

Supplemental Agreement No. 1 to Agreement No. CE 54/2001 (CE)

Wan Chai Development Phase II Planning and Engineering Review

ENVIRONMENTAL IMPACT ASSESSMENT FOR WAN CHAI DEVELOPMENT PHASE II AND CENTRAL-WAN CHAI BYPASS

ENVIRONMENTAL MONITORING AND AUDIT MANUAL

December 2007

Document Ref. 97103_EM&A (Dec07)

SA1 to Agreement No. CE54/2001 (CE)

WAN CHAI DEVELOPMENT PHASE II PLANNING AND ENGINEERING REVIEW

ENVIRONMENTAL IMPACT ASSESSMENT FOR WAN CHAI DEVELOPMENT PHASE II AND CENTRAL-WAN CHAI BYPASS

ENVIRONMENTAL MONITORING AND AUDIT MANUAL

CONTENTS

			Page
1	INTRODUCTION		1-1
	1.1	Purpose of the Manual	
	1.2	Project Description	
	1.3	Environmental Monitoring and Audit Requirements	
	1.4	Project Organisation	
2	AIR QUALITY		2-1
	2.1	Introduction	
	2.2	Air Quality Parameters	2-1
	2.3	Monitoring Equipment	
	2.4	Laboratory Measurement / Analysis	
	2.5	Monitoring Locations	
	2.6	Baseline Monitoring	
	2.7	Impact Monitoring of Construction Air Quality Impact	2-5
	2.8	Impact Monitoring of Operation Air Quality Impact	
	2.9	Environmental Quality Performance Limits	
	2.10	Event and Action Plan	
	2.11	Mitigation Measures	
3	NOISE		3-1
	3.1	Introduction	
	3.2	Noise Parameters	
	3.3	Monitoring Equipment	3-1
	3.4	Monitoring Locations	
	3.5	Baseline Monitoring	
	3.6	Impact Monitoring	
	3.7	Event and Action Plan	
	3.8	Noise Mitigation Measures	

Maunsell

4	WAT	ER QUALITY	4-1	
	4.1	Water Quality Parameters	4-1	
	4.2	Monitoring Equipment	4-1	
	4.3	Laboratory Measurement / Analysis	4-2	
	4.4	Monitoring Locations		
	4.5	Baseline Monitoring		
	4.6	Impact Monitoring		
	4.7	Post-construction Monitoring		
	4.8	Field Log		
	4.9	Construction Site Audits		
	4.10	Event and Action Plan for Construction Water Quality		
	4.11	Mitigation of Adverse Environmental Impacts		
5	WAS'	TE MANAGEMENT	5-1	
_	5.1	Introduction		
	5.2	Waste Control and Mitigation Measures		
6		D CONTAMINATION		
	6.1	Introduction	6-1	
	6.2	Remedial Action		
	6.3	Mitigation Measures during Construction Phase	6-5	
7	MARINE ECOLOGY7-			
	7.1	Introduction	7-1	
	7.2	Mitigation measures for corals	7-1	
	7.3	Monitoring requirement		
8	LANI	LANDSCAPE AND VISUAL8-		
Ü	8.1	Introduction		
	8.2	Monitoring Details		
	8.3	Baseline Monitoring		
	8.4	Event/Action Plan for Landscape and Visual Works		
	8.5	Mitigation Measures		
9	CITE	ENNID ON MENTE A LA LIDITE	0.1	
9	0.1	ENVIRONMENTAL AUDIT		
	9.1	Site Inspection		
	9.2 9.3	Compliance with Legal and Contractual Requirements Environmental Complaints		
		•		
10	REPORTING			
	10.1	General		
	10.2	Baseline Monitoring Report		
	10.3	Monthly EM&A Reports		
	10.4	Quarterly EM&A Summary Reports		
	10.5	Final EM&A Review Reports		
	10.6	Reporting for Post-construction / Post-Translocation Monitoring of Coral		
	10.7	Operation Phase EM&A Report		
	10.8	Data Keeping		
	10.9	Interim Notifications of Environmental Quality Limit Exceedances	10-10	

ii Maunsell

LIST OF FIGURES

Figure 1.1	Wan Chai Development Phase II and Central-Wan Chai Bypass – Site Plan		
Figure 1.2	Designated Projects		
Figure 1.2a	Designated Project 1: Central-Wanchai Bypass (CWB) including its Road Tunnel		
	and Slip Roads		
Figure 1.2b	Designated Project 2: Road P2 and Other Roads which are classified as		
	Primary/District Distributor Roads		
Figure 1.2c	Designated Project 3: Reclamation works including associated Dredging Works		
Figure 1.2d	Designated Project 4: Temporary Typhoon Shelter		
Figure 1.2e	Designated Project 5: Wan Chai East Sewage Outfall		
Figure 1.2f	Designated Project 6: Dredging for the Cross-Harbour Water Mains from Wan		
	Chai to Tsim Sha Tsui		
Figure 1.3	Project Organisation		
Figure 2.1	Locations of Representative Air Sensitive Receivers		
Figure 2.2	Proposed Monitoring Locations During Construction Phase		
Figure 2.3	Proposed Odour Monitoring Location During Operation Phase		
Figure 3.1	Locations of Representative Noise Sensitive Receivers		
Figure 3.2	Locations of Construction Noise Monitoring Stations		
Figure 3.3	Locations of Traffic Noise Monitoring Stations		
Figure 3.4	Location of Temporary Noise Barriers during Construction Phase (NPR2W, NPR1		
E: 0.7	& NPR2E)		
Figure 3.5	Location of Temporary Noise Barriers During Demolition of Existing Piers and		
E. 0.6	Crossheads in Marine Section of IEC		
Figure 3.6	Locations of Direct Noise Mitigation Measures		
Figure 4.1a	Locations of Water Quality Monitoring Stations (Sheet 1 of 2)		
Figure 4.1b	Locations of Water Quality Monitoring Stations (Sheet 2 of 2)		
Figure 6.1	Estimated Extent of Soil Contamination		
Figure 6.2	Remediation Method of Contaminated Soil		
Figure 7.1	Spot-check Dive Sites and REA Transects (Sheet 1 of 2)		
Figure 7.2	Spot-check Dive Sites and REA Transects (Sheet 2 of 2)		
Figure 7.3	Proposed Coral Recipient Site at Junk Bay		
Figure 8.1a	Baseline Landscape Resources During Construction		
Figure 8.1b	Baseline Landscape Resources During Operation		
Figure 8.2a	Baseline Landscape Character Areas During Construction		
Figure 8.2b	Baseline Landscape Character Areas During Operation		
Figure 8.3a	Key VSRs and Primary Zone of Visual Influence During Construction		
Figure 8.3b	Key VSRs and Primary Zone of Visual Influence During Operation		
Figure 8.3c	Key VSRs and Secondary Zone of Visual Influence		

Maunsell iii

LIST OF APPENDICES

Appendix A	Implementation Schedule
Appendix B	Sample Data Sheets for Air Quality, Noise and Water Quality Monitoring
Appendix C	Sample Template for the Interim Notifications
Appendix D	Specific EM&A Requirements for Schedule 2 DP1: Central-Wan Chai Bypass (CWB) including its road tunnel and slip roads
Appendix E	Specific EM&A Requirements for Schedule 2 DP2: Road P2 and other roads which are classified as primary/district distributor roads
Appendix F	Specific EM&A Requirements for Schedule 2 DP3: Reclamation works including associated dredging works
Appendix G	Specific EM&A Requirements for Schedule 2 DP4: Temporary typhoon shelter
Appendix H	Specific EM&A Requirements for Schedule 2 DP5: Wan Chai East Sewage Outfall
Appendix I	Specific EM&A Requirements for Schedule 2 DP6: Dredging for the Cross-harbour Water Mains from Wan Chai to Tsim Sha Tsui
Appendix J	Essential Steps for the Excavation and Landfill Disposal

iv **Maunsell**