

俊和-中國中鐵聯營 CHUN WO-CRGL JOINT VENTURE

Contract No. HK/2009/02 Wan Chai Development Phase II Central – Wan Chai Bypass at Wan Chai East Noise Management Plan

Noise Management Plan

(Pursuant to the Further Environmental Permit - No. FEP-01/364/2009)

(Revision A)

Prepared By:

Revision:

Date:

А

6 Sept 2011

lora.

Environmental Officer Flora Ng

Approved By: Project Manager Chan Sing Cho



Ref.: AACWBIECEM00_0_1793L.11

27 September 2011

Chun Wo – CRGL Joint Venture 5C, Hong Kong Spinners Industrial Building Phase 1 601-603 Tai Nan West Street Cheung Sha Wan Kowloon By Post and E-mail

Attention: Mr. Chan Sing Cho (Project Manager)

Dear Sir,

Re: FEP-01/364/2009 Contract No. HK/2009/02 Wan Chai Development Phase II – Central-Wan Chai Bypass at Wan Chai East Noise Management Plan (Revision A)

Reference is made to Chun Wo – CRGL Joint Venture's submission of Noise Management Plan (Revision A dated 6 September 2011) received through E-mail on 6 September 2011 for our review and comment.

Please be informed that we have no adverse comments on the captioned submission. We write to verify the captioned submission in accordance with Condition 2.9 of FEP-01/364/2009.

Yours sincerely,

David Yeung Independent Environmental Checker

c.c.	CEDD	Mr. Patrick Keung	by fax: 2577 5040
	AECOM	Mr. Frankie Fan (PRE)	by fax: 2587 1877
	AECOM	Mr. Kelvin Cheng	by fax: 2691 2649
	LAM	Mr. Raymond Dai	by fax: 2882 3331

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Lam Geotechnics Limited

Ground Investigation & Instrumentation Professionals

Ref : G1001/CS/L458/FEP-01/364/2009

Date : 27 September 2011

Chun Wo – CRGL Joint Venture

5C, Hong Kong Spinners Industrial Building, Phase I, 602 – 603 Tai Nan Street, Cheung Sha Wan Kowloon

Attn: Mr. Chan Sing Cho, Project Manager

Dear Sir,

Further Environmental Permit no. FEP-01/364/2009 Contract No. HK/2009/02 Wanchai Development Phase II – Central –Wan Chai Bypass at Wan Chai East Noise Management Plan (Revision A)

Referring to your submission of the captioned plan (Revision A dated 6 September 2011) received through email on 6 September 2011, we have reviewed your submitted details and hereby certify this submission in accordance with Condition 2.9 of Further Environmental Permit no. FEP-01/364/2009.

Should you have any enquiry, please feel free to contact the undersigned at 2839 5666.

Yours faithfully,

Raymond Dai Environmental Team Leader

C.C.	CEDD
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	AECOM CWB
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1.0 Purpose of this Plan

Pursuant to the Further Environmental Permit (Permit No. FEP-01/364/2009), Special Conditions, Clause 2.9, Noise Management Plan (NMP) is developed by Permit Holder (Chun Wo – CRGL Joint Venture (CW-CRGL)) to demonstrate clearly the management of construction noise nuisance generated in the execution of works for the Project. The mitigation measures specified in this NMP will be implemented on site to reduce and/or minimise the nuisance to the publics and nearest noise sensitive receivers.

2.0 **Project Description**

The key purpose of Wan Chai Development Phase II (WDII) is to provide land at Wan Chai North and North Point for construction of the Central-Wan Chai Bypass and Island Eastern Corridor Link (CWB). Land formed under the project will be developed as a world-class waterfront promenade joining that at the new Central waterfront for public enjoyment.

Wan Chai Development Phase II – Central – Wan Chai Bypass at Wan Chai East (Project Number: HK/2009/02) is one of the major sub-project of the above mentioned Development. This project was commenced on 28 January 2010 and its project period will be last for 80 months.

2.1 Scope of Works

The scope of this project includes construction of a dual three-lane trunk road tunnel of approximately 550m in length.

3.0 Environmental Legislation, Policies, Plans, Standards and Criteria

Environmental Impact Assessment Process (EIAO) and Noise Control Ordinance (NCO) provide the statutory framework for noise control. Pursuant to Technical Memorandum of EIA, noise standard for daytime construction activities as list in Table A:



Noise Sources Noise	0700 to 1900 hours on any day not being a Sunday or general holiday	1900 to 0700 hours or any time on Sundays or general holiday
Standards		
Uses	Leq (30 mins) dB(A)	
All domestic premises including temporary housing accommodation	75	The criteria laid down in the relevant technical memoranda under the Noise Control
Hotels and hostels	75	Ordinance for designated areas and construction works other than percussive piling may be
Educational institutions including kindergartens, nurseries and all others where unaided voice communication is required	70 65 (During examinations)	used for planning purpose. A Construction Noise Permit (CNP) shall be required for the carrying out of the construction work during the period.

Table A: Noise Standard for Daytime Construction Activities

4.0 Noise Sensitive Receivers

The nearest Noise Sensitive Receiver (NSR) as identified in the EIA report of the Project would be N2 – Causeway Centre. Pursuant to TM of EIA, the noise standard for N2 shall be 75 Leq (30mins) dB(A) during 0700 to 1900 hours on any day not being a Sunday or general holiday. **Appendix A** shows the shorted distance between the worst affected NSR and the work areas of each construction working schedules of the Project.

5.0 Identification of Environmental Impacts

Potential construction impacts of the Project might arise from the following activities:

- Bored Pipe;
- Pre-grouting;
- Pre-drilling of Diaphragm Wall;
- Construction of Diaphragm Wall;
- ELSW Excavation;
- Structure Construction; and
- Backfilling and ELSW Removal.



6.0 Mitigation of Adverse Environmental Impacts

In order to reduce the excessive noise impacts at the affected NSR during normal daytime working hours, mitigation measures such as implementing quiet powered mechanical equipment, movable noise barriers, good site practices and multi-phased construction schedules are recommended.

6.1 Quality Powered Mechanical Equipment (QPME)

Availability of QPME in the market will be sourced out based on EPD QPME's Inventory. Also, adoption of QPME will be considered with reference to Appendix 4.13 of the approved EIA report during different construction tasks:

- Bulldozer, Wheeled
- Excavator, Wheeled / Tracked
- Road Roller
- Crane, Mobile
- Dump Truck
- Concrete Lorry Mixer
- Poker Vibrator
- Air Compressor

6.2 Movable Noise Barrier

To alleviate the construction noise impact on the affected NSR, movable noise barriers are proposed to be provided for particular items of plant and construction works. It is anticipated that a movable noise barrier comprised of minimum 50mm thick sound absorbing lining and 10mm thick plywood (or 1mm thick steel) backing with a cantilevered upper portion located within 5m from any static or mobile plant, that PME will be totally screened when viewed from the NSR, a negative correction of 5 dB(A) noise reduction would be achieved. The actual transmission loss of moveable noise barrier would be measured on substantiate site condition. **Appendix B** illustrates the general layout of the proposed movable noise barrier with section and plan views to be positioned with respect to the PMEs on site. "Guide on Design of Noise Barrier" from EPD would be one of the references during the design of the movable noise barriers.



The following items of plant will be suitable for implementing the movable noise barriers during operation:

- Excavator;
- Air Compressor;
- Bentonite Plants;
- Concrete Pump;
- Poker Vibrator;
- Hand-held Breaker;
- Diaphragm Wall Rigs;
- Breaker; and
- Generator.

6.3 Good Site Practices

The following good site practices should be adopted to further ameliorate the noise impacts:

- Only well-maintained plant shall be operated on-site and plant shall be serviced regularly during the construction program;
- Silencers or mufflers on construction equipment shall be utilized and shall be properly maintained during the construction program;
- Mobile plant, if any, shall be sited as far away from NSR as applicable;
- Machines and plant (such as trucks) that may be in intermittent use must be shut down between works periods or shall be throttled down to a minimum;
- Plant known to emit noise strongly in one direction shall, wherever possible, be orientated so that the noise is directed away from the nearby NSR; and
- Material stockpiles and other structures shall be effectively utilized, wherever practicable, in screening noise from on-site construction activities.

6.4 Multi-Phase Construction Schedules

Appendix A and Table B demonstrate that multi-phase construction schedules will be implemented for the project. Proactive planning of working sequences could minimize the total sound power levels generated by PMEs during normal daytime working hours.



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Phase	Working Sequence	
1	• Construct diaphragm wall and barrette pile of tunnel "Portion 1"	
	• Construct tunnel "Portion 1" structures including excavation and	
	backfilling with ELSW.	
2	Construct diaphragm wall and barrette pile of tunnel "Portion 2"	
	• Construct tunnel "Portion 2" structures including excavation and	
	backfilling with ELSW	
	• Construct bulkhead diaphragm wall at eastern end tunnel "Portion 3"	
	• Construct diaphragm wall and barrette pile for support of steel bridge no.	
	1 on tunnel "Portion 4"	
3	• Construct diaphragm wall and barrette pile of tunnel "Portion 3 & 4"	
	• Construct tunnel "Portion 2 & 3" structures including excavation and	
	backfilling with ELSW	
4	• Construct diaphragm wall and barrette pile of tunnel "Portion 5"	
	• Construct tunnel "Portion 4 & 5" structures including excavation and	
	backfilling with ELSW.	
5	5 • Construct diaphragm wall and barrette pile of tunnel "Portion 6"	
	• Construct tunnel "Portion 5 & 6" structures including excavation and	
	backfilling with ELSW.	

Table B: Construction working sequence in different phases of construction schedule

7.0 Impact Monitoring during Construction

7.1 External Monitoring

Environmental Monitoring and Audit (EM&A) Manual will serve as a guideline to set up of an EM&A programme to ensure compliance with the Environmental Impact Assessment (EIA) study recommendations, to assess the effectiveness of the recommended mitigation measures and to identify any further need for additional mitigation measures or remedial action.

The Environmental Team Leader and his team member will be responsible for the set up, implement and maintain of EM&A system.

Enhances remedy mitigation measures will be immediately implemented once the construction noise level exceeded the limit and action levels under the Manual's requirement.

7.2 Internal Monitoring

Daily and weekly site monitoring, inspections and audits will be conducted in order to ensure the effectiveness of implemented noise mitigation measures and construction noise levels generated are fully complied with requirements.



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NOISE MANAGEMENT PLAN

Appendix A

Location Plan of Noise Sensitive Receiver And Different Working Schedules



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NOISE MANAGEMENT PLAN

Appendix B

Layout Plan of Movable Noise Barrier

Section View of Movable Noise Barrier



Movable noise barrier comprised of minimum 50mm thick sound absorbing lining and 10mm thick plywood (or 1mm thick steel) backing with a cantilevered upper portion located within 5m from any static or mobile plant that PME will be totally screened when viewed from the NSR

Plan View of Movable Noise Barrier



Any static or mobile plant that PME will be totally screened when viewed from the NSR