

Appendix 1

CONSTRUCTION NOISE IMPACT ASSESSMENT DETAILS

Appendix 1a: Proposed Schedule for Construction and PME Deployment.

Year	2001		2002				2003				2004
	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1
Area 1 & Area 2						G1	G1				
Area 3				G1	G1						
Area 4 & Area 5		G5-8	G5-9	G5-9		G9, G10	G9, G10	G9, G10	G10		
Area 6	G1										
Area 7	G1										
Area 8		G1									
Area 9			G2, G3	G2, G3	G10	G4					
Area 10			G3	G4	G4						
Area 11				G14	G14						
Area 12 & Area13		G13	G13								
Marker Dolphins 1						G11, G12	G11, G12	G11, G12	G11, G12		
Marker Dolphins 2						G11, G12	G11, G12	G11, G12	G11, G12		
Marker Dolphins 3						G11, G12	G11, G12	G11, G12	G11, G12		
Marker Dolphins 4						G11, G12	G11, G12	G11, G12	G11, G12		

Notes :

Work site Refers to the Work Site Shown in **Figure 3.1**

G(x) Refers to the Plant Group Described in Chapter 3

Appendix 1b: Plant Inventory for the Construction Noise Impact Assessment.

Group 1		Dredging Works								
Equipment	EPD Ref.	No	SWL/unit	Sub- SWL	EPD Ref.	SWL/unit	Sub - SWL (Quiet Plant)	SWL/unit	Barrier Correction	Sub SWL (Quiet SWL (with barrier))
Grab Dredger	CNP 063	1	112	112	CNP 063	112	112	112	0	112
Cutter Suction Dredger	CNP 070	1	103	103	CNP 070	103	103	103	0	103
Tug Boat	CNP 221	1	110	110	CNP 221	110	110	110	0	110
Derrick Barge	CNP 061	1	104	104	CNP 061	104	104	104	0	104
		Total		115			115			115
Group 2		Reclamation Works Vertical Seawall								
Equipment	EPD Ref.	No	SWL/unit	Sub- SWL	EPD Ref.	SWL/unit	Sub - SWL (Quiet Plant)	SWL/unit	Barrier Correction	Sub SWL (Quiet SWL (with barrier))
Cranes	CNP 048	1	112	112	BS5228 Table C7/105	108	108	108	-10	98
Grab Dredger	CNP 063	1	112	112	CNP 063	112	112	112	-5	107
Tug Boat	CNP 221	1	110	110	CNP 221	110	110	110	-5	105
Derrick Barge	CNP 061	1	104	104	CNP 061	104	104	104	-5	99
		Total		116			115			110
Group 3		Reclamation Works Piched Slope Seawall								
Equipment	EPD Ref.	No	SWL/unit	Sub- SWL	EPD Ref.	SWL/unit	Sub - SWL (Quiet Plant)	SWL/unit	Barrier Correction	Sub SWL (Quiet SWL (with barrier))
Grab Dredger	CNP 063	1	112	112	CNP 063	112	112	112	-5	107
Derrick Barge	CNP 061	1	104	104	CNP 061	104	104	104	-5	99
Tug Boat	CNP 221	1	110	110	CNP 221	110	110	110	-5	105
		Total		115			115			110

Appendix 1b: Plant Inventory for the Construction Noise Impact Assessment.

Group 4		Reclamation Works Sand Filling and Other Services								
Equipment	EPD Ref.	No	SWL/unit	Sub- SWL	EPD Ref.	SWL/unit	Sub - SWL (Quiet Plant)	SWL/unit	Barrier correction	Sub SWL (Quiet SWL (with barrier))
Grader	CNP 104	1	113	113	BS5228 Table C9/11	110	110	110	-10	100
Excavator	CNP 081	1	112	112	BS5228 Table C3/90	104	104	104	-5	99
Bulldozer	CNP 030	1	115	115	BS5228 Table C3/62	109	109	109	-5	104
Vibratory roller	CNP 186	2	108	111	BS5228 Table C3/116	106	109	106	-5	104
Dump truck	CNP 067	1	117	117	BS5228 Table C9/39	103	103	103	-5	98
Vibratory poker	CNP 170	1	113	113	CNP 173	102	102	102	-10	92
Paving train	-	1	109	109		109	109	109	-5	104
		Total		122			116			110
Group 5		Breakwater Construction Dredging Trench								
Equipment	EPD Ref.	No	SWL/unit	Sub- SWL	EPD Ref.	SWL/unit	Sub - SWL (Quiet Plant)	SWL/unit	Barrier correction	Sub SWL (Quiet SWL (with barrier))
Grab Dredger	CNP 063	1	112	112	CNP 063	112	112	112	0	112
Derrick Barge	CNP 061	1	104	104	CNP 061	104	104	104	0	104
Tug Boat	CNP 221	1	110	110	CNP 221	110	110	110	0	110
		Total		115			115			115

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Appendix 1b: Plant Inventory for the Construction Noise Impact Assessment.

Group 6		Breakwater Construction Geotextile								
Equipment	EPD Ref.	No	SWL/unit	Sub- SWL	EPD Ref.	SWL/unit	Sub - SWL (Quiet Plant)	SWL/unit	Barrier correction	Sub SWL (Quiet SWL (with barrier))
Pontoons with 4 winches	CNP 263	8	102	111	CNP 263	102	111	102	0	111
Tug boat	CNP 221	1	110	110	CNP 221	110	110	110	0	110
		Total		114			114			114
Group 7		Breakwater Construction Sand Blanket								
Equipment	EPD Ref.	No	SWL/unit	Sub- SWL	EPD Ref.	SWL/unit	Sub - SWL (Quiet Plant)	SWL/unit	Barrier correction	Sub SWL (Quiet SWL (with barrier))
Derrick Barge	CNP 061	1	104	104	CNP 061	104	104	104	0	104
Tug Boat	CNP 221	1	110	110	CNP 221	110	110	110	0	110
		Total		111			111			111
Group 8		Breakwater Construction Prefabricated Band Drains								
Equipment	EPD Ref.	No	SWL/unit	Sub- SWL	EPD Ref.	SWL/unit	Sub - SWL (Quiet Plant)	SWL/unit	Barrier correction	Sub SWL (Quiet SWL (with barrier))
Tug Boat	CNP 221	1	110	110	CNP 221	110	110	110	0	110
Derrick Barge	CNP 061	1	104	104	CNP 061	104	104	104	0	104
		Total		111			111			111

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Appendix 1b: Plant Inventory for the Construction Noise Impact Assessment.

Group 9		Breakwater Construction Surcharge								
Equipment	EPD Ref.	No	SWL/unit	Sub- SWL	EPD Ref.	SWL/unit	Sub - SWL (Quiet Plant)	SWL/unit	Barrier correction	Sub SWL (Quiet SWL (with barrier))
Tug Boat	CNP 221	1	110	110	CNP 221	110	110	110	0	110
Derrick Barge	CNP 061	1	104	104	CNP 061	104	104	104	0	104
		Total		111			111			111
Group 10		Breakwater Construction Rock Fill and Armour Rock								
Equipment	EPD Ref.	No	SWL/unit	Sub- SWL	EPD Ref.	SWL/unit	Sub - SWL (Quiet Plant)	SWL/unit	Barrier correction	Sub SWL (Quiet SWL (with barrier))
Tug Boat	CNP 221	1	110	110	CNP 221	110	110	110	0	110
Derrick Barge	CNP 061	1	104	104	CNP 061	104	104	104	0	104
		Total		111			111			111
Group 11		Marker Dolphins Piling Works								
Equipment	EPD Ref.	No	SWL/unit	Sub- SWL	EPD Ref.	SWL/unit	Sub - SWL (Quiet Plant)	SWL/unit	Barrier correction	Sub SWL (Quiet SWL (with barrier))
Hydraulic Hammer	BS5228 Table C4/13	1	106	106	BS5228 Table C4/13	106	106	106	0	106
Electric Saws	BS5228 Table C7/75	1	105	105	BS5228 Table C7/75	105	105	105	0	105
Derrick Barge	CNP 061	1	104	104	CNP 061	104	104	104	0	104
Tug Boat	CNP 221	1	110	110	CNP 221	110	110	110	0	110
		Total		113			113			113

Appendix 1b: Plant Inventory for the Construction Noise Impact Assessment.

Group 12		Marker Dolphins Concrete Works								
Equipment	EPD Ref.	No	SWL/unit	Sub- SWL	EPD Ref.	SWL/unit	Sub - SWL (Quiet Plant)	SWL/unit	Barrier correction	Sub SWL (Quiet SWL (with barrier))
Concrete Lorry Mix	CNP 044	1	109	109	BS5228 Table C6/23	100	100	100	0	100
Concrete Pump	CNP 047	1	109	109	BS5228 Table C6/36	106	106	106	0	106
Air Compressor	CNP 003	1	104	104	BS5228 Table C6/45	100	100	100	0	100
Vibratory Poker	CNP 170	1	113	113	CNP 173	102	102	102	0	102
		Total		116			109			109
Group 13		Engineering Works in Mangrove Planing Area Stabilisation Works of Existing Dykes								
Equipment	EPD Ref.	No	SWL/unit	Sub- SWL	EPD Ref.	SWL/unit	Sub - SWL (Quiet Plant)	SWL/unit	Barrier correction	Sub SWL (Quiet SWL (with barrier))
Crane	CNP 048	1	112	112	BS5228 Table C7/105	108	108	108	0	108
Vibrating Hammer	CNP 172	1	115	115	CNP 172	115	115	115	0	115
Electric Saw	BS5228 Table C7/75	1	105	105	BS5228 Table C7/75	105	105	105	0	105
Excavator	CNP 081	1	112	112	BS5228 Table C3/90	104	104	104	0	104
Dump Truck	CNP 067	1	117	117	BS5228 Table C9/39	103	103	103	0	103
		Total		121			117			117

Appendix 1b: Plant Inventory for the Construction Noise Impact Assessment.

Group 14

Engineering Works in Mangrove Planing Area Place Dredged Mud

Equipment	EPD Ref.	No	SWL/unit	Sub- SWL	EPD Ref.	SWL/unit	Sub - SWL (Quiet Plant)	SWL/unit	Barrier correction	Sub SWL (Quiet SWL (with barrier))
Grab Dredger	CNP 063	1	112	112	CNP 063	112	112	112	-5	107
Dump Truck	CNP 067	1	117	117	BS5228 Table C9/39	103	103	103	-5	98
Bulldozer	CNP 030	1	115	115	BS5228 Table C3/62	109	109	109	-5	104
Excavator	CNP 081	1	112	112	BS5228 Table C3/90	104	104	104	-5	99
		Total		121			115			110

Appendix 1c: Sample Calculation of Construction Noise Levels.

Do-Nothing Scenario

NSR	22		
Description	Village House		
Period	2001 Quarter 4		
Construction area	A4 & A5	A8	A12 & A13
Plant Team	G5-8	G1	G13
Total SWL, dB(A)	119	115	121
Distance from worksite	452	68	247
Distance correction	61	45	56
Facade correction	3	3	3
SPL, dB(A)	61	73	68
Total SPL, dB(A)	74		

NSR	11				
Description	Village House				
Period	2002 Quarter 2				
Construction area	A3	A4&5	A9	A10	A11
Plant Team	G1	G5-9	G2G3	G4	G14
Total SWL, dB(A)	115	119	119	122	121
Distance from worksite	441	526	129	35	116
Distance correction	61	62	50	39	49
Facade correction	3	3	3	3	3
SPL, dB(A)	57	60	71	86	74
Total SPL, dB(A)	87				

NSR	18					
Description	Village House					
Period	2003 Quarter 1					
Construction area	A1&A2	A4&5	M1	M2	M3	M4
Plant Team	G1	G9G10	G11G12	G11G12	G11G12	G11G12
Total SWL, dB(A)	115	114	118	118	118	118
Distance from worksite	356	320	666	414	364	112
Distance correction	59	58	64	60	59	49
Facade correction	3	3	3	3	3	3
SPL, dB(A)	59	59	56	60	61	72
Total SPL, dB(A)	73					

Notes :

Work site Refers to the Work Site Shown in **Figure 3.1**

G(x) Refers to the Plant Group Described in Chapter 3

Appendix 1c: Sample Calculation of Construction Noise Levels.

Mitigated Scenario

NSR	22		
Description	Village House		
Period	2001 Quarter 4		
Construction area	A4 & A5	A8	A12 & A13
Plant Team	G5-8	G1	G13
Total SWL, dB(A)	119	115	117
Distance from worksite	452	68	247
Distance correction	61	45	56
Facade correction	3	3	3
SPL, dB(A)	61	73	64
Total SPL, dB(A)	74		

NSR	11				
Description	Village House				
Period	2002 Quarter 2				
Construction area	A3	A4&5	A9	A10	A11
Plant Team	G1	G5-9	G2G3	G4	G14
Total SWL, dB(A)	115	119	113	110	110
Distance from worksite	441	526	129	35	116
Distance correction	61	62	50	39	49
Facade correction	3	3	3	3	3
SPL, dB(A)	57	60	65	74	63
Total SPL, dB(A)	75				

NSR	18					
Description	Village House					
Period	2003 Quarter 1					
Construction area	A1&A2	A4&5	M1	M2	M3	M4
Plant Team	G1	G9G10	G11G12	G11G12	G11G12	G11G12
Total SWL, dB(A)	115	114	114	114	114	114
Distance from worksite	356	320	666	414	364	112
Distance correction	59	58	64	60	59	49
Facade correction	3	3	3	3	3	3
SPL, dB(A)	59	59	53	57	58	68
Total SPL, dB(A)	70					

Notes :

Work site Refers to the Work Site Shown in **Figure 3.1**

G(x) Refers to the Plant Group Described in Chapter 3

Appendices

Appendix 1d: Distance Between Sensitive Receivers and Notional Noise Source Position, m.

Work Site	Receiver																						
	001	002	003	004	005	006	007	008	009	010	011	012	013	014	015	016	017	018	019	020	021	022	023
A1&2	286	431	545	725	697	684	694	839	873	908	923	1122	1246	1019	981	729	559	356	248	148	289	843	123
A3	566	384	376	546	494	432	388	426	338	530	441	562	679	706	694	488	336	154	154	130	632	376	340
A4&5	421	264	338	514	464	398	419	490	499	533	526	746	852	901	763	631	460	320	281	110	426	452	487
A6	153	185	302	489	450	434	435	480	456	496	646	906	1066	1162	1163	1030	906	125	128	835	156	454	474
A7	462	214	325	475	415	332	279	296	296	335	337	567	694	790	800	716	644	724	782	795	462	256	308
A8	465	445	487	591	547	439	362	247	188	212	181	439	551	659	693	621	518	700	785	828	662	68	127
A9	548	505	542	636	576	485	406	267	190	200	129	350	490	595	630	568	525	671	766	809	729	68	121
A10	702	658	679	759	688	596	515	317	212	197	35	217	347	462	509	501	508	705	822	135	142	98	123
A11	590	550	636	696	634	530	434	354	248	254	116	334	398	428	418	216	54	158	376	492	810	118	170
A12&13	529	495	559	698	620	526	440	376	341	364	295	492	585	640	660	369	421	154	570	378	690	247	295
M1	452	418	472	598	598	498	380	320	286	314	294	518	642	726	750	646	502	666	742	770	632	222	258
M2	624	602	686	834	777	692	638	554	498	512	412	524	632	664	656	476	304	414	496	536	760	386	386
M3	666	646	730	882	884	740	676	604	546	554	450	596	644	666	646	450	316	364	446	492	790	428	480
M4	880	870	966	1128	1068	986	928	854	786	792	660	752	748	712	660	402	230	112	216	296	978	660	710