handling capacity (Mg/hr)	**462**	***(Mg/hour)***	*Maximum capacity provided from Engineer*
Emission rate	**92.6976**	***(g/hour)***	*Assuming 0% dust suppression*
Emission rate	**0.0257**	***(g/s)***	

Haul Roads

Source IDs: HRE1, HRW1, HRW2, HRW3

TSP Emission Factor	**2.6900**	***(Mg/ha/month activity)***	*from EPA AP-42, 5th ed. Sec13.2.3.3*
Source Emission Rate	**2.0756E-04**	***(g/m^2/s)***	*Assuming 30 working days per month and 12 hours per day*
Source Emission Rate	**2.0756E-04**	***(g/m^2/s)***	*Assuming 100% of Area Activity Operating*
Source Emission Rate (w/o. Mitigation)	**2.0756E-04**	***(g/m^2/s)***	*Assuming 0% of Dust Suppression*
			for watering once per hour

Unloading from Conveyor Belts to Barge at Barging Point

Source IDs: DPC1

TSP Emission Factor	**0.0002**	***(kg/Mg)***	*k x (0.0016) x [(U/2.2)^1.3 / (M/2)^1.4], from EPA AP-42, 5th ed. Sec13.2.4.3*
Particle size multiplier, k	**0.7400**		*Particle size < 30 μm, from EPA AP-42, 5th ed. Sec13.2.4.3*
Material moisture content, M(%)	**10.0000**	***(%)***	*From Engineer*
Average wind speed, U (m/s)	**3.1779**	***(m/s)***	*From Hong Kong Observatory, Hong Kong Observatory Station in Year 2011*
Handling capacity (Mg/hr)	**1110**	***(Mg/hour)***	*Maximum capacity provided from Engineer*
Emission rate	**222.7150**	***(g/hour)***	*Assuming 0% dust suppression*
Emission rate	**0.0619**	***(g/s)***	

Appendix 4B

CE 38/2008(HY)
Kai Tak Development - Trunk Road T2 and Infrastructure at South Apron
Investigation, Design and Construction
Emission Rates and Locations of Dust Sources of Trunk Road T2
Short Term and Long Term Emission
Unmitigated Scenario

ID	Emission Rate 1 (Day) (g/s or g/sq.m/s)	Emission Rate 2 (Day) (g/s or g/sq.m/s)	Total Emission Rate (Day) (g/s or g/sq.m/s)	Emission Rate (Night) (g/s or g/sq.m/s)	X-Centre	Y-Centre	X-Length (m)	Y-Length (m)	Height (m)	Rotation Angle / Width (m)
VW1	2.1070E-04		2.1070E-04	2.7000E-06	839399.6	819971.4	56.0	84.6	0.5	46.00
WA3	2.1070E-04		2.1070E-04	2.1070E-04	839808.5	819577.2	68.0	79.9	0.5	46.00
TBL1	2.1070E-04		2.1070E-04	2.7000E-06	839810.4	819497.0	32.8	161.0	0.5	46.00
VEP1	2.1070E-04		2.1070E-04	2.7000E-06	841834.5	818034.4	51.1	51.1	0.5	0.00
HRE1	2.0800E-04		2.0800E-04	2.7000E-06	841296.8	818165.4	49.7	6.5	0.5	14.00
HRE1	2.0800E-04		2.0800E-04	2.7000E-06	841254.5	818170.6	41.6	6.5	0.5	151.00
HRW1	2.0800E-04		2.0800E-04	2.7000E-06	839775.4	819609.0	68.0	11.8	0.5	46.00
TBR1	2.1070E-04		2.1070E-04	2.7000E-06	841323.2	818153.3	23.0	36.0	0.5	78.00
TBR1	2.1070E-04		2.1070E-04	2.7000E-06	841390.7	818138.9	22.7	101.0	0.5	78.00
TBR1	2.1070E-04		2.1070E-04	2.7000E-06	841417.1	818108.8	25.5	35.3	0.5	78.00
HRW2	2.0800E-04		2.0800E-04	2.7000E-06	839473.9	819846.2	6.9	60.0	0.5	44.00
HRW2	2.0800E-04		2.0800E-04	2.7000E-06	839432.2	819889.3	6.9	60.0	0.5	44.00
HRW2	2.0800E-04		2.0800E-04	2.7000E-06	839390.6	819932.5	6.9	60.0	0.5	44.00
HRW2	2.0800E-04		2.0800E-04	2.7000E-06	839348.9	819975.7	6.9	60.0	0.5	44.00
HRW2	2.0800E-04		2.0800E-04	2.7000E-06	839307.2	820018.9	6.9	60.0	0.5	44.00
HRW2	2.0800E-04		2.0800E-04	2.7000E-06	839270.8	820056.6	6.9	45.0	0.5	44.00
GDR1	2.1070E-04		2.1070E-04	2.7000E-06	839374.8	819921.8	27.5	200.0	0.5	43.00
GDR1	2.1070E-04		2.1070E-04	2.7000E-06	839274.5	820027.7	27.5	91.7	0.5	43.00
HRW2	2.0800E-04		2.0800E-04	2.7000E-06	839742.2	819586.4	6.9	60.0	0.5	46.00
HRW2	2.0800E-04		2.0800E-04	2.7000E-06	839698.9	819628.0	6.9	60.0	0.5	46.00
HRW2	2.0800E-04		2.0800E-04	2.7000E-06	839655.7	819669.7	6.9	60.0	0.5	46.00
HRW2	2.0800E-04		2.0800E-04	2.7000E-06	839612.5	819711.3	6.9	60.0	0.5	46.00
HRW2	2.0800E-04		2.0800E-04	2.7000E-06	839569.3	819752.9	6.9	60.0	0.5	46.00
HRW2	2.0800E-04		2.0800E-04	2.7000E-06	839526.0	819794.5	6.9	60.0	0.5	46.00
HRW2	2.0800E-04		2.0800E-04	2.7000E-06	839499.5	819820.0	6.9	13.6	0.5	46.00
CCT1	2.1070E-04		2.1070E-04	2.7000E-06	839661.0	819638.1	27.5	250.0	0.5	46.00
CCT1	2.1070E-04		2.1070E-04	2.7000E-06	839507.2	819787.4	27.5	178.6	0.5	46.00
HRE1	2.0800E-04		2.0800E-04	2.7000E-06	841407.5	818151.9	6.5	60.0	0.5	77.00
HRE1	2.0800E-04		2.0800E-04	2.7000E-06	841350.3	818164.9	6.5	57.2	0.5	77.00
HRE1	2.0800E-04		2.0800E-04	2.7000E-06	841218.2	818203.2	7.2	60.0	0.5	40.00
HRE1	2.0800E-04		2.0800E-04	2.7000E-06	841184.1	818243.6	7.2	45.6	0.5	40.00
HRW1	2.0800E-04		2.0800E-04	2.7000E-06	839857.4	819480.2	8.4	70.0	0.5	46.00
HRW1	2.0800E-04		2.0800E-04	2.7000E-06	839822.5	819513.6	8.4	26.6	0.5	46.00
HRW1	2.0800E-04		2.0800E-04	2.7000E-06	839766.3	819510.8	8.4	70.0	0.5	46.00
HRW1	2.0800E-04		2.0800E-04	2.7000E-06	839724.6	819550.9	8.4	45.7	0.5	46.00
HRW3	2.0800E-04		2.0800E-04	2.7000E-06	839772.6	819471.1	6.9	40.0	0.5	136.00
HRW3	2.0800E-04		2.0800E-04	2.7000E-06	839747.0	819444.6	6.9	33.7	0.5	136.00
HRW3	2.0800E-04		2.0800E-04	2.7000E-06	839754.6	819418.6	6.9	40.0	0.5	46.00
HRW3	2.0800E-04		2.0800E-04	2.7000E-06	839782.9	819391.3	6.9	38.7	0.5	46.00
HRW3	2.0800E-04		2.0800E-04	2.7000E-06	839836.2	819414.6	6.5	50.0	0.5	136.00
HRW3	2.0800E-04		2.0800E-04	2.7000E-06	839807.8	819384.8	6.5	32.2	0.5	136.00
DPC1	6.1865E-02		6.1865E-02	0.0000E+00	839849.5	819417.3	0.0	0.0	0.5	0.00
DPT1	2.5749E-02		2.5749E-02	0.0000E+00	839814.5	819375.0	0.0	0.0	0.5	0.00

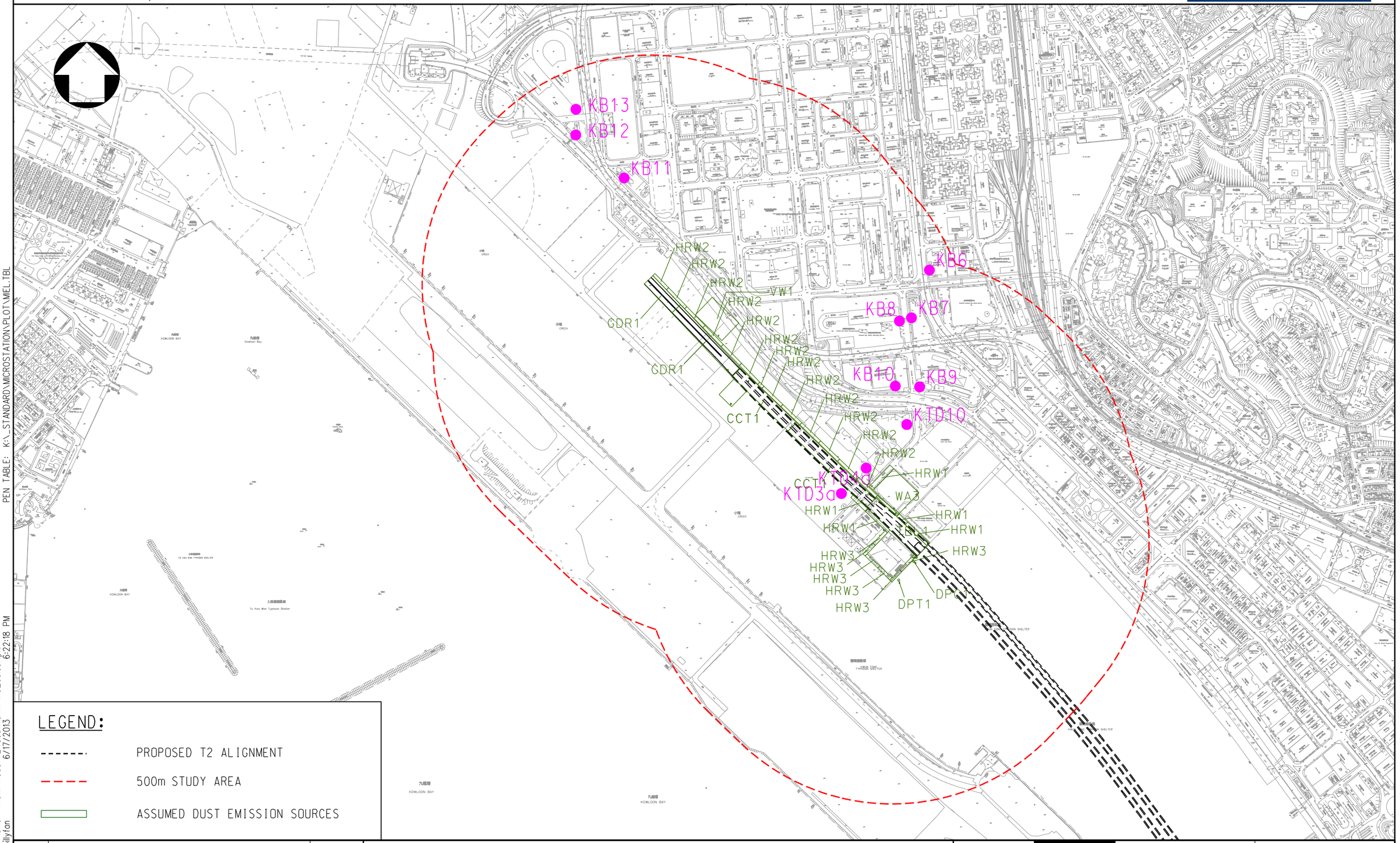
Legends
T2
WA - Works Area
TBL - Tunnel Boring Machine Launching
TBR - Tunnel Boring Machine Receiving
CCT - Cut and Cover Tunnel
GDR - At Grade and Depressed Road
VW - Vent Building West
VEP - Vent Building East and Portal
DPT - Discharge Point for Truck
DPC - Discharge Point for Conveyor Belt
HR - Haul Road

土木工程拓展署
Civil Engineering and Development Department
九龍拓展處
Kowloon Development Office

CEDD

AGREEMENT NO. CE 38/2008(HY)
KAI TAK DEVELOPMENT - TRUNK ROAD T2 AND INFRASTRUCTURE AT SOUTH APRON - INVESTIGATION, DESIGN AND CONSTRUCTION

Hyder MEINHARDT
Hyder-Meinhardt JV



LEGEND:

- PROPOSED T2 ALIGNMENT
- 500m STUDY AREA
- ASSUMED DUST EMISSION SOURCES

Rev.	Description	Date

Drawing title
LOCATIONS OF DUST EMISSION SOURCES FOR TRUNK ROAD T2
UNMITIGATED SCENARIO (SHORT TERM AND LONG TERM)

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Date: 21/02/2013
File name:

Drawing No.: APPENDIX 4B-1a
Rev.: --

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土木工程拓展署
Civil Engineering and Development Department
九龍拓展處
Kowloon Development Office

AGREEMENT NO. CE 38/2008(HY)
KAI TAK DEVELOPMENT - TRUNK ROAD T2 AND INFRASTRUCTURE AT SOUTH APRON - INVESTIGATION, DESIGN AND CONSTRUCTION

Hyder-Meinhardt JV

LEGEND:

- PROPOSED T2 ALIGNMENT
- 500m STUDY AREA
- ASSUMED DUST EMISSION SOURCES

Rev.	Description	Date

Drawing title
LOCATIONS OF DUST EMISSION SOURCES FOR TRUNK ROAD T2
UNMITIGATED SCENARIO (SHORT TERM AND LONG TERM)

Original Size: A3
Scale: 1 : 6000
Date: 21/02/2013
File name:

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Rev.: --

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Appendix 4B

CE 38/2008(HY)
Kai Tak Development - Trunk Road T2 and Infrastructure at South Apron
Investigation, Design and Construction
Emission Rates and Locations of Dust Sources of Trunk Road T2
Source Emission Rates
Mitigated Scenario

Heavy Construction

Work Item Related: Land clearing, excavation, cut and fill operations, equipment traffic, stockpile operations, mucking-out at jacking pits and hauling over the site area

Source IDs: WA3, WA4, TBL1, TBR1, CCT1, GDR1, VW1, VEP1

TSP Emission Factor	**2.6900**	***(Mg/ha/month activity)***	*from EPA AP-42, 5th ed. Sec13.2.3.3*
Source Emission Rate	**2.0756E-04**	***(g/m^2/s)***	*Assuming 30 working days per month and 12 hours per day*
Source Emission Rate	**2.0756E-04**	***(g/m^2/s)***	*Assuming 100% of Area Activity Operating*
Source Emission Rate (w/. Mitigation)	**1.7228E-05**	***(g/m^2/s)***	*Assuming 91.7% of Dust Suppression*
			for watering once per hour

Wind Erosion of Exposed Areas for Daytime and Nighttime (Working)

Work Item Related: Land clearing, excavation, cut and fill operations, equipment traffic, stockpile operations, mucking-out at jacking pits and hauling over the site area

Source IDs: WA3, WA4, TBL1, TBR1, CCT1, GDR1, VW1, VEP1

TSP Emission Factor	**0.8500**	***(Mg/ha/Yr)***	*from EPA AP-42, 5th ed. Sec11 Table 11.9.4*
Source Emission Rate	**2.6953E-06**	***(g/m^2/s)***	*Assuming Wind Erosion in 365 days and 24 hrs per day*
Source Emission Rate	**2.6953E-06**	***(g/m^2/s)***	*Assuming 100% of Area Activity Operating*
Source Emission Rate (w/. Mitigation)	**2.2371E-07**	***(g/m^2/s)***	*Assuming 91.7% of Dust Suppression*
			for watering once per hour

Wind Erosion of Exposed Areas for Nighttime (Non-Working)

Work Item Related: Land clearing, excavation, cut and fill operations, equipment traffic, stockpile operations, mucking-out at jacking pits and hauling over the site area

Source IDs: WA4, TBL1, TBR1, CCT1, GDR1, VW1, VEP1, HRE1, HRW1, HRW2, HRW3

TSP Emission Factor	**0.8500**	***(Mg/ha/Yr)***	*from EPA AP-42, 5th ed. Sec11 Table 11.9.4*
Source Emission Rate	**2.6953E-06**	***(g/m^2/s)***	*Assuming Wind Erosion in 365 days and 24 hrs per day*
Source Emission Rate	**2.6953E-06**	***(g/m^2/s)***	*Assuming 100% of Area Activity Operating*
Source Emission Rate (w/. Mitigation)	**2.6953E-06**	***(g/m^2/s)***	*Assuming 0% of Dust Suppression*
			for no watering

Unloading from Trucks to Barge at Barging Point

Source IDs: DPT1

TSP Emission Factor	**0.0002**	***(kg/Mg)***	*k x (0.0016) x [(U/2.2)^1.3 / (M/2)^1.4], from EPA AP-42, 5th ed. Sec13.2.4.3*
Particle size multiplier, k	**0.7400**		*Particle size < 30 μm, from EPA AP-42, 5th ed. Sec13.2.4.3*
Material moisture content, M(%)	**10.0000**	***(%)***	*From Engineer*
Average wind speed, U (m/s)	**3.1779**	***(m/s)***	*From Hong Kong Observatory, Hong Kong Observatory Station in Year 2011*
Handling capacity (Mg/hr)	**462**	***(Mg/hour)***	*Maximum capacity provided from Engineer*
Emission rate	**46.3488**	***(g/hour)***	*Assuming 50% dust suppression for 3-side with top cover and water spraying sytstem to be provided*
Emission rate	**0.0129**	***(g/s)***	*Control Techniques for Particulate Emissions from Stationary Sources Vol. 2, Section 9.12.3.2.2*

Haul Roads

Source IDs: HRE1, HRW1, HRW2, HRW3

TSP Emission Factor	**2.6900**	***(Mg/ha/month activity)***	*from EPA AP-42, 5th ed. Sec13.2.3.3*
Source Emission Rate	**2.0756E-04**	***(g/m^2/s)***	*Assuming 30 working days per month and 12 hours per day*
Source Emission Rate	**2.0756E-04**	***(g/m^2/s)***	*Assuming 100% of Area Activity Operating*
Source Emission Rate (w/. Mitigation)	**1.7228E-05**	***(g/m^2/s)***	*Assuming 91.7% of Dust Suppression*
			for watering once per hour

Unloading from Conveyor Belts to Barge at Barging Point

Source IDs: DPC1

TSP Emission Factor	**0.0002**	***(kg/Mg)***	*k x (0.0016) x [(U/2.2)^1.3 / (M/2)^1.4], from EPA AP-42, 5th ed. Sec13.2.4.3*
Particle size multiplier, k	**0.7400**		*Particle size < 30 μm, from EPA AP-42, 5th ed. Sec13.2.4.3*
Material moisture content, M(%)	**10.0000**	***(%)***	*From Engineer*
Average wind speed, U (m/s)	**3.1779**	***(m/s)***	*From Hong Kong Observatory, Hong Kong Observatory Station in Year 2011*
Handling capacity (Mg/hr)	**1110**	***(Mg/hour)***	*Maximum capacity provided from Engineer*
Emission rate	**111.3575**	***(g/hour)***	*Assuming 50% dust suppression for 3-side with top cover and water spraying sytstem to be provided*
Emission rate	**0.0309**	***(g/s)***	*Control Techniques for Particulate Emissions from Stationary Sources Vol. 2, Section 9.12.3.2.2*

Appendix 4B

CE 38/2008(HY)
Kai Tak Development - Trunk Road T2 and Infrastructure at South Apron Investigation, Design and Construction
Emission Rates and Locations of Dust Sources of Trunk Road T2
Tier 1 Short Term Emission
Mitigated Scenario

ID	Emission Rate 1 (Day) (g/s or g/sq.m/s)	Emission Rate 2 (Day) (g/s or g/sq.m/s)	Total Emission Rate (Day) (g/s or g/sq.m/s)	Emission Rate (Night) (g/s or g/sq.m/s)	X-Centre	Y-Centre	X-Centre (End)	Y-Centre (End)	X-Length (m)	Y-Length (m)	Height (m)	Rotation Angle / Width (m)
VW1	1.7451E-05		1.7451E-05	2.6953E-06	839399.6	819971.4			56.0	84.6	0.5	46.00
WA3	1.7451E-05		1.7451E-05	1.7451E-05	839808.5	819577.2			68.0	79.9	0.5	46.00
TBL1	1.7451E-05		1.7451E-05	2.6953E-06	839810.4	819497.0			32.8	161.0	0.5	46.00
VEP1	1.7451E-05		1.7451E-05	2.6953E-06	841834.5	818034.4			51.1	51.1	0.5	0.00
HRE1	1.7228E-05		1.7228E-05	2.6953E-06	841296.8	818165.4			49.7	6.5	0.5	14.00
HRE1	1.7228E-05		1.7228E-05	2.6953E-06	841254.5	818170.6			41.6	6.5	0.5	151.00
HRW1	1.7228E-05		1.7228E-05	2.6953E-06	839775.4	819609.0			68.0	11.8	0.5	46.00
TBR1	1.7451E-05		1.7451E-05	2.6953E-06	841323.2	818153.3			23.0	36.0	0.5	78.00
TBR1	1.7451E-05		1.7451E-05	2.6953E-06	841390.7	818138.9			22.7	101.0	0.5	78.00
TBR1	1.7451E-05		1.7451E-05	2.6953E-06	841417.1	818108.8			25.5	35.3	0.5	78.00
HRW2	1.7228E-05		1.7228E-05	2.6953E-06	839473.9	819846.2			6.9	60.0	0.5	44.00
HRW2	1.7228E-05		1.7228E-05	2.6953E-06	839432.2	819889.3			6.9	60.0	0.5	44.00
HRW2	1.7228E-05		1.7228E-05	2.6953E-06	839390.6	819932.5			6.9	60.0	0.5	44.00
HRW2	1.7228E-05		1.7228E-05	2.6953E-06	839348.9	819975.7			6.9	60.0	0.5	44.00
HRW2	1.7228E-05		1.7228E-05	2.6953E-06	839307.2	820018.9			6.9	60.0	0.5	44.00
HRW2	1.7228E-05		1.7228E-05	2.6953E-06	839270.8	820056.6			6.9	45.0	0.5	44.00
GDR1	1.7451E-05		1.7451E-05	2.6953E-06	839374.8	819921.8			27.5	200.0	0.5	43.00
GDR1	1.7451E-05		1.7451E-05	2.6953E-06	839274.5	820027.7			27.5	91.7	0.5	43.00
HRW2	1.7228E-05		1.7228E-05	2.6953E-06	839742.2	819586.4			6.9	60.0	0.5	46.00
HRW2	1.7228E-05		1.7228E-05	2.6953E-06	839698.9	819628.0			6.9	60.0	0.5	46.00
HRW2	1.7228E-05		1.7228E-05	2.6953E-06	839655.7	819669.7			6.9	60.0	0.5	46.00
HRW2	1.7228E-05		1.7228E-05	2.6953E-06	839612.5	819711.3			6.9	60.0	0.5	46.00
HRW2	1.7228E-05		1.7228E-05	2.6953E-06	839569.3	819752.9			6.9	60.0	0.5	46.00
HRW2	1.7228E-05		1.7228E-05	2.6953E-06	839526.0	819794.5			6.9	60.0	0.5	46.00
HRW2	1.7228E-05		1.7228E-05	2.6953E-06	839499.5	819820.0			6.9	13.6	0.5	46.00
CCT1	1.7451E-05		1.7451E-05	2.6953E-06	839661.0	819638.1			27.5	250.0	0.5	46.00
CCT1	1.7451E-05		1.7451E-05	2.6953E-06	839507.2	819787.4			27.5	178.6	0.5	46.00
HRE1	1.7228E-05		1.7228E-05	2.6953E-06	841407.5	818151.9			6.5	60.0	0.5	77.00
HRE1	1.7228E-05		1.7228E-05	2.6953E-06	841350.3	818164.9			6.5	57.2	0.5	77.00
HRE1	1.7228E-05		1.7228E-05	2.6953E-06	841218.2	818203.2			7.2	60.0	0.5	40.00
HRE1	1.7228E-05		1.7228E-05	2.6953E-06	841184.1	818243.6			7.2	45.6	0.5	40.00
HRW1	1.7228E-05		1.7228E-05	2.6953E-06	839857.4	819480.2			8.4	70.0	0.5	46.00
HRW1	1.7228E-05		1.7228E-05	2.6953E-06	839822.5	819513.6			8.4	26.6	0.5	46.00
HRW1	1.7228E-05		1.7228E-05	2.6953E-06	839766.3	819510.8			8.4	70.0	0.5	46.00
HRW1	1.7228E-05		1.7228E-05	2.6953E-06	839724.6	819550.9			8.4	45.7	0.5	46.00
HRW3	1.7228E-05		1.7228E-05	2.6953E-06	839772.6	819471.1			6.9	40.0	0.5	136.00
HRW3	1.7228E-05		1.7228E-05	2.6953E-06	839747.0	819444.6			6.9	33.7	0.5	136.00
HRW3	1.7228E-05		1.7228E-05	2.6953E-06	839754.6	819418.6			6.9	40.0	0.5	46.00
HRW3	1.7228E-05		1.7228E-05	2.6953E-06	839782.9	819391.3			6.9	38.7	0.5	46.00
HRW3	1.7228E-05		1.7228E-05	2.6953E-06	839836.2	819414.6			6.5	50.0	0.5	136.00
HRW3	1.7228E-05		1.7228E-05	2.6953E-06	839807.8	819384.8			6.5	32.2	0.5	136.00
DPC1	3.0933E-02		3.0933E-02	0.0000E+00	839849.5	819417.3			0.0	0.0	0.5	0.00
DPT1	1.2875E-02		1.2875E-02	0.0000E+00	839814.5	819375.0			0.0	0.0	0.5	0.00

Legends
T2
WA - Works Area
TBL - Tunnel Boring Machine Launching
TBR - Tunnel Boring Machine Receiving
CCT - Cut and Cover Tunnel
GDR - At Grade and Depressed Road
VW - Vent Building West
VEP - Vent Building East and Portal
DPT - Discharge Point for Truck
DPC - Discharge Point for Conveyor Belt
HR - Haul Road

Appendix 4B

CE 38/2008(HY)
Kai Tak Development - Trunk Road T2 and Infrastructure at South Apron
Investigation, Design and Construction
Emission Rates and Locations of Dust Sources of Trunk Road T2
Tier 2 Short Term Emission
Mitigated Scenario

ID	Emission Rate 1 (Day) (g/s or g/sq.m/s)	Emission Rate 2 (Day) (g/s or g/sq.m/s)	Total Emission Rate (Day) (g/s or g/sq.m/s)	Emission Rate (Night) (g/s or g/sq.m/s)	X-Centre	Y-Centre	X-Centre (End)	Y-Centre (End)	X-Length (m)	Y-Length (m)	Height (m)	Rotation Angle / Width (m)
VW1	1.7451E-05		1.7451E-05	2.6953E-06	839399.6	819971.4			56.0	84.6	0	46.00
WA3	1.7451E-05		1.7451E-05	1.7451E-05	839808.5	819577.2			68.0	79.9	0	46.00
TBL1	1.7451E-05		1.7451E-05	2.6953E-06	839810.4	819497.0			32.8	161.0	0	46.00
VEP1	1.7451E-05		1.7451E-05	2.6953E-06	841834.5	818034.4			51.1	51.1	0	0.00
HRE1	1.7228E-05		1.7228E-05	2.6953E-06	841296.8	818165.4			49.7	6.5	0	14.00
HRE1	1.7228E-05		1.7228E-05	2.6953E-06	841254.5	818170.6			41.6	6.5	0	151.00
HRW1	1.7228E-05		1.7228E-05	2.6953E-06	839775.4	819609.0			68.0	11.8	0	46.00
HRW2	1.7228E-05		1.7228E-05	2.6953E-06	839473.9	819846.2			6.9	60.0	0	44.00
HRW2	1.7228E-05		1.7228E-05	2.6953E-06	839432.2	819889.3			6.9	60.0	0	44.00
HRW2	1.7228E-05		1.7228E-05	2.6953E-06	839390.6	819932.5			6.9	60.0	0	44.00
HRW2	1.7228E-05		1.7228E-05	2.6953E-06	839348.9	819975.7			6.9	60.0	0	44.00
HRW2	1.7228E-05		1.7228E-05	2.6953E-06	839307.2	820018.9			6.9	60.0	0	44.00
HRW2	1.7228E-05		1.7228E-05	2.6953E-06	839270.8	820056.6			6.9	45.0	0	44.00
GDR1	1.7451E-05		1.7451E-05	2.6953E-06	839374.8	819921.8			27.5	200.0	0	43.00
GDR1	1.7451E-05		1.7451E-05	2.6953E-06	839274.5	820027.7			27.5	91.7	0	43.00
HRW2	1.7228E-05		1.7228E-05	2.6953E-06	839742.2	819586.4			6.9	60.0	0	46.00
HRW2	1.7228E-05		1.7228E-05	2.6953E-06	839698.9	819628.0			6.9	60.0	0	46.00
HRW2	1.7228E-05		1.7228E-05	2.6953E-06	839655.7	819669.7			6.9	60.0	0	46.00
HRW2	1.7228E-05		1.7228E-05	2.6953E-06	839612.5	819711.3			6.9	60.0	0	46.00
HRW2	1.7228E-05		1.7228E-05	2.6953E-06	839569.3	819752.9			6.9	60.0	0	46.00
HRW2	1.7228E-05		1.7228E-05	2.6953E-06	839526.0	819794.5			6.9	60.0	0	46.00
HRW2	1.7228E-05		1.7228E-05	2.6953E-06	839499.5	819820.0			6.9	13.6	0	46.00
CCT1	1.7451E-05		1.7451E-05	2.6953E-06	839661.0	819638.1			27.5	250.0	0	46.00
CCT1	1.7451E-05		1.7451E-05	2.6953E-06	839507.2	819787.4			27.5	178.6	0	46.00
HRE1	1.7228E-05		1.7228E-05	2.6953E-06	841407.5	818151.9			6.5	60.0	0	77.00
HRE1	1.7228E-05		1.7228E-05	2.6953E-06	841350.3	818164.9			6.5	57.2	0	77.00
HRE1	1.7228E-05		1.7228E-05	2.6953E-06	841218.2	818203.2			7.2	60.0	0	40.00
HRE1	1.7228E-05		1.7228E-05	2.6953E-06	841184.1	818243.6			7.2	45.6	0	40.00
HRW1	1.7228E-05		1.7228E-05	2.6953E-06	839857.4	819480.2			8.4	70.0	0	46.00
HRW1	1.7228E-05		1.7228E-05	2.6953E-06	839822.5	819513.6			8.4	26.6	0	46.00
HRW1	1.7228E-05		1.7228E-05	2.6953E-06	839766.3	819510.8			8.4	70.0	0	46.00
HRW1	1.7228E-05		1.7228E-05	2.6953E-06	839724.6	819550.9			8.4	45.7	0	46.00
HRW3	1.7228E-05		1.7228E-05	2.6953E-06	839772.6	819471.1			6.9	40.0	0	136.00
HRW3	1.7228E-05		1.7228E-05	2.6953E-06	839747.0	819444.6			6.9	33.7	0	136.00
HRW3	1.7228E-05		1.7228E-05	2.6953E-06	839754.6	819418.6			6.9	40.0	0	46.00
HRW3	1.7228E-05		1.7228E-05	2.6953E-06	839782.9	819391.3			6.9	38.7	0	46.00
HRW3	1.7228E-05		1.7228E-05	2.6953E-06	839836.2	819414.6			6.5	50.0	0	136.00
HRW3	1.7228E-05		1.7228E-05	2.6953E-06	839807.8	819384.8			6.5	32.2	0	136.00
TBR1	1.7451E-05		1.7451E-05	2.6953E-06	841424.7	818118.6			47.8	24.9	0	78.00
DPC1	3.0933E-02		3.0933E-02	0.0000E+00	839849.5	819417.3			0.0	0.0	0.5	0.00
DPT1	1.2875E-02		1.2875E-02	0.0000E+00	839814.5	819375.0			0.0	0.0	0.5	0.00

Legends

T2

WA - Works Area
TBL - Tunnel Boring Machine Launching
TBR - Tunnel Boring Machine Receiving
CCT - Cut and Cover Tunnel
GDR - At Grade and Depressed Road
VW - Vent Building West
VEP - Vent Building East and Portal
DPT - Discharge Point for Truck
DPC - Discharge Point for Conveyor Belt
HR - Haul Road

Appendix 4B

CE 38/2008(HY)
Kai Tak Development - Trunk Road T2 and Infrastructure at South Apron
Investigation, Design and Construction
Emission Rates and Locations of Dust Sources of Trunk Road T2
Long Term Emission
Mitigated Scenario

ID	Emission Rate 1 (Day) (g/s or g/sq.m/s)	Emission Rate 2 (Day) (g/s or g/sq.m/s)	Total Emission Rate (Day) (g/s or g/sq.m/s)	Emission Rate (Night) (g/s or g/sq.m/s)	X-Centre	Y-Centre	X-Centre (End)	Y-Centre (End)	X-Length (m)	Y-Length (m)	Height (m)	Rotation Angle / Width (m)
VW1	1.7451E-05		1.7451E-05	2.6953E-06	839399.6	819971.4			56.0	84.6	0	46.00
WA3	1.7451E-05		1.7451E-05	1.7451E-05	839808.5	819577.2			68.0	79.9	0	46.00
TBL1	1.7451E-05		1.7451E-05	2.6953E-06	839810.4	819497.0			32.8	161.0	0	46.00
VEP1	1.7451E-05		1.7451E-05	2.6953E-06	841834.5	818034.4			51.1	51.1	0	0.00
HRE1	1.7228E-05		1.7228E-05	2.6953E-06	841296.8	818165.4			49.7	6.5	0	14.00
HRE1	1.7228E-05		1.7228E-05	2.6953E-06	841254.5	818170.6			41.6	6.5	0	151.00
HRW1	1.7228E-05		1.7228E-05	2.6953E-06	839775.4	819609.0			68.0	11.8	0	46.00
HRW2	1.7228E-05		1.7228E-05	2.6953E-06	839473.9	819846.2			6.9	60.0	0	44.00
HRW2	1.7228E-05		1.7228E-05	2.6953E-06	839432.2	819889.3			6.9	60.0	0	44.00
HRW2	1.7228E-05		1.7228E-05	2.6953E-06	839390.6	819932.5			6.9	60.0	0	44.00
HRW2	1.7228E-05		1.7228E-05	2.6953E-06	839348.9	819975.7			6.9	60.0	0	44.00
HRW2	1.7228E-05		1.7228E-05	2.6953E-06	839307.2	820018.9			6.9	60.0	0	44.00
HRW2	1.7228E-05		1.7228E-05	2.6953E-06	839270.8	820056.6			6.9	45.0	0	44.00
GDR1	1.7451E-05		1.7451E-05	2.6953E-06	839374.8	819921.8			27.5	200.0	0	43.00
GDR1	1.7451E-05		1.7451E-05	2.6953E-06	839274.5	820027.7			27.5	91.7	0	43.00
HRW2	1.7228E-05		1.7228E-05	2.6953E-06	839742.2	819586.4			6.9	60.0	0	46.00
HRW2	1.7228E-05		1.7228E-05	2.6953E-06	839698.9	819628.0			6.9	60.0	0	46.00
HRW2	1.7228E-05		1.7228E-05	2.6953E-06	839655.7	819669.7			6.9	60.0	0	46.00
HRW2	1.7228E-05		1.7228E-05	2.6953E-06	839612.5	819711.3			6.9	60.0	0	46.00
HRW2	1.7228E-05		1.7228E-05	2.6953E-06	839569.3	819752.9			6.9	60.0	0	46.00
HRW2	1.7228E-05		1.7228E-05	2.6953E-06	839526.0	819794.5			6.9	60.0	0	46.00
HRW2	1.7228E-05		1.7228E-05	2.6953E-06	839499.5	819820.0			6.9	13.6	0	46.00
CCT1	1.7451E-05		1.7451E-05	2.6953E-06	839661.0	819638.1			27.5	250.0	0	46.00
CCT1	1.7451E-05		1.7451E-05	2.6953E-06	839507.2	819787.4			27.5	178.6	0	46.00
HRE1	1.7228E-05		1.7228E-05	2.6953E-06	841407.5	818151.9			6.5	60.0	0	77.00
HRE1	1.7228E-05		1.7228E-05	2.6953E-06	841350.3	818164.9			6.5	57.2	0	77.00
HRE1	1.7228E-05		1.7228E-05	2.6953E-06	841218.2	818203.2			7.2	60.0	0	40.00
HRE1	1.7228E-05		1.7228E-05	2.6953E-06	841184.1	818243.6			7.2	45.6	0	40.00
HRW1	1.7228E-05		1.7228E-05	2.6953E-06	839857.4	819480.2			8.4	70.0	0	46.00
HRW1	1.7228E-05		1.7228E-05	2.6953E-06	839822.5	819513.6			8.4	26.6	0	46.00
HRW1	1.7228E-05		1.7228E-05	2.6953E-06	839766.3	819510.8			8.4	70.0	0	46.00
HRW1	1.7228E-05		1.7228E-05	2.6953E-06	839724.6	819550.9			8.4	45.7	0	46.00
HRW3	1.7228E-05		1.7228E-05	2.6953E-06	839772.6	819471.1			6.9	40.0	0	136.00
HRW3	1.7228E-05		1.7228E-05	2.6953E-06	839747.0	819444.6			6.9	33.7	0	136.00
HRW3	1.7228E-05		1.7228E-05	2.6953E-06	839754.6	819418.6			6.9	40.0	0	46.00
HRW3	1.7228E-05		1.7228E-05	2.6953E-06	839782.9	819391.3			6.9	38.7	0	46.00
HRW3	1.7228E-05		1.7228E-05	2.6953E-06	839836.2	819414.6			6.5	50.0	0	136.00
HRW3	1.7228E-05		1.7228E-05	2.6953E-06	839807.8	819384.8			6.5	32.2	0	136.00
TBR1	1.7451E-05		1.7451E-05	2.6953E-06	841424.7	818118.6			47.8	24.9	0	78.00
DPC1	3.0933E-02		3.0933E-02	0.0000E+00	839849.5	819417.3			0.0	0.0	0.5	0.00
DPT1	1.2875E-02		1.2875E-02	0.0000E+00	839814.5	819375.0			0.0	0.0	0.5	0.00

Legends

T2

WA - Works Area
TBL - Tunnel Boring Machine Launching
TBR - Tunnel Boring Machine Receiving
CCT - Cut and Cover Tunnel
GDR - At Grade and Depressed Road
VW - Vent Building West
VEP - Vent Building East and Portal
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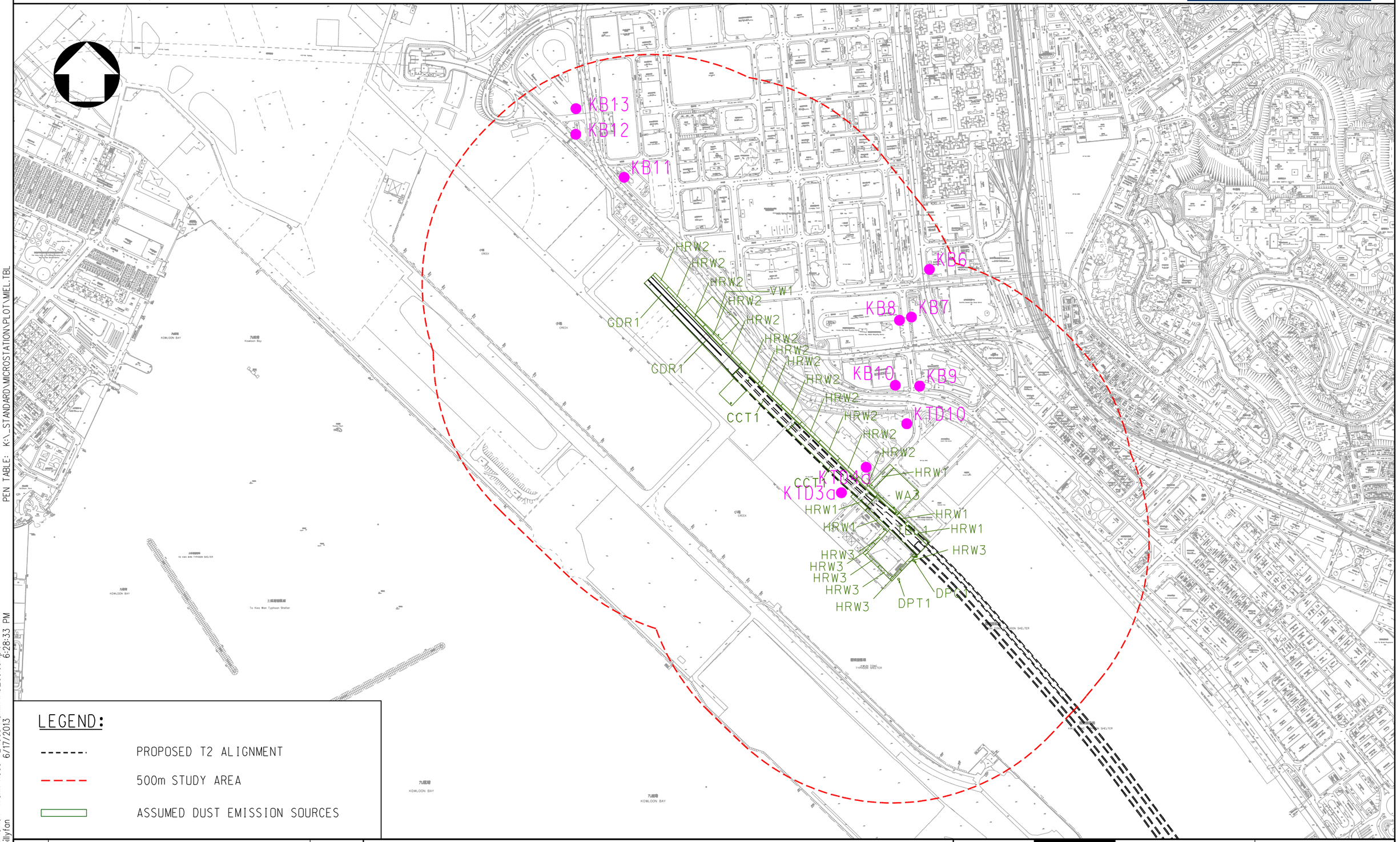
DPC - Discharge Point for Conveyor Belt
HR - Haul Road

土木工程拓展署
Civil Engineering and Development Department
九龍拓展處
Kowloon Development Office

CEDD

AGREEMENT NO. CE 38/2008(HY)
KAI TAK DEVELOPMENT - TRUNK ROAD T2 AND INFRASTRUCTURE AT SOUTH APRON - INVESTIGATION, DESIGN AND CONSTRUCTION

Hyder MEINHARDT
Hyder-Meinhardt JV



LEGEND:

- PROPOSED T2 ALIGNMENT
- 500m STUDY AREA
- ASSUMED DUST EMISSION SOURCES

Rev.	Description	Date

Drawing title
LOCATIONS OF DUST EMISSION SOURCES FOR TRUNK ROAD T2
MITIGATED SCENARIO TIER 1 (SHORT TERM AND LONG TERM)

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Scale: 1 : 8000
Date: 21/02/2013
File name:

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Rev.: --

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Civil Engineering and Development Department
九龍拓展處
Kowloon Development Office

AGREEMENT NO. CE 38/2008(HY)
KAI TAK DEVELOPMENT - TRUNK ROAD T2 AND INFRASTRUCTURE AT SOUTH APRON - INVESTIGATION, DESIGN AND CONSTRUCTION

Hyder-Meinhardt JV

LEGEND:

- PROPOSED T2 ALIGNMENT
- 500m STUDY AREA
- ASSUMED DUST EMISSION SOURCES

Rev.	Description	Date

Drawing title
LOCATIONS OF DUST EMISSION SOURCES FOR TRUNK ROAD T2
MITIGATED SCENARIO TIER 1 (SHORT TERM AND LONG TERM)

Original Size: A3
Scale: 1 : 6000
Date: 21/02/2013
File name:

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Rev.: --

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Civil Engineering and Development Department
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Kowloon Development Office

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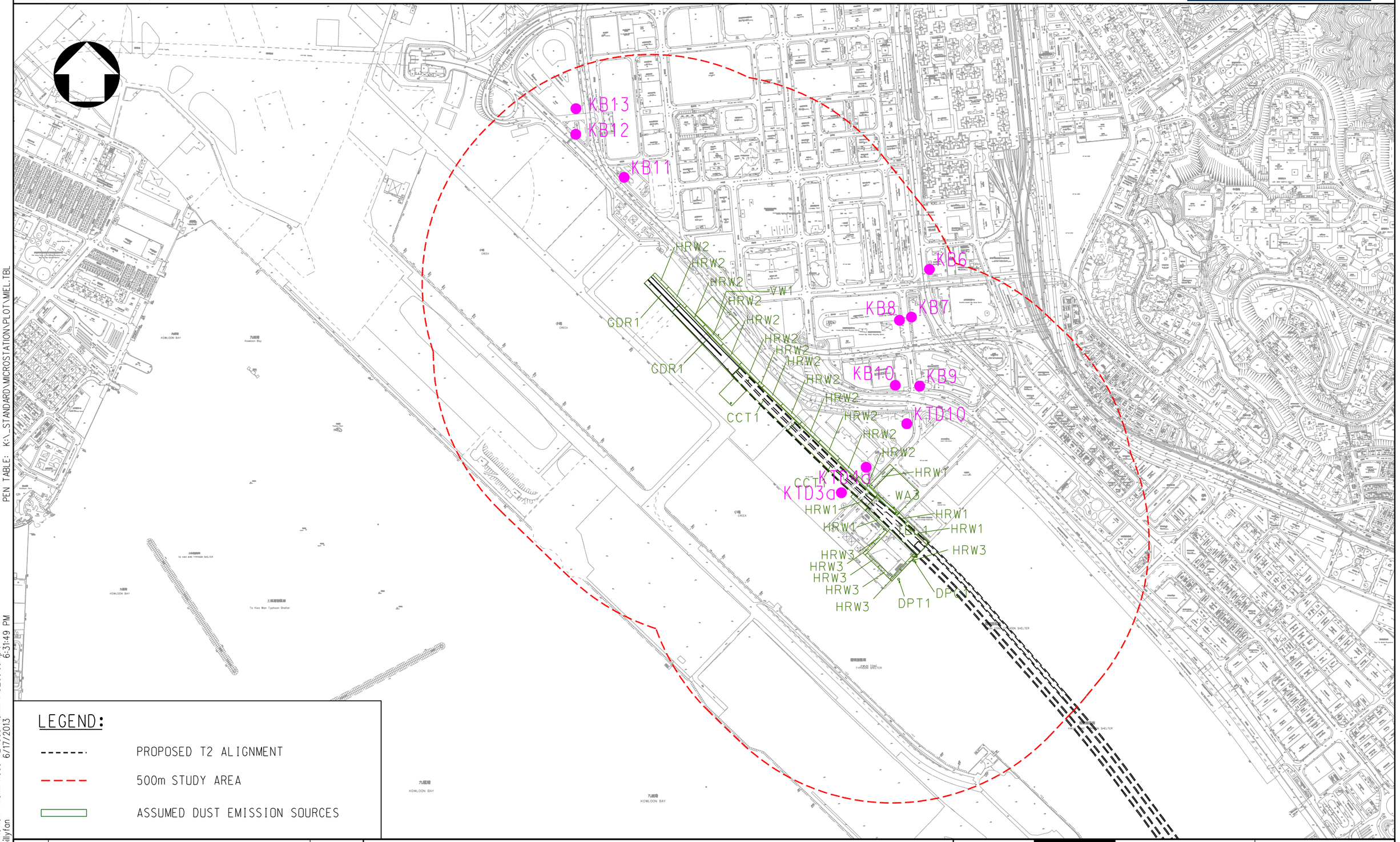
AGREEMENT NO. CE 38/2008(HY)
KAI TAK DEVELOPMENT - TRUNK ROAD T2 AND INFRASTRUCTURE AT SOUTH APRON - INVESTIGATION, DESIGN AND CONSTRUCTION

Hyder MEINHARDT
Hyder-Meinhardt JV



LEGEND:

- PROPOSED T2 ALIGNMENT
- 500m STUDY AREA
- ASSUMED DUST EMISSION SOURCES

Rev.	Description	Date

Drawing title
LOCATIONS OF DUST EMISSION SOURCES FOR TRUNK ROAD T2
MITIGATED SCENARIO TIER 2 (SHORT TERM)

Original Size: A3

Scale: 1 : 8000 | Date: 21/02/2013

File name

Drawing No.: APPENDIX 4B-3a

Rev.: --

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土木工程拓展署
Civil Engineering and Development Department
九龍拓展處
Kowloon Development Office

CEDD

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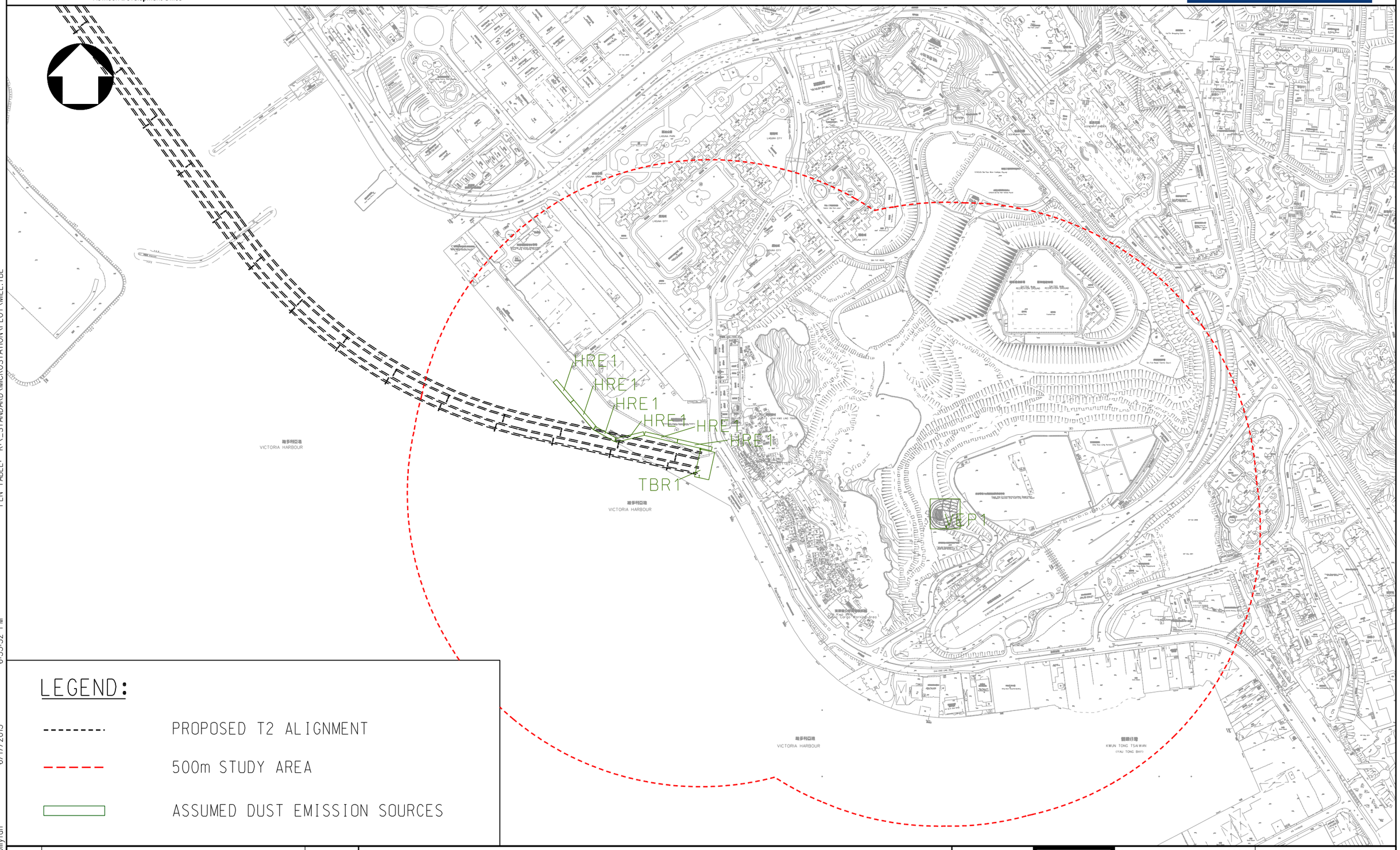

LEGEND:

- PROPOSED T2 ALIGNMENT
- 500m STUDY AREA
- ASSUMED DUST EMISSION SOURCES

Rev.	Description	Date

Drawing title
LOCATIONS OF DUST EMISSION SOURCES FOR TRUNK ROAD T2
MITIGATED SCENARIO TIER 2 (SHORT TERM)

Original Size: A3
Scale: 1 : 6000
Date: 21/02/2013
File name:

Drawing No.: APPENDIX 4B-3b
Rev.: --

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