APPENDICES

Prevailing Facade Noise Levels in L_{10}(1-hr), dB(A) in 2000

NSR	1/f	5/f	10/f	15/f	20/f	25/f	30/f	35/f	Top/f
HS1	77	77	77	77	76	76	76	75	75
HS2	81	80	80	79	78	78	77	77	77
HS3	77	77	77	77	76	75	75	75	74
HS4	83	82	81	80	79	78	78	77	77
VH1	76	75	75	75	75	-	-	-	-
VH2	76	75	75	-	-	-	-	-	-
VH3	76	76	75	75	75	75	74	75	-
VH4	61	65	65	66	70	72	71	71	-
MC1	74	75	76	76	76	76	76	75	75
MC2	71	72	72	72	72	72	72	72	72
MC3	71	72	73	73	73	73	73	73	73
MC4	67	70	71	71	71	71	71	71	71
MC5	65	67	69	69	69	69	69	69	69
R1	68	69	71	71	71	71	71	71	71
R2	68	71	73	73	73	73	73	73	73
R3	68	70	71	71	71	71	71	71	71
R4	67	68	69	69	69	70	70	69	69
R5	68	70	71	71	71	72	72	72	72
R6	66	70	71	71	71	71	71	71	71
KL1	40	45	58	58	58	58	58	58	58
KL2	69	70	70	70	69	69	69	69	69
KL3	70	72	71	71	70	70	69	69	69
KL4	68	69	69	68	68	68	67	67	67
KL5	57	61	61	61	61	61	61	61	61
KL6	69	71	71	70	70	70	69	69	69
KL7	65	70	70	70	69	69	68	68	68
KL8	64	68	69	68	68	68	67	67	67
CM1	69	72	72	72	-	-	-	-	-
CM2	70	74	73	72	72	71	70	70	70
CM3	62	68	67	67	66	66	65	65	64
CM4	68	74	73	72	72	71	70	70	69
CM5	62	69	69	68	68	67	66	66	66
CM6	62	68	69	68	68	68	67	67	67
CM7	59	65	65	65	65	65	64	64	64
CM8	58	64	65	65	65	64	64	64	64
CM9	56	60	63	63	63	63	62	62	62
ON1	56	60	63	63	63	63	63	63	62
ON2	65	68	69	69	69	69	69	69	69
ON3	65	67	68	68	68	68	67	67	67
ON4	58	62	64	64	64	64	64	64	64
ON5	67	69	70	70	70	70	70	70	69
ON6	66	69	70	70	70	70	69	69	69
ON7	66	69	70	70	69	69	69	69	69
ON8	65	68	70	70	69	69	69	69	69
ON9	58	63	64	66	66	66	66	66	66
CR1	54	64	66	66	66	66	66	65	65
CR2	65	68	68	69	69	68	68	68	68
CR3	68	68	69	69	69	68	68	68	67
ST1	53	56	62	65	66	66	66	66	66
ST2	55	59	65	69	69	69	69	69	69
ST3	61	68	69	69	70	70	69	69	69
ST4	59	66	67	67	68	68	68	67	67
ST5	63	71	71	71	70	70	70	69	69
ST6	66	70	72	71	71	71	71	70	70
ST7	68	70	72	71	71	70	70	70	69
ST8	65	66	69	69	69	69	68	68	68
ST9	67	70	70	70	69	69	69	68	68

NSR	1/f	3/f	6/f
SC1	66	66	69
SC2	67	68	70
SC3	54	56	61
SC4	61	63	65
SC5	61	62	63
SC6	58	62	-
SC7	50	52	59
SC8	51	53	61
SC9	57	60	-
SC10	57	60	64
SC11	73	74	74
CH1	63	65	68
CH2	76	76	-
H1	71	71	-
H2	69	70	71
H3	72	72	-

NSR	Height above 15m podium		
	10m	20m	30m
381	62	63	63
382	59	60	61

Appendix B Sample Calculation for Construction Noise

Calculation of noise level at ON6 for the Lowest Construction Noise Scenario, which consists of Road Works-Stage II, Bridge Works-Stage III and Subway & Retaining Walls – Stage II.

Construction Activity	Equipment and Quantity		CNP Code	% on-time	Sound Power Level SWL, Leq (30min)/dB(A)		
					Per piece	Adjusted	Total
				C1	C2	C3	C4
Road Works – Stage II	Concrete Lorry Mixer	1	044	80	109	108	110
	Vibratory Compactor	1	050	75	105	104	
	Air Compressor, silenced	1	002	100	100	100	
Bridge Works – Stage III	Concrete Lorry Mixer	1	044	80	109	108	110
	Vibratory Compactor	1	050	75	105	104	
	Air Compressor, silenced	1	002	100	100	100	
Bridge Works – Stage III	Concrete Lorry Mixer	1	044	80	109	108	112
	Concrete Pump	1	047	100	109	109	
	Vibratory Compactor	1	050	75	105	104	
	Air Compressor, silenced	1	002	100	100	100	

a. Equation for adjusted SWL (C3): $10 \times \log [10^{C2 / 10} \times C1/100]$

b. Equation for total SWL (C4): $10 \times \log [\Sigma\ 10^{C3 / 10}]$

Distance *r* between the noise sources and the receiver ON6 and the corresponding distance corrections are shown below:

Road Works	125m	50 dB(A)
Bridge Works	67m	45 dB(A)
Subway Works	150m	52 dB(A)
Retaining Walls	305m	58 dB(A)

Distance correction = $-20 \times \log r - 8$.
Reflection correction = +3 dB(A).

The cumulative noise level at ON6 during the Lowest Construction Noise Scenario is:

= $\{10 \times \log [(110 - 50)/10] + 10 \times \log [(110 - 45)/10] + 10 \times \log [(112 - 52)/10] + 10 \times \log [(112 - 58)/10]\} + 3$ dB(A)

= 70 dB(A)

Appendix C

```
1                    FDM - (DATED 91109)

                     IBM-PC VERSION (1.01)
                     (C) COPYRIGHT 1991, TRINITY CONSULTANTS, INC.
                     SERIAL NUMBER 8354  SOLD TO ENPAC LIMITED
                     RUN BEGAN ON  4/16/99 AT 19:04:01


     RUN TITLE:
          TKO Contract F (TSP) (S-3) on 17-4-99

          INPUT FILE NAME: GO.DAT
          OUTPUT FILE NAME: S-3.LST


          CONVERGENCE OPTION 1=OFF, 2=ON                          1
          MET OPTION SWITCH, 1=CARDS, 2=PREPROCESSED              1
          PLOT FILE OUTPUT, 1=NO, 2=YES                           1
          MET DATA PRINT SWITCH, 1=NO, 2=YES                      1
          POST-PROCESSOR OUTPUT, 1=NO, 2=YES                      1
          DEP. VEL./GRAV. SETL. VEL., 1=DEFAULT, 2=USER           1
          PRINT 1-HOUR AVERAGE CONCEN, 1=NO, 2=YES                3
          PRINT 3-HOUR AVERAGE CONCEN, 1=NO, 2=YES                1
          PRINT 8-HOUR AVERAGE CONCEN, 1=NO, 2=YES                1
          PRINT 24-HOUR AVERAGE CONCEN, 1=NO, 2=YES               3
          PRINT LONG-TERM AVERAGE CONCEN, 1=NO, 2=YES             2
          BYPASS RAMMET CALMS RECOGNITION, 1=NO, 2=YES            1
          NUMBER OF SOURCES PROCESSED                             1
          NUMBER OF RECEPTORS PROCESSED                          37
          NUMBER OF PARTICLE SIZE CLASSES                         5
          NUMBER OF HOURS OF MET DATA PROCESSED                8760
          LENGTH IN MINUTES OF 1-HOUR OF MET DATA              60.
          ROUGHNESS LENGTH IN CM                             100.00
          SCALING FACTOR FOR SOURCE AND RECPTORS              1.0000
          PARTICLE DENSITY IN G/CM**3                          2.50
          ANEMOMETER HEIGHT IN M                              10.00


          GENERAL PARTICLE SIZE CLASS INFORMATION

                                        GRAV.                    FRACTION
            PARTICLE        CHAR.    SETTLING   DEPOSITION      IN EACH
               SIZE         DIA.    VELOCITY     VELOCITY        SIZE
              CLASS         (UM)     (M/SEC)      (M/SEC)       CLASS
              -----    ----------   --------   -----------    --------
                 1    1.2500000         **           **        .0262
                 2    3.7500000         **           **        .0678
                 3    7.5000000         **           **        .1704
                 4   12.5000000         **           **        .1536
                 5   20.0000000         **           **        .5820
          ----------
          ** COMPUTED BY FDM
1

          RECEPTOR COORDINATES (X,Y,Z)

( 45021.,  20142.,   5.)  ( 45034.,  20085.,   5.)  ( 45032.,  19988.,   5.)
( 44979.,  19919.,   2.)  ( 44777.,  19783.,   2.)  ( 44547.,  20072.,   2.)
( 44477.,  20176.,   2.)  ( 44683.,  19712.,   2.)  ( 44569.,  19280.,   2.)
( 44641.,  19379.,   2.)  ( 44821.,  19570.,   2.)  ( 44806.,  19347.,   2.)
( 45226.,  19434.,   5.)  ( 45173.,  19485.,   5.)  ( 45120.,  19530.,   2.)
( 45038.,  19568.,   2.)  ( 45064.,  19672.,   5.)  ( 45103.,  19735.,   5.)
( 45115.,  19865.,   5.)  ( 45094.,  19919.,   5.)  ( 45119.,  19963.,   5.)
( 45167.,  19988.,   5.)  ( 45263.,  19994.,   5.)  ( 44751.,  20014.,   2.)
( 44598.,  19584.,   2.)  ( 44220.,  20053.,   5.)  ( 44428.,  20254., 17.)
( 44521.,  19946.,   2.)  ( 45032.,  19476.,   2.)  ( 45037.,  19810.,   2.)
( 44535.,  19960.,   2.)  ( 44634.,  19856.,   2.)  ( 44821.,  19570.,   2.)
( 45026.,  19468.,   2.)  ( 45038.,  19568.,   2.)  ( 44892.,  19813.,   2.)
( 45046.,  19804.,   2.)  (
1

          SOURCE INFORMATION

                ENTERED EMIS.     TOTAL
                 RATE (G/SEC,  EMISSION    WIND
                   G/SEC/M OR      RATE   SPEED      X1        Y1        X2        Y2   HEIGHT    WIDTH
          TYPE     G/SEC/M**2)   (G/SEC)    FAC.     (M)       (M)       (M)       (M)      (M)      (M)
          ---- --------------- ---------- ------ ------- --------- ------- --------- ------- -------
             2      .001392000     .16111   .000  45070.   19916.  45007.   19819.    5.70   12.00
                                ==========
          TOTAL EMISSIONS           .16111
1
           8760 HOUR AVERAGE FOR HOUR ENDING  8760
                    CONCENTRATIONS IN MICROGRAMS/M**3

( 45021.,  20142.,     1.169)  ( 45034.,  20085.,     1.818)  ( 45032.,  19988.,     4.702)
( 44979.,  19919.,    11.138)  ( 44777.,  19783.,     1.427)  ( 44547.,  20072.,      .656)
( 44477.,  20176.,      .474)  ( 44683.,  19712.,      .654)  ( 44569.,  19280.,      .431)
( 44641.,  19379.,      .590)  ( 44821.,  19570.,     1.832)  ( 44806.,  19347.,     1.198)
( 45226.,  19434.,      .392)  ( 45173.,  19485.,      .682)  ( 45120.,  19530.,     1.442)
( 45038.,  19568.,     3.850)  ( 45064.,  19672.,     4.731)  ( 45103.,  19735.,     2.589)
( 45115.,  19865.,     1.797)  ( 45094.,  19919.,     9.620)  ( 45119.,  19963.,     6.665)
( 45167.,  19988.,     2.782)  ( 45263.,  19994.,      .591)  ( 44751.,  20014.,     1.654)
( 44598.,  19584.,      .401)  ( 44220.,  20053.,      .289)  ( 44428.,  20254.,      .280)
( 44521.,  19946.,      .714)  ( 45032.,  19476.,     2.468)  ( 45037.,  19810.,    21.405)
( 44535.,  19960.,      .723)  ( 44634.,  19856.,     1.178)  ( 44821.,  19570.,     1.832)
```

(45026., 19468., 2.428) (45038., 19568., 3.850) (44892., 19813., 4.121)
(45046., 19804., 17.327) (

1

8760 HOUR AVERAGE FOR HOUR ENDING 8760
DEPOSITION RATE IN MICROGRAMS/M**2/SEC

(45021., 20142.,**********) (45034., 20085.,**********) (45032., 19988.,**********)
(44979., 19919.,**********) (44777., 19783.,**********) (44547., 20072.,**********)
(44477., 20176.,**********) (44683., 19712.,**********) (44569., 19280.,**********)
(44641., 19379.,**********) (44821., 19570.,**********) (44806., 19347.,**********)
(45226., 19434.,**********) (45173., 19485.,**********) (45120., 19530.,**********)
(45038., 19568.,**********) (45064., 19672.,**********) (45103., 19735.,**********)
(45115., 19865.,**********) (45094., 19919.,**********) (45119., 19963.,**********)
(45167., 19988.,**********) (45263., 19994.,**********) (44751., 20014.,**********)
(44598., 19584.,**********) (44220., 20053.,**********) (44428., 20254.,**********)
(44521., 19946.,**********) (45032., 19476.,**********) (45037., 19810.,**********)
(44535., 19960.,**********) (44634., 19856.,**********) (44821., 19570.,**********)
(45026., 19468.,**********) (45038., 19568.,**********) (44892., 19813.,**********)
(45046., 19804.,**********) (
****** NOTE: FOR RECEPTORS WITH Z UNEQUAL 0, DEPOSITION IS SET TO 999999.999

1

TOP 50 TABLE FOR 1 HOUR AVERAGES

RANK	RECEPTOR	X-COORDINATE	Y-COORDINATE	ENDING HOUR	CONCENTRATION	DEPOSITION
1	20	45093.6	19918.9	3460	514.4584	11.6725
2	20	45093.6	19918.9	5571	514.4584	11.6709
3	20	45093.6	19918.9	5159	514.4583	11.6915
4	20	45093.6	19918.9	3212	514.4581	11.7194
5	20	45093.6	19918.9	3451	475.5446	10.9519
6	20	45093.6	19918.9	3271	475.5446	10.9335
7	20	45093.6	19918.9	4079	475.5446	10.8907
8	20	45093.6	19918.9	5358	475.5446	10.9318
9	20	45093.6	19918.9	3225	446.9685	10.3153
10	20	45093.6	19918.9	3245	446.9681	10.2979
11	20	45093.6	19918.9	2787	441.7654	10.2695
12	20	45093.6	19918.9	5356	441.7654	10.2821
13	20	45093.6	19918.9	2443	441.7653	10.2367
14	20	45093.6	19918.9	2904	441.7653	10.2604
15	20	45093.6	19918.9	5277	441.7653	10.2550
16	20	45093.6	19918.9	5451	441.7653	10.2403
17	20	45093.6	19918.9	4342	412.2299	9.7237
18	20	45093.6	19918.9	5424	412.2298	9.6916
19	20	45093.6	19918.9	5447	412.2296	9.6607
20	20	45093.6	19918.9	6239	411.4578	9.5544
21	20	45093.6	19918.9	2829	386.2260	9.2025
22	20	45093.6	19918.9	5333	386.2260	9.2025
23	20	45093.6	19918.9	844	386.2249	9.0231
24	20	45093.6	19918.9	5284	381.8050	8.7846
25	21	45119.3	19963.0	934	377.3477	8.1200
26	21	45119.3	19963.0	2275	377.3439	8.1746
27	21	45119.3	19963.0	3190	377.3419	8.2029
28	20	45093.6	19918.9	4324	363.1834	8.7518
29	20	45093.6	19918.9	3243	354.4341	8.4208
30	21	45119.3	19963.0	2253	349.8624	7.6754
31	21	45119.3	19963.0	6546	349.8607	7.7100
32	21	45119.3	19963.0	3126	349.8604	7.7157
33	21	45119.3	19963.0	4032	349.8598	7.7280
34	20	45093.6	19918.9	5359	348.0508	8.1039
35	20	45093.6	19918.9	5611	346.9496	8.6148
36	20	45093.6	19918.9	5379	346.9495	8.6041
37	20	45093.6	19918.9	3124	346.9493	8.5783
38	20	45093.6	19918.9	4368	331.2635	8.0105
39	20	45093.6	19918.9	934	329.9395	7.2232
40	20	45093.6	19918.9	2275	329.9376	7.2699
41	20	45093.6	19918.9	3190	329.9365	7.2941
42	20	45093.6	19918.9	5353	328.3216	8.2621
43	20	45093.6	19918.9	4326	328.3214	8.2221
44	20	45093.6	19918.9	6240	328.3213	8.2018
45	20	45093.6	19918.9	8298	328.3210	8.1605
46	20	45093.6	19918.9	8299	328.3209	8.1558
47	21	45119.3	19963.0	594	325.6533	7.1534
48	21	45119.3	19963.0	7194	325.6506	7.2428
49	21	45119.3	19963.0	7242	325.6506	7.2440
50	21	45119.3	19963.0	4923	325.6500	7.2627

1

HIGHEST AND SECOND HIGHEST VALUES FOR 1 HOUR AVERAGES

RECEPTOR	X-COORDINATE	Y-COORDINATE	HIGHEST VALUE	ENDING HOUR	DEPOSITION	SECOND HIGH	ENDING HOUR	DEPOSTION
1	45021.3	20142.1	87.0175	6673.	1.7552	87.0172	2589.	1.7574
2	45033.9	20085.2	122.5629	6673.	2.5284	122.5625	2589.	2.5313
3	45032.3	19987.7	184.7463	6673.	3.9706	184.7460	2589.	3.9748
4	44978.6	19919.2	160.9753	7941.	3.8356	160.9711	6603.	3.8470
5	44777.1	19783.2	112.9446	990.	2.3806	112.8261	6051.	2.4129
6	44547.4	20071.5	33.1543	6287.	.6315	29.6320	176.	.5852
7	44477.2	20175.7	25.1719	7395.	.4561	25.1705	7394.	.4562
8	44683.4	19711.6	60.2404	990.	1.2031	60.1430	6051.	1.2213
9	44569.0	19279.8	20.4237	2085.	.3533	20.4197	138.	.3538
10	44640.5	19379.3	29.8217	2085.	.5415	29.8167	138.	.5421

11	44820.6	19569.9	72.2120	2085.	1.4658	72.2055	138.	1.4671
12	44805.8	19347.3	29.2181	8274.	.5464	29.2167	2515.	.5466
13	45226.3	19433.7	37.0170	385.	.6867	37.0167	7923.	.6888
14	45172.8	19484.6	52.2152	385.	.9928	52.2148	7923.	.9956
15	45119.7	19529.5	68.6915	1227.	1.3888	68.6841	647.	1.3903
16	45037.6	19567.6	108.0890	1514.	2.2477	108.0744	122.	2.2513
17	45064.0	19671.8	130.6986	1227.	2.6915	130.6983	647.	2.6944
18	45103.2	19735.0	123.3182	933.	2.6149	123.3173	8276.	2.6256
19	45115.2	19865.4	168.4238	5139.	3.7668	166.7794	5591.	3.7192
20	45093.6	19918.9	514.4584	3460.	11.6725	514.4584	5571.	11.6709
21	45119.3	19963.0	377.3477	934.	8.1200	377.3439	2275.	8.1746
22	45167.2	19987.8	193.4473	5571.	4.1766	193.4472	3460.	4.1773
23	45263.2	19993.8	107.6902	3245.	2.2498	107.6897	3225.	2.2546
24	44750.5	20014.3	71.3024	7395.	1.4771	71.3005	7394.	1.4775
25	44598.0	19584.0	37.8575	989.	.7126	35.7465	787.	.6899
26	44219.5	20052.5	14.0163	2207.	.2294	13.3813	7657.	.2295
27	44428.2	20254.1	9.4637	7395.	.1318	9.4636	7394.	.1318
28	44521.2	19945.8	36.6595	2207.	.6963	34.5969	7657.	.6772
29	45031.9	19476.1	68.8934	1514.	1.3699	68.8803	122.	1.3723
30	45037.4	19809.7	284.1040	235.	6.8257	284.1033	383.	6.8286
31	44535.0	19960.0	38.4438	2207.	.7333	36.2654	7657.	.7126
32	44634.4	19856.4	57.6836	1229.	1.1352	57.6369	169.	1.1435
33	44820.6	19569.9	72.2120	2085.	1.4658	72.2055	138.	1.4671
34	45025.5	19468.2	65.3996	1514.	1.2968	65.3870	122.	1.2991
35	45037.6	19567.6	108.0890	1514.	2.2477	108.0744	122.	2.2513
36	44892.4	19813.0	208.5714	990.	4.6981	208.4820	6051.	4.7535
37	45045.5	19804.2	240.5776	1514.	5.7670	240.5762	122.	5.7738

1

TOP 50 TABLE FOR 24 HOUR AVERAGES

RANK	RECEPTOR	X-COORDINATE	Y-COORDINATE	ENDING HOUR	CONCENTRATION	DEPOSITION
1	20	45093.6	19918.9	3264C	125.1568	3.1539
2	20	45093.6	19918.9	5376C	120.9941	3.4701
3	20	45093.6	19918.9	3240C	109.4293	3.1553
4	20	45093.6	19918.9	4344C	108.1361	2.9150
5	20	45093.6	19918.9	5352C	105.9434	3.2005
6	21	45119.3	19963.0	3264C	100.2183	2.4269
7	20	45093.6	19918.9	3288C	90.8507	2.3139
8	20	45093.6	19918.9	5448C	89.0428	2.2904
9	20	45093.6	19918.9	3480C	84.1103	2.1572
10	20	45093.6	19918.9	4368C	81.6985	2.2335
11	30	45037.4	19809.7	1296C	81.2362	2.2518
12	21	45119.3	19963.0	5352C	81.2085	2.3929
13	20	45093.6	19918.9	3144C	78.7768	1.9975
14	20	45093.6	19918.9	6240C	78.6783	1.9135
15	21	45119.3	19963.0	3288C	78.4696	1.9288
16	20	45093.6	19918.9	5304C	77.2972	2.2985
17	21	45119.3	19963.0	5448C	76.9764	1.9817
18	37	45045.5	19804.2	1296C	75.2328	2.0396
19	20	45093.6	19918.9	2808C	74.7272	2.0800
20	30	45037.4	19809.7	384C	73.4959	2.0452
21	30	45037.4	19809.7	8160C	70.9819	2.1207
22	21	45119.3	19963.0	3480C	70.1229	1.6775
23	30	45037.4	19809.7	1632C	68.7178	2.2010
24	30	45037.4	19809.7	7728C	68.1681	1.8058
25	21	45119.3	19963.0	2808C	66.5833	1.7857
26	30	45037.4	19809.7	2496	66.4860	2.2360
27	30	45037.4	19809.7	6504C	66.4671	1.8865
28	37	45045.5	19804.2	384C	66.3099	1.8102
29	37	45045.5	19804.2	6504C	64.1722	1.7800
30	30	45037.4	19809.7	2016C	63.7959	1.8035
31	20	45093.6	19918.9	5400C	63.4861	2.1043
32	30	45037.4	19809.7	1200C	62.6600	1.7890
33	37	45045.5	19804.2	7728C	62.4862	1.6042
34	4	44978.6	19919.2	6624C	61.2479	1.6298
35	4	44978.6	19919.2	6288C	61.1474	1.5950
36	37	45045.5	19804.2	8160C	60.9839	1.7750
37	4	44978.6	19919.2	6336C	59.6972	1.6466
38	20	45093.6	19918.9	5280C	59.6786	1.5487
39	30	45037.4	19809.7	1320C	59.2725	1.6979
40	20	45093.6	19918.9	5472C	57.6672	1.4040
41	21	45119.3	19963.0	3144C	57.1365	1.4370
42	37	45045.5	19804.2	1632C	56.3263	1.7928
43	20	45093.6	19918.9	8304C	56.0681	1.4695
44	20	45093.6	19918.9	5616C	55.0818	1.4404
45	20	45093.6	19918.9	3216C	54.8090	1.7226
46	37	45045.5	19804.2	96C	54.7893	1.3911
47	21	45119.3	19963.0	5376C	54.5938	1.6863
48	30	45037.4	19809.7	240C	54.5882	1.4260
49	30	45037.4	19809.7	7608	54.2516	1.6504
50	37	45045.5	19804.2	3048C	54.1263	1.3549

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HIGHEST AND SECOND HIGHEST VALUES FOR 24 HOUR AVERAGES

RECEPTOR	X-COORDINATE	Y-COORDINATE	HIGHEST VALUE	ENDING HOUR	DEPOSITION	SECOND HIGH	ENDING HOUR	DEPOSTION
1	45021.3	20142.1	11.8012	2616.C	.3463	9.4241	3120.C	.2606
2	45033.9	20085.2	19.0769	2616.C	.5610	14.6237	3120.C	.4050
3	45032.3	19987.7	36.0779	2616.C	1.1157	33.1286	3120.C	.9543

4	44978.6	19919.2	61.2479	6624.C	1.6298	61.1474	6288.C	1.5950
5	44777.1	19783.2	10.6041	1104.C	.2481	9.4763	4104.C	.2184
6	44547.4	20071.5	5.3301	6936.C	.1470	5.1241	5952.C	.1350
7	44477.2	20175.7	4.9855	5952.C	.1283	4.8112	6888.C	.1242
8	44683.4	19711.6	6.1792	1008.C	.1256	5.2636	4104.C	.1177
9	44569.0	19279.8	2.2975	8256.C	.0531	2.2926	7512.C	.0565
10	44640.5	19379.3	3.2035	7512.C	.0797	3.1552	8256.C	.0742
11	44820.6	19569.9	10.4514	8256.C	.2555	8.5318	7512.C	.2249
12	44805.8	19347.3	5.8178	2136.C	.1407	5.2762	1944.C	.1438
13	45226.3	19433.7	5.9722	6768.C	.1383	5.1732	6792.C	.1438
14	45172.8	19484.6	8.4286	6792.C	.2397	5.8864	6504.C	.1384
15	45119.7	19529.5	13.1646	96.C	.2937	12.5809	6792.C	.3722
16	45037.6	19567.6	21.9207	7320.C	.5347	19.8103	8160.C	.5240
17	45064.0	19671.8	30.0500	96.C	.6868	28.5971	1296.C	.6898
18	45103.2	19735.0	24.7877	6768.C	.6245	23.6063	6792.C	.6954
19	45115.2	19865.4	46.2739	4584.C	1.2721	37.6740	5304.C	.9044
20	45093.6	19918.9	125.1568	3264.C	3.1539	120.9941	5376.C	3.4701
21	45119.3	19963.0	100.2183	3264.C	2.4269	81.2085	5352.C	2.3929
22	45167.2	19987.8	39.4033	5376.C	1.1152	39.0120	5352.C	1.1445
23	45263.2	19993.8	15.1669	3240.C	.4026	13.1651	4344.C	.3352
24	44750.5	20014.3	15.1498	5952.C	.4058	13.0596	6888.C	.3540
25	44598.0	19584.0	4.2257	8280.C	.0882	2.7738	1008.C	.0552
26	44219.5	20052.5	2.4125	7392.	.0605	1.8428	2208.C	.0337
27	44428.2	20254.1	2.6958	5952.C	.0669	2.5737	6888.C	.0626
28	44521.2	19945.8	4.6828	7392.	.1212	4.4236	8256.C	.1018
29	45031.9	19476.1	14.0036	7320.C	.3322	13.3857	8160.C	.3477
30	45037.4	19809.7	81.2362	1296.C	2.2518	73.4959	384.C	2.0452
31	44535.0	19960.0	5.3413	7392.	.1386	4.7126	2208.C	.0977
32	44634.4	19856.4	7.1342	7776.	.1887	5.7057	8256.C	.1366
33	44820.6	19569.9	10.4514	8256.C	.2555	8.5318	7512.C	.2249
34	45025.5	19468.2	13.2862	8160.C	.3443	13.2530	7320.C	.3137
35	45037.6	19567.6	21.9207	7320.C	.5347	19.8103	8160.C	.5240
36	44892.4	19813.0	22.2506	1104.C	.5508	19.7519	1008.C	.4484
37	45045.5	19804.2	75.2328	1296.C	2.0396	66.3099	384.C	1.8102

RUN ENDED ON 4/16/99 AT 19:05:38

Do-nothing Scenario in 2016

NSR	Floor	Facade Noise Level L_{10}(1-hr)dB(A)		
		New road	Exist road	Overall
HS1	1	-	77.4	77
	5	-	77.5	78
	10	-	77.5	78
	15	-	77.3	77
	20	-	76.7	77
	25	-	76.2	76
	30	-	75.8	76
	35	-	75.4	75
	Top	-	75.3	75
HS2	1	-	81	81
	5	-	80.5	81
	10	-	79.9	80
	15	-	79.3	79
	20	-	78.6	79
	25	-	78	78
	30	-	77.5	78
	35	-	77.1	77
	Top	-	77	77
HS3	1	-	77.4	77
	5	-	77	77
	10	-	76.9	77
	15	-	76.7	77
	20	-	76.1	76
	25	-	75.5	76
	30	-	75	75
	35	-	74.6	75
	Top	-	74.5	75
HS4	1	-	83.5	84
	5	-	82	82
	10	-	81	81
	15	-	79.9	80
	20	-	79.1	79
	25	-	78.4	78
	30	-	77.9	78
	35	-	77.4	77
	Top	-	77.3	77
VH1	1	-	76.5	77
	5	-	76.2	76
	10	-	76	76
	15	-	76	76
	Top	-	75.8	76
VH2	1	-	76.7	77
	5	-	76.3	76
	Top	-	75.9	76
VH3	1	41.3	77.3	77
	5	41.6	76.6	77
	10	42.1	76	76
	15	42.8	75.5	76
	20	46.3	75.6	76
	25	46.2	75.3	75
	30	46.1	75	75
	Top	46.1	74.9	75
VH4	1	-	60.2	60
	5	-	64.8	65
	10	-	65	65
	15	-	65.8	66
	20	-	69.4	69
	25	-	71.6	72
	30	-	71.6	72
	Top	-	71.5	72
MC1	1	50.6	73.3	73
	5	52	75.5	76
	10	53.6	76	76
	15	56.9	76	76
	20	57.1	75.8	76
	25	57.1	75.6	76
	30	57.1	75.5	76
	35	57	75.3	75
	Top	57.1	75	75
MC2	1	50	70	70

NSR	Floor	Facade Noise Level L_{10}(1-hr)dB(A)		
		New road	Exist road	Overall
MC2	5	52.5	70.8	71
	10	54.3	71.3	71
	15	57.4	71.5	72
	20	57.6	71.4	72
	25	57.6	71.3	71
	30	57.6	71	71
	35	57.7	70.7	71
	Top	57.7	70.6	71
MC3	1	50.1	70	70
	5	51.2	71.2	71
	10	53.2	72.3	72
	15	55.7	72.5	73
	20	56.9	72.4	73
	25	57	72.3	72
	30	56.9	72.4	73
	35	56.9	72.2	72
	Top	56.8	72.1	72
MC4	1	49.6	65.2	65
	5	50.6	68.7	69
	10	52	69.8	70
	15	53.7	69.9	70
	20	56.4	70.2	70
	25	56.5	70	70
	30	56.4	69.9	70
	35	56.4	69.9	70
	Top	56.3	69.6	70
MC5	1	44.5	63.4	63
	5	46.2	65.8	66
	10	50.5	67.9	68
	15	51	68.2	68
	20	51.1	68.6	69
	25	51.1	68.7	69
	30	51.1	68.5	69
	35	51.4	68.4	68
	Top	51.3	68.4	68
R1	1	-	67.2	67
	5	-	68.4	68
	10	-	70	70
	15	-	70.4	70
	20	-	70.8	71
	25	-	70.9	71
	30	-	71	71
	35	-	71	71
	Top	-	70.8	71
R2	1	54.7	66.8	67
	5	55.4	69.2	69
	10	56.7	71.6	72
	15	57.6	72	72
	20	59.1	72.3	73
	25	59.1	72.3	73
	30	59.1	72.4	73
	35	59	72.4	73
	Top	58.9	72.2	72
R3	1	54.8	67.2	67
	5	56	68.5	69
	10	58	69.3	70
	15	58.6	69.6	70
	20	59.9	70	70
	25	60	70	70
	30	60.1	69.8	70
	35	60	69.8	70
	Top	59.9	69.6	70
R4	1	-	66.3	66
	5	-	66.9	67
	10	-	68.4	68
	15	-	68.9	69
	20	-	68.9	69
	25	-	69.1	69
	30	-	69.1	69
	35	-	69.1	69

NSR	Floor	Facade Noise Level L_{10}(1-hr)dB(A)		
		New road	Exist road	Overall
R4	Top	-	69	69
R5	1	53.1	67.4	68
	5	56.4	68.5	69
	10	58.1	69.6	70
	15	58.8	70.4	71
	20	60.2	70.4	71
	25	60.4	70.6	71
	30	60.3	70.6	71
	35	60.3	70.7	71
	Top	60.2	70.6	71
R6	1	48.2	64.7	65
	5	55.6	67.8	68
	10	57	69	69
	15	57.8	69.6	70
	20	59.6	69.6	70
	25	59.6	69.8	70
	30	59.6	69.8	70
	35	59.5	69.9	70
	Top	59.4	69.8	70
KL1	1	42.5	-	43
	5	47.9	-	48
	10	59.8	-	60
	15	60.2	-	60
	20	60.6	-	61
	25	60.6	-	61
	30	60.6	-	61
	35	60.6	-	61
	Top	60.6	-	61
KL2	1	60.9	67.3	68
	5	62	68.7	70
	10	62	68.6	69
	15	61.8	68.3	69
	20	61.7	68	69
	25	61.7	68	69
	30	61.7	68	69
	35	61.7	68	69
	Top	61.7	68	69
KL3	1	65.2	69.3	71
	5	66.8	69.7	71
	10	66.7	69.2	71
	15	66.5	68.6	71
	20	66.2	68	70
	25	65.9	67.4	70
	30	65.6	66.9	69
	35	65.2	66.4	69
	Top	65.2	66.3	69
KL4	1	63.8	67.8	69
	5	65.5	67.5	70
	10	65.5	66.7	69
	15	65.3	66	69
	20	65.1	65.4	68
	25	64.9	64.9	68
	30	64.6	64.5	68
	35	64.3	64	67
	Top	64.3	64	67
KL5	1	59.3	-	59
	5	61.6	-	62
	10	62.2	-	62
	15	62.5	-	63
	20	62.5	-	63
	25	62.4	-	62
	30	62.2	-	62
	35	62	-	62
	Top	62	-	62
KL6	1	66.1	68.4	70
	5	68.1	69.3	72
	10	67.8	68.9	71
	15	67.4	68.4	71
	20	67	67.9	70
	25	66.5	67.4	70
	30	66	67	70

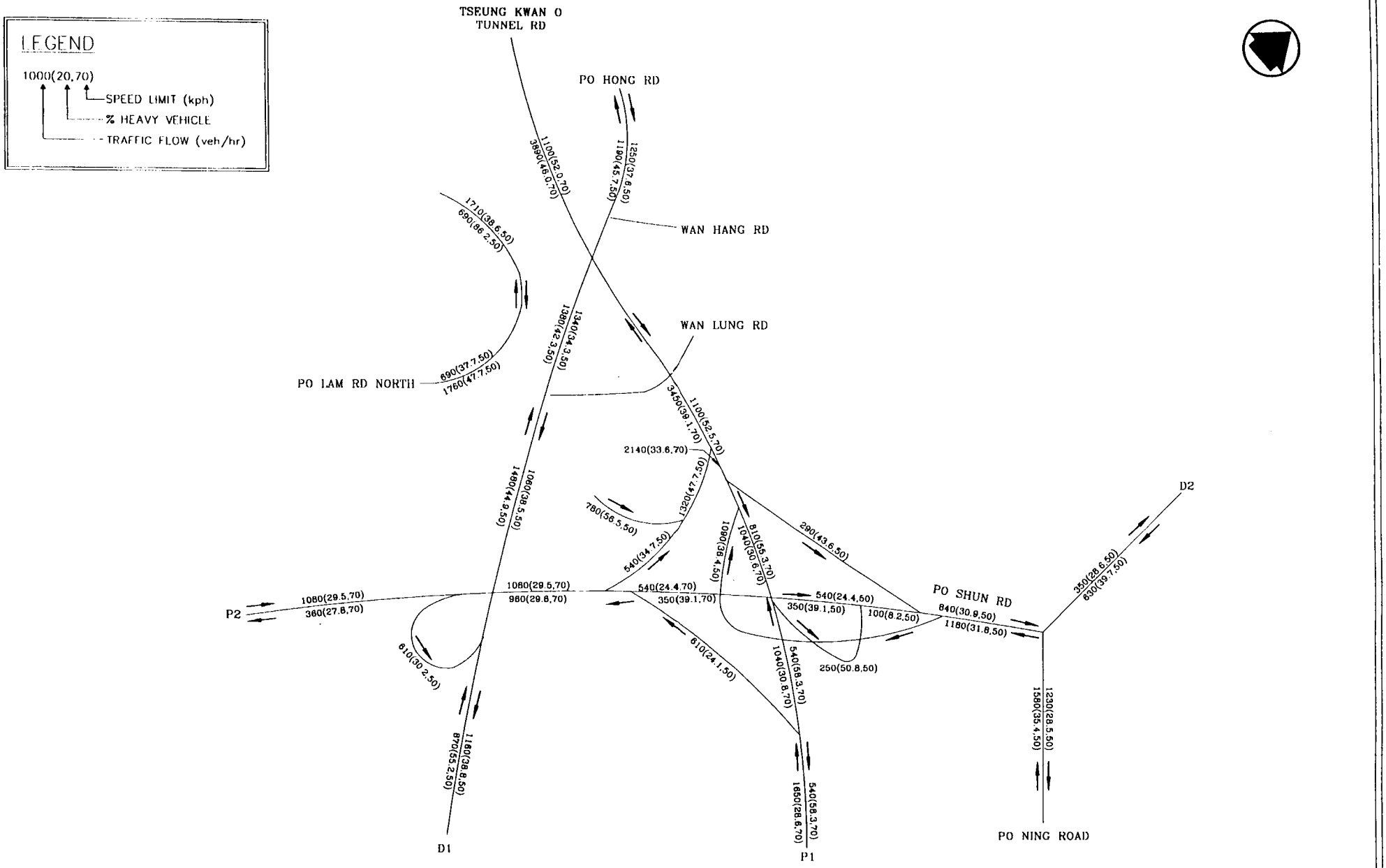
NSR	Floor	Facade Noise Level L_{10}(1-hr)dB(A)		
		New road	Exist road	Overall
KL6	35	65.6	66.6	69
	Top	65.5	66.5	69
KL7	1	68.7	-	69
	5	72.8	-	73
	10	72.3	-	72
	15	71.7	-	72
	20	71.1	-	71
	25	70.5	-	71
	30	69.9	-	70
	35	69.4	-	69
	Top	69.3	-	69
KL8	1	65.8	-	66
	5	70.1	-	70
	10	70.7	-	71
	15	70.5	-	71
	20	70.2	-	70
	25	69.8	-	70
	30	69.4	-	69
	35	69.1	-	69
	Top	69	-	69
CM1	1	67.1	68.1	71
	5	68.3	71.1	73
	10	68	70.6	73
	Top	67.8	70.3	72
CM2	1	73.4	65.4	74
	5	74.7	66.7	75
	10	74	66	75
	15	73.2	65.3	74
	20	72.4	64.8	73
	25	71.6	64.2	72
	30	71	63.7	72
	35	70.4	63.3	71
	Top	70.1	63	71
CM3	1	67.2	-	67
	5	69.7	-	70
	10	69.3	-	69
	15	68.8	-	69
	20	68.3	-	68
	25	67.7	-	68
	30	67.2	-	67
	35	66.7	-	67
	Top	66.4	-	66
CM4	1	71.5	58	72
	5	75.5	61.2	76
	10	74.8	61	75
	15	73.9	60.7	74
	20	73.1	60.4	73
	25	72.3	60.1	73
	30	71.7	59.8	72
	35	71.1	59.5	71
	Top	70.8	59.3	71
CM5	1	65.1	-	65
	5	70.4	-	70
	10	70.4	-	70
	15	70	-	70
	20	69.4	-	69
	25	68.9	-	69
	30	68.4	-	68
	35	67.9	-	68
	Top	67.9	-	68
CM6	1	64	-	64
	5	69.6	-	70
	10	70.5	-	71
	15	70.3	-	70
	20	70	-	70
	25	69.7	-	70
	30	69.3	-	69
	35	68.9	-	69
	Top	68.9	-	69
CM7	1	61.3	-	61
	5	65.8	-	66

NSR	Floor	Facade Noise Level L_{10}(1-hr)dB(A)		
		New road	Exist road	Overall
CM7	10	67.6	-	68
	15	67.6	-	68
	20	67.4	-	67
	25	67.1	-	67
	30	66.8	-	67
	35	66.6	-	67
	Top	66.6	-	67
CM8	1	60.4	-	60
	5	64.3	-	64
	10	66.8	-	67
	15	67	-	67
	20	66.9	-	67
	25	66.7	-	67
	30	66.5	-	67
	35	66.3	-	66
	Top	66.3	-	66
CM9	1	58.3	-	58
	5	60.1	-	60
	10	63.6	-	64
	15	64.8	-	65
	20	65	-	65
	25	64.9	-	65
	30	64.8	-	65
	35	64.7	-	65
	Top	64.7	-	65
ON1	1	58.5	-	59
	5	60.7	-	61
	10	64.9	-	65
	15	65	-	65
	20	65.1	-	65
	25	65	-	65
	30	64.9	-	65
	35	64.8	-	65
	Top	64.7	-	65
ON2	1	64.1	48	64
	5	67	50.4	67
	10	69.6	56.5	70
	15	70	56.6	70
	20	70.3	56.5	70
	25	70.2	57.6	70
	30	70.1	57.5	70
	35	70.1	57.3	70
	Top	69.9	57.2	70
ON3	1	62	47.6	62
	5	64.3	50.3	64
	10	67.5	55.7	68
	15	68	56.2	68
	20	68.5	56.9	69
	25	68.4	57.3	69
	30	68.3	57.2	69
	35	68.3	57.1	69
	Top	68.2	57.1	69
ON4	1	60.7	-	61
	5	63.5	-	64
	10	66.8	-	67
	15	67.1	-	67
	20	67.1	-	67
	25	66.9	-	67
	30	66.7	-	67
	35	66.5	-	67
	Top	66.3	-	66
ON5	1	64.8	50.8	65
	5	67.9	54	68
	10	70.6	58.6	71
	15	71.2	60.1	72
	20	71.2	59.9	72
	25	71.2	59.9	72
	30	71	59.7	71
	35	70.9	59.5	71
	Top	70.7	59.4	71
ON6	1	64.2	54.2	65

NSR	Floor	Facade Noise Level L_{10}(1-hr)dB(A)		
		New road	Exist road	Overall
ON6	5	67.4	56.7	68
	10	69.8	60.6	70
	15	70.5	64.5	71
	20	70.5	64.3	71
	25	70.6	64.2	71
	30	70.3	64.1	71
	35	70.2	63.9	71
	Top	70	63.8	71
ON7	1	63.7	54	64
	5	67.1	58.6	68
	10	69.7	60.6	70
	15	70.2	63.5	71
	20	70.5	63.4	71
	25	70.4	63.2	71
	30	70.1	63.1	71
	35	70	62.9	71
	Top	69.9	62.8	71
ON8	1	62.1	56	63
	5	65.5	59.9	67
	10	67.9	63.3	69
	15	68.6	67	71
	20	68.8	66.9	71
	25	68.7	66.7	71
	30	68.5	66.6	71
	35	68.4	66.5	71
	Top	68.5	66.6	71
ON9	1	56.1	54.2	58
	5	58.8	57.6	61
	10	60.8	60.5	64
	15	61.8	65.6	67
	20	62.3	65.8	67
	25	63	65.7	68
	30	62.6	65.5	67
	35	62.5	65.4	67
	Top	62.6	65.3	67
CR1	1	51.5	56	57
	5	61.4	62.4	65
	10	63.2	65.6	68
	15	64.1	66	68
	20	64.4	65.9	68
	25	64.3	65.9	68
	30	64.2	66	68
	35	64.2	66	68
	Top	64.2	66	68
CR2	1	55.7	64.5	65
	5	62.1	68.6	69
	10	62.3	68.9	70
	15	63.3	69.6	71
	20	63.3	69.1	70
	25	63.2	68.8	70
	30	63	68.6	70
	35	62.9	68.3	69
	Top	62.8	68.3	69
CR3	1	52.7	68.7	69
	5	54.3	69.1	69
	10	56.1	70.3	70
	15	57.2	70	70
	20	57.7	69.5	70
	25	57.8	69.1	69
	30	57.8	68.8	69
	35	57.7	68.5	69
	Top	57.8	68.4	69
ST1	1	48.5	52.5	54
	5	50.2	54.7	56
	10	55.9	60.2	62
	15	57.2	65.3	66
	20	57.8	65.7	66
	25	58.7	65.6	66
	30	58.9	65.5	66
	35	58.9	65.5	66
	Top	59.2	65.4	66

NSR	Floor	Facade Noise Level L_{10}(1-hr)dB(A)		
		New road	Exist road	Overall
ST2	1	48.9	54.4	55
	5	52.2	58.1	59
	10	58.5	64.3	65
	15	59.8	68.6	69
	20	60.5	68.6	69
	25	60.8	68.5	69
	30	61.3	68.4	69
	35	61.2	68.3	69
	Top	60.9	68.2	69
ST3	1	53.6	60.8	62
	5	56.9	66	67
	10	61	68.8	69
	15	61.9	69.6	70
	20	62.9	69.5	70
	25	63	69.4	70
	30	63.4	69.3	70
	35	63.2	69.1	70
	Top	63.1	69	70
ST4	1	49.8	59.5	60
	5	53.2	65.9	66
	10	56.9	67	67
	15	57.8	67.2	68
	20	57.8	68.3	69
	25	58.4	68.1	69
	30	58.3	67.9	68
	35	58.2	67.7	68
	Top	58.1	67.5	68
ST5	1	52	62.3	63
	5	57.6	69.3	70
	10	60.9	70.1	71
	15	61.7	69.9	71
	20	61.9	70	71
	25	62	69.8	70
	30	61.9	69.5	70
	35	61.7	69.1	70
	Top	61.6	68.9	70
ST6	1	57.1	69.5	70
	5	60.2	72.3	73
	10	62.5	72.3	73
	15	64.4	72.1	73
	20	64.6	71.8	73
	25	64.6	71.5	72
	30	64.6	71.1	72
	35	64.6	70.8	72
	Top	64.5	70.6	72
ST7	1	57.2	71.8	72
	5	58.9	73.4	74
	10	60.9	73.1	73
	15	63	72.6	73
	20	63.4	72.1	73
	25	63.3	71.6	72
	30	63.3	71.2	72
	35	63.3	70.7	71
	Top	63.3	70.4	71
ST8	1	55.6	69.2	69
	5	56.8	71	71
	10	57.6	70.8	71
	15	60.5	70.6	71
	20	60.9	70.3	71
	25	60.9	70	71
	30	60.9	69.7	70
	35	60.9	69.4	70
	Top	60.9	69.2	70
ST9	1	55.9	70.9	71
	5	56.3	72.4	73
	10	57	71.9	72
	15	59.3	71.4	72
	20	60.2	70.8	71
	25	60.6	70.4	71
	30	60.7	69.9	70
	35	60.7	69.6	70

NSR	Floor	Facade Noise Level L_{10}(1-hr)dB(A)		
		New road	Exist road	Overall
ST9	Top	60.7	69.3	70
SC1	1	56.5	63	64
	3	57.8	63.3	64
	6	59.6	63.8	65
SC2	1	53.6	65.8	66
	3	53.8	66.3	67
	6	55.7	67.4	68
SC3	1	50.4	-	50
	3	52.3	-	52
	6	60.2	-	60
SC4	1	58.7	56.1	61
	3	59.9	58.6	62
	6	61.3	61.9	65
SC5	1	61.5	57.5	63
	3	61.7	58.5	63
	6	62.6	58.5	64
SC6	1	50.3	60.8	61
	3	54.3	63.5	64
SC7	1	-	51.2	51
	3	-	53.3	53
	6	-	59	59
SC8	1	-	49.1	49
	3	-	51.1	51
	6	49.7	61	61
SC9	1	46.6	58	58
	3	48.5	60.1	60
SC10	1	47.2	55.9	56
	3	49	58.9	59
	6	50.4	62.9	63
SC11	1	44.7	71.8	72
	3	44.9	73.2	73
	6	45.1	73.5	74
CH1	1	61.4	59.8	64
	2	61.5	62.8	65
	5	64	65.2	68
CH2	1	66.1	75.3	76
	3	67.7	75.3	76
H1	1	57.6	69.9	70
	3	58.7	70	70
H2	1	58.3	67.5	68
	3	59.3	68.9	69
	5	59.8	69.6	70
H3	1	57.7	71.3	71
	3	57.8	71.3	71
381	10m	58.8	60.6	63
	20m	59.9	61.4	64
	30m	61	62.5	65
382	10m	55.2	59.1	61
	20m	55.7	59.7	61
	30m	56.6	60.5	62



TSEUNG KWAN O DEVELOPMENT CONTRACT F GRADE SEPARATED INTERCHANGE T1/P1/P2

TRAFFIC FLOW DIAGRAM - 2016

FIGURE NO
APPENDIX D

SCALE
N T S

DATE
JUNE 1999

Maunsell

Appendix E

Filename : 2006 UMITIGATED (16/9/98)

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BARRIER CORRECTION                                              K1 = 1
FACADE CORRECTION                                               K2 = 1
OPPOSITE FACADE CORRECTION                                      K3 = 0
STATISTICS CALCULATION                                          K4 = 1
PRINT PERP.DIST. & ANGLES OF VIEW                               K5 = 1
PRINT CHECKING FILE                                             K6 = 0
PRINT CORRECTIONS & NOISE CONTRIBUTION FROM EACH ROAD SEG.      K7 = 1
PRINT NOISE CONTRIBUTION FROM EACH ROAD                         K8 = 1
ROAD HEIGHT ELEVATION INPUT BY USER                             K9 = 0
BARRIER HEIGHT ELEVATION INPUT BY USER                          K10= 1

NO. OF ROADS        =  9
NO. OF BARRIERS     = 47
NO. OF RECEIVERS    =  1

ROAD ps1

 TYPE       FLOW       VEL    % HEAVY       SWL
    1       990.       50.       36.4        0.

ROAD SEG.      EASTING      NORTHING      MEAN ELEV.      %GRAD.      WIDTH
     1         45114.4       20030.6          8.9          4.0         12.0
     2         45101.0       20004.1          9.7           .7         12.0
     3         45077.0       19956.1         10.3          1.8         11.5
     4         45060.0       19920.3

CORRECTION FACTOR =      .0


ROAD ps2

 TYPE       FLOW       VEL    % HEAVY       SWL
    1       990.       50.       37.3        0.

ROAD SEG.      EASTING      NORTHING      MEAN ELEV.      %GRAD.      WIDTH
     1         45055.6       19923.5         11.1          3.0         11.5
     2         45034.3       19893.3         11.9          1.8         11.5
     3         45024.9       19879.9

CORRECTION FACTOR =      .0


ROAD ps4

 TYPE       FLOW       VEL    % HEAVY       SWL
    1       200.       50.       30.0        0.

ROAD SEG.      EASTING      NORTHING      MEAN ELEV.      %GRAD.      WIDTH
     1         45024.7       19879.8         11.9           .0          8.5
     2         44988.9       19832.5         10.6           .0          8.5
     3         44933.6       19767.1          8.7           .0          8.5
     4         44899.4       19727.9          7.4           .0          7.0
     5         44876.1       19702.2

CORRECTION FACTOR =      .0


ROAD ps5

 TYPE       FLOW       VEL    % HEAVY       SWL
    1      1010.       50.       49.5        0.


ROAD SEG.      EASTING      NORTHING      MEAN ELEV.      %GRAD.      WIDTH
     1         44877.3       19700.3          6.4           .0         10.0
     2         44853.5       19674.7
```

CORRECTION FACTOR = .0

ROAD ps9b

TYPE	FLOW	VEL	% HEAVY	SWL
1	330.	50.	30.3	0.

ROAD SEG.	EASTING	NORTHING	MEAN ELEV.	%GRAD.	WIDTH
1	44843.4	19681.2	7.6	2.9	8.5
2	44915.3	19762.1			

CORRECTION FACTOR = .0

ROAD ps10

TYPE	FLOW	VEL	% HEAVY	SWL
1	650.	50.	47.7	0.

ROAD SEG.	EASTING	NORTHING	MEAN ELEV.	%GRAD.	WIDTH
1	44911.4	19766.0	9.6	1.7	17.8
2	44946.7	19803.7	10.4	2.0	16.0
3	44964.8	19826.7	11.1	2.3	18.5
4	44985.6	19859.5	11.1	.0	19.5
5	45038.0	19931.2	10.3	.0	16.0
6	45061.0	19961.9	9.4	.0	12.0
7	45086.5	20011.0	8.6	.0	11.0
8	45095.9	20041.8			

CORRECTION FACTOR = .0

ROAD ba

TYPE	FLOW	VEL	% HEAVY	SWL
1	790.	50.	39.2	0.

ROAD SEG.	EASTING	NORTHING	MEAN ELEV.	%GRAD.	WIDTH
1	45033.8	19873.3	12.0	.0	9.0
2	45019.9	19854.9	11.9	.0	9.0
3	45001.2	19823.9	12.9	5.2	9.0
4	44982.8	19788.1	16.5	5.0	9.0
5	44945.3	19697.7	19.6	4.5	9.0
6	44926.8	19672.5	21.0	4.6	9.0
7	44904.1	19655.2	22.0	2.2	9.0
8	44873.7	19645.9			

CORRECTION FACTOR = .0

ROAD bc

TYPE	FLOW	VEL	% HEAVY	SWL
1	810.	50.	54.3	0.

ROAD SEG.	EASTING	NORTHING	MEAN ELEV.	%GRAD.	WIDTH
1	44837.1	19682.6	14.0	.0	7.0
2	44858.6	19668.5	13.9	.0	7.0
3	44877.2	19655.2	13.5	.0	7.0
4	44922.1	19626.4	13.0	.0	7.0
5	44943.4	19621.8	12.8	.0	7.0
6	44962.1	19625.7	12.4	.0	7.0
7	44974.5	19633.3	12.0	.0	7.0
8	44985.3	19644.1	11.6	.0	7.0
9	44993.1	19660.0	11.1	.0	7.0
10	44995.4	19679.0	10.5	.0	7.0
11	44989.3	19701.2	9.9	.0	7.0
12	44974.0	19719.1	9.3	.0	7.0
13	44950.5	19729.1	8.6	.0	7.0
14	44926.5	19727.6	8.1	.0	7.0
15	44907.3	19719.9	7.4	.0	7.0
16	44880.8	19697.7			

CORRECTION FACTOR = .0

ROAD sr6

TYPE	FLOW	VEL	% HEAVY	SWL
1	320.	50.	65.6	0.

ROAD SEG.	EASTING	NORTHING	MEAN ELEV.	%GRAD.	WIDTH
1	44713.9	19775.8	11.9	.0	8.8
2	44765.4	19745.6	10.8	.0	8.8
3	44801.9	19735.7	10.0	.0	8.8
4	44834.0	19734.6	9.5	.0	8.8
5	44874.6	19747.4	9.3	.0	8.8
6	44907.9	19769.0			

CORRECTION FACTOR = .0

BARRIER CONFIGURATION :

I.D.	EASTING	NORTHING	BASE HEIGHT	SEGMENT HEIGHT	BARRIER HEIGHT	SEGMENT LENGTH
D1						
1	44048.1	20260.0	.0	50.5	.8	57.6
2	44105.7	20258.2	.0	46.9	.8	52.7
3	44157.6	20248.8	.0	43.3	.8	55.9
4	44210.5	20230.8	.0	39.7	.8	54.1
5	44258.2	20205.3	.0	36.1	.8	52.6
6	44300.7	20174.3	.0	32.2	.8	67.4
7	44348.2	20126.5	.0	27.8	.8	73.0
8	44393.5	20069.3	.0	27.8	.8	44.3
9	44421.1	20034.7	19.6	20.6	.8	56.3
10	44456.4	19990.8	15.7	16.7	.8	61.7
11	44496.7	19944.1	13.2	14.2	.8	36.1
12	44521.5	19917.8	.0	13.1	.8	41.9
13	44551.3	19888.3	.0	12.3	.8	144.2
14	44661.0	19794.7	11.2	12.2	.8	32.8
15	44687.4	19775.2	.0	12.4	.8	16.5
16	44701.0	19765.9	.0	14.2	.8	111.3
17	44791.0	19700.4	.0	14.0	.8	46.4
18	44828.9	19673.7	13.0	14.0	.8	26.1
19	44850.0	19658.3	.0	13.6	.8	122.4
20	44949.4	19586.8	.0	9.6	.8	94.0
21	45025.3	19531.4	.0	8.3	.8	120.4
22	45123.0	19461.1	.0	8.1	.8	69.9
23	45179.0	19419.2	.0	8.9	.8	65.0
24	45229.2	19377.9				
D2						
1	45102.6	20027.3	.0	9.1	.8	74.9
2	45069.5	19960.1	.0	10.3	.8	41.3
3	45048.5	19924.5	.0	11.6	.8	88.9
4	44996.6	19852.3	.0	11.1	.8	39.4
5	44972.2	19821.4	.0	10.4	.8	29.9
6	44953.4	19798.1	.0	9.7	.8	51.2
7	44920.0	19759.3	.0	8.7	.8	36.5
8	44896.1	19731.7	.0	7.7	.8	64.4
9	44853.0	19683.9	.0	6.4	.8	33.2
10	44830.6	19659.4	.0	6.4	.8	41.3
11	44802.7	19628.9	.0	7.7	.8	60.5
12	44761.8	19584.3	.0	8.0	.8	45.2
13	44731.3	19550.9	.0	8.8	.8	21.7
14	44716.7	19534.9	.0	9.0	.8	18.3
15	44704.4	19521.4	.0	9.4	.8	34.4
16	44681.1	19496.1	.0	9.8	.8	30.9
17	44660.3	19473.2	.0	9.4	.8	120.8
18	44578.8	19384.0	.0	8.5	.8	59.0
19	44541.0	19338.7	.0	8.0	.8	47.6
20	44513.1	19300.1	.0	7.8	.8	44.6
21	44489.5	19262.3	.0	7.8	.8	55.6
22	44463.3	19213.3				

D3

1	44428.7	20116.4	.0	7.7	.8	207.2
2	44482.1	19916.2	.0	6.6	.8	85.4
3	44510.1	19835.5	.0	6.3	.8	34.2
4	44524.3	19804.4	.0	6.7	.8	56.7
5	44551.7	19754.8	.0	7.0	.8	49.2
6	44578.5	19713.6	.0	8.1	.8	59.3
7	44615.0	19666.9	.0	12.1	.8	142.5
8	44709.5	19560.3	9.9	15.3	.8	22.7
9	44724.7	19543.4	.0	14.0	.8	97.9
10	44790.0	19470.5	.0	10.2	.8	133.6
11	44879.2	19371.0	.0	6.9	.8	217.8
12	45023.0	19207.4				

D4

1	45103.7	20077.8	.0	8.3	.8	17.8
2	45100.6	20095.3	.0	7.9	.8	40.3
3	45093.9	20135.0	.0	7.6	.8	41.6
4	45084.2	20175.5	.0	7.4	.8	37.8
5	45071.3	20211.0	.0	7.2	.8	52.8
6	45046.5	20257.6				

D5

1	45142.4	20049.3	.0	8.3	.8	54.9
2	45196.6	20040.9	.0	8.1	.8	20.1
3	45216.6	20038.5	.0	7.9	.8	166.3
4	45381.6	20017.9				

d7

1	44285.5	20383.0	.0	9.6	.8	46.0
2	44318.2	20350.7	.0	8.5	.8	79.9
3	44363.9	20285.2	.0	8.1	.8	81.6
4	44399.1	20211.6	.0	8.2	.8	74.2
5	44420.9	20140.7				

E1

1	45195.2	20030.9	.0	8.2	.8	16.7
2	45178.6	20032.8	.0	8.2	.8	16.3
3	45162.4	20034.6	.0	8.2	.8	23.6
4	45139.1	20031.0	.0	8.3	.8	14.4
5	45126.4	20024.2	.0	8.3	.8	12.6
6	45116.7	20016.2	.0	9.1	.8	14.2
7	45108.1	20004.9	.0	9.1	.8	58.0
8	45082.1	19953.1	.0	10.3	.8	40.7
9	45069.0	19914.6	.0	11.3	.8	52.3
10	45039.3	19871.6	.0	12.0	.8	25.5
11	45024.5	19850.8	.0	12.0	.8	35.7
12	45005.0	19820.9	.0	13.0	.8	38.2
13	44987.2	19787.1	15.5	16.5	.8	98.6
14	44948.9	19696.2	18.6	19.6	.8	32.7
15	44930.1	19669.5	20.0	21.0	.8	29.7
16	44906.2	19651.9	21.0	22.0	.8	32.0
17	44875.7	19642.1	21.0	22.0	.8	36.7
18	44839.0	19643.1	20.0	21.0	.8	36.1
19	44805.9	19657.6	17.8	18.8	.8	44.9
20	44770.1	19684.7	.0	15.8	.8	54.9
21	44728.0	19720.0	.0	13.4	.8	48.9
22	44689.7	19750.4				

E2

1	44041.7	20270.3	.0	50.8	2.5	65.4
2	44107.0	20267.7	.0	47.6	2.5	52.1
3	44158.3	20258.7	.0	43.9	2.5	61.9
4	44216.8	20238.5	.0	40.0	2.5	57.8
5	44267.6	20211.0	.0	36.3	2.5	57.7

6	44313.6	20176.2	.0	33.4	.8	30.9
7	44335.6	20154.5	.0	30.9	.8	43.4
8	44364.0	20121.7	.0	27.3	.8	59.3
9	44400.6	20075.1	.0	23.4	.8	55.4
10	44435.4	20032.0	18.4	19.4	.8	63.8
11	44475.8	19982.6	14.6	15.6	.8	50.0
12	44508.2	19944.5	12.6	13.6	.8	28.3
13	44528.5	19924.8	.0	13.1	.8	23.6
14	44544.4	19907.4	.0	12.4	.0	52.0
15	44582.7	19872.2	.0	11.4	.0	45.6
16	44618.0	19843.3	.0	11.6	.0	98.3
17	44700.2	19789.4	.0	12.4	.8	19.0
18	44716.3	19779.3	.0	11.9	.8	58.6
19	44767.1	19750.0	.0	10.8	.8	36.4
20	44802.1	19739.9	.0	10.1	.8	31.6
21	44833.7	19739.6	.0	9.6	.8	41.2
22	44873.3	19751.1	.0	9.3	.8	37.5
23	44904.2	19772.4	.0	9.7	.8	51.4
24	44940.0	19809.3	.0	10.4	.8	29.5
25	44959.0	19831.9	.0	11.1	.8	39.3
26	44976.9	19866.9	.0	11.1	.8	87.8
27	45029.6	19937.1	.0	10.3	.8	38.1
28	45055.0	19965.5	.0	9.4	.8	54.6
29	45080.5	20013.8	.0	8.6	.0	11.5
30	45084.3	20024.7	.0	8.7	.0	22.2
31	45086.8	20046.8	.0	8.3	.0	20.6
32	45085.6	20067.4	.0	8.6	.0	20.6
33	45084.5	20088.0				

E3

1	44710.7	19770.3	.0	14.2	.8	106.1
2	44797.3	19709.0	.0	14.6	.8	48.0
3	44838.7	19684.7	13.0	14.0	.8	26.3
4	44861.1	19671.0	.0	14.0	.8	23.1
5	44880.1	19657.8	.0	13.6	.8	52.0
6	44924.2	19630.3	12.1	13.1	.8	19.2
7	44942.9	19625.9	11.8	12.8	.8	18.7
8	44961.1	19630.0	11.4	12.4	.8	13.1
9	44972.4	19636.6	11.0	12.0	.8	14.4
10	44982.5	19646.8	10.6	11.6	.8	16.1
11	44989.4	19661.4	10.1	11.1	.8	17.7
12	44991.8	19678.9	9.5	10.5	.8	21.8
13	44985.7	19699.8	8.8	9.9	.8	21.1
14	44971.9	19715.8	8.3	9.3	.8	13.1
15	44960.4	19722.0	8.3	9.3	.8	11.0
16	44949.9	19725.4	.0	8.7	.8	22.4
17	44927.5	19724.2	.0	8.2	.8	18.9
18	44910.1	19716.8	.0	7.4	.8	34.9
19	44882.4	19695.6	.0	7.1	.0	114.9
20	44802.7	19612.9				

E4

1	44989.7	19549.8	.0	8.8	.8	54.3
2	44944.1	19579.3	.0	10.0	.8	43.2
3	44908.6	19604.0	.0	12.2	.8	81.2
4	44843.2	19652.1	12.7	13.7	.8	24.6
5	44823.1	19666.3	.0	14.4	.8	157.4
6	44695.5	19758.4				

E5

1	45222.6	19370.5	.0	9.6	.8	65.0
2	45172.6	19412.1	.0	8.9	.8	69.1
3	45117.4	19453.7	.0	8.1	.8	120.7
4	45018.0	19522.2	.0	8.5	.8	39.1
5	44987.4	19546.6	.0	8.8	.8	54.0
6	44939.6	19571.7	.0	8.2	.8	67.5
7	44881.4	19605.8	.0	7.1	.8	31.1
8	44852.0	19615.8	.0	6.7	.8	25.1
9	44826.9	19614.5	.0	7.0	.8	20.5
10	44807.9	19606.8	.0	7.5	.8	48.3

11	44771.6	19574.9	.0	8.0	.8	46.9
12	44741.2	19539.2	.0	8.4	.8	22.8
13	44726.3	19521.9	.0	8.7	.8	24.5
14	44710.4	19503.3	.0	9.4	.8	57.0
15	44676.9	19457.2	.0	10.1	.8	23.6
16	44672.4	19434.0	.0	10.3	.8	15.8
17	44674.9	19418.4	.0	10.4	.8	15.7
18	44681.9	19404.4	.0	10.6	.8	16.4
19	44692.8	19392.1	.0	10.8	.8	15.2
20	44706.1	19384.7	.0	11.0	.8	15.7
21	44721.2	19380.5	.0	11.2	.8	13.9
22	44735.1	19380.7	.0	11.4	.8	18.8
23	44753.0	19386.5	.0	11.6	.8	20.6
24	44769.0	19399.5	.0	11.8	.8	21.1
25	44779.3	19417.9	.0	12.1	.8	21.5
26	44782.3	19439.2	.0	12.4	.8	21.5
27	44776.5	19459.9	.0	14.0	.8	78.6
28	44727.0	19521.0	13.5	15.3	.8	39.4
29	44701.5	19551.1	.0	12.1	.8	144.6
30	44608.0	19661.4				

E6

1	45015.8	19201.5	.0	9.2	.0	351.6
2	44783.0	19465.0	.0	12.4	.8	26.7
3	44789.4	19439.1	.0	12.1	.8	23.4
4	44786.1	19415.9	.0	11.8	.8	24.7
5	44774.0	19394.4	.0	11.6	.8	22.8
6	44756.1	19380.2	.0	11.4	.8	21.6
7	44735.5	19373.7	.0	11.2	.8	16.0
8	44719.5	19373.6	.0	11.0	.8	17.4
9	44702.7	19378.2	.0	10.8	.8	17.3
10	44687.9	19387.1	.0	10.6	6.5	17.9
11	44675.9	19400.4	.0	10.4	6.5	17.9
12	44668.2	19416.6	.0	10.3	6.5	17.4
13	44665.3	19433.8	.0	9.9	6.5	28.6
14	44671.5	19461.7	.0	9.4	6.5	2.4
15	44669.7	19463.3	.0	8.6	6.5	119.9
16	44589.2	19374.4	.0	8.1	6.5	45.0
17	44559.9	19340.3	.0	8.1	6.0	7.7
18	44555.2	19334.2	.0	7.8	6.0	55.0
19	44522.8	19289.7	.0	7.8	6.0	49.1
20	44497.1	19247.9	.0	7.8	6.0	52.0
21	44473.2	19201.7	.0	7.8	6.0	51.9
22	44454.2	19153.4	.0	7.8	6.0	46.0
23	44437.4	19110.6				

E7

1	44445.2	20113.8	.0	7.6	.0	86.0
2	44466.7	20030.5				

E8

1	44659.7	19628.7	.0	12.8	.0	83.6
2	44716.2	19567.1	13.5	15.3	.8	38.5
3	44741.9	19538.4	.0	14.0	.0	83.4
4	44796.8	19475.6	.0	10.2	.0	132.7
5	44885.1	19376.5	.0	6.9	.0	219.0
6	45032.3	19214.4				

E9

1	44827.1	19685.6	.0	14.3	.8	8.7
2	44834.4	19680.9	12.8	13.8	.8	26.7
3	44855.9	19665.1	.0	12.2	.8	78.0
4	44919.5	19619.9	.0	10.0	.8	45.3
5	44956.3	19593.5	.0	9.0	.8	23.6
6	44975.2	19579.4	.0	8.6	4.0	68.4
7	45030.7	19539.5	.0	8.3	4.0	120.6
8	45128.6	19469.0	.0	8.1	4.0	70.7
9	45184.9	19426.3	.0	8.9	4.0	65.1

10	45235.4	19385.2	.0	9.6	4.0	53.0
11	45276.3	19351.5	.0	9.4	4.0	85.3
12	45340.5	19295.3	.0	9.4	.8	49.2
13	45376.6	19261.9				

E10

1	44652.0	19645.1	.0	10.5	.8	48.9
2	44689.4	19613.6	.0	10.7	.8	15.6
3	44703.7	19607.4	.0	10.8	.8	14.4
4	44718.0	19606.2	.0	10.9	.8	18.7
5	44736.1	19611.0	.0	11.0	.8	17.1
6	44749.3	19621.8	.0	11.3	.8	24.8
7	44759.5	19644.4	.0	11.7	.8	28.1
8	44756.3	19672.3	.0	12.2	.8	23.8
9	44741.9	19691.2	.0	12.7	.8	28.9
10	44721.1	19711.2	.0	12.7	.8	49.4
11	44684.3	19744.1	.0	12.4	.0	1.2
12	44684.9	19745.1	.0	12.4	.0	20.4
13	44669.9	19758.9	.0	12.2	.0	30.2
14	44647.0	19778.6	.0	12.3	.0	145.8
15	44538.8	19876.3	.0	13.1	.0	41.9
16	44509.9	19906.6				

E14

1	44510.0	20163.1	.0	8.0	.0	73.4
2	44439.1	20144.1	.0	8.5	.0	5.3
3	44434.1	20145.9	.0	8.5	.0	4.9
4	44431.3	20149.9	.0	8.3	.0	90.6
5	44402.8	20235.9	.0	7.9	.0	55.4
6	44377.9	20285.4	.0	7.8	.0	35.4
7	44361.2	20316.6	.0	8.6	.0	45.5
8	44334.9	20353.7	.0	9.0	.0	12.8
9	44326.4	20363.3	.0	9.7	.0	43.8
10	44295.3	20394.2				

N1

1	44484.5	19931.8	.0	14.2	.0	62.7
2	44443.3	19979.1	.0	16.7	.0	56.8
3	44408.0	20023.6	.0	20.6	.0	45.1
4	44380.0	20059.0	.0	24.0	.0	3.8
5	44382.9	20061.5	.0	27.8	.0	72.2
6	44338.0	20118.1	.0	32.2	.0	64.4
7	44293.0	20164.1	.0	36.1	.0	51.6
8	44251.4	20194.7	.0	39.7	.0	52.7
9	44204.8	20219.3	.0	43.3	.0	53.7
10	44153.9	20236.4	.0	46.9	.0	50.3
11	44104.5	20245.7	.0	50.5	.0	55.5
12	44049.0	20246.6				

FY1

1	45028.7	19877.1	.0	12.0	.8	19.8
2	45016.2	19861.7	.0	11.9	.0	39.4
3	44992.5	19830.2	.0	10.6	.0	86.1
4	44938.8	19762.9	.0	8.2	.0	52.4
5	44903.0	19724.7	.0	7.4	.8	34.3
6	44879.8	19699.4	.0	7.4	.8	35.4
7	44906.5	19722.6	.0	8.2	.8	21.8
8	44926.4	19731.4	.0	8.7	.8	25.0
9	44951.4	19732.2	8.3	9.3	.8	11.9
10	44962.3	19727.4	8.3	9.3	.8	14.9
11	44976.1	19721.9	8.9	9.9	.8	25.1
12	44992.1	19702.6	9.5	10.5	.8	24.1
13	44998.7	19679.4	10.1	11.1	.8	20.1
14	44996.3	19659.4	10.6	11.6	.8	18.7
15	44987.7	19642.8	11.0	12.0	.8	15.9
16	44976.8	19631.2	11.4	12.4	.8	15.4

17	44963.5	19623.5	11.8	12.8	.8	20.0
18	44943.9	19619.3	12.1	13.1	.8	21.0
19	44923.2	19622.8	.0	13.6	.8	56.1
20	44876.1	19653.2	.0	14.0	.8	22.5
21	44857.9	19666.5	.0	14.1	.8	27.2
22	44834.8	19680.9	.0	14.3	.8	9.1
23	44827.1	19685.7				

fy2

1	45271.1	19346.2	.0	10.9	4.0	60.1
2	45314.7	19304.9	11.9	12.9	4.0	54.2
3	45352.4	19266.0	14.1	15.1	4.0	36.2
4	45376.8	19239.3	14.1	15.1	4.0	22.5
5	45391.9	19222.6	15.3	16.3	.8	33.3
6	45412.7	19196.6				

fy3

1	45264.7	19339.2	.0	10.9	.8	59.7
2	45307.8	19297.9	11.9	12.9	.8	53.7
3	45345.1	19259.3	14.1	15.1	.8	58.5
4	45384.4	19215.9	15.3	16.3	.8	32.5
5	45404.6	19190.5				

FY4

1	45029.0	19877.2	.0	12.0	.8	20.6
2	45017.8	19859.9	.0	12.0	.8	40.1
3	44997.1	19825.5	.0	13.0	.8	39.2
4	44979.6	19790.4	15.5	16.5	.8	98.1
5	44940.7	19700.3	18.6	19.6	.8	29.2
6	44923.8	19676.5	20.0	21.0	.8	26.8
7	44902.2	19660.6	21.0	22.0	.8	30.4
8	44873.4	19651.0	21.0	22.0	.8	32.3
9	44841.1	19652.0	20.0	21.0	.8	32.6
10	44810.9	19664.4	17.8	18.8	.8	44.9
11	44776.0	19692.7	.0	15.8	.8	54.6
12	44733.8	19727.3	.0	13.4	.8	49.0
13	44694.8	19757.0				

T1

1	45279.5	20133.6	.0	48.7	.0	21.9
2	45272.7	20112.8	.0	43.3	.0	15.0
3	45261.0	20103.4	.0	40.3	.0	48.9
4	45213.8	20116.3	.0	35.1	.0	34.7
5	45179.4	20112.0	.0	27.5	.0	14.1
6	45165.5	20109.5	.0	19.7	.0	29.9
7	45176.8	20081.8	.0	11.3	.0	16.7
8	45170.8	20066.2				

T2

1	44631.7	19631.4	.0	8.9	.0	13.7
2	44622.7	19621.1	.0	15.0	.0	17.4
3	44611.4	19607.9	.0	22.7	.0	18.8
4	44598.9	19593.8	.0	25.4	.0	5.3
5	44595.8	19589.5	.0	39.4	.0	24.0
6	44573.3	19581.2	.0	23.1	.0	14.4
7	44558.9	19582.3	.0	33.0	.0	41.8
8	44517.2	19579.1	.0	23.6	.0	35.3
9	44506.0	19545.6	.0	38.1	.0	28.3
10	44488.2	19523.6				

T5

1	44091.4	19827.5	.0	108.1	.0	43.0
2	44134.4	19828.4	.0	104.9	.0	36.7
3	44170.6	19834.6	.0	103.8	.0	23.5

4	44194.0	19836.4	.0	105.9	.0	53.8
5	44244.1	19856.0	.0	105.9	.0	34.1
6	44267.4	19880.9	.0	102.0	.0	35.0
7	44276.0	19914.8	.0	100.0	.0	8.4
8	44277.3	19923.1	.0	100.0	.0	22.9
9	44279.6	19945.9	.0	98.5	.0	20.0
10	44279.7	19965.9	.0	94.0	.0	9.0
11	44272.7	19971.6	.0	89.0	.0	72.6
12	44261.3	20043.3	.0	86.5	.0	18.3
13	44259.6	20061.5	.0	86.5	.0	37.2
14	44253.0	20098.1	.0	85.5	.0	29.9
15	44234.7	20121.8	.0	81.8	.0	24.2
16	44221.2	20141.9	.0	80.6	.0	29.6
17	44197.0	20159.0	.0	79.1	.0	30.1
18	44168.7	20169.2	.0	78.2	.0	26.9
19	44142.6	20175.9	.0	78.9	.0	51.0
20	44092.4	20184.8	.0	79.7	.0	27.0
21	44074.3	20164.7	.0	77.2	.0	31.5
22	44052.0	20142.4	.0	72.2	.0	67.7
23	44010.4	20089.0				

T6

1	44090.6	19848.4	.0	107.1	.0	50.8
2	44141.4	19850.4	.0	104.4	.0	35.3
3	44175.7	19858.6	.0	101.2	.0	34.6
4	44205.9	19875.4	.0	98.4	.0	31.7
5	44226.8	19899.2	.0	95.8	.0	28.7
6	44239.6	19924.9	.0	94.7	.0	7.7
7	44240.2	19932.6				

B1

1	44551.1	20063.6	.0	26.2	.0	69.2
2	44518.2	20124.5	.0	26.2	.0	10.7
3	44527.7	20129.4	.0	26.2	.0	5.4
4	44531.5	20125.5	.0	17.8	.0	29.8
5	44557.8	20139.5	.0	6.4	.0	118.4
6	44664.2	20087.6	.0	26.7	.0	24.4
7	44680.4	20105.8	.0	26.7	.0	68.2
8	44721.0	20051.0				

B2

1	44879.4	20171.9	.0	26.8	.0	51.0
2	44850.7	20129.8	.0	7.0	.0	15.9
3	44859.5	20116.5	.0	18.4	.0	33.3
4	44873.4	20086.2	.0	26.8	.0	42.3
5	44908.3	20110.1	.0	26.8	.0	29.5
6	44922.8	20135.8	.0	26.8	.0	24.2
7	44936.5	20115.9	.0	7.0	.0	64.1
8	44900.1	20063.1	.0	21.2	.0	32.0
9	44926.4	20081.3	.0	26.8	.0	22.1
10	44935.9	20101.3	.0	26.8	.0	33.3
11	44955.0	20074.0	.0	7.0	.0	33.0
12	44967.0	20104.7	.0	110.7	.0	13.6
13	44976.6	20114.4	.0	110.7	.0	55.0
14	45030.2	20102.1	.0	110.7	.0	70.9
15	44980.1	20052.0	.0	6.9	.0	53.2
16	44981.0	19998.8	.0	110.7	.0	48.8
17	45017.2	20031.6	.0	110.7	.0	20.1
18	45017.1	20011.5	.0	110.7	.0	25.2
19	45038.9	19998.8				

B3

1	44817.7	20025.2	.0	12.9	.0	32.9
2	44797.2	20050.9	.0	26.7	.0	7.9
3	44803.2	20056.1	.0	26.7	.0	10.3
4	44796.9	20064.3	.0	26.7	.0	68.2
5	44743.6	20021.8	.0	26.7	.0	10.7
6	44750.3	20013.4	.0	9.9	.0	13.1

7	44758.7	20003.3	.0	9.9	.0	26.6
8	44779.4	20020.0	.0	6.9	.0	75.0
9	44828.3	19963.2	.0	16.4	.0	71.9
10	44828.6	19891.3	.0	23.0	.0	13.7
11	44842.0	19888.3	.0	23.0	.0	37.6
12	44809.8	19868.8	.0	18.5	.0	81.1
13	44843.6	19795.1	.0	7.0	.0	28.8
14	44814.8	19793.6	.0	20.0	.0	59.3
15	44755.5	19792.9	.0	20.0	.0	44.5
16	44754.7	19837.4	.0	19.6	.0	15.6
17	44755.8	19853.0	.0	6.6	.0	43.7
18	44753.7	19896.6	.0	20.0	.0	19.4
19	44745.6	19914.2	.0	20.0	.0	20.9
20	44754.0	19933.3	.0	20.0	.0	36.9
21	44790.9	19931.7				

B4

1	45244.2	19977.7	.0	115.8	.0	53.3
2	45190.9	19978.4	.0	45.8	.0	23.8
3	45167.1	19978.7	.0	6.6	.0	11.5
4	45161.0	19968.9	.0	116.0	.0	32.2
5	45137.3	19947.1	.0	6.6	.0	22.7
6	45117.5	19936.1	.0	116.0	.0	34.0
7	45117.3	19902.1	.0	6.6	.0	24.6
8	45130.2	19881.2	.0	116.0	.0	33.5
9	45156.4	19860.3	.0	6.6	.0	22.9
10	45156.3	19837.4	.0	116.0	.0	41.2
11	45197.5	19837.2				

B5

1	45172.6	19727.2	.0	115.8	.0	20.1
2	45157.7	19740.7	.0	115.8	.0	27.5
3	45139.3	19720.2	.0	6.8	.0	15.3
4	45129.5	19732.0	.0	118.5	.0	15.7
5	45117.5	19742.2	.0	118.5	.0	29.4
6	45098.0	19720.2	.0	6.2	.0	35.9
7	45072.8	19694.6	.0	118.3	.0	22.4
8	45093.1	19685.1	.0	118.3	.0	8.6
9	45094.9	19676.7	.0	6.1	.0	30.2
10	45078.0	19651.7	.0	115.4	.0	30.0
11	45100.3	19631.7	.0	5.9	.0	20.4
12	45120.2	19627.2	.0	115.2	.0	28.3
13	45141.5	19608.5	.0	5.8	.0	49.5
14	45190.8	19604.6	.0	12.0	.0	32.9
15	45219.7	19588.8	.0	25.8	.0	11.0
16	45227.9	19581.5	.0	25.8	.0	67.6
17	45182.8	19531.1	.0	6.0	.0	19.5
18	45166.6	19520.2	.0	22.6	.0	45.7
19	45123.6	19535.8	.0	22.6	.0	24.1
20	45107.4	19517.9	.0	22.6	.0	42.6
21	45142.4	19493.6				

B6

1	45236.4	19582.4	.0	18.2	.0	134.9
2	45146.6	19481.7	.0	18.2	.0	107.1
3	45230.3	19414.9	.0	18.2	.0	27.0
4	45248.4	19435.0				

B7

1	45247.4	19567.2	.0	122.0	.0	33.4
2	45225.1	19542.3	.0	18.2	.0	45.8
3	45194.7	19508.1	.0	122.0	.0	7.6
4	45189.5	19502.5	.0	122.0	.0	15.0
5	45174.5	19501.7	.0	122.0	.0	36.5
6	45201.5	19477.2	.0	18.2	.0	25.6
7	45220.6	19460.2	.0	122.0	.0	24.9
8	45239.1	19443.5	.0	122.0	.0	97.9
9	45305.1	19515.8				

B8

1	44667.4	19375.3	.0	25.6	.0	21.9
2	44649.7	19388.2	.0	25.6	.0	26.3
3	44634.2	19367.0	.0	25.6	.0	10.4
4	44642.6	19360.8	.0	25.6	.0	41.5
5	44617.9	19327.4	.0	5.8	.0	14.7
6	44609.5	19315.3	.0	25.6	.0	41.0
7	44585.9	19281.8	.0	25.6	.0	10.7
8	44577.0	19287.8	.0	25.6	.0	27.2
9	44562.4	19264.9	.0	25.6	.0	9.9
10	44570.4	19259.0	.0	5.8	.0	23.3
11	44556.8	19240.1	.0	25.6	.0	11.5
12	44547.2	19246.4	.0	25.6	.0	27.2
13	44531.8	19224.0	.0	25.6	.0	10.1
14	44540.2	19218.4	.0	25.6	.0	41.5
15	44516.3	19184.5	.0	5.8	.0	28.9
16	44501.5	19159.7	.0	25.6	.0	21.8
17	44481.3	19167.9	.0	25.6	.0	14.7
18	44475.2	19154.5	.0	25.6	.0	13.4
19	44487.3	19148.7	.0	20.0	.0	36.5
20	44471.2	19115.9				

B9

1	45030.9	19467.1	.0	21.5	.0	112.5
2	45083.9	19367.9	.0	21.5	.0	83.1
3	45050.4	19291.8				

b10

1	44507.7	20255.4	.0	19.8	.0	44.9
2	44473.7	20226.1	.0	19.8	.0	39.5
3	44446.6	20197.4	.0	19.8	.0	8.2
4	44442.0	20190.6	.0	19.8	.0	8.7
5	44441.1	20181.9	.0	19.8	.0	6.8
6	44443.2	20175.4	.0	19.8	.0	6.5
7	44447.3	20170.3	.0	19.8	.0	8.1
8	44454.5	20166.6	.0	19.8	.0	81.3
9	44535.2	20176.2	.0	19.8	.0	8.7
10	44543.3	20179.5	.0	19.8	.0	25.7
11	44565.2	20193.0	.0	19.8	.0	80.6
12	44629.8	20241.2	.0	7.6	.0	31.3
13	44653.2	20220.4	.0	19.7	.0	86.6
14	44585.1	20166.9	.0	19.7	.0	5.6
15	44585.4	20161.3	.0	19.7	.0	79.9
16	44624.1	20091.4	.0	19.7	.0	65.1
17	44677.0	20129.3	.0	19.7	.0	9.9
18	44682.6	20121.1	.0	19.7	.0	70.0
19	44739.3	20162.1				

b11

1	44476.1	20176.8	.0	143.2	.0	32.0
2	44500.6	20197.4	.0	19.8	.0	25.2
3	44522.3	20184.6	.0	143.2	.0	35.3
4	44549.4	20207.2	.0	19.8	.0	12.6
5	44560.1	20213.9	.0	143.2	.0	77.0
6	44619.4	20263.0	.0	19.8	.0	21.7
7	44635.2	20248.1	.0	7.6	.0	35.4
8	44660.8	20223.7	.0	19.7	.0	22.9
9	44652.8	20202.2	.0	148.7	.0	19.6
10	44633.4	20204.6	.0	148.7	.0	8.7
11	44626.4	20199.4	.0	148.7	.0	16.1
12	44623.7	20183.5	.0	19.7	.0	10.4
13	44617.0	20175.6	.0	148.7	.0	16.1
14	44600.9	20174.8	.0	148.7	.0	22.5
15	44590.6	20154.8	.0	148.7	.0	12.6
16	44599.2	20145.6				

B12

1	44463.8	20292.7	.0	106.3	.0	40.7
2	44430.5	20269.3	.0	67.1	.0	25.7
3	44445.5	20248.4	.0	67.1	.0	10.3
4	44437.2	20242.3				

b13

1	44568.7	19780.4	.0	22.0	.0	28.2
2	44592.2	19796.0	.0	22.0	.0	45.4
3	44616.2	19757.5	.0	22.0	.0	25.7
4	44594.2	19744.3	.0	6.0	.0	38.2
5	44619.3	19715.5	.0	28.0	.0	52.0
6	44661.8	19745.4	.0	28.0	.0	117.1
7	44740.0	19658.2	.0	28.0	.0	23.1
8	44737.1	19635.3	.0	28.0	.0	19.2
9	44721.9	19623.6				

t6

1	44488.4	19660.4	.0	43.5	.0	37.8
2	44452.4	19648.8	.0	40.5	.0	40.8
3	44413.5	19636.5	.0	33.5	.0	22.3
4	44434.0	19627.7	.0	40.5	.0	39.7
5	44473.7	19628.2	.0	27.8	.0	34.9
6	44496.1	19601.5	.0	34.0	.0	30.9
7	44526.3	19594.9				

t7

1	44488.2	19524.2	.0	27.5	.0	89.9
2	44470.7	19436.0	.0	44.9	.0	19.5
3	44487.6	19426.2	.0	44.9	.0	106.6
4	44433.9	19334.1				

e15

1	44594.3	19417.3	.0	9.4	.0	89.1
2	44649.5	19487.3	.0	9.1	.0	16.6
3	44660.6	19499.7	.0	11.8	.0	49.3
4	44689.6	19539.6	.0	11.8	.0	18.1
5	44697.4	19555.9				

sf1

1	44613.5	20066.6	.0	9.4	.0	101.9
2	44561.2	20154.1	.0	9.4	.0	61.7
3	44503.5	20132.2	.0	9.4	.0	111.0
4	44556.6	20034.7	.0	9.4	.0	65.2
5	44613.5	20066.6				

5

1	44712.5	19772.7	.0	11.9	.0	59.9
2	44764.1	19742.3	.0	10.8	.0	39.0
3	44801.6	19731.5	.0	10.1	.0	32.9
4	44834.5	19731.4	.0	9.6	.0	43.9
5	44876.8	19743.0	.0	9.3	.0	41.5
6	44911.1	19766.3	.0	9.2	.8	1.2
7	44912.0	19765.5	.0	7.7	.0	100.0
8	44845.8	19690.6	.0	6.4	.0	74.0
9	44796.7	19635.3	.0	7.7	.0	104.4
10	44726.1	19558.4	.0	8.8	.0	23.2
11	44710.6	19541.2	.0	9.0	.0	18.8
12	44698.0	19527.2	.0	9.9	.8	32.0
13	44676.4	19503.6				

7

1	44676.2	19504.0	.0	9.9	.8	31.9
2	44695.7	19529.2	.0	9.8	.8	19.5
3	44708.3	19544.1	.0	9.7	.8	22.7
4	44723.7	19560.8	.0	9.7	.8	41.8
5	44751.9	19591.7	.0	10.1	.8	23.7
6	44767.4	19609.6	.0	11.1	.8	32.5
7	44776.7	19640.7	.0	11.8	.8	36.7
8	44768.5	19676.5	.0	12.2	.8	27.7
9	44749.8	19696.9	.0	12.7	.8	30.8
10	44727.0	19717.6	.0	12.7	.8	49.7
11	44689.7	19750.4				

8

1	44572.8	19390.4	.0	9.4	.8	120.3
2	44650.5	19482.2	.0	9.9	.8	30.9
3	44669.3	19506.7	.0	9.9	.8	35.1
4	44690.0	19535.1	.0	9.8	.8	19.0
5	44702.2	19549.7	.0	9.7	.8	24.0
6	44719.0	19566.9	.0	9.7	.8	40.9
7	44748.4	19595.4	.0	10.1	.8	22.5
8	44762.1	19613.2	.0	11.1	.8	29.2
9	44770.3	19641.2	.0	11.7	.8	34.2
10	44762.4	19674.5	.0	11.7	.8	31.0
11	44766.2	19643.7	.0	11.3	.8	29.0
12	44754.0	19617.4	.0	11.0	.8	19.7
13	44738.5	19605.2	.0	10.9	.8	21.3
14	44717.9	19599.8	.0	10.8	.8	15.7
15	44702.2	19601.0	.0	10.7	.8	17.9
16	44685.9	19608.3	.0	10.5	.8	33.4
17	44659.8	19629.1				

BS

1	45061.2	19919.0	.0	11.2	.8	36.6
2	45041.1	19888.4	.0	11.9	.8	10.6
3	45035.0	19879.7	.0	12.0	.8	5.6
4	45032.0	19875.0				

RECEIVER	EASTING	NORTHING	HEIGHT	THETA1	THETA2
CM2	45118.6	19964.0	36.0	213.3	11.1

RECEIVER	ROAD	ROAD SEG.	PERP. DIST.	ANGLE
CM2				
	ps1	1	27.8	20.1
	ps1	2	27.7	77.1
	ps1	3	28.4	26.0
	ps2	1	22.4	7.2
	ps2	2	22.7	1.9
	ps4	1	19.8	3.5
	ps4	2	9999.0	1.4
	ps4	3	9999.0	.3
	ps4	4	9999.0	.1
	ps5	1	9999.0	.0
	ps9b	1	9999.0	1.0
	ps10	1	9999.0	.7
	ps10	2	9999.0	1.2
	ps10	3	47.1	3.6
	ps10	4	36.0	16.0
	ps10	5	36.8	20.1
	ps10	6	44.2	57.8
	ps10	7	38.9	18.1
	ba	1	9999.0	.9
	ba	2	23.7	2.2
	ba	3	35.9	2.3
	ba	4	53.5	4.3
	ba	5	9999.0	.0
	ba	6	9999.0	1.4
	ba	7	228.1	2.8

bc	1	386.2	3.7
bc	2	388.1	3.3
bc	3	386.8	4.7
bc	4	9999.0	.0
bc	5	9999.0	.0
bc	6	9999.0	.0
bc	7	9999.0	.0
bc	8	9999.0	.0
bc	9	9999.0	.0
bc	10	9999.0	.0
bc	11	9999.0	.0
bc	12	278.5	2.3
bc	13	220.5	3.5
bc	14	144.4	1.8
bc	15	9999.0	.9
sr6	1	362.7	6.8
sr6	2	298.8	4.1
sr6	3	234.6	3.1
sr6	4	128.8	2.7
sr6	5	9999.0	1.2

Filename : 2006 UMITIGATED (16/9/98)

RECEIVER	EASTING	NORTHING	HEIGHT	THETA1	THETA2
CM2	45118.6	19964.0	36.0	213.3	11.1

ROAD	SEG	BNL	GC	DC	SGC	AC	BC	OFC	LTC	CNL	BCN	BNO
ps1	1	75.0	1.2	-4.8	.0	-9.5	.0	.0	.0	61.9	E1	7
ps1	2	75.0	.2	-4.8	.0	-3.7	.0	.0	.0	66.8	D1	1
ps1	3	75.0	.5	-4.8	.0	-8.4	.0	.0	.0	62.3	D1	1
ps2	1	75.1	.9	-4.2	.0	-13.9	.0	.0	.0	57.8	D1	1
ps2	2	75.1	.5	-4.2	.0	-19.7	.0	.0	.0	51.8	E1	7
ps4	1	67.4	.0	-3.9	.0	-17.1	.0	.0	.0	46.4	E1	7
ps10	3	74.1	.7	-6.2	.0	-17.0	.0	.0	.0	51.7	D1	1
ps10	4	74.1	.0	-5.4	.0	-10.5	.0	.0	.0	58.3	D2	2
ps10	5	74.1	.0	-5.5	.0	-9.5	.0	.0	.0	59.1	E1	7
ps10	6	74.1	.0	-6.0	.0	-4.9	.0	.0	.0	63.2	D1	1
ps10	7	74.1	.0	-5.7	.0	-10.0	.0	.0	.0	58.5	D2	2
ba	2	74.3	.0	-4.3	.0	-19.2	.0	.0	.0	50.9	D1	1
ba	3	74.3	1.6	-5.3	.0	-18.9	.0	.0	.0	51.6	E1	7
ba	4	74.3	1.5	-6.5	.0	-16.2	.0	.0	.0	53.1	E1	7
ba	7	74.3	.7	-12.4	.0	-18.1	-3.1	.0	.0	41.4	FY4	22
bc	1	75.6	.0	-14.6	.0	-16.9	-5.2	.0	.0	38.8	E3	9
bc	2	75.6	.0	-14.6	.0	-17.3	-5.3	.0	.0	38.3	E3	9
bc	3	75.6	.0	-14.6	.0	-15.8	-5.0	.0	.0	40.1	E3	9
bc	12	75.6	.0	-13.2	.0	-19.0	-5.0	.0	.0	38.4	FY1	19
bc	13	75.6	.0	-12.2	.0	-17.1	-.2	.0	.0	46.0	FY1	19
bc	14	75.6	.0	-10.5	.0	-20.0	-1.0	.0	.0	44.0	FY1	19
sr6	1	72.2	.0	-14.3	.0	-14.2	-4.5	.0	.0	39.2	E2	8
sr6	2	72.2	.0	-13.5	.0	-16.5	-4.0	.0	.0	38.2	E2	8
sr6	3	72.2	.0	-12.5	.0	-17.7	.0	.0	.0	42.1	D1	1
sr6	4	72.2	.0	-10.0	.0	-18.2	.0	.0	.0	44.0	D2	2

ps1	71.6
ps2	61.3
ps4	48.9
ps5	.0
ps9b	.0
ps10	68.9
ba	59.4
bc	52.4
sr6	50.0

OVERALL NOISE LEVEL = 73.9

Distribution of Noise Levels

dB(A)	41	43	45	47	49	51	53	55	57	59	61	63
No. of Houses	0	0	0	0	0	0	0	0	0	0	2	1

dB(A)	65	67	69	71	73	75	77	79	81	83	85	87
No. of Houses	2	5	1	3	2	1	0	0	0	0	0	0

Appendix F

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 1

JOB: Contract F - New background on March
RUN: NO2 (WORST CASE ANGLE)
POLLUTANT: Nitrogen Dioxide - NO2

I. SITE VARIABLES

U= 1.0 M/S Z0= 100. CM ALT= 1. (M)
BRG= WORST CASE VD= .0 CM/S
CLAS= 4 (D) VS= .0 CM/S
MIXH= 500. M TEMP= 25.0 DEGREE (C)
SIGTH= 18. DEGREES

NOX VARIABLES

NO2= .02 PPM NO= .00 PPM O3= .03 PPM KR= .004 1/SEC

II. LINK VARIABLES

LINK DESCRIPTION	LINK COORDINATES (M) X1	Y1	X2	Y2	TYPE	VPH	EF (G/MI)	H (M)	W (M)
A. 1	5404	5015	5169	5045	AG	1910	5.34	.0	18.0
B. 2	5169	5045	5120	5065	AG	1910	6.24	.0	18.0
C. 3	5120	5065	5099	5112	AG	1100	6.92	.0	24.0
D. 4	5099	5112	5079	5191	AG	1100	5.36	.0	24.0
E. 5	5079	5191	5009	5309	AG	1100	5.36	.0	24.0
F. 6	5009	5309	4913	5412	AG	1100	5.36	.0	24.0
G. 7	5120	5065	5098	5016	AG	1640	9.41	.0	20.0
H. 8	5098	5016	5040	4908	FL	1640	9.41	10.0	42.0
I. 9	5039	4908	5009	4868	FL	1640	7.32	10.0	42.0
J. 10	5009	4860	4977	4828	FL	850	5.34	6.0	26.0
K. 11	4977	4828	4918	4759	AG	1340	5.47	.0	26.0
L. 12	4918	4759	4793	4618	AG	1680	5.22	.0	26.0
M. 13	4793	4618	4704	4521	FL	2780	4.77	10.0	26.0
N. 14	4704	4521	4494	4269	FL	2100	4.53	10.0	26.0
O. 15	4494	4269	4460	4199	FL	2100	4.53	5.0	28.0
P. 16	4460	4199	4428	4136	FL	2100	4.53	5.0	28.0
Q. 17	4428	4136	4400	4016	FL	2100	4.53	5.0	28.0
R. 18	4675	4458	4674	4406	FL	680	5.53	10.0	12.0
S. 19	4676	4406	4720	4374	FL	680	5.53	5.0	12.0
T. 20	4720	4374	4775	4402	FL	680	5.53	5.0	12.0
U. 21	4775	4402	4780	4464	FL	680	5.53	5.0	12.0
V. 22	5150	4034	5043	4202	AG	1920	5.84	.0	18.0
W. 23	5043	4202	4978	4270	AG	1920	5.84	.0	18.0
X. 24	4978	4270	4788	4473	AG	1920	5.84	.0	18.0
Y. 25	4788	4473	4654	4625	FL	2600	5.76	5.0	26.0
Z. 26	4654	4625	4568	4723	AG	2600	5.76	.0	26.0
A. 27	4568	4723	4477	4947	AG	2720	4.72	.0	26.0
A. 28	4477	4947	4425	5131	AG	2720	4.72	.0	26.0
A. 29	4425	5131	4376	5269	AG	2540	5.05	.0	26.0
A. 30	4376	5269	4284	5396	AG	2540	5.05	.0	26.0
A. 32	5410	4196	5268	4344	FL	2370	5.51	9.0	30.0
A. 34	5269	4345	4994	4555	FL	2370	5.51	9.0	26.0
A. 35	4994	4555	4953	4584	FL	2370	7.78	9.0	26.0
A. 36	4953	4584	4911	4614	FL	2030	18.24	5.0	26.0
A. 37	4734	4742	4693	4772	FL	2810	14.96	5.0	26.0
A. 38	4693	4772	4652	4802	FL	6100	7.97	5.0	26.0

A. 39	*	4652	4802	4510	4931	*	FL	6100	5.92	5.0	26.0
A. 40	*	4510	4931	4222	5147	*	BG	6100	5.92	16.0	26.0
A. 41	*	4332	5147	4261	5204	*	AG	6100	5.92	.0	26.0
A. 42	*	4261	5204	4160	5249	*	AG	6100	5.92	.0	26.0
A. 43	*	4945	4573	4859	4619	*	AG	340	3.66	.0	12.0
A. 44	*	4859	4619	4804	4610	*	AG	340	3.66	.0	12.0
A. 45	*	4104	4583	4042	4514	*	FL	1270	4.52	5.0	12.0
A. 46	*	4662	4631	4704	4601	*	FL	910	7.62	5.0	12.0
A. 46a	*	4704	4601	4753	4617	*	FL	910	7.62	5.0	12.0
A. 47	*	4753	4617	4765	4664	*	FL	2180	5.78	5.0	12.0
A. 48	*	4765	4664	4726	4715	*	FL	2180	5.78	5.0	12.0
A. 49	*	4726	4715	4683	4760	*	FL	2970	5.63	5.0	12.0
A. 50	*	4921	4627	4968	4631	*	BG	810	6.32	8.5	12.0
A. 51	*	4968	4631	4993	4668	*	BG	810	6.32	8.5	12.0
A. 52	*	4993	4668	4979	4713	*	BG	810	6.32	8.5	12.0
A. 53	*	4979	4713	4945	4727	*	BG	810	6.32	8.5	12.0
B. 54	*	4945	4727	4900	4714	*	BG	810	6.32	8.5	12.0
B. 55	*	4998	4825	4939	4686	*	BG	790	5.21	10.0	12.0
B. 56	*	4939	4686	4879	4643	*	BG	790	5.21	15.0	16.0
B. 57	*	4879	4643	4813	4654	*	BG	790	5.21	20.0	16.0
B. 58	*	4813	4654	4731	4721	*	BG	790	5.21	10.0	16.0
B. 59	*	4701	4782	4790	4740	*	FL	320	7.26	5.0	16.0
B. 60	*	4790	4740	4867	4740	*	FL	320	7.26	5.0	16.0
B. 61	*	4867	4740	4909	4768	*	FL	320	7.26	5.0	16.0
B. 62	*	4426	5129	4553	5168	*	AG	660	5.79	.0	20.0
B. 63	*	4553	5168	4669	5256	*	AG	390	4.76	.0	20.0
B. 64	*	4587	4720	4694	4795	*	AG	370	6.26	.0	16.0
B. 65	*	4694	4795	4720	4817	*	AG	370	6.26	.0	16.0
B. 66	*	4720	4817	4734	4863	*	AG	370	6.26	.0	16.0
B. 67	*	4734	4863	4728	4894	*	AG	370	6.26	.0	16.0
B. 68	*	4728	4894	4648	5034	*	AG	370	6.26	.0	16.0
B. 69	*	4648	5034	4566	5018	*	AG	370	6.26	.0	16.0
B. 70	*	4091	4837	4143	4839	*	AG	2730	5.98	.0	18.0
B. 73	*	4143	4839	4213	4865	*	AG	2730	5.98	.0	18.0
B. 76	*	4213	4865	4247	5008	*	AG	2730	5.98	.0	18.0
B. 77	*	4247	5008	4214	5129	*	AG	2570	5.87	.0	18.0
B. 84	*	4214	5129	4105	5161	*	AG	2570	5.87	.0	18.0
B. 86	*	4105	5161	4017	5085	*	AG	2570	5.87	.0	18.0

III. RECEPTOR LOCATIONS

RECEPTOR	*	COORDINATES (M) X	Y	Z
1. MC1	*	4476	5174	16.5
2. KL2	*	5021	5140	4.5
3. KL3	*	5032	5085	4.5
4. KL7	*	5029	4985	4.5
5. CM1	*	5166	4987	4.5
6. CM2	*	5119	4964	4.5
7. CM4	*	5093	4920	4.5
8. CM6	*	5114	4866	4.5
9. ON2	*	5102	4735	4.5
10. ON6	*	5062	4671	4.5
11. CR2	*	5172	4484	16.5
12. ST6	*	4808	4346	4.5
13. SC1	*	4755	5015	1.5
14. SC6	*	4640	4379	1.5
15. SC9	*	4567	4278	1.5
16. SC11	*	4533	5094	1.5
17. CH1	*	5114	4528	1.5
18. CH2	*	4598	4585	1.5
19. HS2	*	4220	5053	4.5
20. VH1	*	4428	5254	16.5

IV. MODEL RESULTS (WORST CASE WIND ANGLE)

RECEPTOR	BRG (DEG)	PRED CONC (PPM)	CONC/LINK (PPM) A	B	C	D	E	F	G	H
1. MC1	159.	.05	.00	.00	.00	.00	.00	.00	.00	.00
2. KL2	118.	.05	.01	.00	.01	.00	.00	.00	.00	.00
3. KL3	104.	.05	.01	.01	.01	.00	.00	.00	.01	.00
4. KL7	196.	.06	.00	.00	.00	.00	.00	.00	.00	.00
5. CM1	230.	.06	.00	.00	.00	.00	.00	.00	.00	.01
6. CM2	227.	.07	.00	.00	.00	.00	.00	.00	.00	.01
7. CM4	229.	.07	.00	.00	.00	.00	.00	.00	.00	.00
8. CM6	238.	.06	.00	.00	.00	.00	.00	.00	.00	.00
9. ON2	273.	.06	.00	.00	.00	.00	.00	.00	.00	.00
10. ON6	289.	.07	.00	.00	.00	.00	.00	.00	.00	.00
11. CR2	298.	.06	.00	.00	.00	.00	.00	.00	.00	.00
12. ST6	339.	.08	.00	.00	.00	.00	.00	.00	.00	.00
13. SC1	191.	.06	.00	.00	.00	.00	.00	.00	.00	.00
14. SC6	25.	.08	.00	.00	.00	.00	.00	.00	.00	.00
15. SC9	23.	.06	.00	.00	.00	.00	.00	.00	.00	.00
16. SC11	159.	.06	.00	.00	.00	.00	.00	.00	.00	.00
17. CH1	295.	.07	.00	.00	.00	.00	.00	.00	.00	.00
18. CH2	71.	.08	.00	.00	.00	.00	.00	.00	.00	.00
19. HS2	119.	.09	.00	.00	.00	.00	.00	.00	.00	.00
20. VH1	164.	.06	.00	.00	.00	.00	.00	.00	.00	.00

Do-nothing Scenario in 2006

NSR	Floor	Facade Noise Level L_{10}(1-hr)dB(A)		
		New road	Exist road	Overall
HS1	1	-	78.4	78
	5	-	78.5	79
	10	-	78.5	79
	15	-	78.3	78
	20	-	77.7	78
	25	-	77.2	77
	30	-	76.8	77
	35	-	76.4	76
	Top	-	76.3	76
HS2	1	-	82	82
	5	-	81.6	82
	10	-	81	81
	15	-	80.4	80
	20	-	79.7	80
	25	-	79.1	79
	30	-	78.6	79
	35	-	78.1	78
	Top	-	78.1	78
HS3	1	-	78.5	79
	5	-	78.1	78
	10	-	78	78
	15	-	77.8	78
	20	-	77.2	77
	25	-	76.6	77
	30	-	76.1	76
	35	-	75.7	76
	Top	-	75.6	76
HS4	1	-	84.6	85
	5	-	83.1	83
	10	-	82.1	82
	15	-	81	81
	20	-	80.2	80
	25	-	79.5	80
	30	-	79	79
	35	-	78.5	79
	Top	-	78.4	78
VH1	1	-	76.3	76
	5	-	76.2	76
	10	-	76.2	76
	15	-	76.4	76
	Top	-	76.3	76
VH2	1	-	76.4	76
	5	-	76.2	76
	Top	-	75.9	76
VH3	1	42.4	77	77
	5	42.8	76.5	77
	10	43.3	76	76
	15	44	75.7	76
	20	47.4	75.9	76
	25	47.4	75.7	76
	30	47.3	75.6	76
	Top	47.2	75.6	76
VH4	1	-	61.1	61
	5	-	65.1	65
	10	-	65.6	66
	15	-	66.6	67
	20	-	70.5	71
	25	-	72.2	72
	30	-	72.3	72
	Top	-	72.2	72
MC1	1	52.6	73.5	74
	5	54	75.7	76
	10	55.4	76.5	77
	15	58.8	76.6	77
	20	58.9	76.4	76
	25	59	76.3	76
	30	58.9	76.3	76
	35	58.8	76.1	76
	Top	58.9	75.9	76
MC2	1	51.8	70.3	70

NSR	Floor	Facade Noise Level L_{10}(1-hr)dB(A)		
		New road	Exist road	Overall
MC2	5	54.2	71.4	71
	10	55.8	72	72
	15	59.2	72.4	73
	20	59.3	72.3	73
	25	59.3	72.2	72
	30	59.3	71.9	72
	35	59.3	71.7	72
	Top	59.3	71.6	72
MC3	1	52.3	70.4	70
	5	53.3	71.8	72
	10	55	73	73
	15	57.3	73.4	74
	20	58.9	73.3	73
	25	59	73.2	73
	30	58.9	73.3	73
	35	58.9	73.1	73
	Top	58.8	73.1	73
MC4	1	52	66.1	66
	5	52.9	69.5	70
	10	54.2	70.7	71
	15	55.7	70.8	71
	20	58.6	71.2	71
	25	58.7	71	71
	30	58.7	70.9	71
	35	58.6	70.9	71
	Top	58.6	70.6	71
MC5	1	45	64.2	64
	5	46.6	66.7	67
	10	51	68.7	69
	15	51.3	69.1	69
	20	51.4	69.5	70
	25	51.4	69.6	70
	30	51.4	69.4	69
	35	51.6	69.4	69
	Top	51.6	69.4	69
R1	1	-	67.5	68
	5	-	68.9	69
	10	-	70.8	71
	15	-	71.2	71
	20	-	71.7	72
	25	-	71.8	72
	30	-	71.9	72
	35	-	71.9	72
	Top	-	71.7	72
R2	1	56.6	68	68
	5	57.2	70.2	70
	10	58.5	72.5	73
	15	59.3	72.9	73
	20	61.2	73.2	73
	25	61.2	73.2	73
	30	61.1	73.3	74
	35	61	73.4	74
	Top	61	73.2	73
R3	1	56.7	67.9	68
	5	57.7	69.4	70
	10	59.4	70.3	71
	15	60.1	70.6	71
	20	61.8	71	71
	25	61.8	71	71
	30	61.8	70.9	71
	35	61.7	70.8	71
	Top	61.7	70.6	71
R4	1	-	66.8	67
	5	-	67.6	68
	10	-	69.3	69
	15	-	69.8	70
	20	-	69.9	70
	25	-	70.1	70
	30	-	70.1	70
	35	-	70.1	70

NSR	Floor	Facade Noise Level L_{10}(1-hr)dB(A)		
		New road	Exist road	Overall
R4	Top	-	70	70
R5	1	54.4	68.2	68
	5	58	69.4	70
	10	59.6	70.7	71
	15	60.3	71.4	72
	20	62.1	71.4	72
	25	62.2	71.6	72
	30	62.1	71.7	72
	35	62	71.7	72
	Top	62	71.7	72
R6	1	50.4	65.7	66
	5	57.5	68.7	69
	10	58.8	70	70
	15	59.6	70.6	71
	20	61.7	70.7	71
	25	61.7	70.8	71
	30	61.7	70.9	71
	35	61.6	70.9	71
	Top	61.5	70.9	71
KL1	1	42.8	-	43
	5	48.6	-	49
	10	60.1	-	60
	15	60.6	-	61
	20	61.2	-	61
	25	61.2	-	61
	30	61.2	-	61
	35	61.2	-	61
	Top	61.2	-	61
KL2	1	60.9	68.2	69
	5	62	69.4	70
	10	61.9	69.2	70
	15	61.8	68.9	70
	20	61.7	68.5	69
	25	61.7	68.5	69
	30	61.7	68.5	69
	35	61.7	68.5	69
	Top	61.7	68.5	69
KL3	1	65.1	69.7	71
	5	66.8	70.2	72
	10	66.7	69.7	71
	15	66.5	69.2	71
	20	66.2	68.6	71
	25	65.9	68.1	70
	30	65.6	67.6	70
	35	65.2	67.1	69
	Top	65.2	67	69
KL4	1	63.8	67.8	69
	5	65.5	67.6	70
	10	65.5	66.9	69
	15	65.3	66.3	69
	20	65.2	65.8	69
	25	64.9	65.4	68
	30	64.7	64.9	68
	35	64.4	64.5	67
	Top	64.3	64.4	67
KL5	1	59.7	-	60
	5	61.8	-	62
	10	62.6	-	63
	15	63.1	-	63
	20	63.3	-	63
	25	63.2	-	63
	30	63	-	63
	35	62.8	-	63
	Top	62.8	-	63
KL6	1	66	68.6	71
	5	68.1	69.5	72
	10	67.9	69	71
	15	67.5	68.6	71
	20	67	68.1	71
	25	66.5	67.7	70
	30	66.1	67.3	70

NSR	Floor	Facade Noise Level L_{10}(1-hr)dB(A)		
		New road	Exist road	Overall
KL6	35	65.6	66.9	69
	Top	65.5	66.8	69
KL7	1	68.7	-	69
	5	72.8	-	73
	10	72.4	-	72
	15	71.9	-	72
	20	71.3	-	71
	25	70.7	-	71
	30	70.2	-	70
	35	69.7	-	70
	Top	69.6	-	70
KL8	1	65.9	-	66
	5	70.2	-	70
	10	70.8	-	71
	15	70.7	-	71
	20	70.4	-	70
	25	70.1	-	70
	30	69.7	-	70
	35	69.3	-	69
	Top	69.3	-	69
CM1	1	67	68.1	71
	5	68.2	70.8	73
	10	67.9	70.3	72
	Top	67.8	69.9	72
CM2	1	73.3	66	74
	5	74.6	67.1	75
	10	73.9	66.3	75
	15	73.1	65.7	74
	20	72.3	65.1	73
	25	71.6	64.5	72
	30	71	64	72
	35	70.4	63.5	71
	Top	70.1	63.3	71
CM3	1	67.1	-	67
	5	69.6	-	70
	10	69.2	-	69
	15	68.8	-	69
	20	68.2	-	68
	25	67.7	-	68
	30	67.1	-	67
	35	66.6	-	67
	Top	66.4	-	66
CM4	1	71.3	58.8	72
	5	75.4	61.9	76
	10	74.7	61.7	75
	15	73.9	61.4	74
	20	73.1	61.1	73
	25	72.4	60.7	73
	30	71.7	60.4	72
	35	71.2	60.1	72
	Top	70.9	59.9	71
CM5	1	64.9	-	65
	5	70.3	-	70
	10	70.4	-	70
	15	70.1	-	70
	20	69.6	-	70
	25	69.1	-	69
	30	68.6	-	69
	35	68.2	-	68
	Top	68.2	-	68
CM6	1	64	-	64
	5	69.5	-	70
	10	70.5	-	71
	15	70.4	-	70
	20	70.1	-	70
	25	69.8	-	70
	30	69.5	-	70
	35	69.1	-	69
	Top	69.1	-	69
CM7	1	61.4	0	61
	5	65.9	0	66

NSR	Floor	Facade Noise Level L_{10}(1-hr)dB(A)		
		New road	Exist road	Overall
CM7	10	67.8	0	68
	15	67.9	0	68
	20	67.7	0	68
	25	67.4	0	67
	30	67.2	0	67
	35	67	0	67
	Top	67	0	67
CM8	1	60.8	-	61
	5	64.7	-	65
	10	67.1	-	67
	15	67.5	-	68
	20	67.3	-	67
	25	67.2	-	67
	30	66.9	-	67
	35	66.8	-	67
	Top	66.8	-	67
CM9	1	59	-	59
	5	61	-	61
	10	64.3	-	64
	15	65.3	-	65
	20	65.6	-	66
	25	65.5	-	66
	30	65.4	-	65
	35	65.3	-	65
	Top	65.3	-	65
ON1	1	58.4	-	58
	5	60.5	-	61
	10	64.6	-	65
	15	64.8	-	65
	20	64.9	-	65
	25	64.9	-	65
	30	64.7	-	65
	35	64.6	-	65
	Top	64.5	-	65
ON2	1	65.4	49.9	66
	5	68.4	52.4	69
	10	70.5	58.5	71
	15	70.9	58.5	71
	20	71.3	58.5	72
	25	71.2	59.4	71
	30	71.1	59.3	71
	35	71.1	59.1	71
	Top	71	59	71
ON3	1	63.8	48.6	64
	5	66.4	51.6	67
	10	68.7	57.3	69
	15	69.2	57.7	69
	20	69.9	58.1	70
	25	69.8	58.4	70
	30	69.7	58.3	70
	35	69.7	58.2	70
	Top	69.6	58.2	70
ON4	1	60.9	-	61
	5	63.5	-	64
	10	66.3	-	66
	15	66.8	-	67
	20	66.8	-	67
	25	66.6	-	67
	30	66.4	-	66
	35	66.2	-	66
	Top	66.1	-	66
ON5	1	66.6	52.7	67
	5	70.4	56	71
	10	72	60.7	72
	15	72.6	61.9	73
	20	72.6	61.8	73
	25	72.6	61.6	73
	30	72.3	61.5	73
	35	72.2	61.3	73
	Top	72	61.2	72
ON6	1	66.2	55.6	67

NSR	Floor	Facade Noise Level L_{10}(1-hr)dB(A)		
		New road	Exist road	Overall
ON6	5	70.2	58.3	70
	10	71.5	62.3	72
	15	72.3	65.5	73
	20	72.2	65.4	73
	25	72.2	65.3	73
	30	71.9	65.1	73
	35	71.8	65	73
	Top	71.6	64.9	72
ON7	1	65.6	55.6	66
	5	70	60.5	70
	10	71.4	62.4	72
	15	71.9	64.9	73
	20	72.1	64.7	73
	25	71.9	64.6	73
	30	71.6	64.4	72
	35	71.5	64.3	72
	Top	71.4	64.3	72
ON8	1	64.4	57.2	65
	5	68.5	61.5	69
	10	70.1	64.4	71
	15	70.7	67.7	72
	20	70.7	67.6	72
	25	70.6	67.5	72
	30	70.4	67.4	72
	35	70.2	67.4	72
	Top	70.2	67.5	72
ON9	1	58.1	55.4	60
	5	61.5	59.1	63
	10	62.7	61.8	65
	15	63.8	66.2	68
	20	64.1	66.4	68
	25	64.7	66.3	69
	30	64.3	66.1	68
	35	64.3	66	68
	Top	64.3	66	68
CR1	1	52.7	53.8	56
	5	63.3	59.4	65
	10	65	63.9	67
	15	65.6	64.2	68
	20	65.8	64.1	68
	25	65.8	64	68
	30	65.6	64	68
	35	65.6	63.9	68
	Top	65.6	63.9	68
CR2	1	56.8	63.6	64
	5	63.7	68.2	70
	10	64.1	68.3	70
	15	64.7	69.7	71
	20	64.7	69.1	70
	25	64.5	68.5	70
	30	64.3	68.1	70
	35	64.1	67.6	69
	Top	64.1	67.6	69
CR3	1	55.2	68.4	69
	5	56.6	68.8	69
	10	58.1	70.6	71
	15	58.8	70.4	71
	20	59.4	69.7	70
	25	59.6	69.1	70
	30	59.4	68.6	69
	35	59.3	68.2	69
	Top	59.4	68.1	69
ST1	1	48.5	53.5	55
	5	50.2	55.6	57
	10	55.9	60.9	62
	15	57.2	66.3	67
	20	57.8	66.7	67
	25	58.7	66.6	67
	30	58.9	66.5	67
	35	58.9	66.5	67
	Top	59.2	66.4	67

NSR	Floor	Facade Noise Level L_{10}(1-hr)dB(A)		
		New road	Exist road	Overall
ST2	1	48.9	55.6	56
	5	52.2	59	60
	10	58.5	65.1	66
	15	59.8	69.8	70
	20	60.5	69.6	70
	25	60.8	69.6	70
	30	61.3	69.4	70
	35	61.2	69.4	70
	Top	60.9	69.3	70
ST3	1	53.6	61.8	62
	5	56.9	67.2	68
	10	61	69.9	70
	15	61.9	70.7	71
	20	62.9	70.6	71
	25	63	70.5	71
	30	63.4	70.3	71
	35	63.2	70.1	71
	Top	63.1	70.1	71
ST4	1	49.8	60.8	61
	5	53.2	67.4	68
	10	56.9	68.4	69
	15	57.8	68.5	69
	20	57.8	69.5	70
	25	58.4	69.3	70
	30	58.3	69	69
	35	58.2	68.8	69
	Top	58.1	68.7	69
ST5	1	52	63.7	64
	5	57.6	70.8	71
	10	60.9	71.5	72
	15	61.7	71.2	72
	20	61.9	71.3	72
	25	62	71	72
	30	61.9	70.7	71
	35	61.7	70.4	71
	Top	61.6	70.2	71
ST6	1	57.1	69.8	70
	5	60.2	72.6	73
	10	62.5	72.7	73
	15	64.4	72.5	73
	20	64.6	72.3	73
	25	64.6	72	73
	30	64.6	71.6	72
	35	64.6	71.3	72
	Top	64.5	71.1	72
ST7	1	57.2	72.1	72
	5	58.9	73.6	74
	10	60.9	73.3	74
	15	63	72.8	73
	20	63.4	72.3	73
	25	63.3	71.8	72
	30	63.3	71.5	72
	35	63.3	71	72
	Top	63.3	70.8	72
ST8	1	55.6	69.4	70
	5	56.8	71	71
	10	57.6	71	71
	15	60.5	70.8	71
	20	60.9	70.5	71
	25	60.9	70.2	71
	30	60.9	69.9	70
	35	60.9	69.7	70
	Top	60.9	69.5	70
ST9	1	55.9	71.1	71
	5	56.3	72.5	73
	10	57	72	72
	15	59.3	71.6	72
	20	60.2	71.1	71
	25	60.6	70.6	71
	30	60.7	70.2	71
	35	60.7	69.9	70

NSR	Floor	Facade Noise Level L_{10}(1-hr)dB(A)		
		New road	Exist road	Overall
ST9	Top	60.7	69.6	70
SC1	1	57.9	65.1	66
	3	59.2	65.3	66
	6	61	65.8	67
SC2	1	55.9	67.1	67
	3	56.1	67.5	68
	6	57.7	68.5	69
SC3	1	51.8	-	52
	3	53.5	-	54
	6	60.7	-	61
SC4	1	60.5	52.6	61
	3	61.8	55.3	63
	6	63.4	59	65
SC5	1	61.5	57.8	63
	3	61.8	58.7	64
	6	62.7	58.8	64
SC6	1	50.3	62.7	63
	3	54.3	64.9	65
SC7	1	-	52.9	53
	3	-	54.9	55
	6	-	60.4	60
SC8	1	-	50.7	51
	3	-	52.7	53
	6	49.7	61.9	62
SC9	1	46.6	59.7	60
	3	48.5	61.5	62
SC10	1	47.2	57.2	58
	3	49	59.9	60
	6	50.4	64	64
SC11	1	45.9	72	72
	3	46	73.4	73
	6	46.3	74	74
CH1	1	63.2	57.8	64
	2	63.3	60.3	65
	5	65.7	63.7	68
CH2	1	67.8	76	77
	3	68.5	76	77
H1	1	59.5	71.6	72
	3	60.7	71.6	72
H2	1	60	68.5	69
	3	60.9	69.9	70
	5	61.4	70.5	71
H3	1	59.4	71.8	72
	3	59.5	71.7	72
381	10m	61	56.1	62
	20m	61.9	57	63
	30m	62.5	58.6	64
382	10m	57.2	56.6	60
	20m	57.3	57.3	60
	30m	58.2	58.2	61

APPENDIX H RECOMMENDED ENVIRONMENTAL POLLUTION CONTROL MEASURES

1. AVOIDANCE OF NUISANCE

(a) All works are to be carried out in such a manner as to cause as little inconvenience as possible to nearby residents, property and to the public in general, and the Contractor shall be held responsible for any claims which may arise from such inconvenience.

(b) The Contractor shall be responsible for the adequate maintenance and clearance of channels, gullies, etc., and shall also provide and maintain such pedestrian and vehicular access as shall be directed within the works site.

(c) Water shall be used to prevent dust rising and the Contractor shall take every precaution to prevent the excavated materials from entering into the public drainage system. The Contractor shall be responsible for any claims and demands arising out of any nuisance caused by such washing down of spoils.

(d) The Contractor shall carry out the Works in such a manner as to minimise adverse impacts on the environment during execution of the Works.

2. NOISE POLLUTION CONTROL

(a) The Contractor shall comply with and observe the Noise Control Ordinance and its subsidiary regulations in force in Hong Kong.

(b) The Contractor shall provide an approved integrating sound level meter to IEC 651:1979 (Type 1) and 804:1985 (Type 1) and the manufacturer's recommended sound level calibrator for the exclusive use of the Engineer at all times. The Contractor shall maintain the equipment in proper working order and provide a substitute when the equipment are out of order or otherwise not available.

The sound level meter including the sound level calibrator shall be verified by the manufactures every two years to ensure they perform the same levels of accuracy as stated in the manufacturer's specifications. That is to say at the times of measurements, the equipment shall have been verified within the last two years.

(c) In addition to the requirements imposed by the Noise Control Ordinance, to control noise generated from equipment and activities for the purpose of carrying out any construction work other than percussive piling during the time period from 07:00 to 19:00 hours on any day not being a general holiday (including Sundays), the following requirements shall also be complied with:

(i) The noise level measured at 1 m from the most affected external facade of the nearby noise sensitive receivers from the construction work alone during any 30 minute period shall not exceed an equivalent sound level (L_{eq}) of 75 dB(A).

(ii) The noise level measured at 1 m from the most affected external facade of the nearby schools from the construction work alone during any 30 minute period shall not exceed an equivalent sound level (L_{eq}) of 70 dB(A) [65 dB(A) during school examination periods].

The Contractor shall liaise with the schools and the Examination Authority to ascertain the exact dates and times of all examination periods during the course of the contract.

(iii) Should the limits stated in the above sub-clauses (i) and (ii) be exceeded, the construction shall stop and shall not recommence until appropriate measures acceptable to the Engineer that are necessary for compliance have been implemented.

Any stoppage or reduction in output resulting from compliance with this clause shall not entitle the Contractor to any extension of time for completion or to any additional costs whatsoever.

(d) Before the commencement of any work, the Engineer may require the methods of working, equipment and sound-reducing intended to be used on the Site to be made available for inspection and approval to ensure that they are suitable for the project.

(e) The Contractor shall devise, arrange methods of working and carry out the Works in such a manner so as to minimise noise impacts on the surrounding environment, and shall provide experienced personnel with suitable training to ensure that these methods are implemented.

The noise reduction methods shall include, but not be limited to, scheduling of works; Siting of facilities; selection of quiet equipment; and use of purpose-built acoustic panels and enclosures.

(f) The Contractor shall ensure that all plant and equipment to be used on site are properly maintained in good operating condition and noisy construction activities shall be effectively sound-reduced by means of silencers, mufflers, acoustic linings or shields, acoustic sheds or screens or other means to avoid disturbance to any nearby noise sensitive receivers.

(g) Notwithstanding the requirements and limitations set out in clause (c) above and subject to compliance with clauses (e) and (f) above, the Engineer may, upon application in writing by the Contractor, allow the use of any equipment and the carrying out of any construction activities for any duration provided that he is satisfied with the application which, in his opinion, to be of absolute necessity and adequate noise insulation has been provided to the educational institutions to be affected, or of emergency nature, and not in contravention with the Noise Control Ordinance in any respect.

(h) No excavator mounted breaker shall be used within 125 m from any nearby noise sensitive receivers. The Contractor shall use hydraulic concrete crusher wherever applicable.

(i) The only equipment that shall be allowed on the Site for rock drilling works will be quiet drilling rigs with a sound power level not exceeding 110 dB(A). Conventional pneumatically driven drilling rigs are specifically prohibited.

(j) For the purposes of the above clauses, any domestic premises, hotel, hostel, temporary housing accommodation, hospital, medical clinic, educational institution, place of public worship, library, court of law, or performing arts centre or office building shall be considered a noise sensitive receiver.

(k) The Contractor shall, when necessary, apply as soon as possible for a construction noise permit in accordance with the Noise Control (General) Regulations, display the permit as required and copy to the Engineer.

3. DUST SUPPRESSION MEASURES

(a) The Contractor shall undertake at all times to prevent dust nuisance as a result of his activities. The air pollution control system installed shall be operated whenever the plant is in operation.

(b) The Contractor shall at his own cost, and to the satisfaction of the Engineer, install effective dust suppression equipment and take such other measures as may be necessary to ensure that at the Site boundary and any nearby sensitive receiver the concentration of air-borne dust shall not exceed 0.5 milligrams per cubic meter, at standard temperature (25°C) and pressure (1.0 bar) averaged over one hour, and 0.26 milligrams per cubic metre, at standard temperature (25°C) and pressure (1.0 bar) averaged over 24 hours.

(c) In the process of material handling other than cement and the like, any material which has the potential to create dust shall be treated with water or spraying with wetting agent.

(d) Where dusty materials are being discharged to a vehicle from a conveying system at a fixed transfer point, a three-sided roofed enclosure with a flexible curtain across the entry shall be provided. Exhaust should be provided for this enclosure and vented to a fabric filter system.

(e) Any vehicle with an open load carrying area used for moving materials which have the potential to create dust shall have properly fitting side and tail boards. Materials having the potential to create dust shall not be loaded to a level higher than the side and tail boards, and shall be covered by a clean tarpaulin. The tarpaulin shall be properly secured and shall extend at least 300 mm over the edges of the side and tail boards.

(f) Stockpiles of sand and aggregate greater than 20 m^3 shall be enclosed on three sides, with walls extending above the pile and 2 metres beyond the front of the pile. In addition, water sprays shall be provided and used, both to dampen stored materials and when receiving raw material.

(g) The Contractor shall frequently clean and water the site to minimise the fugitive dust emissions.

(h) The Contractor shall restrict all motorised vehicles to a maximum speed of 8 km per hour and confine haulage and delivery vehicles to designated roadways inside the site. Areas of roadway longer than 100 m where movement of motorised vehicles exceeds 100 vehicular movements per day, or as directed by the Engineer, shall be furnished with a flexible pavement surfacing.

(i) Wheel washing facilities shall be installed and used by all vehicles leaving the site. No earth, mud, debris, dust and the like shall be deposited on public roads. Water in the wheel cleaning facility shall be changed at frequent intervals and sediments shall be removed regularly. The Contractor shall submit details of proposals for the wheel cleaning facilities to the Engineer prior to construction of the facility. Such wheel washing facility shall be usable prior to the commencement of any earthworks excavation activity on the Site. The Contractor shall also provide a hard-surfaced road between the washing facility and the public road.

(j) Conveyor belts shall be fitted with windboards, and conveyor transfer points and hopper discharge areas shall be enclosed to minimise emission of dust. All conveyors carrying materials which have the potential to create dust shall be totally enclosed and fitted with belt cleaners.

4. CONSENT TO EQUIPMENT AND PROCESSES

(a) The Contractor shall not install any furnace, boiler or other plant or equipment or use any fuel that might in any circumstance produce smoke or any other air pollution without the prior consent of the Engineer. Unless specifically instructed by the Engineer, the Contractor shall not light fires on site for the burning of debris or any other matter.

(b) The Contractor's attention is drawn to the Air Pollution Control Ordinance and its subsidiary legislation, particularly the Air Pollution (Furnaces, Ovens and Chimneys) (Installation and Alteration) Regulations and the Air Pollution Control (Smoke) Regulations.

5. REMOVAL OF WASTE MATERIAL

(a) The Contractor shall not permit any sewage, waste water or effluent containing sand, cement, silt or any other suspended or dissolved material to flow from the site onto any adjoining land or allow any waste matter or refuse to be deposited anywhere within the Site or onto any adjoining land and shall have all such matter removed from the Site.

(b) The Contractor shall be liable for any damages caused to adjoining land through his failure to comply with clause 5(a).

(c) The Contractor shall be responsible for temporary training, diverting or conducting of open streams or drains intercepted by any works and for reinstating these to their original courses on completion of the Works.

(d) The Contractor shall be responsible for adequately maintaining any existing site drainage system at all times, including removal of solids in sand traps, manholes and stream beds.

(e) Any proposed stream course and nullah temporary diversions shall be submitted to the Engineer for agreement one month prior to such diversion works being commenced. Diversions shall be constructed to allow the water flow to discharge without overflow, erosion or washout. The area through which the temporary diversion runs is to be reinstated to its original condition or as agreed by the Engineer after the permanent drainage system has been completed.

(f) The Contractor shall furnish, for the Engineer's information, particulars of the Contractor's arrangements for ensuring that material from any earthworks does not wash into the drainage system. If at any time such arrangements prove to be ineffective the Contractor shall take such additional measures as the Engineer shall deem necessary and shall remove all silt which may have accumulated in the drainage system whether within the Site or not.

(g) The Contractor shall segregate all inert construction waste material suitable for reclamation or land formation and shall dispose of such material at such public dumping area(s) as may be specified from time to time by the Director of Civil Engineering Services.

(h) All non-inert construction waste material deemed unsuitable for reclamation or land formation and all other waste material shall be disposed of at a public landfill.

(i) The Contractor's attention is drawn to the Waste Disposal Ordinance, the Public Health and Municipal Services Ordinance, and the Water Pollution Control Ordinance.

6. DISCHARGE INTO SEWERS AND DRAINS

(a) The Contractor shall not discharge directly or indirectly (by runoff) or cause or permit or suffer to be discharged into any public sewer, storm-water drain, channel, stream-course or sea any effluent or foul or contaminated water or cooling or hot water without the prior consent of the Engineer who may require the Contractor to provide, operate and maintain at the Contractor's own expense, within the premises or otherwise, suitable works for the treatment and disposal of such effluent or foul or contaminated or cooling or hot water. The design of such treatment works shall be submitted to the Engineer for approval not less than one month prior to the commencement of construction or as agreed by the Engineer.

(b) If any office, site canteen or toilet facilities are erected, foul water effluent shall be directed to a foul sewer or to a sewage treatment facility either directly or indirectly by means of pumping or other means approved by the Engineer.

(c) The Contractor's attention is drawn to the Buildings Ordinance and to the Water Pollution Control Ordinance.

Do-nothing Scenario				
NSR	Floor	Facade Noise Level L_{10}(1-hr)dB(A)		
		New road	Exist road	Overall
HS1	1	-	78.4	78
	5	-	78.5	79
	10	-	78.5	79
	15	-	78.3	78
	20	-	77.7	78
	25	-	77.2	77
	30	-	76.8	77
	35	-	76.4	76
	Top	-	76.3	76
HS2	1	-	82	82
	5	-	81.6	82
	10	-	81	81
	15	-	80.4	80
	20	-	79.7	80
	25	-	79.1	79
	30	-	78.6	79
	35	-	78.1	78
	Top	-	78.1	78
HS3	1	-	78.5	79
	5	-	78.1	78
	10	-	78	78
	15	-	77.8	78
	20	-	77.2	77
	25	-	76.6	77
	30	-	76.1	76
	35	-	75.7	76
	Top	-	75.6	76
HS4	1	-	84.6	85
	5	-	83.1	83
	10	-	82.1	82
	15	-	81	81
	20	-	80.2	80
	25	-	79.5	80
	30	-	79	79
	35	-	78.5	79
	Top	-	78.4	78
VH1	1	-	76.3	76
	5	-	76.2	76
	10	-	76.2	76
	15	-	76.4	76
	Top	-	76.3	76
VH2	1	-	76.4	76
	5	-	76.2	76
	Top	-	75.9	76
VH3	1	42.4	77	77
	5	42.8	76.5	77
	10	43.3	76	76
	15	44	75.7	76
	20	47.4	75.9	76
	25	47.4	75.7	76
	30	47.3	75.6	76
	Top	47.2	75.6	76
VH4	1	-	61.1	61
	5	-	65.1	65
	10	-	65.6	66
	15	-	66.6	67
	20	-	70.5	71
	25	-	72.2	72
	30	-	72.3	72
	Top	-	72.2	72
MC1	1	52.6	73.5	74
	5	54	75.7	76
	10	55.4	76.5	77
	15	58.8	76.6	77
	20	58.9	76.4	76
	25	59	76.3	76
	30	58.9	76.3	76
	35	58.8	76.1	76
	Top	58.9	75.9	76

Recommended Scenario					
NSR	Floor	Facade Noise Level L_{10}(1-hr)dB(A)			
		New road	Exist road	Overall	Reduction
HS1	1	-	78.4	78	0.0
	5	-	78.5	79	0.0
	10	-	78.5	79	0.0
	15	-	78.3	78	0.0
	20	-	77.7	78	0.0
	25	-	77.2	77	0.0
	30	-	76.8	77	0.0
	35	-	76.4	76	0.0
	Top	-	76.3	76	0.0
HS2	1	-	82	82	0.0
	5	-	81.6	82	0.0
	10	-	81	81	0.0
	15	-	80.4	80	0.0
	20	-	79.7	80	0.0
	25	-	79.1	79	0.0
	30	-	78.6	79	0.0
	35	-	78.1	78	0.0
	Top	-	78.1	78	0.0
HS3	1	-	78.5	79	0.0
	5	-	78.1	78	0.0
	10	-	78	78	0.0
	15	-	77.8	78	0.0
	20	-	77.2	77	0.0
	25	-	76.6	77	0.0
	30	-	76.1	76	0.0
	35	-	75.7	76	0.0
	Top	-	75.6	76	0.0
HS4	1	-	84.6	85	0.0
	5	-	83.1	83	0.0
	10	-	82.1	82	0.0
	15	-	81	81	0.0
	20	-	80.2	80	0.0
	25	-	79.5	80	0.0
	30	-	79	79	0.0
	35	-	78.5	79	0.0
	Top	-	78.4	78	0.0
VH1	1	-	76.3	76	0.0
	5	-	76.2	76	0.0
	10	-	76.2	76	0.0
	15	-	76.4	76	0.0
	Top	-	76.3	76	0.0
VH2	1	-	76.4	76	0.0
	5	-	76.2	76	0.0
	Top	-	75.9	76	0.0
VH3	1	39.9	77.0	77	0.0
	5	40.3	76.5	77	0.0
	10	40.8	76.0	76	0.0
	15	41.5	75.7	76	0.0
	20	44.9	75.9	76	0.0
	25	44.9	75.7	76	0.0
	30	44.8	75.6	76	0.0
	Top	44.7	75.6	76	0.0
VH4	1	-	61.1	61	0.0
	5	-	65.1	65	0.0
	10	-	65.6	66	0.0
	15	-	66.6	67	0.0
	20	-	70.5	71	0.0
	25	-	72.2	72	0.0
	30	-	72.3	72	0.0
	Top	-	72.2	72	0.0
MC1	1	51.4	73.5	74	0.0
	5	52.8	75.7	76	0.0
	10	53.8	76.5	77	0.0
	15	56.6	76.6	77	0.0
	20	56.7	76.4	76	0.0
	25	57.0	76.3	76	0.0
	30	56.9	76.3	76	0.0
	35	56.9	76.1	76	0.0
	Top	56.8	75.9	76	0.0

Do-nothing Scenario				
NSR	Floor	Facade Noise Level L_{10}(1-hr)dB(A)		
		New road	Exist road	Overall
MC2	1	51.8	70.3	70
	5	54.2	71.4	71
	10	55.8	72	72
	15	59.2	72.4	73
	20	59.3	72.3	73
	25	59.3	72.2	72
	30	59.3	71.9	72
	35	59.3	71.7	72
	Top	59.3	71.6	72
MC3	1	52.3	70.4	70
	5	53.3	71.8	72
	10	55	73	73
	15	57.3	73.4	74
	20	58.9	73.3	73
	25	59	73.2	73
	30	58.9	73.3	73
	35	58.9	73.1	73
	Top	58.8	73.1	73
MC4	1	52	66.1	66
	5	52.9	69.5	70
	10	54.2	70.7	71
	15	55.7	70.8	71
	20	58.6	71.2	71
	25	58.7	71	71
	30	58.7	70.9	71
	35	58.6	70.9	71
	Top	58.6	70.6	71
MC5	1	45	64.2	64
	5	46.6	66.7	67
	10	51	68.7	69
	15	51.3	69.1	69
	20	51.4	69.5	70
	25	51.4	69.6	70
	30	51.4	69.4	69
	35	51.6	69.4	69
	Top	51.6	69.4	69
R1	1	-	67.5	68
	5	-	68.9	69
	10	-	70.8	71
	15	-	71.2	71
	20	-	71.7	72
	25	-	71.8	72
	30	-	71.9	72
	35	-	71.9	72
	Top	-	71.7	72
R2	1	56.6	68	68
	5	57.2	70.2	70
	10	58.5	72.5	73
	15	59.3	72.9	73
	20	61.2	73.2	73
	25	61.2	73.2	73
	30	61.1	73.3	74
	35	61	73.4	74
	Top	61	73.2	73
R3	1	56.7	67.9	68
	5	57.7	69.4	70
	10	59.4	70.3	71
	15	60.1	70.6	71
	20	61.8	71	71
	25	61.8	71	71
	30	61.8	70.9	71
	35	61.7	70.8	71
	Top	61.7	70.6	71
R4	1	-	66.8	67
	5	-	67.6	68
	10	-	69.3	69
	15	-	69.8	70
	20	-	69.9	70
	25	-	70.1	70
	30	-	70.1	70

Recommended Scenario					
NSR	Floor	Facade Noise Level L_{10}(1-hr)dB(A)			
		New road	Exist road	Overall	Reduction
MC2	1	49.4	70.3	70	0.0
	5	51.8	71.4	71	0.0
	10	53.9	72.0	72	0.0
	15	56.9	72.4	73	0.1
	20	57.0	72.3	72	0.1
	25	57.3	72.2	72	0.1
	30	57.2	71.9	72	0.1
	35	57.2	71.7	72	0.1
	Top	57.1	71.6	72	0.1
MC3	1	50.6	70.4	70	0.0
	5	51.8	71.8	72	0.0
	10	53.8	73.0	73	0.0
	15	55.9	73.4	73	0.0
	20	57.2	73.3	73	0.0
	25	57.5	73.2	73	0.0
	30	57.5	73.3	73	0.0
	35	57.4	73.1	73	0.0
	Top	57.3	73.1	73	0.0
MC4	1	50.1	66.1	66	0.1
	5	51.2	69.5	70	0.0
	10	52.7	70.7	71	0.0
	15	54.0	70.8	71	0.0
	20	56.9	71.2	71	0.1
	25	57.0	71.0	71	0.1
	30	57.0	70.9	71	0.1
	35	56.9	70.9	71	0.1
	Top	56.9	70.6	71	0.1
MC5	1	40.5	64.2	64	0.0
	5	43.8	66.7	67	0.0
	10	50.0	68.7	69	0.0
	15	50.4	69.1	69	0.0
	20	50.4	69.5	70	0.0
	25	50.4	69.6	70	0.0
	30	50.3	69.4	69	0.0
	35	50.3	69.4	69	0.0
	Top	50.3	69.4	69	0.0
R1	1	-	67.5	68	0.0
	5	-	68.9	69	0.0
	10	-	70.8	71	0.0
	15	-	71.2	71	0.0
	20	-	71.7	72	0.0
	25	-	71.8	72	0.0
	30	-	71.9	72	0.0
	35	-	71.9	72	0.0
	Top	-	71.7	72	0.0
R2	1	54.4	68.0	68	0.1
	5	55.3	70.2	70	0.1
	10	56.8	72.5	73	0.1
	15	57.6	72.9	73	0.1
	20	59.4	73.2	73	0.1
	25	59.4	73.2	73	0.1
	30	59.4	73.3	73	0.1
	35	59.3	73.4	74	0.1
	Top	59.3	73.2	73	0.1
R3	1	54.3	67.9	68	0.1
	5	55.6	69.4	70	0.1
	10	57.5	70.3	71	0.1
	15	58.1	70.6	71	0.1
	20	59.8	71.0	71	0.2
	25	59.9	71.0	71	0.2
	30	59.8	70.9	71	0.2
	35	59.8	70.8	71	0.2
	Top	59.7	70.6	71	0.2
R4	1	-	66.8	67	0.0
	5	-	67.6	68	0.0
	10	-	69.3	69	0.0
	15	-	69.8	70	0.0
	20	-	69.9	70	0.0
	25	-	70.1	70	0.0
	30	-	70.1	70	0.0

Do-nothing Scenario				
NSR	Floor	Facade Noise Level L_{10}(1-hr)dB(A)		
		New road	Exist road	Overall
R4	35	-	70.1	70
	Top	-	70	70

Recommended Scenario					
NSR	Floor	Facade Noise Level L_{10}(1-hr)dB(A)			
		New road	Exist road	Overall	Reduction
R4	35	-	70.1	70	0.0
	Top	-	70.0	70	0.0

Do-nothing Scenario				
NSR	Floor	Facade Noise Level L_{10}(1-hr)dB(A)		
		New road	Exist road	Overall
R5	1	54.4	68.2	68
	5	58	69.4	70
	10	59.6	70.7	71
	15	60.3	71.4	72
	20	62.1	71.4	72
	25	62.2	71.6	72
	30	62.1	71.7	72
	35	62	71.7	72
	Top	62	71.7	72
R6	1	50.4	65.7	66
	5	57.5	68.7	69
	10	58.8	70	70
	15	59.6	70.6	71
	20	61.7	70.7	71
	25	61.7	70.8	71
	30	61.7	70.9	71
	35	61.6	70.9	71
	Top	61.5	70.9	71
KL1	1	42.8	-	43
	5	48.6	-	49
	10	60.1	-	60
	15	60.6	-	61
	20	61.2	-	61
	25	61.2	-	61
	30	61.2	-	61
	35	61.2	-	61
	Top	61.2	-	61
KL2	1	60.9	68.2	69
	5	62	69.4	70
	10	61.9	69.2	70
	15	61.8	68.9	70
	20	61.7	68.5	69
	25	61.7	68.5	69
	30	61.7	68.5	69
	35	61.7	68.5	69
	Top	61.7	68.5	69
KL3	1	65.1	69.7	71
	5	66.8	70.2	72
	10	66.7	69.7	71
	15	66.5	69.2	71
	20	66.2	68.6	71
	25	65.9	68.1	70
	30	65.6	67.6	70
	35	65.2	67.1	69
	Top	65.2	67	69
KL4	1	63.8	67.8	69
	5	65.5	67.6	70
	10	65.5	66.9	69
	15	65.3	66.3	69
	20	65.2	65.8	69
	25	64.9	65.4	68
	30	64.7	64.9	68
	35	64.4	64.5	67
	Top	64.3	64.4	67
KL5	1	59.7	-	60
	5	61.8	-	62
	10	62.6	-	63
	15	63.1	-	63
	20	63.3	-	63
	25	63.2	-	63
	30	63	-	63
	35	62.8	-	63
	Top	62.8	-	63

Recommended Scenario					
NSR	Floor	Facade Noise Level L_{10}(1-hr)dB(A)			
		New road	Exist road	Overall	Reduction
R5	1	52.2	68.2	68	0.1
	5	56.5	69.4	70	0.1
	10	57.9	70.7	71	0.1
	15	58.7	71.4	72	0.1
	20	60.3	71.4	72	0.2
	25	60.3	71.6	72	0.2
	30	60.2	71.7	72	0.2
	35	60.2	71.7	72	0.1
	Top	60.1	71.7	72	0.2
R6	1	48.7	65.7	66	0.0
	5	55.5	68.7	69	0.1
	10	57.2	70.0	70	0.1
	15	58.1	70.6	71	0.1
	20	59.9	70.7	71	0.2
	25	59.9	70.8	71	0.2
	30	59.9	70.9	71	0.2
	35	59.8	70.9	71	0.2
	Top	59.8	70.9	71	0.1
KL1	1	42.8	-	43	0.0
	5	48.6	-	49	0.0
	10	59.7	-	60	0.4
	15	60.5	-	60	0.1
	20	61.1	-	61	0.1
	25	61.1	-	61	0.1
	30	61.1	-	61	0.1
	35	61.1	-	61	0.1
	Top	61.1	-	61	0.1
KL2	1	57.9	68.2	69	0.4
	5	59.0	69.4	70	0.3
	10	58.9	69.2	70	0.4
	15	58.7	68.9	69	0.4
	20	58.6	68.5	69	0.4
	25	58.6	68.5	69	0.4
	30	58.6	68.5	69	0.4
	35	58.6	68.5	69	0.4
	Top	58.6	68.5	69	0.4
KL3	1	61.6	69.7	70	0.7
	5	62.7	70.2	71	0.9
	10	62.6	69.7	70	1.0
	15	62.4	69.2	70	1.0
	20	62.1	68.6	69	1.1
	25	61.8	68.1	69	1.1
	30	61.5	67.6	69	1.2
	35	61.1	67.1	68	1.2
	Top	61.1	67.0	68	1.2
KL4	1	60.1	67.8	68	0.8
	5	61.6	67.6	69	1.1
	10	61.6	66.9	68	1.2
	15	61.6	66.3	68	1.3
	20	61.5	65.8	67	1.3
	25	61.2	65.4	67	1.4
	30	61.0	64.9	66	1.4
	35	60.7	64.5	66	1.4
	Top	60.7	64.4	66	1.4
KL5	1	59.7	-	60	0.0
	5	61.6	-	62	0.2
	10	62.4	-	62	0.2
	15	63.0	-	63	0.1
	20	63.2	-	63	0.1
	25	63.1	-	63	0.1
	30	62.9	-	63	0.1
	35	62.8	-	63	0.0
	Top	62.8	-	63	0.0

Do-nothing Scenario				
NSR	Floor	Facade Noise Level L_{10}(1-hr)dB(A)		
		New road	Exist road	Overall
KL6	1	66	68.6	71
	5	68.1	69.5	72
	10	67.9	69	71
	15	67.5	68.6	71
	20	67	68.1	71
KL6	25	66.5	67.7	70
	30	66.1	67.3	70
	35	65.6	66.9	69
	Top	65.5	66.8	69
KL7	1	68.7	-	69
	5	72.8	-	73
	10	72.4	-	72
	15	71.9	-	72
	20	71.3	-	71
	25	70.7	-	71
	30	70.2	-	70
	35	69.7	-	70
	Top	69.6	-	70
KL8	1	65.9	-	66
	5	70.2	-	70
	10	70.8	-	71
	15	70.7	-	71
	20	70.4	-	70
	25	70.1	-	70
	30	69.7	-	70
	35	69.3	-	69
	Top	69.3	-	69
CM1	1	67	68.1	71
	5	68.2	70.8	73
	10	67.9	70.3	72
	Top	67.8	69.9	72
CM2	1	73.3	66	74
	5	74.6	67.1	75
	10	73.9	66.3	75
	15	73.1	65.7	74
	20	72.3	65.1	73
	25	71.6	64.5	72
	30	71	64	72
	35	70.4	63.5	71
	Top	70.1	63.3	71
CM3	1	67.1	-	67
	5	69.6	-	70
	10	69.2	-	69
	15	68.8	-	69
	20	68.2	-	68
	25	67.7	-	68
	30	67.1	-	67
	35	66.6	-	67
	Top	66.4	-	66
CM4	1	71.3	58.8	72
	5	75.4	61.9	76
	10	74.7	61.7	75
	15	73.9	61.4	74
	20	73.1	61.1	73
	25	72.4	60.7	73
	30	71.7	60.4	72
	35	71.2	60.1	72
	Top	70.9	59.9	71
CM5	1	64.9	-	65
	5	70.3	-	70
	10	70.4	-	70
	15	70.1	-	70
	20	69.6	-	70
	25	69.1	-	69
	30	68.6	-	69
	35	68.2	-	68
	Top	68.2	-	68

Recommended Scenario					
NSR	Floor	Facade Noise Level L_{10}(1-hr)dB(A)			
		New road	Exist road	Overall	Reduction
KL6	1	61.7	68.4	69	1.3
	5	62.7	69.5	70	1.5
	10	63.6	69.0	70	1.4
	15	63.2	68.6	70	1.4
	20	62.8	68.1	69	1.4
KL6	25	62.4	67.7	69	1.3
	30	62.1	67.3	68	1.3
	35	61.7	66.9	68	1.3
	Top	61.6	66.8	68	1.3
KL7	1	59.3	-	59	9.4
	5	66.0	-	66	6.8
	10	66.2	-	66	6.2
	15	66.5	-	66	5.4
	20	66.0	-	66	5.3
	25	65.6	-	66	5.1
	30	65.1	-	65	5.1
	35	64.7	-	65	5.0
	Top	64.6	-	65	5.0
KL8	1	61.0	-	61	4.9
	5	65.3	-	65	4.9
	10	66.8	-	67	4.0
	15	67.0	-	67	3.7
	20	66.8	-	67	3.6
	25	66.7	-	67	3.4
	30	66.3	-	66	3.4
	35	66.0	-	66	3.3
	Top	66.0	-	66	3.3
CM1	1	63.1	68.1	69	1.3
	5	64.9	70.8	72	0.9
	10	64.7	70.3	71	0.9
	Top	64.5	69.9	71	1.0
CM2	1	62.1	66.3	68	6.3
	5	67.6	67.1	70	5.0
	10	67.2	66.3	70	4.8
	15	66.6	65.7	69	4.7
	20	66.4	65.1	69	4.2
	25	65.8	64.5	68	4.2
	30	65.2	64.0	68	4.1
	35	64.9	63.5	67	4.0
	Top	64.6	63.3	67	3.9
CM3	1	45.1	-	45	22.0
	5	57.2	-	57	12.4
	10	59.1	-	59	10.1
	15	58.8	-	59	10.0
	20	58.3	-	58	9.9
	25	57.8	-	58	9.9
	30	57.4	-	57	9.7
	35	56.9	-	57	9.7
	Top	56.7	-	57	9.7
CM4	1	58.6	48.9	59	12.5
	5	67.8	61.2	69	7.0
	10	67.5	61.7	69	6.4
	15	67.1	61.4	68	6.0
	20	66.8	61.1	68	5.5
	25	66.3	60.7	67	5.3
	30	66.0	60.4	67	5.0
	35	65.5	60.1	67	4.9
	Top	65.2	59.9	66	4.9
CM5	1	58.6	-	59	6.3
	5	64.6	-	65	5.7
	10	66.6	-	67	3.8
	15	66.5	-	67	3.6
	20	66.2	-	66	3.4
	25	65.8	-	66	3.3
	30	65.5	-	66	3.1
	35	65.2	-	65	3.0
	Top	65.2	-	65	3.0

Do-nothing Scenario				
NSR	Floor	Facade Noise Level L_{10}(1-hr)dB(A)		
		New road	Exist road	Overall
CM6	1	64	-	64
	5	69.5	-	70
	10	70.5	-	71
	15	70.4	-	70
	20	70.1	-	70
	25	69.8	-	70
	30	69.5	-	70
	35	69.1	-	69
CM6	Top	69.1	-	69
CM7	1	61.4	0	61
	5	65.9	0	66
	10	67.8	0	68
	15	67.9	0	68
	20	67.7	0	68
	25	67.4	0	67
	30	67.2	0	67
	35	67	0	67
	Top	67	0	67
CM8	1	60.8	-	61
	5	64.7	-	65
	10	67.1	-	67
	15	67.5	-	68
	20	67.3	-	67
	25	67.2	-	67
	30	66.9	-	67
	35	66.8	-	67
	Top	66.8	-	67
CM9	1	59	-	59
	5	61	-	61
	10	64.3	-	64
	15	65.3	-	65
	20	65.6	-	66
	25	65.5	-	66
	30	65.4	-	65
	35	65.3	-	65
	Top	65.3	-	65
ON1	1	58.4	-	58
	5	60.5	-	61
	10	64.6	-	65
	15	64.8	-	65
	20	64.9	-	65
	25	64.9	-	65
	30	64.7	-	65
	35	64.6	-	65
	Top	64.5	-	65
ON2	1	65.4	49.9	66
	5	68.4	52.4	69
	10	70.5	58.5	71
	15	70.9	58.5	71
	20	71.3	58.5	72
	25	71.2	59.4	71
	30	71.1	59.3	71
	35	71.1	59.1	71
	Top	71	59	71
ON3	1	63.8	48.6	64
	5	66.4	51.6	67
	10	68.7	57.3	69
	15	69.2	57.7	69
	20	69.9	58.1	70
	25	69.8	58.4	70
	30	69.7	58.3	70
	35	69.7	58.2	70
	Top	69.6	58.2	70
ON4	1	60.9	-	61
	5	63.5	-	64
	10	66.3	-	66
	15	66.8	-	67
	20	66.8	-	67
	25	66.6	-	67
	30	66.4	-	66

Recommended Scenario					
NSR	Floor	Facade Noise Level L_{10}(1-hr)dB(A)			
		New road	Exist road	Overall	Reduction
CM6	1	59.7	-	60	4.3
	5	65.8	-	66	3.7
	10	66.6	-	67	3.9
	15	66.9	-	67	3.5
	20	66.7	-	67	3.4
	25	66.4	-	66	3.4
	30	66.2	-	66	3.3
	35	65.9	-	66	3.2
CM6	Top	65.9	-	66	3.2
CM7	1	58.9	-	59	2.5
	5	64.4	-	64	1.5
	10	65.6	-	66	2.2
	15	66.2	-	66	1.7
	20	66.1	-	66	1.6
	25	65.9	-	66	1.5
	30	65.7	-	66	1.5
	35	65.5	-	66	1.5
	Top	65.5	-	66	1.5
CM8	1	57.9	-	58	2.9
	5	62.4	-	62	2.3
	10	63.6	-	64	3.5
	15	64.9	-	65	2.6
	20	65.0	-	65	2.3
	25	64.9	-	65	2.3
	30	64.7	-	65	2.2
	35	64.6	-	65	2.2
	Top	64.6	-	65	2.2
CM9	1	56.2	-	56	2.8
	5	58.9	-	59	2.1
	10	61.4	-	61	2.9
	15	61.6	-	62	3.7
	20	62.7	-	63	2.9
	25	63.0	-	63	2.5
	30	62.9	-	63	2.5
	35	62.8	-	63	2.5
	Top	62.8	-	63	2.5
ON1	1	54.9	-	55	3.5
	5	57.6	-	58	2.9
	10	60.5	-	60	4.1
	15	60.5	-	61	4.3
	20	61.7	-	62	3.2
	25	61.8	-	62	3.1
	30	61.7	-	62	3.0
	35	61.6	-	62	3.0
	Top	61.5	-	62	3.0
ON2	1	61.8	47.4	62	3.6
	5	64.0	50.1	64	4.3
	10	65.6	56.0	66	4.7
	15	67.2	55.9	68	3.6
	20	68.4	55.9	69	2.9
	25	68.4	56.9	69	2.8
	30	68.4	57.0	69	2.6
	35	68.6	56.8	69	2.5
	Top	68.6	56.7	69	2.4
ON3	1	60.6	48.0	61	3.1
	5	61.7	50.5	62	4.5
	10	63.1	55.7	64	5.2
	15	65.0	56.1	66	4.0
	20	66.8	56.9	67	2.9
	25	67.0	57.2	67	2.7
	30	67.1	57.2	67	2.5
	35	67.1	57.2	68	2.4
	Top	67.2	57.2	68	2.3
ON4	1	58.1	-	58	2.8
	5	60.3	-	60	3.2
	10	60.3	-	60	6.0
	15	62.1	-	62	4.7
	20	63.4	-	63	3.4
	25	63.3	-	63	3.3
	30	63.2	-	63	3.2

Do-nothing Scenario				
NSR	Floor	Facade Noise Level L_{10}(1-hr)dB(A)		
		New road	Exist road	Overall
	35	66.2	-	66
	Top	66.1	-	66

Recommended Scenario					
NSR	Floor	Facade Noise Level L_{10}(1-hr)dB(A)			
		New road	Exist road	Overall	Reduction
	35	63.0	-	63	3.2
	Top	62.9	-	63	3.2

Do-nothing Scenario				
NSR	Floor	Facade Noise Level L_{10}(1-hr)dB(A)		
		New road	Exist road	Overall
ON5	1	66.6	52.7	67
	5	70.4	56	71
	10	72	60.7	72
	15	72.6	61.9	73
	20	72.6	61.8	73
	25	72.6	61.6	73
ON5	30	72.3	61.5	73
	35	72.2	61.3	73
	Top	72	61.2	72
ON6	1	66.2	55.6	67
	5	70.2	58.3	70
	10	71.5	62.3	72
	15	72.3	65.5	73
	20	72.2	65.4	73
	25	72.2	65.3	73
	30	71.9	65.1	73
	35	71.8	65	73
	Top	71.6	64.9	72
ON7	1	65.6	55.6	66
	5	70	60.5	70
	10	71.4	62.4	72
	15	71.9	64.9	73
	20	72.1	64.7	73
	25	71.9	64.6	73
	30	71.6	64.4	72
	35	71.5	64.3	72
	Top	71.4	64.3	72
ON8	1	64.4	57.2	65
	5	68.5	61.5	69
	10	70.1	64.4	71
	15	70.7	67.7	72
	20	70.7	67.6	72
	25	70.6	67.5	72
	30	70.4	67.4	72
	35	70.2	67.4	72
	Top	70.2	67.5	72
ON9	1	58.1	55.4	60
	5	61.5	59.1	63
	10	62.7	61.8	65
	15	63.8	66.2	68
	20	64.1	66.4	68
	25	64.7	66.3	69
	30	64.3	66.1	68
	35	64.3	66	68
	Top	64.3	66	68
CR1	1	52.7	53.8	56
	5	63.3	59.4	65
	10	65	63.9	67
	15	65.6	64.2	68
	20	65.8	64.1	68
	25	65.8	64	68
	30	65.6	64	68
	35	65.6	63.9	68
	Top	65.6	63.9	68
CR2	1	56.8	63.6	64
	5	63.7	68.2	70
	10	64.1	68.3	70
	15	64.7	69.7	71
	20	64.7	69.1	70
	25	64.5	68.5	70
	30	64.3	68.1	70
	35	64.1	67.6	69
	Top	64.1	67.6	69
CR3	1	55.2	68.4	69
	5	56.6	68.8	69
	10	58.1	70.6	71
	15	58.8	70.4	71
	20	59.4	69.7	70
	25	59.6	69.1	70
	30	59.4	68.6	69

Recommended Scenario					
NSR	Floor	Facade Noise Level L_{10}(1-hr)dB(A)			
		New road	Exist road	Overall	Reduction
ON5	1	62.3	50.3	63	4.2
	5	64.8	53.7	65	5.4
	10	66.8	58.4	67	4.9
	15	68.8	59.5	69	3.7
	20	69.4	59.4	70	3.1
	25	69.6	59.3	70	2.9
ON5	30	69.6	59.2	70	2.7
	35	69.7	59.0	70	2.5
	Top	69.6	58.8	70	2.4
ON6	1	61.6	54.0	62	4.2
	5	64.3	56.5	65	5.5
	10	66.6	60.4	68	4.4
	15	68.4	64.1	70	3.3
	20	69.2	64.0	70	2.7
	25	69.3	63.9	70	2.6
	30	69.3	63.8	70	2.3
	35	69.4	63.7	70	2.2
	Top	69.3	63.6	70	2.1
ON7	1	61.4	53.6	62	4.0
	5	64.5	58.2	65	5.1
	10	66.5	60.3	67	4.4
	15	68.3	63.0	69	3.2
	20	68.9	62.9	70	3.0
	25	69.1	62.7	70	2.6
	30	69.1	62.6	70	2.4
	35	69.2	62.5	70	2.3
	Top	69.1	62.5	70	2.2
ON8	1	60.5	56.0	62	3.3
	5	63.2	59.8	65	4.4
	10	65.3	63.2	67	3.7
	15	67.4	66.9	70	2.3
	20	67.7	66.8	70	2.2
	25	67.9	66.6	70	2.0
	30	67.8	66.6	70	1.9
	35	67.8	66.6	70	1.8
	Top	67.9	66.8	70	1.7
ON9	1	54.7	54.4	58	2.4
	5	57.6	57.7	61	2.8
	10	59.2	60.5	63	2.4
	15	61.8	65.5	67	1.1
	20	62.5	65.7	67	1.0
	25	63.0	65.6	68	1.1
	30	62.7	65.5	67	1.0
	35	62.6	65.4	67	1.0
	Top	62.6	65.4	67	1.0
CR1	1	50.8	53.6	55	0.8
	5	59.7	58.6	62	2.6
	10	60.7	63.4	65	2.2
	15	62.3	63.7	66	1.9
	20	63.0	63.7	66	1.7
	25	63.1	63.6	66	1.6
	30	63.0	63.5	66	1.6
	35	63.1	63.5	66	1.6
	Top	63.1	63.5	66	1.5
CR2	1	54.2	63.5	64	0.4
	5	61.0	68.0	69	0.7
	10	61.2	68.1	69	0.8
	15	61.7	69.5	70	0.7
	20	61.7	69.0	70	0.7
	25	61.6	68.4	69	0.7
	30	61.4	67.9	69	0.8
	35	61.3	67.5	68	0.8
	Top	61.3	67.4	68	0.9
CR3	1	54.4	68.4	69	0.0
	5	55.0	68.8	69	0.1
	10	56.0	70.6	71	0.1
	15	56.5	70.3	70	0.2
	20	57.8	69.6	70	0.2
	25	58.0	69.1	69	0.1
	30	57.8	68.6	69	0.1

Do-nothing Scenario				
NSR	Floor	Facade Noise Level L_{10}(1-hr)dB(A)		
		New road	Exist road	Overall
	35	59.3	68.2	69
	Top	59.4	68.1	69

Recommended Scenario					
NSR	Floor	Facade Noise Level L_{10}(1-hr)dB(A)			
		New road	Exist road	Overall	Reduction
	35	57.6	68.1	68	0.3
	Top	57.6	68.0	68	0.3

Do-nothing Scenario				
NSR	Floor	Facade Noise Level L_{10}(1-hr)dB(A)		
		New road	Exist road	Overall
ST1	1	48.5	53.5	55
	5	50.2	55.6	57
	10	55.9	60.9	62
	15	57.2	66.3	67
ST1	20	57.8	66.7	67
	25	58.7	66.6	67
	30	58.9	66.5	67
	35	58.9	66.5	67
	Top	59.2	66.4	67
ST2	1	48.9	55.6	56
	5	52.2	59	60
	10	58.5	65.1	66
	15	59.8	69.8	70
	20	60.5	69.6	70
	25	60.8	69.6	70
	30	61.3	69.4	70
	35	61.2	69.4	70
	Top	60.9	69.3	70
ST3	1	53.6	61.8	62
	5	56.9	67.2	68
	10	61	69.9	70
	15	61.9	70.7	71
	20	62.9	70.6	71
	25	63	70.5	71
	30	63.4	70.3	71
	35	63.2	70.1	71
	Top	63.1	70.1	71
ST4	1	49.8	60.8	61
	5	53.2	67.4	68
	10	56.9	68.4	69
	15	57.8	68.5	69
	20	57.8	69.5	70
	25	58.4	69.3	70
	30	58.3	69	69
	35	58.2	68.8	69
	Top	58.1	68.7	69
ST5	1	52	63.7	64
	5	57.6	70.8	71
	10	60.9	71.5	72
	15	61.7	71.2	72
	20	61.9	71.3	72
	25	62	71	72
	30	61.9	70.7	71
	35	61.7	70.4	71
	Top	61.6	70.2	71
ST6	1	57.1	69.8	70
	5	60.2	72.6	73
	10	62.5	72.7	73
	15	64.4	72.5	73
	20	64.6	72.3	73
	25	64.6	72	73
	30	64.6	71.6	72
	35	64.6	71.3	72
	Top	64.5	71.1	72
ST7	1	57.2	72.1	72
	5	58.9	73.6	74
	10	60.9	73.3	74
	15	63	72.8	73
	20	63.4	72.3	73
	25	63.3	71.8	72
	30	63.3	71.5	72
	35	63.3	71	72
	Top	63.3	70.8	72
ST8	1	55.6	69.4	70
	5	56.8	71	71
	10	57.6	71	71
	15	60.5	70.8	71
	20	60.9	70.5	71
	25	60.9	70.2	71
	30	60.9	69.9	70

Recommended Scenario					
NSR	Floor	Facade Noise Level L_{10}(1-hr)dB(A)			
		New road	Exist road	Overall	Reduction
ST1	1	46.4	52.9	54	0.9
	5	48.7	55.0	56	0.8
	10	55.4	60.5	62	0.4
	15	56.9	65.4	66	0.8
ST1	20	57.3	65.8	66	0.9
	25	57.9	65.7	66	0.9
	30	58.1	65.6	66	0.9
	35	58.0	65.6	66	0.9
	Top	58.4	65.5	66	0.9
ST2	1	47.1	55.2	56	0.6
	5	51.2	58.6	59	0.5
	10	58.2	64.5	65	0.5
	15	59.5	68.8	69	0.9
	20	60.1	68.7	69	0.8
	25	60.2	68.7	69	0.9
	30	60.8	68.5	69	0.8
	35	60.7	68.5	69	0.8
	Top	60.5	68.4	69	0.8
ST3	1	52.0	61.6	62	0.4
	5	56.0	67.0	67	0.3
	10	60.6	69.4	70	0.5
	15	61.3	69.9	70	0.8
	20	62.1	69.8	70	0.8
	25	62.2	69.6	70	0.9
	30	62.5	69.5	70	0.8
	35	62.4	69.3	70	0.8
	Top	62.3	69.2	70	0.9
ST4	1	49.8	60.1	60	0.6
	5	53.2	66.7	67	0.7
	10	56.9	67.6	68	0.7
	15	57.8	67.6	68	0.8
	20	57.8	68.5	69	0.9
	25	58.4	68.2	69	1.0
	30	58.3	67.9	68	1.0
	35	58.2	67.7	68	1.0
	Top	58.1	67.6	68	1.0
ST5	1	52.0	63.4	64	0.3
	5	57.6	70.6	71	0.2
	10	60.9	71.1	71	0.4
	15	61.7	70.7	71	0.4
	20	61.9	70.6	71	0.6
	25	62.0	70.3	71	0.6
	30	61.9	70.0	71	0.6
	35	61.7	69.6	70	0.7
	Top	61.6	69.4	70	0.7
ST6	1	55.8	69.8	70	0.1
	5	59.5	72.6	73	0.0
	10	61.8	72.5	73	0.2
	15	63.5	72.4	73	0.2
	20	63.7	72.1	73	0.3
	25	63.6	71.7	72	0.4
	30	63.6	71.4	72	0.3
	35	63.6	71.1	72	0.3
	Top	63.5	70.9	72	0.3
ST7	1	56.0	72.1	72	0.0
	5	58.0	73.5	74	0.1
	10	59.8	73.2	73	0.1
	15	61.9	72.7	73	0.2
	20	62.3	72.2	73	0.2
	25	62.2	71.7	72	0.2
	30	62.1	71.3	72	0.3
	35	62.1	70.9	71	0.2
	Top	62.1	70.6	71	0.3
ST8	1	54.3	69.4	70	0.0
	5	55.7	71.0	71	0.0
	10	56.5	70.9	71	0.1
	15	59.0	70.7	71	0.2
	20	59.4	70.4	71	0.2
	25	59.4	70.2	71	0.1
	30	59.4	69.8	70	0.2

Do-nothing Scenario				
NSR	Floor	Facade Noise Level L_{10}(1-hr)dB(A)		
		New road	Exist road	Overall
	35	60.9	69.7	70
	Top	60.9	69.5	70

Recommended Scenario					
NSR	Floor	Facade Noise Level L_{10}(1-hr)dB(A)			
		New road	Exist road	Overall	Reduction
	35	59.4	69.6	70	0.2
	Top	59.3	69.4	70	0.3

Do-nothing Scenario				
NSR	Floor	Facade Noise Level L_{10}(1-hr)dB(A)		
		New road	Exist road	Overall
ST9	1	55.9	71.1	71
	5	56.3	72.5	73
ST9	10	57	72	72
	15	59.3	71.6	72
	20	60.2	71.1	71
	25	60.6	70.6	71
	30	60.7	70.2	71
	35	60.7	69.9	70
	Top	60.7	69.6	70

Recommended Scenario					
NSR	Floor	Facade Noise Level L_{10}(1-hr)dB(A)			
		New road	Exist road	Overall	Reduction
ST9	1	54.9	71.1	71	0.0
	5	55.3	72.5	73	0.0
ST9	10	55.9	72.0	72	0.0
	15	57.9	71.5	72	0.2
	20	58.8	71.0	71	0.2
	25	59.3	70.5	71	0.2
	30	59.5	70.1	70	0.2
	35	59.4	69.7	70	0.3
	Top	59.4	69.5	70	0.2

Do-nothing Scenario				
NSR	Floor	Facade Noise Level L_{10}(1-hr)dB(A)		
		New road	Exist road	Overall
SC1	1	57.9	65.1	66
	3	59.2	65.3	66
	6	61	65.8	67
SC2	1	55.9	67.1	67
	3	56.1	67.5	68
	6	57.7	68.5	69
SC3	1	51.8	-	52
	3	53.5	-	54
	6	60.7	-	61
SC4	1	60.5	52.6	61
	3	61.8	55.3	63
	6	63.4	59	65
SC5	1	61.5	57.8	63
	3	61.8	58.7	64
	6	62.7	58.8	64
SC6	1	50.3	62.7	63
	3	54.3	64.9	65
SC7	1	-	52.9	53
	3	-	54.9	55
	6	-	60.4	60
SC8	1	-	50.7	51
	3	-	52.7	53
	6	49.7	61.9	62
SC9	1	46.6	59.7	60
	3	48.5	61.5	62
SC10	1	47.2	57.2	58
	3	49	59.9	60
	6	50.4	64	64
SC11	1	45.9	72	72
	3	46	73.4	73
	6	46.3	74	74
CH1	1	63.2	57.8	64
	2	63.3	60.3	65
	5	65.7	63.7	68
CH2	1	67.8	76	77
	3	68.5	76	77
H1	1	59.5	71.6	72
	3	60.7	71.6	72
H2	1	60	68.5	69
	3	60.9	69.9	70
	5	61.4	70.5	71
H3	1	59.4	71.8	72
	3	59.5	71.7	72
381	10m	61	56.1	62
	20m	61.9	57	63
	30m	62.5	58.6	64
382	10m	57.2	56.6	60
	20m	57.3	57.3	60
	30m	58.2	58.2	61

Recommended Scenario					
NSR	Floor	Facade Noise Level L_{10}(1-hr)dB(A)			
		New road	Exist road	Overall	Reduction
SC1	1	55.7	65.1	66	0.3
	3	57.1	65.3	66	0.3
	6	59.3	65.8	67	0.4
SC2	1	53.6	67.1	67	0.1
	3	53.8	67.5	68	0.1
	6	55.4	68.5	69	0.1
SC3	1	51.4	-	51	0.4
	3	53.0	-	53	0.5
	6	59.5	-	59	1.2
SC4	1	57.8	51.4	59	2.5
	3	57.7	54.1	59	3.4
	6	59.3	58.1	62	3.0
SC5	1	52.4	57.8	59	4.2
	3	54.4	58.7	60	3.5
	6	57.6	58.8	61	2.9
SC6	1	49.9	60.9	61	1.7
	3	53.5	63.6	64	1.3
SC7	1	-	50.6	51	2.3
	3	-	52.6	53	2.3
	6	-	59.2	59	1.2
SC8	1	-	50.7	51	0.0
	3	-	52.7	53	0.0
	6	49.7	61.4	62	0.5
SC9	1	46.4	58.8	59	0.9
	3	48.3	60.8	61	0.7
SC10	1	46.4	57.0	57	0.2
	3	48.3	59.8	60	0.1
	6	49.9	63.8	64	0.2
SC11	1	43.4	72.0	72	0.0
	3	43.5	73.4	73	0.0
	6	43.8	74.0	74	0.0
CH1	1	61.1	57.4	63	1.6
	2	61.0	59.9	63	1.6
	5	62.5	63.2	66	2.0
CH2	1	67.5	75.7	76	0.3
	3	68.1	75.7	76	0.3
H1	1	58.7	70.8	71	0.8
	3	60.0	70.8	71	0.8
H2	1	59.4	68.1	69	0.4
	3	60.1	69.5	70	0.4
	5	60.5	70.0	70	0.5
H3	1	56.9	71.8	72	0.1
	3	57.1	71.7	72	0.1
381	10m	56.7	55.8	59	2.9
	20m	57.8	56.8	60	2.8
	30m	58.6	58.5	62	2.4
382	10m	53.5	56.6	58	1.6
	20m	53.4	57.3	59	1.5
	30m	54.4	58.2	60	1.5

Barriers Examined for KL1-8, CM1-9

Do-nothing Scenario				
NSR	Floor	Facade Noise Level L_{10}(1-hr)dB(A)		
		New road	Exist road	Overall
KL1	1	42.8	-	43
	5	48.6	-	49
	10	60.1	-	60
	15	60.6	-	61
	20	61.2	-	61
	25	61.2	-	61
	30	61.2	-	61
	35	61.2	-	61
	Top	61.2	-	61
KL2	1	60.9	68.2	69
	5	62	69.4	70
	10	61.9	69.2	70
	15	61.8	68.9	70
	20	61.7	68.5	69
	25	61.7	68.5	69
	30	61.7	68.5	69
	35	61.7	68.5	69
	Top	61.7	68.5	69
KL3	1	65.1	69.7	71
	5	66.8	70.2	72
	10	66.7	69.7	71
	15	66.5	69.2	71
	20	66.2	68.6	71
	25	65.9	68.1	70
	30	65.6	67.6	70
	35	65.2	67.1	69
	Top	65.2	67	69
KL4	1	63.8	67.8	69
	5	65.5	67.6	70
	10	65.5	66.9	69
	15	65.3	66.3	69
	20	65.2	65.8	69
	25	64.9	65.4	68
	30	64.7	64.9	68
	35	64.4	64.5	67
	Top	64.3	64.4	67
KL5	1	59.7	-	60
	5	61.8	-	62
	10	62.6	-	63
	15	63.1	-	63
	20	63.3	-	63
	25	63.2	-	63
	30	63	-	63
	35	62.8	-	63
	Top	62.8	-	63
KL6	1	66	68.6	71
	5	68.1	69.5	72
	10	67.9	69	71
	15	67.5	68.6	71
	20	67	68.1	71
	25	66.5	67.7	70
	30	66.1	67.3	70
	35	65.6	66.9	69
	Top	65.5	66.8	69
KL7	1	68.7	-	69
	5	72.8	-	73
	10	72.4	-	72
	15	71.9	-	72
	20	71.3	-	71
	25	70.7	-	71
	30	70.2	-	70
	35	69.7	-	70
	Top	69.6	-	70
KL8	1	65.9	-	66
	5	70.2	-	70
	10	70.8	-	71
	15	70.7	-	71
	20	70.4	-	70
	25	70.1	-	70
	30	69.7	-	70
	35	69.3	-	69
	Top	69.3	-	69
CM1	1	67	68.1	71
	5	68.2	70.8	73
	10	67.9	70.3	72
	Top	67.8	69.9	72
CM2	1	73.3	66	74
	5	74.6	67.1	75
	10	73.9	66.3	75
	15	73.1	65.7	74
	20	72.3	65.1	73
	25	71.6	64.5	72

Po Shun Road: 5m Plain Barrier					
NSR	Floor	Facade Noise Level L_{10}(1-hr)dB(A)			
		New road	Exist road	Overall	Reduction
KL1	1	42.8	-	43	0.0
	5	48.6	-	49	0.0
	10	60.1	-	60	0.0
	15	60.6	-	61	0.0
	20	61.2	-	61	0.0
	25	61.2	-	61	0.0
	30	61.2	-	61	0.0
	35	61.2	-	61	0.0
	Top	61.2	-	61	0.0
KL2	1	58.6	68.2	69	0.3
	5	59.6	69.4	70	0.3
	10	59.5	69.2	70	0.3
	15	59.4	68.9	69	0.3
	20	59.4	68.5	69	0.3
	25	59.4	68.5	69	0.3
	30	59.4	68.5	69	0.3
	35	59.4	68.5	69	0.3
	Top	59.4	68.5	69	0.3
KL3	1	62.2	69.7	70	0.6
	5	63.3	70.2	71	0.8
	10	63.2	69.7	71	0.9
	15	63.2	69.2	70	0.9
	20	63.2	68.6	70	0.9
	25	64.7	68.1	70	0.4
	30	64.6	67.6	69	0.4
	35	65.0	67.1	69	0.1
	Top	64.9	67.0	69	0.1
KL4	1	60.5	67.8	69	0.7
	5	61.9	67.6	69	1.0
	10	62.0	66.9	68	1.1
	15	62.0	66.3	68	1.2
	20	62.2	65.8	67	1.1
	25	62.4	65.4	67	1.0
	30	63.8	64.9	67	0.4
	35	63.7	64.5	67	0.3
	Top	63.6	64.4	67	0.3
KL5	1	59.7	-	60	0.0
	5	61.6	-	62	0.2
	10	62.4	-	62	0.2
	15	63.0	-	63	0.1
	20	63.2	-	63	0.1
	25	63.1	-	63	0.1
	30	62.9	-	63	0.1
	35	62.7	-	63	0.1
	Top	62.8	-	63	0.0
KL6	1	61.7	68.4	69	1.3
	5	63.1	69.5	70	1.5
	10	63.6	69.0	70	1.4
	15	63.8	68.6	70	1.3
	20	65.8	68.1	70	0.5
	25	66.5	67.7	70	0.0
	30	66.1	67.3	70	0.0
	35	65.6	66.9	69	0.0
	Top	65.5	66.8	69	0.0
KL7	1	60.4	-	60	8.3
	5	66.5	-	66	6.3
	10	67.4	-	67	5.0
	15	70.6	-	71	1.3
	20	71.0	-	71	0.3
	25	70.7	-	71	0.0
	30	70.1	-	70	0.1
	35	69.7	-	70	0.0
	Top	69.6	-	70	0.0
KL8	1	61.4	-	61	4.5
	5	65.8	-	66	4.4
	10	67.2	-	67	3.6
	15	67.6	-	68	3.1
	20	68.3	-	68	2.1
	25	68.9	-	69	1.2
	30	69.4	-	69	0.3
	35	69.1	-	69	0.2
	Top	69.0	-	69	0.3
CM1	1	63.3	68.1	69	1.3
	5	65.1	70.8	72	0.9
	10	65.0	70.3	71	0.9
	Top	64.9	69.9	71	0.9
CM2	1	63.4	66.3	68	6.0
	5	68.0	67.1	71	4.7
	10	69.2	66.3	71	3.6
	15	72.3	65.7	73	0.7
	20	72.4	65.1	73	0.0
	25	71.6	64.5	72	0.0

Do-nothing Scenario				
NSR	Floor	Facade Noise Level L_{10}(1-hr)dB(A)		
		New road	Exist road	Overall
CM2	30	71	64	72
	35	70.4	63.5	71
	Top	70.1	63.3	71

Po Shun Road: 5m Plain Barrier					
NSR	Floor	Facade Noise Level L_{10}(1-hr)dB(A)			
		New road	Exist road	Overall	Reduction
CM2	30	71.0	64.0	72	0.0
	35	70.4	63.5	71	0.0
	Top	70.1	63.3	71	0.0

Do-nothing Scenario				
NSR	Floor	Facade Noise Level L_{10}(1-hr)dB(A)		
		New road	Exist road	Overall
CM3	1	67.1	-	67
	5	69.6	-	70
	10	69.2	-	69
	15	68.8	-	69
	20	68.2	-	68
	25	67.7	-	68
	30	67.1	-	67
	35	66.6	-	67
	Top	66.4	-	66
CM4	1	71.3	58.8	72
	5	75.4	61.9	76
	10	74.7	61.7	75
	15	73.9	61.4	74
	20	73.1	61.1	73
	25	72.4	60.7	73
	30	71.7	60.4	72
	35	71.2	60.1	72
	Top	70.9	59.9	71
CM5	1	64.9	-	65
	5	70.3	-	70
	10	70.4	-	70
	15	70.1	-	70
	20	69.6	-	70
	25	69.1	-	69
	30	68.6	-	69
	35	68.2	-	68
	Top	68.2	-	68
CM6	1	64	-	64
	5	69.5	-	70
	10	70.5	-	71
	15	70.4	-	70
	20	70.1	-	70
	25	69.8	-	70
	30	69.5	-	70
	35	69.1	-	69
	Top	69.1	-	69
CM7	1	61.4	-	61
	5	65.9	-	66
	10	67.8	-	68
	15	67.9	-	68
	20	67.7	-	68
	25	67.4	-	67
	30	67.2	-	67
	35	67	-	67
	Top	67	-	67
CM8	1	60.8	-	61
	5	64.7	-	65
	10	67.1	-	67
	15	67.5	-	68
	20	67.3	-	67
	25	67.2	-	67
	30	66.9	-	67
	35	66.8	-	67
	Top	66.8	-	67
CM9	1	59	-	59
	5	61	-	61
	10	64.3	-	64
	15	65.3	-	65
	20	65.6	-	66
	25	65.5	-	66
	30	65.4	-	65
	35	65.3	-	65
	Top	65.3	-	65

Po Shun Road: 5m Plain Barrier					
NSR	Floor	Facade Noise Level L_{10}(1-hr)dB(A)			
		New road	Exist road	Overall	Reduction
CM3	1	53.3	-	53	13.8
	5	58.8	-	59	10.8
	10	63.2	-	63	6.0
	15	63.9	-	64	4.9
	20	67.1	-	67	1.1
	25	67.6	-	68	0.1
	30	67.1	-	67	0.0
	35	66.6	-	67	0.0
	Top	66.4	-	66	0.0
CM4	1	62.2	49.4	62	9.1
	5	70.8	61.2	71	4.3
	10	72.9	61.7	73	1.7
	15	73.8	61.4	74	0.1
	20	73.1	61.1	73	0.0
	25	72.4	60.7	73	0.0
	30	71.7	60.4	72	0.0
	35	71.1	60.1	71	0.1
	Top	70.8	59.9	71	0.1
CM5	1	60.8	-	61	4.1
	5	66.7	-	67	3.6
	10	69.4	-	69	1.0
	15	69.5	-	70	0.6
	20	69.5	-	70	0.1
	25	69.1	-	69	0.0
	30	68.6	-	69	0.0
	35	68.2	-	68	0.0
	Top	68.2	-	68	0.0
CM6	1	61.8	-	62	2.2
	5	66.7	-	67	2.8
	10	68.6	-	69	1.9
	15	69.3	-	69	1.1
	20	69.5	-	70	0.6
	25	69.3	-	69	0.5
	30	69.4	-	69	0.1
	35	69.1	-	69	0.0
	Top	69.1	-	69	0.0
CM7	1	61.1	-	61	0.3
	5	65.6	-	66	0.3
	10	67.6	-	68	0.2
	15	67.9	-	68	0.0
	20	67.7	-	68	0.0
	25	67.4	-	67	0.0
	30	67.2	-	67	0.0
	35	67.0	-	67	0.0
	Top	67.0	-	67	0.0
CM8	1	60.4	-	60	0.4
	5	63.8	-	64	0.9
	10	66.5	-	67	0.6
	15	67.0	-	67	0.5
	20	67.1	-	67	0.2
	25	67.1	-	67	0.1
	30	66.8	-	67	0.1
	35	66.6	-	67	0.2
	Top	66.6	-	67	0.2
CM9	1	58.7	-	59	0.3
	5	61.0	-	61	0.0
	10	63.8	-	64	0.5
	15	64.8	-	65	0.5
	20	65.2	-	65	0.4
	25	65.4	-	65	0.1
	30	65.3	-	65	0.1
	35	65.2	-	65	0.1
	Top	65.2	-	65	0.1

Barriers Examined for ON1-ON9

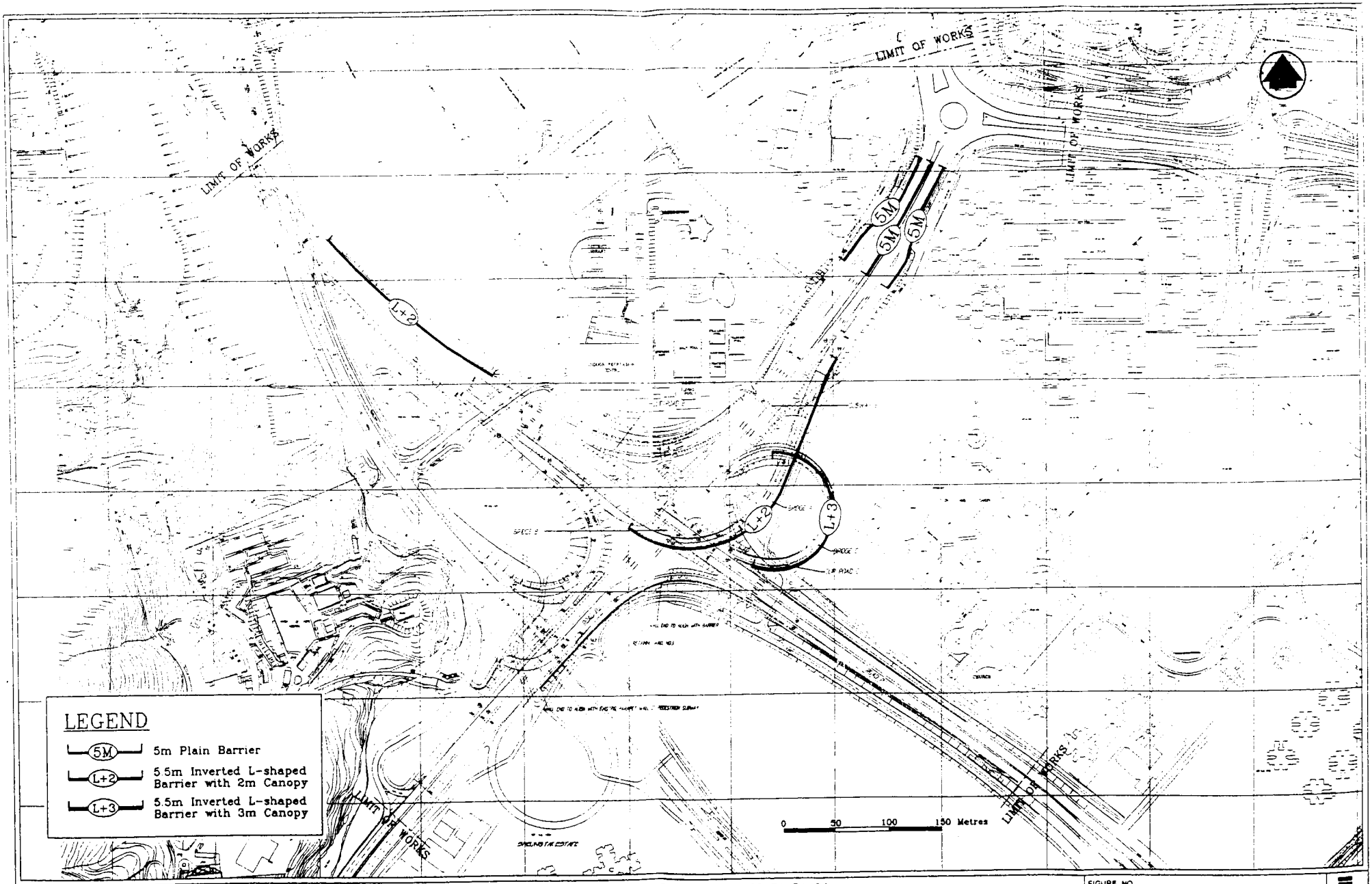
Do-nothing Scenario				
NSR	Floor	Facade Noise Level L_{10}(1-hr)dB(A)		
		New road	Exist road	Overall
ON1	1	58.4	0	58
	5	60.5	0	61
	10	64.6	0	65
	15	64.8	0	65
	20	64.9	0	65
	25	64.9	0	65
	30	64.7	0	65
	35	64.6	0	65
	Top	64.5	0	65
ON2	1	65.4	49.9	66
	5	68.4	52.4	69
	10	70.5	58.5	71
	15	70.9	58.5	71
	20	71.3	58.5	72
	25	71.2	59.4	71
	30	71.1	59.3	71
	35	71.1	59.1	71
	Top	71	59	71
ON3	1	63.8	48.6	64
	5	66.4	51.6	67
	10	68.7	57.3	69
	15	69.2	57.7	69
	20	69.9	58.1	70
	25	69.8	58.4	70
	30	69.7	58.3	70
	35	69.7	58.2	70
	Top	69.6	58.2	70
ON4	1	60.9	0	61
	5	63.5	0	64
	10	66.3	0	66
	15	66.8	0	67
	20	66.8	0	67
	25	66.6	0	67
	30	66.4	0	66
	35	66.2	0	66
	Top	66.1	0	66
ON5	1	66.6	52.7	67
	5	70.4	56	71
	10	72	60.7	72
	15	72.6	61.9	73
	20	72.6	61.8	73
	25	72.6	61.6	73
	30	72.3	61.5	73
	35	72.2	61.3	73
	Top	72	61.2	72
ON6	1	66.2	55.6	67
	5	70.2	58.3	70
	10	71.5	62.3	72
	15	72.3	65.5	73
	20	72.2	65.4	73
	25	72.2	65.3	73
	30	71.9	65.1	73
	35	71.8	65	73
	Top	71.6	64.9	72
ON7	1	65.6	55.6	66
	5	70	60.5	70
	10	71.4	62.4	72
	15	71.9	64.9	73
	20	72.1	64.7	73
	25	71.9	64.6	73
	30	71.6	64.4	72
	35	71.5	64.3	72
	Top	71.4	64.3	72
ON8	1	64.4	57.2	65
	5	68.5	61.5	69
	10	70.1	64.4	71
	15	70.7	67.7	72
	20	70.7	67.6	72
	25	70.6	67.5	72
	30	70.4	67.4	72
	35	70.2	67.4	72
	Top	70.2	67.5	72
ON9	1	58.1	55.4	60
	5	61.5	59.1	63
	10	62.7	61.8	65
	15	63.8	66.2	68
	20	64.1	66.4	68
	25	64.7	66.3	69
	30	64.3	66.1	68
	35	64.3	66	68
	Top	64.3	66	68

Flyover A: 5.5+2m Inverted -L Barrier					
NSR	Floor	Facade Noise Level L_{10}(1-hr)dB(A)			
		New road	Exist road	Overall	Reduction
ON1	1	57.4	0.0	57	1.0
	5	59.7	0.0	60	0.8
	10	63.0	0.0	63	1.6
	15	63.2	0.0	63	1.6
	20	63.6	0.0	64	1.3
	25	63.9	0.0	64	1.0
	30	63.8	0.0	64	0.9
	35	63.7	0.0	64	0.9
	Top	63.6	0.0	64	0.9
ON2	1	64.6	49.9	65	0.8
	5	67.4	52.4	68	1.0
	10	68.6	58.4	69	1.8
	15	69.5	58.1	70	0.0
	20	70.4	58.2	71	0.9
	25	70.3	59.2	71	0.8
	30	70.3	59.2	71	0.8
	35	70.4	59.1	71	0.7
	Top	70.3	59.0	71	0.7
ON3	1	62.9	48.6	63	0.9
	5	65.4	51.6	66	1.0
	10	65.9	57.3	66	2.5
	15	67.1	57.6	68	1.9
	20	68.6	58.1	69	1.2
	25	68.7	58.4	69	1.1
	30	68.7	58.3	69	1.0
	35	68.7	58.2	69	0.9
	Top	68.7	58.2	69	0.8
ON4	1	59.6	0.0	60	1.3
	5	62.3	0.0	62	1.2
	10	62.8	0.0	63	3.5
	15	64.0	0.0	64	2.8
	20	64.9	0.0	65	1.9
	25	64.8	0.0	65	1.8
	30	64.5	0.0	65	1.9
	35	64.4	0.0	64	1.8
	Top	64.3	0.0	64	1.8
ON5	1	65.9	52.7	66	0.7
	5	69.8	56.0	70	0.5
	10	70.3	60.7	71	1.6
	15	71.2	61.9	72	1.3
	20	71.6	61.8	72	0.9
	25	71.7	61.6	72	0.8
	30	71.6	61.5	72	0.7
	35	71.4	61.3	72	0.8
	Top	71.3	61.2	72	0.7
ON6	1	65.4	55.6	66	0.7
	5	69.6	58.3	70	0.5
	10	69.9	62.3	71	1.4
	15	71.0	65.5	72	1.1
	20	71.3	65.4	72	0.7
	25	71.4	65.3	72	0.7
	30	71.1	65.1	72	0.7
	35	71.1	65.0	72	0.6
	Top	70.9	64.9	72	0.6
ON7	1	64.9	55.6	65	0.6
	5	69.6	60.5	70	0.4
	10	69.7	62.4	70	1.5
	15	70.6	64.9	72	1.1
	20	71.0	64.7	72	0.9
	25	71.1	64.6	72	0.7
	30	70.9	64.4	72	0.6
	35	70.8	64.3	72	0.6
	Top	70.7	64.3	72	0.6
ON8	1	64.0	57.2	65	0.3
	5	68.3	61.5	69	0.2
	10	68.9	64.4	70	0.9
	15	69.9	67.7	72	0.5
	20	69.9	67.6	72	0.5
	25	70.0	67.5	72	0.4
	30	69.7	67.4	72	0.4
	35	69.6	67.4	72	0.4
	Top	69.7	67.5	72	0.3
ON9	1	58.0	55.4	60	0.0
	5	61.4	59.1	63	0.1
	10	62.5	61.8	65	0.1
	15	63.6	66.2	68	0.1
	20	64.0	66.4	68	0.0
	25	64.6	66.3	69	0.0
	30	64.3	66.1	68	0.0
	35	64.1	66.0	68	0.1
	Top	64.1	66.0	68	0.1

Flyover C: 5.5+3m Inverted -L Barrier					
NSR	Floor	Facade Noise Level L_{10}(1-hr)dB(A)			
		New road	Exist road	Overall	Reduction
ON1	1	58.4	0.0	58	0.0
	5	60.5	0.0	61	0.0
	10	64.6	0.0	65	0.0
	15	64.8	0.0	65	0.0
	20	64.9	0.0	65	0.0
	25	64.9	0.0	65	0.0
	30	64.7	0.0	65	0.0
	35	64.6	0.0	65	0.0
	Top	64.5	0.0	65	0.0
ON2	1	64.2	49.8	64	1.1
	5	66.9	52.4	67	1.4
	10	69.3	58.5	70	1.1
	15	69.9	58.5	70	0.9
	20	70.5	58.5	71	0.7
	25	70.7	59.4	71	0.5
	30	70.7	59.3	71	0.4
	35	70.7	59.1	71	0.4
	Top	70.6	59.0	71	0.4
ON3	1	62.3	48.6	63	1.4
	5	64.0	51.6	64	2.3
	10	67.1	57.3	68	1.4
	15	68.0	57.7	68	1.1
	20	69.0	58.1	69	0.8
	25	69.1	58.4	69	0.6
	30	69.1	58.3	69	0.5
	35	69.1	58.2	69	0.5
	Top	69.1	58.2	69	0.5
ON4	1	60.9	0.0	61	0.0
	5	63.5	0.0	64	0.0
	10	66.3	0.0	66	0.0
	15	66.8	0.0	67	0.0
	20	66.8	0.0	67	0.0
	25	66.6	0.0	67	0.0
	30	66.4	0.0	66	0.0
	35	66.2	0.0	66	0.0
	Top	66.1	0.0	66	0.0
ON5	1	64.3	52.7	65	2.2
	5	67.2	56.0	68	3.0
	10	70.0	60.7	71	1.8
	15	71.4	61.9	72	1.1
	20	71.7	61.8	72	0.8
	25	71.8	61.6	72	0.8
	30	71.7	61.5	72	0.6
	35	71.6	61.3	72	0.5
	Top	71.5	61.2	72	0.5
ON6	1	63.3	55.6	64	2.6
	5	66.5	58.3	67	3.3
	10	69.1	62.3	70	2.0
	15	70.7	65.5	72	1.3
	20	71.1	65.4	72	0.9
	25	71.3	65.3	72	0.7
	30	71.1	65.1	72	0.6
	35	71.1	65.0	72	0.6
	Top	71.0	64.9	72	0.5
ON7	1	63.0	55.6	64	2.3
	5	66.5	60.5	67	3.0
	10	69.1	62.4	70	2.0
	15	70.4	64.9	71	1.2
	20	71.0	64.7	72	0.9
	25	71.1	64.6	72	0.7
	30	70.9	64.4	72	0.6
	35	70.8	64.3	72	0.6
	Top	70.7	64.3	72	0.5
ON8	1	62.0	57.2	63	1.9
	5	65.1	61.5	67	2.6
	10	67.8	64.4	69	1.7
	15	69.1	67.7	71	1.0
	20	69.6	67.6	72	0.7
	25	69.7	67.5	72	0.6
	30	69.5	67.4	72	0.5
	35	69.4	67.4	72	0.5
	Top	69.6	67.5	72	0.4
ON9	1	56.3	55.4	59	1.1
	5	59.4	59.1	62	1.2
	10	60.8	61.8	64	0.9
	15	62.7	66.2	68	0.4
	20	63.3	66.4	68	0.3
	25	64.1	66.3	68	0.2
	30	64.0	66.1	68	0.1
	35	63.9	66.0	68	0.2
	Top	64.0	66.0	68	0.1

Po Shun Road: Full Enclosure					
NSR	Floor	Facade Noise Level L_{10}(1-hr)dB(A)			
		New road	Exist road	Overall	Reduction
ON1	1	56.4	0.0	56	2.0
	5	58.8	0.0	59	1.7
	10	63.0	0.0	63	1.6
	15	63.1	0.0	63	1.7
	20	63.4	0.0	63	1.5
	25	63.3	0.0	63	1.6
	30	63.2	0.0	63	1.5
	35	63.0	0.0	63	1.6
	Top	62.9	0.0	63	1.6
ON2	1	64.5	47.5	65	0.9
	5	67.5	50.1	68	0.9
	10	69.7	56.2	70	0.9
	15	70.1	56.3	70	0.9
	20	70.4	56.2	71	1.0
	25	70.3	57.1	71	1.0
	30	70.2	57.0	70	1.0
	35	70.1	56.8	70	1.1
	Top	70.0	56.7	70	1.1
ON3	1	63.5	48.0	64	0.3
	5	66.1	50.5	66	0.3
	10	68.4	55.7	69	0.4
	15	68.8	56.2	69	0.5
	20	69.3	56.9	70	0.6
	25	69.2	57.3	69	0.6
	30	69.2	57.2	69	0.6
	35	69.0	57.2	69	0.7
	Top	69.0	57.2	69	0.6
ON4	1	59.7	0.0	60	1.2
	5	62.1	0.0	62	1.4
	10	65.3	0.0	65	1.0
	15	65.9	0.0	66	0.9
	20	65.8	0.0	66	1.0
	25	65.7	0.0	66	0.9
	30	65.5	0.0	66	0.9
	35	65.3	0.0	65	0.9
	Top	65.2	0.0	65	0.9
ON5	1	66.0	50.3	66	0.7
	5	69.9	53.7	70	0.6
	10	71.4	58.4	72	0.7
	15	71.8	59.6	72	0.9
	20	71.9	59.4	72	0.8
	25	71.8	59.3	72	0.9
	30	71.5	59.2	72	0.9
	35	71.4	59.0	72	0.9
	Top	71.2	58.8	71	0.9
ON6	1	65.8	54.0	66	0.5
	5	69.9	56.5	70	0.4
	10	71.2	60.4	72	0.5
	15	71.7	64.1	72	0.7
	20	71.7	64.0	72	0.7
	25	71.6	63.9	72	0.7
	30	71.2	63.8	72	0.8
	35	71.1	63.7	72	0.8
	Top	70.9	63.6	72	0.8
ON7	1	65.1	53.6	65	0.6
	5	69.5	58.3	70	0.6
	10	71.0	60.3	71	0.6
	15	71.3	63.0	72	0.8
	20	71.4	62.9	72	0.9
	25	71.3	62.7	72	0.8
	30	71.0	62.6	72	0.8
	35	70.8	62.5	71	0.8
	Top	70.7	62.5	71	0.8
ON8	1	63.7	56.0	64	0.7
	5	67.8	59.8	68	0.9
	10	69.4	63.2	70	0.8
	15	69.9	66.9	72	0.8
	20	69.8	66.8	72	0.8
	25	69.8	66.6	71	0.8
	30	69.6	66.6	71	0.8
	35	69.4	66.6	71	0.8
	Top	69.4	66.8	71	0.8
ON9	1	56.9	54.4	59	1.1
	5	60.2	57.7	62	1.3
	10	61.7	60.5	64	1.1
	15	62.7	65.5	67	0.8
	20	63.2	65.7	68	0.8
	25	63.6	65.6	68	0.9
	30	63.2	65.5	68	0.8
	35	63.2	65.4	67	0.8
	Top	63.1	65.4	67	0.8

Combined Mitigation					
NSR	Floor	Facade Noise Level L_{10}(1-hr)dB(A)			
		New road	Exist road	Overall	Reduction
ON1	1	54.8	0.0	55	3.6
	5	57.5	0.0	58	3.0
	10	60.4	0.0	60	4.2
	15	60.4	0.0	60	4.4
	20	61.3	0.0	61	3.6
	25	61.7	0.0	62	3.2
	30	61.6	0.0	62	3.1
	35	61.5	0.0	62	3.1
	Top	61.4	0.0	61	3.1
ON2	1	61.7	47.4	62	3.7
	5	63.8	50.1	64	4.5
	10	64.7	56.0	65	5.5
	15	66.7	55.9	67	4.1
	20	68.1	55.9	68	3.2
	25	68.2	56.9	69	3.0
	30	68.3	56.9	69	2.8
	35	68.5	56.8	69	2.6
	Top	68.4	56.7	69	2.6
ON3	1	60.4	48.0	61	3.3
	5	61.3	50.5	62	4.9
	10	61.8	55.7	63	6.2
	15	64.2	56.1	65	4.7
	20	66.6	56.9	67	3.1
	25	66.8	57.2	67	2.8
	30	66.9	57.2	67	2.6
	35	67.0	57.2	67	2.6
	Top	67.1	57.2	68	2.4
ON4	1	58.0	0.0	58	2.9
	5	60.3	0.0	60	3.2
	10	60.1	0.0	60	6.2
	15	61.9	0.0	62	4.9
	20	63.3	0.0	63	3.5
	25	63.2	0.0	63	3.4
	30	63.0	0.0	63	3.4
	35	62.9	0.0	63	3.3
	Top	62.8	0.0	63	3.3
ON5	1	62.2	50.3	62	4.3
	5	64.5	53.7	65	5.7
	10	65.5	58.4	66	6.0
	15	68.1	59.5	69	4.3
	20	69.3	59.4	70	3.3
	25	69.5	59.3	70	3.0
	30	69.5	59.2	70	2.8
	35	69.5	59.0	70	2.7
	Top	69.4	58.8	70	2.5
ON6	1	61.5	54.0	62	4.4
	5	64.0	56.5	65	5.8
	10	64.6	60.4	66	6.0
	15	67.5	64.1	69	4.0
	20	68.9	64.0	70	2.9
	25	69.2	63.9	70	2.7
	30	69.1	63.8	70	2.5
	35	69.2	63.7	70	2.4
	Top	69.1	63.6	70	2.3
ON7	1	61.2	53.6	62	4.1
	5	64.3	58.2	65	5.2
	10	64.7	60.3	66	5.9
	15	67.3	63.0	69	4.0
	20	68.6	62.9	70	3.2
	25	68.9	62.7	70	2.8
	30	69.0	62.6	70	2.5
	35	69.0	62.5	70	2.4
	Top	69.0	62.5	70	2.3
ON8	1	60.4	56.0	62	3.4
	5	63.1	59.8	65	4.5
	10	64.2	63.2	67	4.4
	15	66.5	66.9	70	2.7
	20	67.3	66.8	70	2.4
	25	67.7	66.6	70	2.1
	30	67.6	66.6	70	2.0
	35	67.7	66.6	70	1.8
	Top	67.8	66.8	70	1.7
ON9	1	54.7	54.4	58	2.4
	5	57.5	57.7	61	2.9
	10	59.0	60.5	63	2.5
	15	61.1	65.5	67	1.3
	20	61.9	65.7	67	1.2
	25	62.7	65.6	67	1.2
	30	62.7	65.5	67	1.0
	35	62.6	65.4	67	1.0
	Top	62.5	65.4	67	1.0



TSEUNG KWAN O DEVELOPMENT CONTRACT F GRADE SEPARATED INTERCHANGE T1/P1/P2

ALTERNATIVE BARRIERS EXAMINED

FIGURE NO	
APPENDIX J	
SCALE	DATE
AS SHOWN	APRIL 1999

Maunsell

Appendix K Sample Calculation of Composite Emission Factor at Portal of Full Enclosure

A sample calculation of composite emission factor of NOx for the first 50m (segment 7) of the portal along Po Shun Road is presented below.

The following is traffic composition at segment 7:

P/C -p	Taxi	LGV-dII	HGV	Bus	Total
530	440	224	223	223	1640

- Emission factors (E.F.) for segment 7 = Σ Ei * Ni / Σ Ni
  where Ei is the fleet average emission factor of NOx in the year 2006 and Ni is the number of particular type of vehicles

  $$\text{E.F. for NOx} = \frac{(1.319*530+0.779*440+1.802*224+7.352*223+10.027*223)}{(530 + 440 + 224 + 223 + 223)}$$

  = 3.25 gm/veh.- km

- Mass of pollutant in segment 7 = E.F. of the segment * traffic flow * the length of the segment (in km)

  Mass of NOx in the segment = 3.25 * 1640 * 0.05 = 266.50 gm

- Mass of pollutant in full enclosure = E.F. of the segment * traffic flow * the length of the full enclosure

  Mass of NOx in the full enclosure = 3.25 * 1640 * 0.12 = 639.35 gm

- Pollutant is assumed to emit completely out of the deckover and each 'portal' emits 1/2 of the total mass. 2/3 of the total mass is assumed to accumulate in the first 50 metres from the 'portal'.

  Mass of pollutant emitted from full enclosure to segment 7 = 2/3 * 1/2 * total mass of pollutant in the full enclosure = 2/3 * 1/2 * 639.35 = 213.12 gm

- Total mass of pollutant in segment 7 = original mass generated + full enclosure contribution

  Total mass of NOx in segment = 266.50 + 213.12 = 479.62 gm

- Emission Factor input in Caline4
  Total mass of pollutant in segment 7 / traffic flow of the segment/ length of the segment * conversion from kilometre to mile = 479.62 / 1640 / 0.05 * 1.6093 = 9.41 gm/veh-mil

Appendix L Sample Calculation of NO_2 Concentration inside a Full Enclosure (Making Use of the Theory Developed by Ohashi and Koso)

1. Emission data

Weighted fleet average emission factor = 3.25 g/km-veh
Traffic flow at Po Shun Road with full enclosure = 1640 veh/hr.
Assume 20% conversion of NOx to NO_2, the emission factor per unit length is given by:
w = 0.2 x 3.25 x 1640 / 1000 / 3600 = 0.00030 g/m-s

2. Vehicle data

Nominal dimensions of vehicles are given in Transport Planning and Design Manual, Vol.2 as:

Cars and Taxi:	1.7m (W) x 1.5m (H) x 4.6m (L)
LGV:	2.1m (W) x 1.6m (H) x 5.2m (L)
HGV:	2.5m (W) x 4.6m (H) x 16m (L)
Bus:	2.5m (W) x 4.6m (H) x 12m (L)

Based on these figures, nominal cross-sectional area of vehicles is given by:
[(530+439)x1.7x1.5+223x2.1x1.6+223x2.5x4.6x2] /1640 = 5.09 m^2

Equivalent cross-sectional area of vehicles for each direction, assuming two lanes per direction is given by:

$A_V = 2 \times 5.09 = 10.18\ m^2$

Equivalent diameter of vehicle is given by:

$d_V = (4 \times A_V / \pi)^{0.5} = 3.60$ m

For normal traffic condition, traffic density per two lanes is given by:
N = traffic flow per second = 1640/3600 = 0.46 = 2v / l

Head to head distance of vehicles on a lane is given by:
l = 2v / N = 2x25x1000 / 3600 / 0.46 = 30.49 m
where v is the average vehicle speed in unit of m/s

3. Tunnel parameters

Tunnel length L = 120 m

Tunnel size A_T = width x height = 20 x 5.5 = 110 m^2

Equivalent diameter of the tunnel is given by:
$d_T = (4xA_T/\pi)^{0.5} = 11.83$ m

Effective length of the tunnel is given by:
$L_e = L + 6d_T = 190.98$ m

4. Diffusion parameters

Reynolds number $Re = v \times d_V / \sigma = 25 \times 1000 / 3600 \times 3.60 / 15.6 \times 10^{-6} = 1602564$
where σ is kinetic viscosity at 20°C

According to Fig.16 (Ohashi and Koso)
Since $1 / d_T = 30.49 / 11.83 = 2.58$
$D / (N \times d_T^2 \times Re^{0.13}) = 0.30$

Longitudinal diffusion coefficient is given by:
$D = 0.30 \times 0.46 \times 11.83^2 \times (1602564)^{0.13} = 123.73\ m^2s^{-1}$

5. Maximum concentration of NO_2

$C_{max} = w \times L_e^2 / (8 \times D \times A_T)$
$= 0.00030 \times 190.98^2 / (8 \times 123.73 \times 110) = 100\ \mu g/m^3$

The calculation assumed the boundary concentration of NO_2 is zero.

6. NO_2 concentration at boundary of full enclosure

Four assessment points at the boundary of the full enclosure with 1.5m above Po Shun Road are chosen. The boundary concentrations are predicted to be 244 $\mu g/m^3$ using CALINE4 model.

7. NO_2 concentration inside a full enclosure

$100 + 244 = 344\ \mu g/m^3$ (NO_2 concentration calculated by Ohashi and Koso's Theory + Maximum NO_2 concentration at boundary of the full enclosure)

Assuming uniform concentration inside the full enclosure.

Eligibility Assessment for Indirect Technical Remedies

NSR	Storey Assessed	Criterion L_{10}dB(A)	Noise Level L_{10}dB(A)	New Road	Existing Road	Overall	Criteria 1 (5) > (1)	Criteria 2 (5)-(2)≥1.0	Criteria 3 (5)-(4)≥1.0	Mitigation (Yes / No)
(Column)		(1)	(2)	(3)	(4)	(5)				
HS1	1	70	77	0.0	78.4	78.4	Yes	Yes	No	No
	5		77.1	0.0	78.5	78.5	Yes	Yes	No	No
	10		77.1	0.0	78.5	78.5	Yes	Yes	No	No
	15		76.9	0.0	78.3	78.3	Yes	Yes	No	No
	20		76.4	0.0	77.7	77.7	Yes	Yes	No	No
	25		75.9	0.0	77.2	77.2	Yes	Yes	No	No
	30		75.5	0.0	76.8	76.8	Yes	Yes	No	No
	35		75.1	0.0	76.4	76.4	Yes	Yes	No	No
	Top		75	0.0	76.3	76.3	Yes	Yes	No	No
HS2	1	70	80.7	0.0	82.0	82.0	Yes	Yes	No	No
	5		80.2	0.0	81.6	81.6	Yes	Yes	No	No
	10		79.7	0.0	81.0	81.0	Yes	Yes	No	No
	15		79.1	0.0	80.4	80.4	Yes	Yes	No	No
	20		78.4	0.0	79.7	79.7	Yes	Yes	No	No
	25		77.8	0.0	79.1	79.1	Yes	Yes	No	No
	30		77.3	0.0	78.6	78.6	Yes	Yes	No	No
	35		76.9	0.0	78.1	78.1	Yes	Yes	No	No
	Top		76.8	0.0	78.1	78.1	Yes	Yes	No	No
HS3	1	70	77.2	0.0	78.5	78.5	Yes	Yes	No	No
	5		76.9	0.0	78.1	78.1	Yes	Yes	No	No
	10		76.8	0.0	78.0	78.0	Yes	Yes	No	No
	15		76.6	0.0	77.8	77.8	Yes	Yes	No	No
	20		76	0.0	77.2	77.2	Yes	Yes	No	No
	25		75.4	0.0	76.6	76.6	Yes	Yes	No	No
	30		74.9	0.0	76.1	76.1	Yes	Yes	No	No
	35		74.5	0.0	75.7	75.7	Yes	Yes	No	No
	Top		74.4	0.0	75.6	75.6	Yes	Yes	No	No
HS4	1	70	83.3	0.0	84.6	84.6	Yes	Yes	No	No
	5		81.8	0.0	83.1	83.1	Yes	Yes	No	No
	10		80.9	0.0	82.1	82.1	Yes	Yes	No	No
	15		79.8	0.0	81.0	81.0	Yes	Yes	No	No
	20		79.0	0.0	80.2	80.2	Yes	Yes	No	No
	25		78.3	0.0	79.5	79.5	Yes	Yes	No	No
	30		77.8	0.0	79.0	79.0	Yes	Yes	No	No
	35		77.3	0.0	78.5	78.5	Yes	Yes	No	No
	Top		77.2	0.0	78.4	78.4	Yes	Yes	No	No
VH1	1	70	75.6	0.0	76.3	76.3	Yes	No	No	No
	5		75.4	0.0	76.2	76.2	Yes	No	No	No
	10		75.4	0.0	76.2	76.2	Yes	No	No	No
	15		75.4	0.0	76.4	76.4	Yes	Yes	No	No
	Top		75.2	0.0	76.3	76.3	Yes	Yes	No	No
VH2	1	70	75.7	0.0	76.4	76.4	Yes	No	No	No
	5		75.3	0.0	76.2	76.2	Yes	No	No	No
	Top		75	0.0	75.9	75.9	Yes	No	No	No
VH3	1	70	76.2	39.9	77.0	77.0	Yes	No	No	No
	5		75.6	40.3	76.5	76.5	Yes	No	No	No
	10		75	40.8	76.0	76.0	Yes	Yes	No	No
	15		74.7	41.6	75.7	75.7	Yes	Yes	No	No
	20		74.9	44.9	75.9	75.9	Yes	Yes	No	No
	25		74.6	44.9	75.7	75.7	Yes	Yes	No	No
	30		74.4	44.8	75.6	75.6	Yes	Yes	No	No
	Top		74.5	44.7	75.6	75.6	Yes	Yes	No	No
VH4	20	70	69.7	0.0	70.5	70.5	Yes	No	No	No
	25		71.5	0.0	72.2	72.2	Yes	No	No	No
	30		71.4	0.0	72.3	72.3	Yes	No	No	No
	Top		71.3	0.0	72.2	72.2	Yes	No	No	No
MC1	1	70	73.6	51.4	73.5	73.5	Yes	No	No	No
	5		75.4	52.8	75.7	75.7	Yes	No	No	No
	10		76.0	53.8	76.5	76.5	Yes	No	No	No
	15		75.9	56.6	76.6	76.6	Yes	No	No	No
	20		75.8	56.7	76.4	76.4	Yes	No	No	No
	25		75.6	57.0	76.3	76.4	Yes	No	No	No
	30		75.6	56.9	76.3	76.3	Yes	No	No	No
	35		75.4	56.9	76.1	76.2	Yes	No	No	No
	Top		75.1	56.8	75.9	76.0	Yes	No	No	No
MC2	5	70	71.8	51.6	71.4	71.4	Yes	No	No	No
	10		72.2	53.9	72.0	72.1	Yes	No	No	No
	15		72.4	56.9	72.4	72.5	Yes	No	No	No
	20		72.2	57.0	72.3	72.4	Yes	No	No	No
	25		72.1	57.3	72.2	72.3	Yes	No	No	No
	30		71.8	57.2	71.9	72.0	Yes	No	No	No
	35		71.6	57.2	71.9	71.9	Yes	No	No	No
	Top		71.5	57.1	71.6	71.8	Yes	No	No	No
MC3	5	70	72.0	55.8	71.8	71.8	Yes	No	No	No
	10		72.8	55.8	73.0	73.1	Yes	No	No	No
	15		73.1	56.9	73.4	73.5	Yes	No	No	No
	20		72.9	57.2	73.3	73.4	Yes	No	No	No
	25		72.9	57.5	73.2	73.3	Yes	No	No	No
	30		72.9	57.5	73.3	73.4	Yes	No	No	No
	35		72.7	57.4	73.1	73.2	Yes	No	No	No
	Top		72.6	57.3	73.1	73.2	Yes	No	No	No
MC4	10	70	70.8	52.7	70.7	70.8	Yes	No	No	No
	15		71.0	54.0	70.8	70.9	Yes	No	No	No
MC4	20	70	71.1	56.9	71.2	71.4	Yes	No	No	No

NSR	Storey Assessed	Criterion L_{10}dB(A)	Noise Level L_{10}dB(A)	New Road	Existing Road	Overall	Criteria 1 (5) > (1)	Criteria 2 (5)-(2)≥1.0	Criteria 3 (5)-(4)≥1.0	Mitigation (Yes / No)
(Column)		(1)	(2)	(3)	(4)	(5)				
	25		70.9	57.0	71.0	71.2	Yes	No	No	No
	30		70.8	57.0	70.9	71.1	Yes	No	No	No
	35		70.7	56.9	70.9	71.1	Yes	No	No	No
	Top		70.5	56.9	70.6	70.8	Yes	No	No	No

NSR	Storey Assessed	Criterion L_{10}dB(A)	Noise Level L_{10}dB(A)	New Road	Existing Road	Overall	Criteria 1 (5) > (1)	Criteria 2 (5)-(2)≥1.0	Criteria 3 (5)-(4)≥1.0	Mitigation (Yes / No)
(Column)		(1)	(2)	(3)	(4)	(5)				
R1	10	70	70.6	0.0	70.8	70.8	Yes	No	No	No
	15		70.7	0.0	71.2	71.2	Yes	No	No	No
	20		71.0	0.0	71.7	71.7	Yes	No	No	No
	25		71.1	0.0	71.8	71.8	Yes	No	No	No
	30		71.1	0.0	71.9	71.9	Yes	No	No	No
	35		71.1	0.0	71.9	71.9	Yes	No	No	No
	Top		71.0	0.0	71.7	71.7	Yes	No	No	No
R2	10	70	72.5	56.8	72.5	72.6	Yes	No	No	No
	15		72.8	57.6	72.9	73.0	Yes	No	No	No
	20		72.9	59.4	73.2	73.4	Yes	No	No	No
	25		72.9	59.4	73.2	73.4	Yes	No	No	No
	30		72.9	59.4	73.3	73.5	Yes	No	No	No
	35		72.9	59.3	73.4	73.6	Yes	No	No	No
	Top		72.8	59.3	73.2	73.4	Yes	No	No	No
R3	10	70	70.8	57.5	70.3	70.5	Yes	No	No	No
	15		70.9	58.1	70.6	70.8	Yes	No	No	No
	20		71.1	59.8	71.0	71.3	Yes	No	No	No
	25		71.0	59.9	71.0	71.3	Yes	No	No	No
	30		70.9	59.8	70.9	71.2	Yes	No	No	No
	35		70.8	59.8	70.8	71.1	Yes	No	No	No
	Top		70.7	59.7	70.6	70.9	Yes	No	No	No
R5	10	70	71.1	57.9	70.7	70.9	Yes	No	No	No
	15		71.4	58.7	71.4	71.6	Yes	No	No	No
	20		71.4	60.3	71.4	71.7	Yes	No	No	No
	25		71.5	60.3	71.6	71.9	Yes	No	No	No
	30		71.5	60.2	71.7	72.0	Yes	No	No	No
	35		71.5	60.2	71.7	72.0	Yes	No	No	No
	Top		71.5	60.1	71.7	72.0	Yes	No	No	No
R6	15	70	70.8	58.1	70.6	70.8	Yes	No	No	No
	20		70.8	59.9	70.7	71.0	Yes	No	No	No
	25		70.8	59.9	70.8	71.1	Yes	No	No	No
	30		70.8	59.9	70.9	71.2	Yes	No	No	No
	35		70.9	59.8	70.9	71.2	Yes	No	No	No
	Top		70.8	59.8	70.9	71.2	Yes	No	No	No
KL3	5	70	71.5	62.7	70.2	70.9	Yes	No	No	No
	10		71.1	62.6	69.7	70.5	Yes	No	No	No
CM1	5	70	72.2	64.9	70.8	71.8	Yes	No	Yes	No
	10		71.8	64.7	70.3	71.4	Yes	No	Yes	No
	Top		71.5	64.5	69.9	71.0	Yes	No	Yes	No
CR3	10	70	69.3	56.0	70.6	70.7	Yes	Yes	No	No
	15		69.2	56.5	70.3	70.5	Yes	Yes	No	No
ST3	15	70	69.3	61.3	69.9	70.5	Yes	Yes	No	No
	20		69.5	62.1	69.8	70.5	Yes	Yes	No	No
ST5	5	70	70.9	57.8	70.6	70.6	Yes	No	No	No
	10		70.9	60.5	71.1	71.5	Yes	No	No	No
	15		70.5	61.7	70.7	71.2	Yes	No	No	No
	20		70.3	61.9	70.6	71.3	Yes	No	No	No
	25		70.0	62.0	70.3	70.9	Yes	No	No	No
	30		69.6	61.9	70.0	70.6	Yes	Yes	No	No
ST6	5	70	70.0	59.5	72.6	72.8	Yes	Yes	No	No
	10		71.5	61.8	72.5	72.9	Yes	Yes	No	No
	15		71.3	63.5	72.4	72.9	Yes	Yes	No	No
	20		71.1	63.7	72.1	72.7	Yes	Yes	No	No
	25		70.8	63.6	72.1	72.3	Yes	Yes	No	No
	30		70.5	63.6	71.4	72.1	Yes	Yes	No	No
	35		70.2	63.6	71.1	71.8	Yes	Yes	No	No
	Top		70.0	63.5	70.9	71.6	Yes	Yes	No	No
ST7	1	70	67.6	56.0	72.1	72.2	Yes	Yes	No	No
	5		69.6	58.0	73.5	73.6	Yes	Yes	No	No
	10		71.6	59.6	73.2	73.4	Yes	Yes	No	No
	15		71.2	61.9	72.7	73.0	Yes	Yes	No	No
	20		70.7	62.3	72.2	72.6	Yes	Yes	No	No
	25		70.4	62.2	72.0	72.2	Yes	Yes	No	No
	30		70.0	62.1	71.3	71.8	Yes	Yes	No	No
	35		69.6	62.1	71.0	71.4	Yes	Yes	No	No
	Top		69.4	62.1	70.8	71.2	Yes	Yes	No	No
ST8	5	70	66.4	55.7	71.0	71.0	Yes	Yes	No	No
	10		69.2	56.5	70.9	71.1	Yes	Yes	No	No
	15		69.1	59.0	70.7	71.0	Yes	Yes	No	No
	20		68.8	59.4	70.4	70.8	Yes	Yes	No	No
	25		68.6	59.4	70.2	70.6	Yes	Yes	No	No
ST9	1	70	66.8	54.9	72.1	72.2	Yes	Yes	No	No
	5		70.3	55.3	72.5	72.6	Yes	Yes	No	No
	10		70.1	56.9	72.0	72.1	Yes	Yes	No	No
	15		69.7	57.9	71.5	71.7	Yes	Yes	No	No
	20		69.3	58.5	71.0	71.3	Yes	Yes	No	No
	25		68.9	59.3	70.6	70.9	Yes	Yes	No	No
	30		68.5	59.5	70.1	70.5	Yes	Yes	No	No
SC1	1	65	65.5	55.7	65.1	65.6	Yes	No	No	No
	3		66.3	57.0	65.6	66.5	Yes	No	No	No
	6		68.7	59.3	66.8	67.9	Yes	No	No	No
SC2	1	65	67.2	53.6	67.4	67.6	Yes	No	No	No
	3		67.9	53.9	68.0	68.2	Yes	No	No	No
	6		69.5	55.4	68.5	69.1	Yes	No	No	No
SC6	6	65	67.5	61.0	67.4	67.7	Yes	No	Yes	No
SC11	1	65	72.6	53.4	72.0	72.3	Yes	No	No	No
	3		73.6	49.5	73.4	73.6	Yes	No	No	No

NSR	Storey Assessed	Criterion L_{10}dB(A)	Noise Level L_{10}dB(A)	New Road	Existing Road	Overall	Criteria 1 (5) > (1)	Criteria 2 (5)-(2)≥1.0	Criteria 3 (5)-(4)≥1.0	Mitigation (Yes / No)
(Column)		(1)	(2)	(3)	(4)	(5)				
CH1	6	65	74.3	43.8	74.0	74.0	Yes	No	No	No
	5		67.8	62.5	63.2	65.9	Yes	No	Yes	No
CH2	1	65	76.2	67.5	75.7	76.3	Yes	No	No	No
	3		76.3	68.1	75.7	76.4	Yes	No	No	No

NSR	Storey Assessed	Criterion L_{10}dB(A)	Noise Level L_{10}dB(A)	New Road	Existing Road	Overall	Criteria 1 (5) > (1)	Criteria 2 (5)-(2)≥1.0	Criteria 3 (5)-(4)≥1.0	**Mitigation (Yes / No)**
(Column)		(1)	(2)	(3)	(4)	(5)				
H1	1	55	71.4	58.7	70.8	71.1	Yes	No	No	**No**
	3		71.4	60.0	70.6	71.0	Yes	No	No	**No**
H2	1	55	69.3	59.4	68.12	68.7	Yes	No	No	**No**
	3		70.2	60.1	69.5	70.0	Yes	No	No	**No**
	5		70.7	60.5	70.01	70.5	Yes	No	No	**No**
H3	1	55	71.7	56.9	71.8	71.9	Yes	No	No	**No**
	3		71.7	57.1	71.7	71.8	Yes	No	No	**No**

APPENDIX N IMPACT SUMMARY

CONSTRUCTION NOISE

Construction of the proposed infrastructure works is likely, if unmitigated, to produce high noise levels exceeding 75 dB(A) Leq(30-min) at the existing NSRs. The predicted construction noise levels at the worst-affected receiver is in the range of 83-87 dB(A) at CM4. The noisiest single activity at any given receiver is expected to be the construction of retaining walls, which requires the use of an excavator and dump trucks.

The potential impacts can be mitigated through proper implementation of noise control measures, including the use of silenced equipment, suitable siting of equipment, and use of mobile noise barriers. In particular, the use of acoustic enclosures and curved/inverted-L noise barriers (located close to the noise source) are considered feasible and appropriate, especially in front of KL7 and CM4. A full enclosure has been proposed in front of King Lam Estate and Chung Ming Court. It is anticipated that use of the above measures would reduce the impacts from construction works and resulting noise levels to be within the criteria specified in the Technical Memorandum on Environmental Impact Assessment Process (EIAO-TM). It is also recommended that the construction of these barriers should be completed within 6 months after works commencement in order to screen sensitive building facades from construction noise to further reduce noise level at these receivers.

In the vicinity of the Project, Mass Transit Railway Corporation (MTRC) has a reserve alignment for the future TKO Extension, and the expected completion date is tentatively the end of 2002. Though the alignment is expected to cut through many of the same Planning Areas (i.e. Areas 17, 23, 24, 38, 40 and 41) as that of the Study Area, the sensitive facades affected by this Project are not the same as those affected by the MTRC alignment construction. In other words, the sensitive facades facing the road improvement works will predominantly be affected by the construction noise generated from the road works, and the sensitive facades facing the railway alignment will predominantly be affected by its construction. Therefore, cumulative noise impact at the NSRs is virtually negligible.

According to the *Detailed Environmental Impact Assessment Report R9T for Tseung Kwan O Extension* completed in July 1997, the use of quiet plant, mobile noise barriers and site hoarding as well as limiting the number of equipment used at one time near critical NSRs, have been recommended. Given that all of the mitigation measures as mentioned above are being properly implemented in both projects, the cumulative noise levels should still comply with the noise criteria since the affected sensitive facades by the two projects are not likely to overlap.

CONSTRUCTION DUST

Excavation, back filling and other earthworks and the haulage of materials on-site and off-site are likely to give rise to considerable construction dust impacts on the adjacent sensitive receivers. These receivers include Hong Sing Garden, Verbena Heights, On Ning Garden, Chung Ming Court, King Lam Estate, Sheung Tak Estate, and especially the outdoor sitting-out and recreational areas located in close proximity to the junction. Computer model calculations have shown that dust concentrations at the nearby existing receivers, especially the open space in Areas 24, 25, 41 and 45, are expected to exceed the relevant guideline and the Air Quality Objectives in respect to TSP. Dust suppression measures in the form of good housekeeping, frequent watering of the dusty areas, providing wheel-washing facilities at site exit(s) and covering of materials on trucks with tarpaulin sheeting, are necessary to reduce the impacts. It is anticipated that the EIAO-TM dust criteria and Air Quality Objectives can be achieved by the implementation of these dust suppression measures.

In anticipation of the construction of the MTRC TKO Extension in the vicinity of the Study Area, a comprehensive impact assessment has been carried out to quantify the amount of dust to be generated from the construction of the alignment. The cumulative impacts of this Project and MTRC alignment construction at two of the representative locations (ON2 & SC1) have been assessed. Assuming a worst-case scenario, the results shows that there would be significant exceedance at the ASRs that are close to the MTRC alignment and the roadwork (i.e. Chung Ming Court, On Ning Garden and King Lam Estate) if no dust suppression measures are applied. Dust suppression measures including the use

of water sprays, blast nets and canvas covers, wind barriers and enclosures, wheel-washing, and paved haul roads within the site, etc. were recommended in the *Tseung Kwan O Extension: Final Detailed Environmental Impact Assessment.* The previously proposed dust suppression measures in this Project together with those mitigation measures recommended in the MTRC Report, will greatly minimize the impact. The mitigated cumulative impacts at the representative locations are predicated to comply with the AQO. Overall, the cumulative impact after implementation of the above recommended dust suppression measures should be reduced to within AQO standards.

ROAD TRAFFIC NOISE

Road traffic noise is a key environmental issue during the operation phase of this Project. Computer models, using the highest traffic flows within 15 years after opening of the roads to traffic, predict that the majority of noise sensitive facades close to the T1/P1/P2 junction will be exposed to noise levels exceeding the criteria specified in EIA-TM. Due to engineering constraints, traffic sight-line and height restriction problems, barrier segments, partial enclosures as well as full enclosure have been examined for effectiveness. The following mitigation measures are considered effective and are thus recommended for implementation:

- a full enclosure of about 120m along Po Shun Road in front of King Lam Estate and Chung Ming Court;
- a 5m vertical barrier, about 265m long on Slip Road A;
- an absorptive, 5.5m high inverted L-shaped barrier, about 155m long on Slip Road C; and
- Low noise road surfacing (LNRS) on the new segment of Road P2.

The recommended noise mitigation measures are effective in reducing the new road contributions at all the NSRs to below 70 dB(A). For those NSRs with noise levels exceeding 70 dB(A), the dominant noise sources are contributed by other existing roads outside this Project. In fact the traffic noise from new roads contribute less than 1 dB(A) to the overall noise levels. Hence, indirect mitigation has also been considered at the affected NSRs. The assessment for eligibility of sound insulation shows that none of the NSRs are eligible for provision of indirect measures as either the new roads would not contribute more than 1.0 dB(A) to the overall noise levels, or the predicted overall noise level is no more than 1.0 dB(A) higher than the prevailing traffic noise level at these receivers.

The total number of dwellings where the predicted noise levels would exceed 70 dB(A) is estimated to be 2605, and the total number of classrooms where the noise levels would exceed 65 dB(A) is estimated to be 135, if no mitigation measures are provided. While the relevant noise criteria cannot fully be met, the proposed direct technical remedies on the new roads would, to some extent, minimise the noise impact at the NSRs and would reduce the total number of affected dwellings by about 835. In addition to the 835 dwellings being in full compliance with the stipulated noise criteria of 70 dB(A), a total of about 2690 dwellings and 130 classrooms are estimated to benefit from the proposed noise mitigation scheme by 1-22 dB(A) noise reduction. Table K.1 shows the number of dwellings protected and/or benefited from the proposed mitigation measures.

Table K.1 Number of Sensitive Units Benefiting from Mitigation Measures

Sensitive Development	Number of Noise Sensitive Receivers Exceeding the EIAO-TM noise criteria in 2000 and 2006			Number of Noise Sensitive Receivers Benefiting from Mitigation Measures (i.e. $\geq$ 1 dB(A) Reduction)
	Prevailing (2000)	Unmitigated (2006)	Mitigated (2006)	
Residential Dwellings	1590	2605	1770	2690
Classrooms	135	135	135	130

VEHICLE EMISSIONS

Computer model calculations using the worst traffic scenario in terms of vehicle emissions have shown that no adverse impacts on air quality will result from the use of the new roads and the proposed noise mitigation measures. As a result, mitigation measures are not considered necessary.

LANDSCAPE AND VISUAL

The proposed works are generally confined to being within areas already occupied by the existing road infrastructure or use the current slip roads at the interchange. However, there are two localised impacts to the existing landscape / townscape, namely:

- a slight adverse impact to the local residential high-rise estates of King Lam Estate, Hau Tak Estate and On Ning Garden; and
- a significant adverse impact to the planned open space between On Ning Garden and the proposed interchange.

The proposed works will cause a number of impacts to the existing visual context. They are, however, limited and localised to the following:

- parts of On Ning Garden and Hau Tak Estate;
- planned open space at Areas 45 and 59; and
- pedestrians along Road P2.

They source of the major impacts is the high level slip roads between T1 and P2 (i.e. Bridge A), together with Bridge B becoming a dominating feature in a number of views. The noise mitigation measure cause additional effects, particularly along Road P2.

As the landscape / townscape and visual are confined to areas already occupied by existing road infrastructure their impact is in effect localised. In addition to this, mitigation measures using fast growing exotic tree species on cut slopes and in Area 40 are proposed to provide quick vegetative screening of the works for potential park users and residents. Consideration of the design of hard element are also proposed to reduce the overall landscape and visual impact of the works. The residual impact is therefore considered acceptable with mitigation measures.

LAND USE

The proposed Grade Separated Interchange T1/P1/P2 falls wholly on government land and any private land or structures adjoining are unlikely to be affected by the works. Thus, it will generate no significant land use impact.

APPENDIX O

Cost of Mitigation Measures

The total estimated cost for the above recommended mitigation measures are summarized as follows:

Type of Mitigation Measure	Total Cost in 1999 (in HK$M)
Full enclosure on Road P2	48.9
5m Plain Barrier on Slip Road A	9.3
Absorptive, inverted L-shaped Barrier on Slip Road C	8.2
Low Noise Road Surfacing	0.3
Wheel-Washing facilities	1.5
Mobile barrier	1.5
Silenced equipment	1.0
Visual & Landscape	3.5
EM&A Programme	1.7
Total =	75.9