ENVIRON

Ref.: AACWBIECEM00_0_3701L.13 14 March 2013

Chun Wo – CRGL – MBEC Joint Venture
Unit 2803-2804
28/F, Citicorp Centre
18 Whitefield Road
North Point, Hong Kong

By Post and Fax (2570 8013)

Attention: Mr. KC Cheung

Dear Sir,

Re: FEP-07/364/2009/A
Contract No. HY/2009/19
Central – Wan Chai Bypass – Tunnel (North Point Section) & Island Eastern Corridor Link
Noise Management Plan (Revision 3)

Reference is made to your submission of the Noise Management Plan (Revision 3 dated 13 March 2013) to us through E-mail on 13 March 2013 for our review and comment.

Please be informed that we have no adverse comment on the captioned submission. We write to verify the captioned submission in accordance with Condition 2.9 of FEP-07/364/2009/A.

Please feel free to contact the undersigned should you have any queries.

Yours sincerely,

David Yeung
Independent Environmental Checker

c.c.	HyD	Mr. Jones Lai	by fax: 2714 5289
	CEDD	Mr. Patrick Keung	by fax: 2577 5040
	AECOM (CWB)	Mr. Peter Poon	by fax: 3912 3010
	AECOM	Mr. Kelvin Cheng	by fax: 2691 2649
	LAM	Mr. Raymond Dai (ETL)	by fax: 2882 3331

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Lam Geotechnics Limited
Ground Investigation & Instrumentation Professionals

華益土力有限公司

Ref : G1120/CS/L397/FEP-07/364/2009/A
Date : 14 March 2013

Chun Wo - CRGL - MBEC Joint Venture **By Post and Fax (2570 8013)**
Unit 2803-2804,
28/F, Citicorp Centre,
18 Whitfield Road,
North Point, Hong Kong

Attn: Mr. Rayland Lee, Project Manager

Dear Sir,

Contract No. HY/2009/19
Central – WanChai Bypass Tunnel (North Point Section) and Island Eastern Corridor Link
Noise Management Plan (Rev. 3)

Referring to the captioned submission dated 13 March 2013 received through email on 13 March 2013, we have reviewed your submitted details and hereby certified this submission in accordance with Condition 2.9 of FEP-07/364/2009/A.

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

Yours faithfully,

Raymond Dai
Environmental Team Leader

c.c.

HyD	- Mr. Jones Lai	(By Fax: 2714 5289)
CEDD	- Mr. Patrick Keung	(By Fax: 2577 5040)
AECOM	- Mr. Frankie Fan	(By Fax: 2587 1877)
ENVIRON	- Mr. David Yeung	(By Fax: 3548 6988)

11/F, Centre Point, 181-185 Gloucester Road, Wanchai, Hong Kong
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CONTRACT HY/2009/19

CENTRAL – WAN CHAI BYPASS – TUNNEL (NORTH POINT SECTION)
AND
ISLAND EASTERN CORRIDOR LINK

Noise Management Plan

(Pursuant to the Further Environmental Permit - No. FEP-07/364/2009/A)

Rev	3	Prepared and Reviewed By	Approved By:
Date	13 Mar 2013		
Name		M.H. Isa	K.C. Cheung
Designation		Environmental Officer	Site Agent

REGISTRY OF NOISE MANAGEMENT PLAN AMENDED

Rev. No.	Amendment Date	Amendment Section	Content	Amended by
0	18 Mar 2011	All	Initial Revision incorporated ET and ICE comment	Simon Wong
1	12 Sep 2011	Appendix E	Construction Works Programme	M.H. Isa
		Sections 8.0,10.0,11.0	Responses to comments (1) received from EPD	
2	25 Oct 2011	Section 8.2	Movable / Temporary Noise Barrier	M.H. Isa
3	13 Mar 2013	Section 8.2	Movable / Temporary Noise Barrier	M.H. Isa
		Section 11	Conclusion	
		Appendix G	Schedule for the Installation of Noise Barrier	
		Appendix H	Specification of Noise Absorptive Material	
		Appendix I	Minutes of Meeting – Harbour Grand HK Hotel	
		Appendix J	Contract HY/2009/17 – FEHD Basement & Ground Floor Layout Plan	

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List of Appendixes

1.0 Purpose of this Plan

Pursuant to the Further Environmental Permit (No. FEP-07/364/2009/A), Part C, Special Condition, Clause 2.9, Noise Management Plan (NMP) is developed by Permit Holder (Chun Wo – CRGL - MBEC Joint Venture) 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 shall be implemented on site to reduce and/or minimise the nuisance to the publics and nearest noise sensitive receivers.

2.0 Project Description

This designated Project (HY/2009/19) is a part of the CWB project, which shall provide relief to the existing congestion along the East-West corridor and cater for the anticipate growth of traffic on Hong Kong Island.

Scope of Works

The scope of the Project mainly includes:

- Construction of a 300-metre-long tunnel at North Point;
- Construction of an approach road to the tunnel;
- Modification of the section of Island Eastern Corridor between Hing Fat Street and Po Leung Kuk Yu Lee Mo Fan Memorial School;
- Modification of the junction of Victoria Park Road and Hing Fat Street;
- Demolition of Rumsey Street Flyover eastbound in Central;
- Sub-structure works of the East Ventilation Building and the foundation works of the Administration Building; and
- Associated works including landscaped deck, noise barriers, noise semi-enclosures, road drainage and landscaping works.

3.0 Environmental Legislation, Policies, Plans, Standards and Criteria

Noise impacts have been assessed in accordance with the criteria and methodology given in the Technical Memoranda (TM) made under the Noise Control Ordinance (NCO) and the Technical Memorandum on Environmental Impact Assessment Process (EIAO-TM).

The NCO provides the statutory framework for noise control. Assessment procedures and standards are set out in the following TM:

- EIAO-TM;
- TM on Noise from Construction Work other than Percussive Piling (GW-TM);
- TM on Noise from Construction Work in Designation Area (DA-TM); and
- TM on Noise from Places other than Domestic Premises, Public Places or Construction Sites (IND-TM).

The NCO provides the statutory framework for noise control of construction work other than percussive piling using Powered Mechanical Equipment (PME) between the hours of 1900 to 0700 or at any time on Sundays and a general holiday (that is, restricted hours). Noise control on construction activities taking place at other times is subject to the Criteria for evaluating Noise Impact stated in Table 1B of Annex 5 in the EIAO-TM. The noise limit is 75dB(A) $L_{eq(30\ minutes)}$ at the facades of dwellings and 70 dB(A) $L_{eq(30\ minutes)}$ at the facades of schools (65dB(A) during examination). The construction noise criteria are summarized in Table 3-1.

Table 3-1: Daytime Construction Noise Criteria

Uses	Noise Level in Leq (30-minutes), dB(A)
Domestic Premises	75
Educational Institution	70
Educational Institution (during examination)	65

Between 1900 and 0700 hours and all day on Sundays and public holidays, activities involving the use of PME for the purpose of carrying out construction work is prohibited unless a Construction Noise Permit (CNP) has been obtained. A CNP may be granted provided that the Acceptable Noise Level (ANL) for the Noise Sensitive Receivers (NSRs) can be compiled with. ANLs are assigned depending upon the Area Sensitivity Ratings (ASRs). The corresponding Basic Noise Levels (BNLs) for evening and night time periods are given in Table 3-2.

Table 3-2: Construction Noise Criteria for Activity other than Percussive Piling

Time Period	Basic Noise Levels (BNLs)		
	ASR A	ASR B	ASR C
Evening (1900 to 2300 hours)	60	65	70
Night (2300 to 0700 hours)	45	50	55

4.0 Noise Sensitive Receivers (NSRs)

In order to evaluate the construction noise impacts from the Project, representative existing NSRs of the Project are identified in the EIA (AEIAR-125/2008), and are summarized in Table 4-1. The location plan of the NSRs is shown in Figure 1 in **Appendix A.**

Table 4-1: Representative Existing Noise Sensitive Receivers

NSR	Section	Location	Use
N9	Tin Hau	Viking Garden	Residential
N10		Victoria Court	
N11		Mayson Garden	
N12		Gordon House	
N13		Belle House	
N14		Hoi Tao Building	
N15		Staff Quarters of FEHD	
N16		Victoria Centre	
N17		Harbour Heights	
N18	North Point	City Garden, Block 10	
N19		City Garden, Block 7	
N20		HK Baptist Church Henrietta Sec. School	Educational Institution
N21		Provident Centre, Blk 1	Residential
N22		Provident Centre, Blk 6	
N23		Provident Centre, Blk 17	
N24*		PLK Yu Lee Mo Fan Memorial School	Educational Institution

Note: * Not being identified as representative NSR in the EIA.

5.0 Identification of Noise Impacts

Potential noise impacts of the Project are likely arise from the following activities:

- Diaphragm wall and tunnel construction;
- Substructure and superstructure for landscape deck, connection of IECL;
- Demolition of superstructure, including the IEC structure; and
- Road formation, earth works, drainage culvert construction

6.0 Assessment Methodology

In accordance with the EIAO, the methodology outlined in the GW-TM has been used for the assessment of construction noise (excluding percussive piling). Sound Power Levels (SWLs) of the equipment were taken form Table 3 of this TM.

A negative correction of 10dB(A) was made to the calculated result by eliminating the line of sight from the receivers along the construction areas.

A positive correction of 3dB(A) was made to the calculated result in order to allow for façade effect.

7.0 Prediction and Evaluation of Noise Impacts

In accordance with the EIA (AEIAR-125/2008), exceedences of the construction noise criteria as stated in Table 3-1 are predicted at representative NSRs in the absence of mitigation measures. A summary of the unmitigated construction noise levels of the representative NSRs during normal daytime working hours within the construction period of the Project is summarized in Table 7-1.

Table 7-1: Summary of Unmitigated Construction Noise Level at Representative NSRs during Normal Daytime Working Hours

Representative NSRs	Predicted Unmitigated Construction Noise Levels during Normal Daytime Working Hour ($L_{eq\ (30\text{-}minutes)}$ dB(A))
N11	57 – 101
N13	60 – 84
N15	66 – 88
N17	63 – 96
N18	62 – 98
N20#	65 – 90
N22	64 - 79

Note: # For normal daytime working hours, the noise criteria are 70 dB(A) and 65 dB(A) for normal teaching periods and examination periods, respectively.

Noise mitigation measures should therefore be required to reduce noise levels to the stipulated standard.

8.0 Mitigation of Adverse Environmental Impacts

In order to reduce the noise impacts to NSRs during normal daytime working hours, it is recommended that the following noise reduction measures shall be strictly implemented during the construction phase.

8.1 Restriction on use of Pneumatic Breaker

The use of pneumatic breakers, if required to demolish the existing IEC, shall be confined to the period from 0900 to 1700 hours on weekdays (Monday to Friday), and the pneumatic breakers shall not be used any time on Saturdays, Sundays and general holidays, and during examination hours of the schools affected by the works site, including:

(1) HK Baptist Church Henrietta Secondary School;

(2) PLK Yu Lee Mo Fan Memorial School

To ensure no pneumatic breakers shall be used during the examination period, CW-CRGL-MBEC JV shall:

- closely liaise with the schools to address their environmental concerns during the course of construction works;
- check the examination schedule and re-schedule the works during the examination period, where practicable, to avoid noise nuisance to the students; and
- join the briefing sessions / visits held by Highway Department or the Engineer to the schools to provide them more updating information about the upcoming construction activities of the Project.

8.2 Temporary Noise Barrier

Temporary noise barriers (5m in height) with cantilevered upper portion (3.5m in length); and temporary noise barriers with height up to the soffit of the bridge deck area shall be installed along the existing IEC structure during the demolition and construction of substructure for the IEC and construction of adjacent tunnel approach ramp structure, as shown in Figure 2 in **Appendix B**.

(i) Besides, temporary noise barriers shall be provided on temporary working platforms on piers or pile caps for the demolition works of existing piers and crossheads for the marine section of the existing IEC as shown in Figure 3 in **Appendix C**.

(ii) Temporary noise barriers are also proposed for static plant, such as generator, air compressor and concrete pump and / or truck as well as PME such as crawler crane where appropriate. These PME shall be totally screened when viewed from the NSR, a negative correction of 5 to 10 dB(A) noise reduction shall be achieved. The barrier material shall have a surface mass of not less than 14 kg/m^2 with sound absorptive lining to achieve the maximum screening effect. Layout plans and typical sections of the noise barrier for static plants/PME to be placed at location where construction works are in progress are shown in **Appendix D**.

(iii) **Appendix G** refers to the tentative schedule for the installation of noise barrier.

The alignment or the installation of noise barrier at a number of locations could not be carried out because the alignment / noise barrier stated in the EP interfered in the piling works. The reasons of which are stated below.

Provision of temporary noise barrier – Due to sectional possession of the site the noise barrier provided are explained in Appendix G.

For the ease of understanding the project site requiring noise barrier has been named as A1, A2, A3 A4 & A5 (Refer Appendix G).

A1: Area to be occupied in end April 2013 (tentative) and Noise Barrier to be installed by the Contractor of HY/2009/17 before possession of the site.

The deviation in the alignment of noise barrier for Contract HY/2009/17 is due to (a) The noise barrier sits on top of the future basement car park of Food And Environmental Hygiene Department (FEHD) and obstruct the excavation and construction of the basement. (b) The deviation in the alignment actually helps further minimize noise nuisance from reaching the NSRs due to the construction activities at the northern side of the flyover. (Refer Appendix J)

A2: Temporary Noise Barrier already installed on site by the Contractor of HY/2009/11 before possession of the site.

A3: In front of the Harbour Grand Hong Kong Hotel. Area to be occupied in April 2013 (tentative) and Noise Barrier can be installed then. However, as requested by the Hotel Management, noise barrier installation will hinder their business (Refer Appendix I). As such localized temporary noise barrier is agreed to be placed while sub-structural work is carried out (Refer Appendix D).

A4: Area to be occupied in April 2013 (tentative). However, as the piles sit very closed to the alignment of the noise barrier and will hinder in their construction therefore it cannot be installed at this moment. As such localized temporary noise barrier will be installed.

A5: Area available but the noise barrier sits not only on the existing box culvert - a section of which will be demolished to align with the new box culvert but also obstruct the construction of the new box culvert which is adjacent to the exiting one. Apart from the box culvert, the noise barrier will also obstruct piling works to the future extension of IEC Link. Piling is being carried out under the existing IEC Link near City Garden as shown in Appendix G. Further down to the end of area A5, access and container site offices have been erected to allow workers and materials to be placed for marine works which is beyond A5. The installation of noise barrier at this point is not possible but acoustic mat near the site office has been erected. Therefore, noise barrier can be installed in early 2014 when the box culvert and piling works have been constructed (Refer Appendix G).

(iv) However, for individual substructure at present, localized temporary noise barriers (refer typical section in Appendix D) are placed in between the PME and NSR.

In addition, the following noise reduction measures will be considered as far as practicable.

8.3 Quality Powered Mechanical Equipment (QPME)

The following types of QPME are proposed to be used during the construction phase of the Project:

- Bulldozer, wheeled
- Excavator, wheeled / tracked
- Loader, wheeled
- Road roller
- Power rammer (petrol)
- Crane, mobile
- Bulldozer, tracked
- Loader, tracked
- Asphalt paver
- Roller, vibratory
- Compactor, vibratory
- Generator

8.4 Good Site Practices

The following good site practices should be adopted to further ameliorate the 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 NSRs 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 NSRs; and
- Material stockpiles and other structures shall be effectively utilized, wherever practicable, in screening noise from on-site construction activities.

8.5 Multi-Phase Construction Schedules

Proactive planning of working sequences could minimize the total sound power levels generated by PMEs during normal daytime working hours. Construction Works Programme shown in **Appendix E** demonstrates the implementation of multi-phase construction schedules for the Project.

PME grouping as noise mitigation measures shall be implemented at NSR N11, N13, N17, N18 and N20. In order to minimize the noise impact to the surrounding NSRs, either Group 1 or 2 shall be operated at any one time under the construction schedule. The mitigation measures for the items of PME for each construction tasks are shown in **Appendix F**. At this stage, the EIA prediction would still be valid.

Detailed list of PME and specific noise impact of individual construction work shall be reviewed in relevant method statement via submission to the Engineer.

9.0 Evaluation of Mitigated Noise Impacts

With the implementation on use of QPME, temporary noise barriers and PME grouping, the overall noise levels at NSRs shall be reduced by 7 to 31dB(A) $L_{eq(30\text{-}minutes)}$, depending on the type of construction activities. With the exception of NSRs N11, N17, N18 and N20, the predicted construction noise levels arising from the Project at all other NSRs selected for noise impact assessment shall comply with the EIAO-TM construction noise criteria. A summary for mitigated noise levels during normal daytime working hours at representative NSRs is shown in Table 9-1.

Table 9-1: Summary of Mitigated Construction Noise Levels at Representative NSRs during Normal Daytime Working Hours

Representative NSRs	Predicted Mitigated Construction Noise Levels ($L_{eq(30\text{-}minutes)}$ dB(A))
N11	44 – 70 (Group 1 PME)
N11	51 – 85 (Group 2 PME)
N13	55 – 71 (Group 1 PME)

N13	55 – 71 (Group 2 PME)
N15	62 – 75
N17	58 – 80 (Group 1 PME)
N17	58 – 80 (Group 2 PME)
N18	54 – 84 (Group 1 PME)
N18	54 – 84 (Group 2 PME)
N20#	60 – 77 (Group 1 PME)
N20#	60 - 77 (Group 2 PME)
N22	62 - 72

Note: # For normal daytime working hours, the noise criteria are 70 dB(A) and 65 dB(A) for normal teaching periods and examination periods, respectively.

In according to the EIA (AEIAR-125/2008), the on-site survey has revealed that NSR N20 (HK Baptist Church Henrietta Secondary School) has already been noise insulated with air-conditioners. With the provision of air-conditioners, it is considered that the noise impact shall be minimized by keeping the windows closed during the construction activities. Notwithstanding this, due to a limited buffer distance and a more stringent noise criterion of 65 dB(A), it is proposed that particularly noisy construction activities, especially those associated with the demolition of the ICE structures, shall be scheduled to avoid examination periods as far as practicable.

10.0 Impact Monitoring during Construction

External Monitoring

Environmental Monitoring and Audit (EM&A) Manual serves as a guideline to set up of an EM&A programme to ensure compliance with the 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 shall be responsible for the set-up, implement and maintain of EM&A system. The real-time on-site monitoring of noise level around the work sites areas shall be carried out by Environmental Team during the construction phase.

The monitoring station(s) may subject to change with respect to the availability of the measurement location and/or other related factors. The relevant location(s) should refer to the latest EM&A Manual via the Project website at the below link:

http://www.wd2-cwb.com/documents/manual/htm.

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

11.0 Conclusion

(1) The predicted unmitigated noise level shall range from 57 to 101 dB(A) at the respectively NSRs. With the use of QPME, temporary barriers and PME grouping for construction tasks under the Project, the noise levels at the NSRs selected for construction noise impact assessment except N11, N17, N18 and N20 shall comply with the construction noise standard.

Having exhausted practicable noise mitigation measures, the predicted noise level at N11 (i.e Mayson Garden) shall exceed the noise standard of 75dB(A) by 10 dB(A) with Group 2 PME. For N17 (i.e Harbour Heights), the predicted noise level shall exceed the noise standard of 75 dB(A) by up to 5 dB(A) with Group 1 or Group 2 PME. For N18 (i.e City Garden), the predicted noise level shall exceed the noise standard of 75 dB(A) by up to 9 dB(A) with Group 1 or Group 2 PME. For N20 (i.e HK Baptist Church Henrietta Secondary School), the predicted noise level with Group 1 or Group 2 PME shall exceed the noise standard of 65 dB(A) by up to 12 dB(A) for Group 1 or Group 2 PME during examination periods. For the normal teaching period, the noise level shall exceed the noise standard of 70 dB(A) by 7 dB(A) with Group 1 or Group 2 PME. However, the school has been noised insulated with air conditioners and, by keeping the windows closed during construction activities, noise impacts at the indoor environment can be avoided. Notwithstanding this, the particularly noisy construction activities shall be scheduled to avoid examination period as far as practicable.

Whilst the prediction does indicate some noise exceedance for limited periods of time, even with the consideration of all practicable mitigation measures, during the actual construction period as much as practically possible shall be done to reduce construction noise still further, and there shall be on-going liaison with all concerned parties and site monitoring to deal with and minimize any exceedances. Community Liaison Group (CLG) will facilitate communication, enquires and complaint handling on all environmental issues. Regular meeting will be setup for the CLG to update the latest cumulative environmental impact due to the project.

(2) Under the FEP shown on the cover page, temporary noise barrier has to be built up to the bridge soffit of the IEC Bridge.

(i) For Contract HY/2009/17, as the temporary noise barrier is located on the top of the FEHD basement structure, piled foundation is not feasible to be built inside the FEHD basement structure to support the noise barrier. A very massive concrete footing would be required to counter-act the wind force exerting on the noise barrier, however, the heavy load due to the footing will impair the basement structure. In view of the above, the height of the noise

barrier has to be reduced such that the required weight of the footing for counter-acting the wind force can be reduced accordingly, and hence would not damage the basement structure.

(ii) For Contract HY/2009/11, noise barrier has already been installed and project completed.

(iii) For Contract HY/2009/19, construction constraint and the provision of temporary noise barrier has already been mention above in section 8.2.

Nonetheless, as mentioned above, with the erection of temporary noise barrier where allowable, at localized location as a possible noise mitigation measures. This minimizes any noise impact to the sensitive receivers in the construction stage.

This Noise Management Plan will be revised regularly to reflect the demolition of bridge deck once it is finalized.

俊和-中國中鐵-中鐵大橋局聯營
CHUN WO - CRGL - MBEC JOINT VENTURE

NOISE MANAGEMENT PLAN

FOR

Contract No.: HY/2009/19

Central – Wan Chai Bypass
Tunnel (North Point Section)
and
Island Eastern Corridor Link

Appendix A

Location Plan for Noise Sensitive Receiver

Legend

NSR	Section	Description
N9	Tin Hau	Viking Garden
N10	Tin Hau	Victoria Court
N11	Tin Hau	Mayson Garden
N12	Tin Hau	Gordon House
N13	Tin Hau	Belle House
N14	Tin Hau	Hoi Tao Building
N15	Tin Hau	Staff Qtr of FEHD
N16	Tin Hau	Victoria Centre
N17	Tin Hau	Harbour Height
N18	North Point	City Garden Blk10
N19	North Point	City Garden Blk 9
N20	North Point	HKBCH Sec.School
N21	North Point	Provident Ctr, Blk 1
N22	North Point	Provident Ctr, Blk 6
N23	North Point	Provident Ctr, Blk17
N24	North Point	PLKYLMF Mem.Sch.

Scale: 1:2000

Scale: 1:4000

CLIENT	CONTRACTOR: 俊和-中國中鐵-中鐵大橋局聯營 CHUN WO - CRGL - MBEC JOINT VENTURE	JOB TITLE: **Location Plan of Noise Sensitive Receivers (NSRs)**	SCALE: As shown at A4
ENGINEER'S REPRESENTATIVE	PROJECT: CONTRACT NO. HY/2009/19 CENTRAL - WAN CHAI BYPASS TUNNEL (NORTH POINT SECTION) AND ISLAND EASTERN CORRIDOR LINK		DATE / DRAWN / DESIGNED / CHECKED / APPROVED / Sheet of / **Figure 1** / REV 0

俊和-中國中鐵-中鐵大橋局聯營
CHUN WO - CRGL - MBEC JOINT VENTURE

NOISE MANAGEMENT PLAN

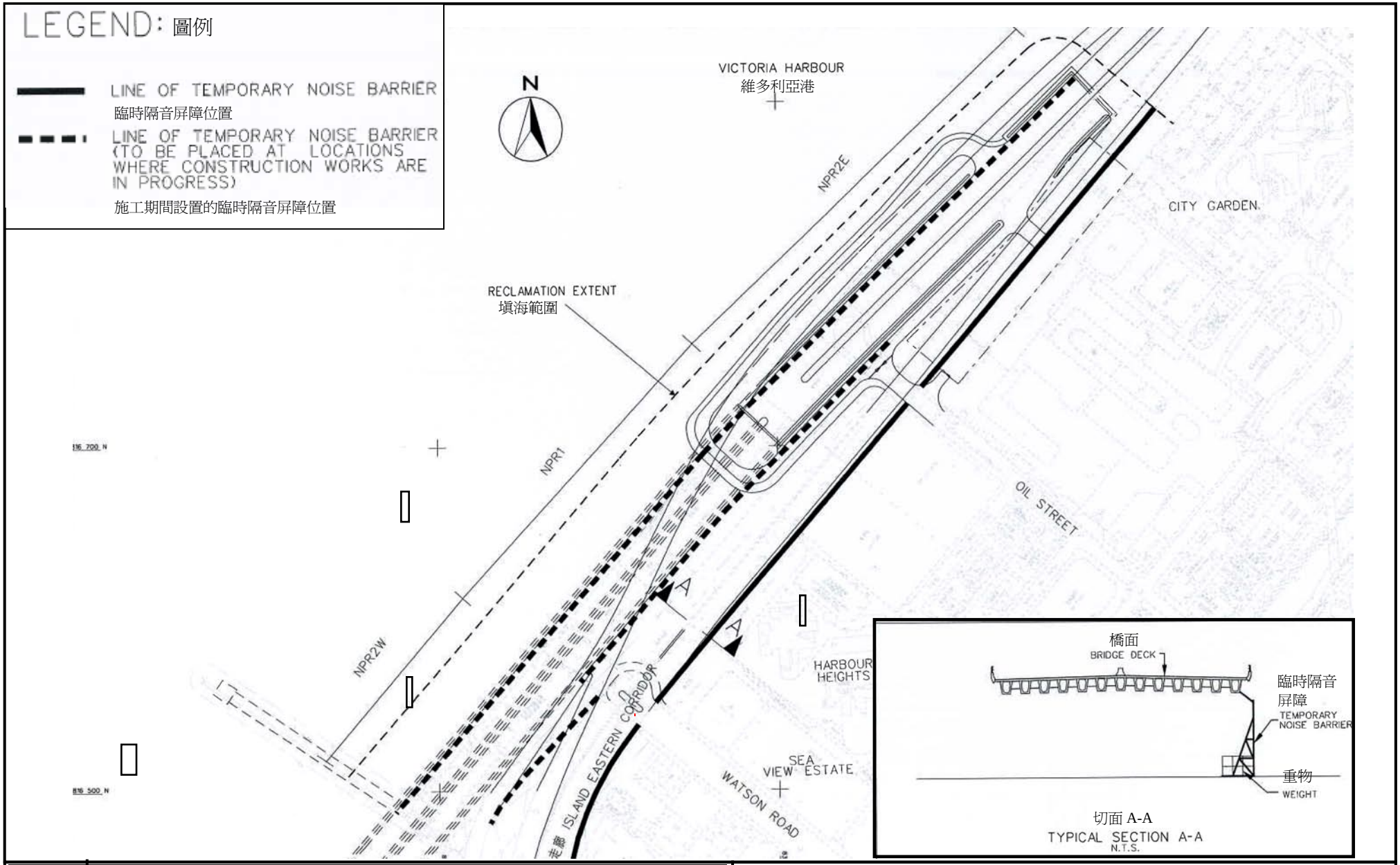
FOR

Contract No.: HY/2009/19

Central – Wan Chai Bypass
Tunnel (North Point Section)
and
Island Eastern Corridor Link

Appendix B

Location Plan of Temporary Noise Barrier during Construction Phase in North Point Waterfront



CHUN WO - CRGL - MBEC JOINT VENTURE

Central - Wan Chai Bypass - Tunnel (North Point Section) and Island Eastern Corridor Link

Figure 2: Location of Temporary Noise Barriers during Construction Phase in North Point Waterfront
圖 2: 在北角海旁施工期間的臨時隔音屏障位置圖

(This figure was prepared based on Figure 4.9 of the WDII&CWB EIA report (Register No.: AEIAR-125/2008))
(本圖是根據 WDII&CWB 環評報告（登記冊編號 AEIAR-125/2008）圖 4.9 編製)

俊和-中國中鐵-中鐵大橋局聯營
CHUN WO - CRGL - MBEC JOINT VENTURE

NOISE MANAGEMENT PLAN

FOR

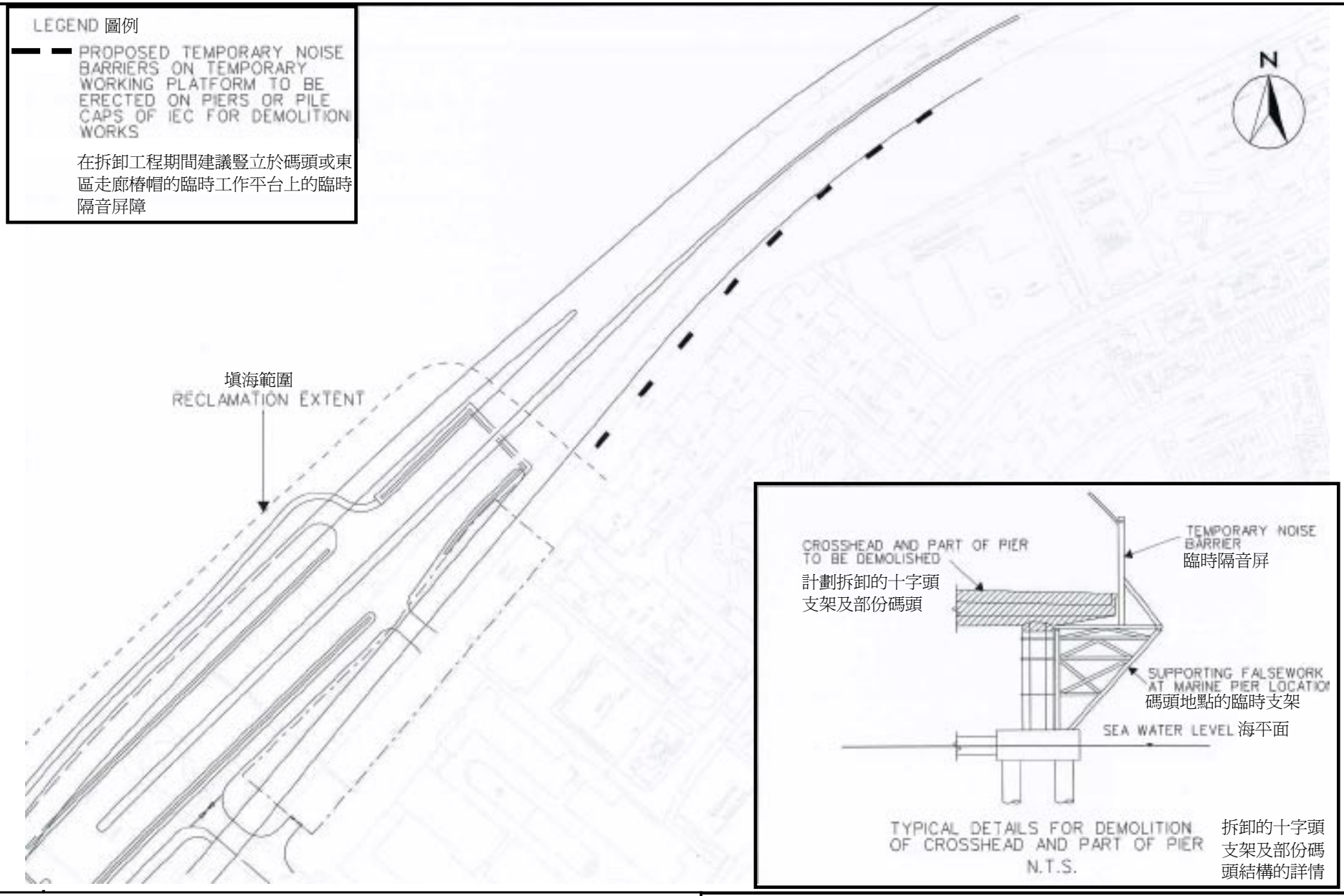
Contract No.: HY/2009/19

Central – Wan Chai Bypass
Tunnel (North Point Section)
and
Island Eastern Corridor Link

Appendix C

Location Plan of Temporary Noise Barrier during Demolition of Existing Piers and Crossheads in Marine Section of IEC

A-3



俊和 中国中铁 MBEC
CHUN WO - CRGL - MBEC JOINT VENTURE

Central - Wan Chai Bypass - Tunnel (North Point Section) and Island Eastern Corridor Link

Figure 3: Location of Temporary Noise Barriers during Demolition of Existing Piers and Crossheads in Marine Section of IEC

圖 3: 拆卸現有碼頭及東區走廊海面十字頭支架期間的臨時隔音屏障位置圖

(This figure was prepared based on Figure 4.9a of the WDII&CWB EIA report (Register No.: AEIAR-125/2008))
(本圖是根據 WDII&CWB 環評報告（登記冊編號 AEIAR-125/2008）圖 4.9a 編製)

俊和-中國中鐵-中鐵大橋局聯營
CHUN WO - CRGL - MBEC JOINT VENTURE

NOISE MANAGEMENT PLAN

FOR

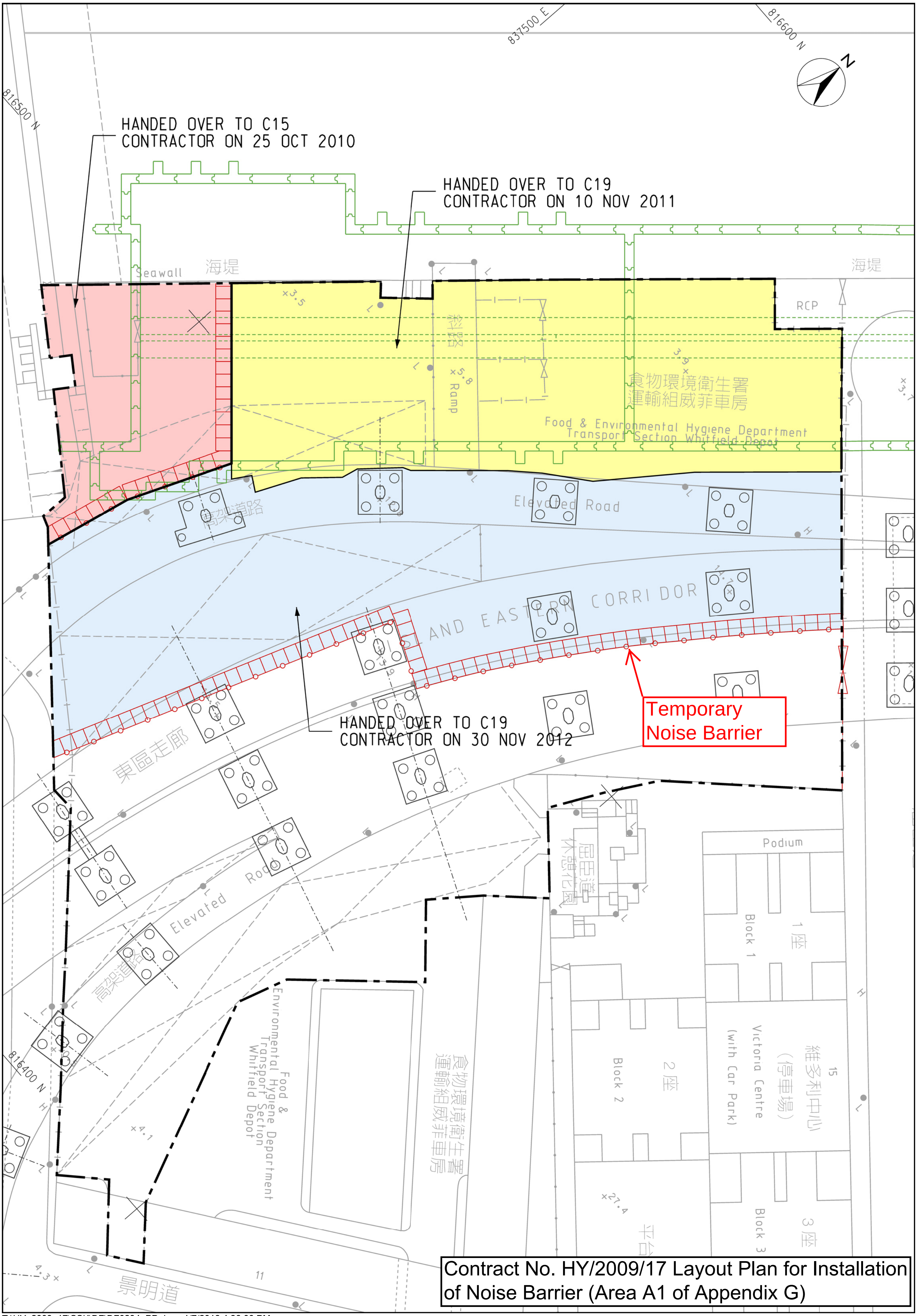
Contract No.: HY/2009/19

Central – Wan Chai Bypass
Tunnel (North Point Section)
and
Island Eastern Corridor Link

Appendix D

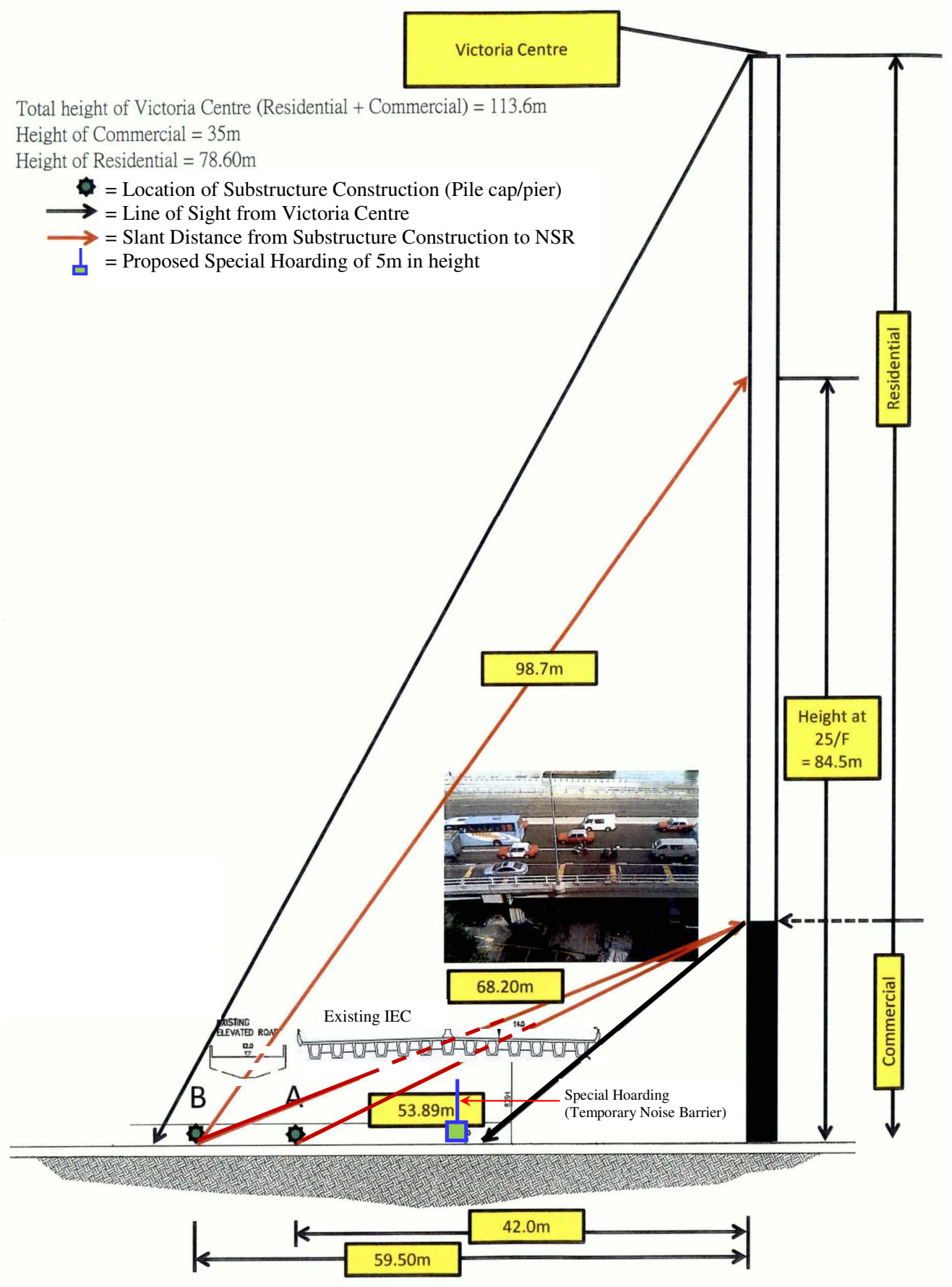
Layout Plan and Typical Section of Temporary Noise Barrier during Construction Phase

A-4



Contract No. HY/2009/17 Layout Plan for Installation of Noise Barrier (Area A1 of Appendix G)

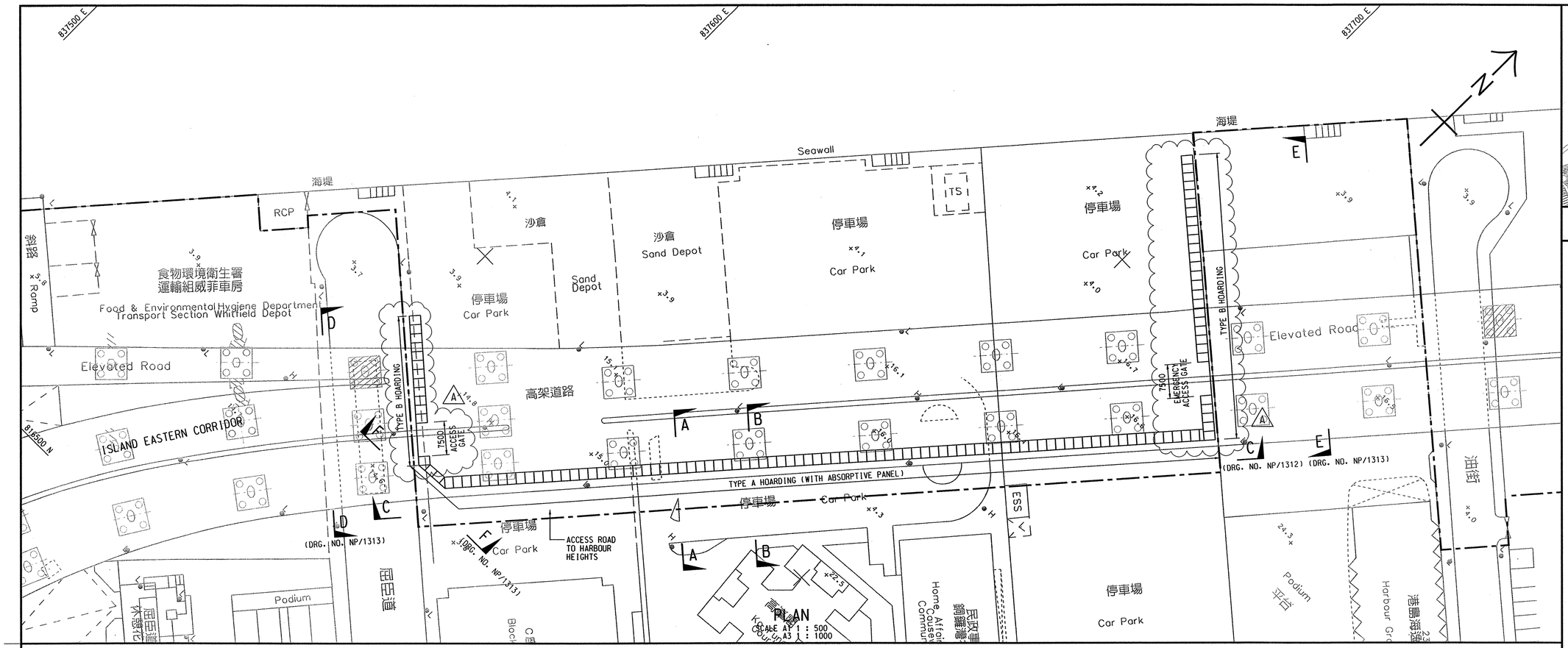
T:\HY_2009_17\SSK\DF\DF0294_PP.dgn 1/7/2013 4:36:00 PM

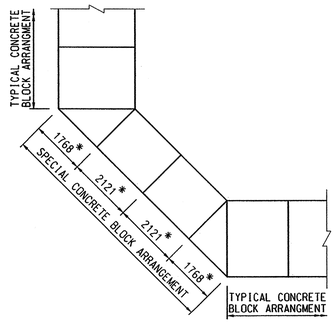


Location of Proposed Special Hoarding within C17 Works Site

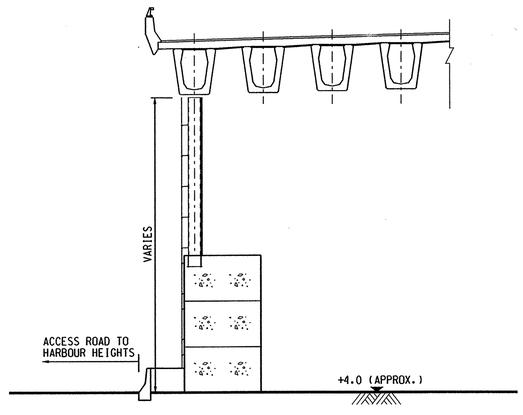
(Sketch extracted from Noise Management Plan from C17 approved by EPD on 30 Sep 10)

Contract No. HY/2009/17 Layout Plan for Installation of Noise Barrier (Area A1 of Appendix G)

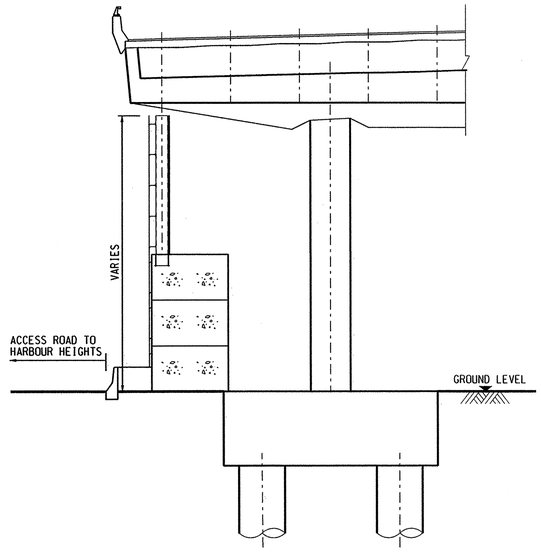




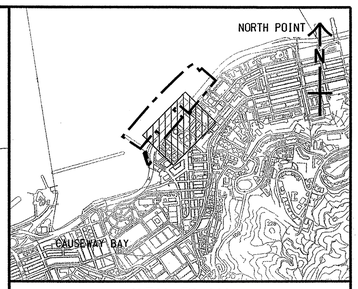
PRECAST CONCRETE BLOCK
ARRANGEMENT AT SPLAY
SCALE A1 1 : 100
A3 1 : 200



SECTION A - A
TYPICAL SECTION FOR HOARDING
SCALE A1 1 : 100
A3 1 : 200



SECTION B - B
TYPICAL SECTION FOR HOARDING
AT EXISTING PIER LOCATION
SCALE A1 1 : 100
A3 1 : 200



KEY PLAN
SCALE 1 : 20000

NOTES:

1. SETTING OUT COORDINATE REFER DRG. NO. 60095653/NP/1302.
2. DIMENSION MARKED WITH * TO BE VERIFIED ON SITE.
3. FOR GENERAL NOTES, PLEASE REFER TO DRG. NO. 60095653/NP/1310.
4. THIS DRAWING IS TO BE READ IN CONJUNCTION WITH DRG. NO. 60095653/NP/1312 TO 1316.

LEGEND:

SITE BOUNDARY

REV. 修訂	DESCRIPTION 內容摘要	D.E. CHECKED 審核	P.E.	DATE 日期
B	WORKING DRAWING	RC	BCC	DEC 09
A	TENDER ADDENDUM NO.1	RC	BCC	OCT 09
-	TENDER DRAWING	RC	BCC	SEP 09

Highways Department 路政署
Major Works Project Management Office

CENTRAL - WAN CHAI BYPASS AND IEC LINK

CENTRAL - WAN CHAI BYPASS - NORTH POINT RECLAMATION

SPECIAL SITE HOARDING

AECOM

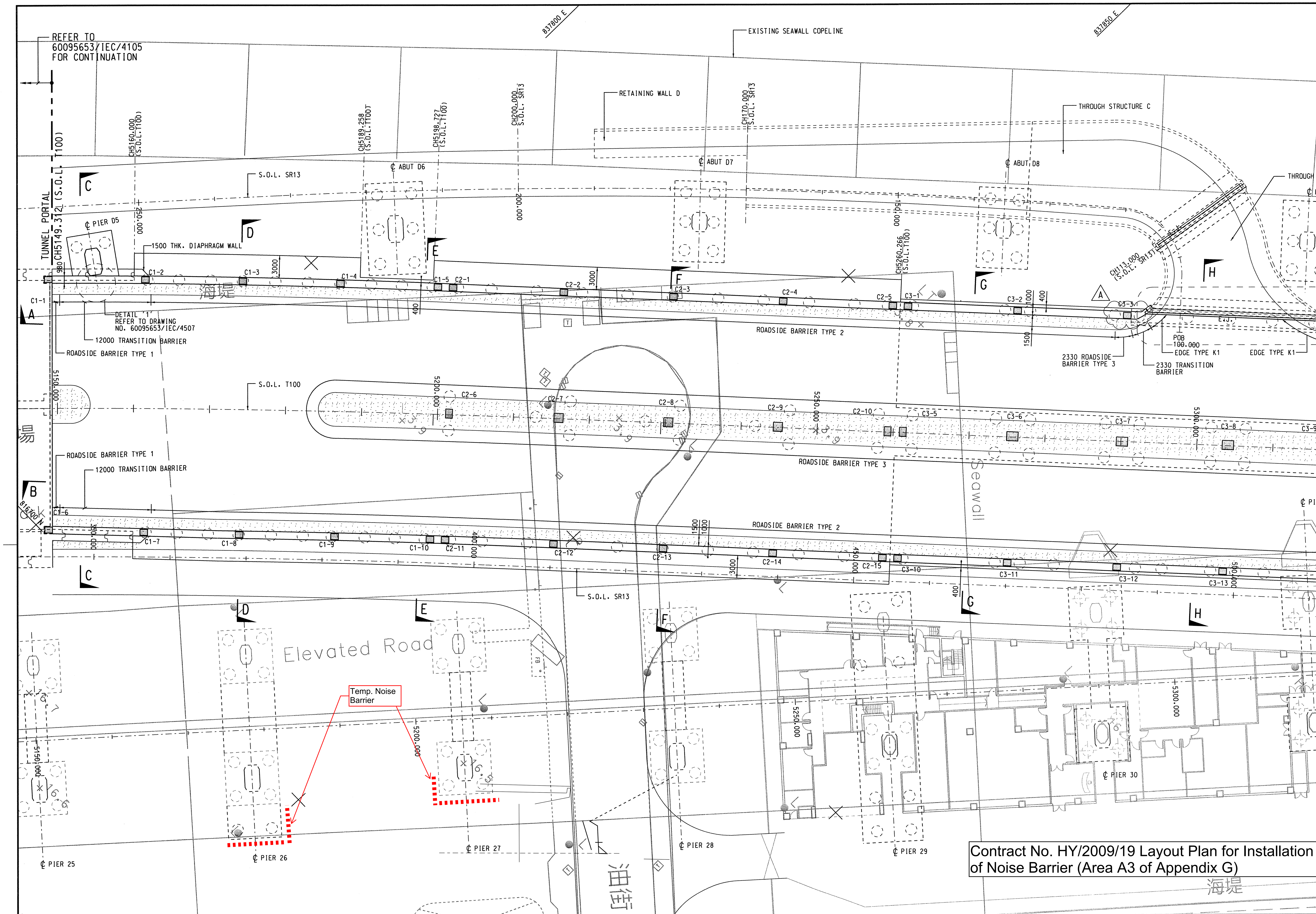
DRG.NO. 圖紙編號 60095653/NP/1311B

DESIGNED BY 設計	VL.MK	CONTRACT NO. 合約編號	HY/2009/11
DRAWN BY 繪圖	ZNL	P. Dir. APPROVED 批准人	CW
SCALE 比例	A1 AS SHOWN A3 AS SHOWN	STATUS 狀況	WORKING DRAWING
DIMENSIONS ARE IN 尺寸單位	METRES		© COPYRIGHT RESERVED 版權所有

Contract No. HY/2009/11 Layout Plan for Installation of Noise Barrier (Area A2 of Appendix G)

Plot File by : LIUJX 2009-10-22

p:\projects\60095653\Drawing\NP\1000\NP_1311.dgn



NOTES:

1. FOR SECTIONS, REFER TO DRAWING NOS. 60095653/IEC/4002 TO 4009.
2. FOR TUNNEL APPROACH RAMP DRAINAGE LAYOUT, REFER TO DRAWING NO. 60095653/IEC/2002.
3. THE CONTRACTOR SHALL NOTE THAT, PRIOR TO THE COMPLETION OF LANDSCAPED DECK ABOVE, TROUGH STRUCTURE A MAY NOT HAVE ADEQUATE DEAD WEIGHT TO MAINTAIN STABILITY AGAINST FLOTATION. THE CONTRACTOR SHALL BE RESPONSIBLE TO PROVIDE ALL NECESSARY MEASURES, E.G. DEWATERING, PLACING OF WEIGHTS OR THE LIKE, TO MAINTAIN STABILITY OF THE TROUGH STRUCTURE UNTIL COMPLETION OF LANDSCAPED DECK. DETAILS OF THE STABILIZATION MEASURES, IF ANY, SHALL BE CERTIFIED BY AN INDEPENDENT CHECKING ENGINEER AND SUBMITTED TO THE ENGINEER FOR CONSENT NO LESS THAN 14 DAYS FROM THE ANTICIPATED COMMENCEMENT OF TROUGH STRUCTURE A.

LEGEND:

- LANDSCAPE DECK COLUMN
- Ø1500 BORED PILE
- ROADSIDE WALKWAY (SERVICE TRENCH AND PRECAST CONCRETE COVERS NOT SHOWN FOR CLARITY)

REV. 修訂	DESCRIPTION 內容摘要			DATE 日期
B	WORKING DRAWING	ALCF	BCC	DEC 10
A	TENDER ADDENDUM NO.1	ALCF	BCC	JUN 10
-	TENDER DRAWING	ALCF	BCC	MAY 10

Highways Department 路政署
Major Works Project Management Office

CENTRAL - WAN CHAI BYPASS AND IEC LINK

PWP ITEM NO. 工務計劃項目編號 579 TH

CENTRAL - WAN CHAI BYPASS TUNNEL (NORTH POINT SECTION) AND ISLAND EASTERN CORRIDOR LINK

TUNNEL APPROACH RAMP THROUGH STRUCTURE A GENERAL ARRANGEMENT

SHEET 1 OF 6

AECOM

DRG.NO. 圖紙編號 60095653/IEC/4501B

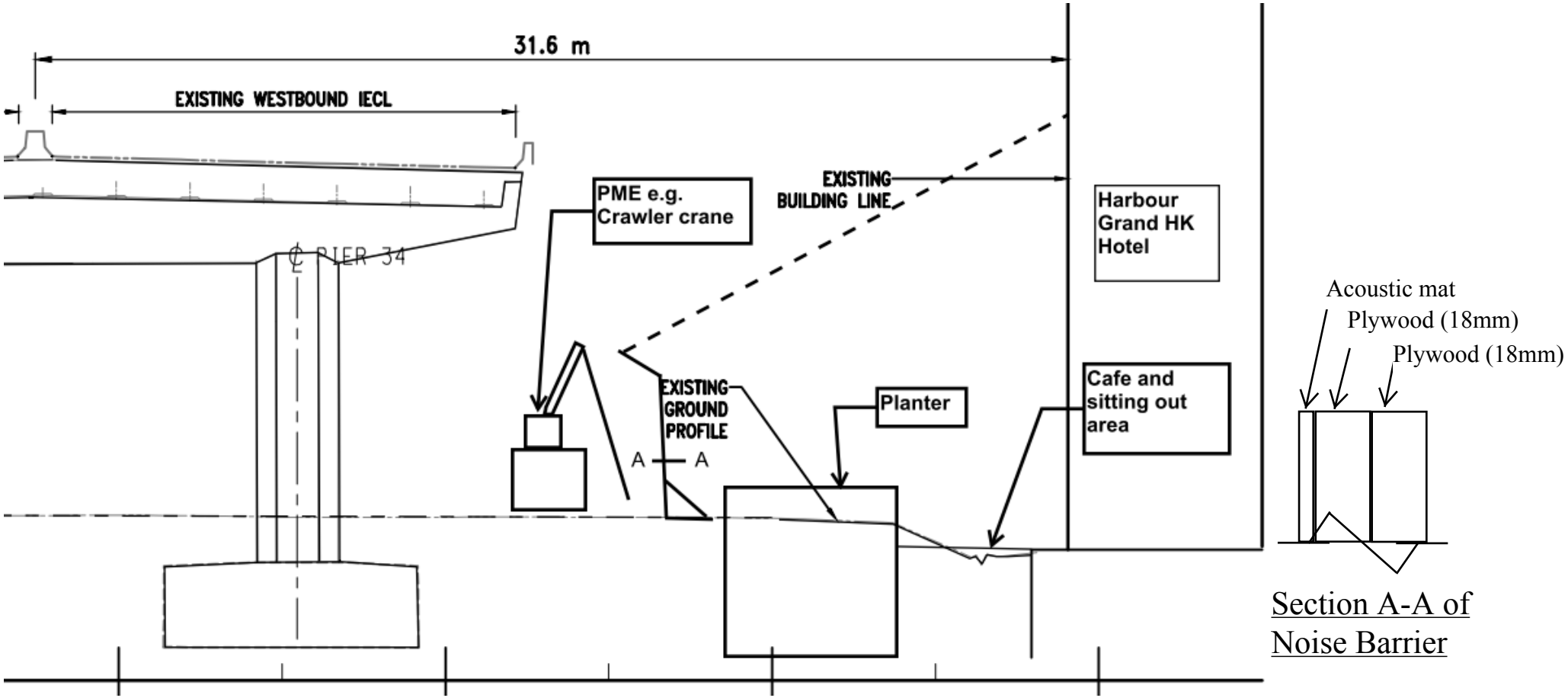
DESIGNED BY 設計 BLCY | CONTRACT NO. 合約編號 HY/2009/19 | APPROVED 批准人 CW

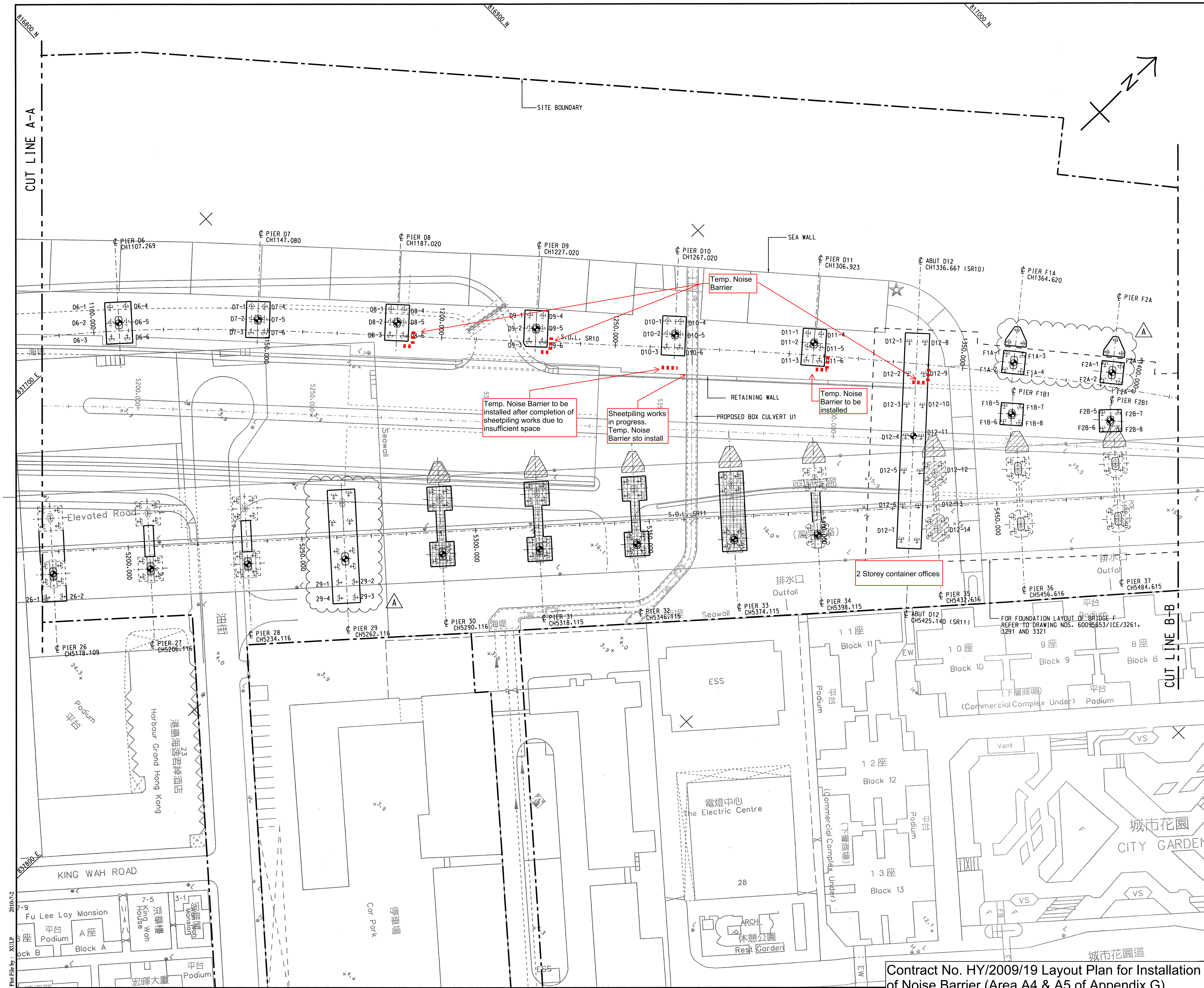
DRAWN BY 繪圖 ANM | STATUS 階段 WORKING DRAWING

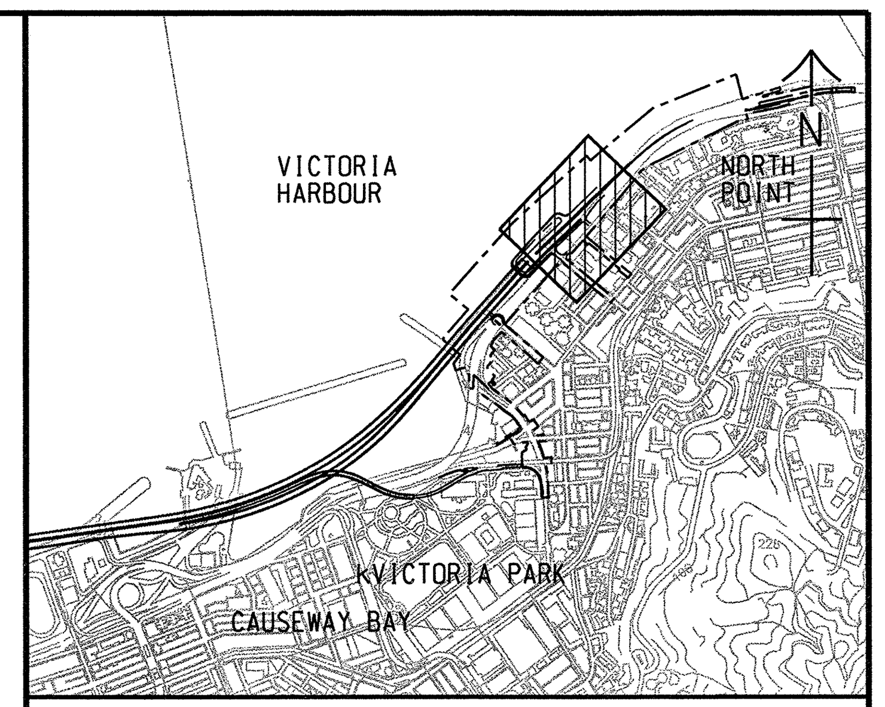
SCALE 比例 A1 1 : 250, A3 1 : 500

DIMENSIONS ARE IN 尺寸單位 METRES

Sectional View of Temporary Noise Barrier Opposite Hotel







KEY PLAN
SCALE A1 1 : 20000
A3 1 : 40000

NOTES:
1. THIS DRAWING IS TO BE READ IN CONJUNCTION WITH DRAWING NOS. 60095653/IEC/3005 AND 3007.
2. FOR DOLPHIN STRUCTURES ARRANGEMENT AND DETAILS, REFER TO DRAWING NO. 60095653/IEC/3381 TO 3382.

REV. 修訂	DESCRIPTION 內容摘要	D.C.	P.C. CHECKED 審核	DATE 日期
B	WORKING DRAWING	ALCF	BCC	DEC 10
A	TENDER ADDENDUM NO.1	JTCL	BCC	JUN 10
-	TENDER DRAWING	JTCL	BCC	MAY 10

Highways Department 路政署
Major Works Project Management Office

CENTRAL - WAN CHAI BYPASS AND IEC LINK

PWP ITEM NO. 工務計劃項目編號 579 TH

CENTRAL - WAN CHAI BYPASS - TUNNEL (NORTH POINT SECTION) AND ISLAND EASTERN CORRIDOR LINK

BRIDGE STRUCTURES - FOUNDATION LAYOUT

SHEET 2 OF 3

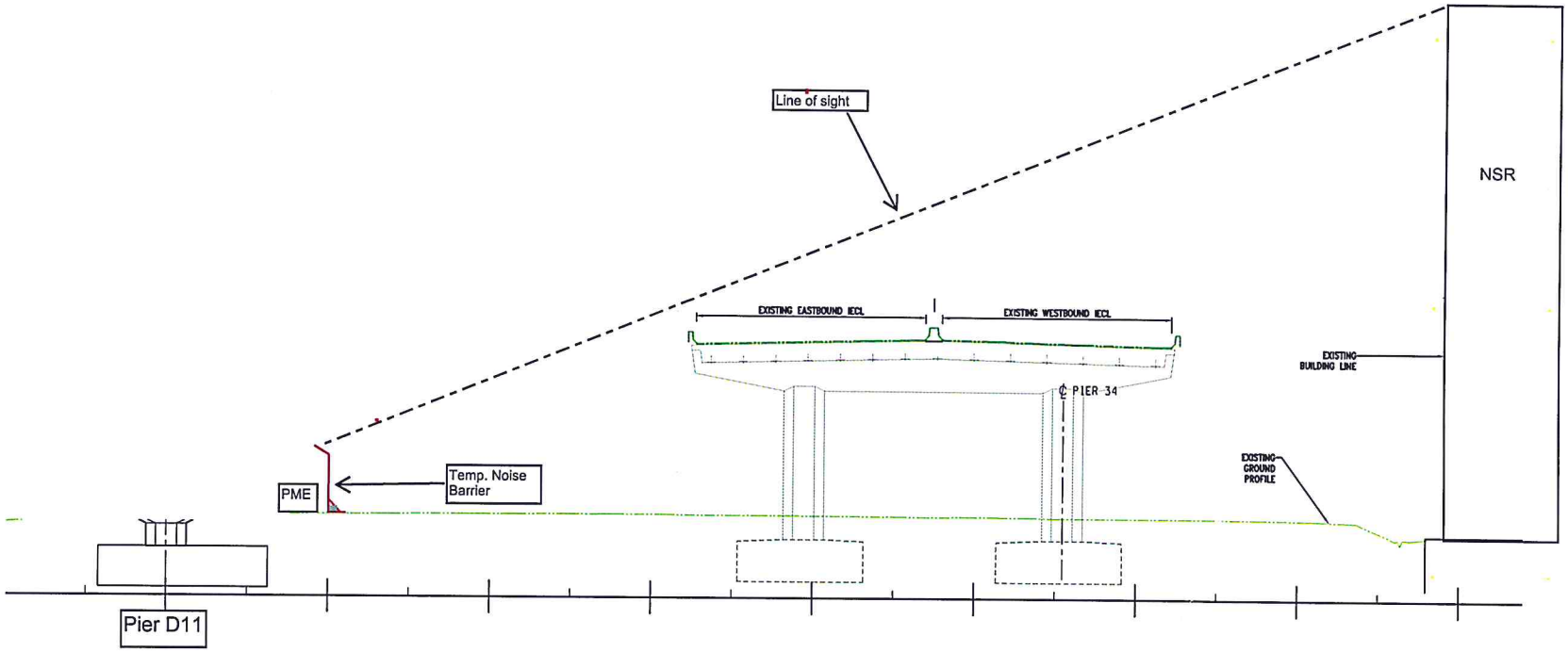
AECOM

DRG.NO. 圖紙編號 60095653/IEC/3006B

DESIGNED BY 設計: ALCF
CONTRACT NO. 合約編號: HY/2009/19
P. Dir. APPROVED 批准人: CW
DRAWN BY 繪圖: CZJ
STATUS 狀況: WORKING DRAWING
SCALE 比例: A1 1 : 500, A3 1 : 1000
DIMENSIONS ARE IN 尺寸單位: METRES

2010-7-2
Plot File by : XULP
P:\projects\60095653\Drawing\IEC\3000\IEC_3006.dgn

Contract No. HY/2009/19 Layout Plan for Installation of Noise Barrier (Area A4 & A5 of Appendix G)

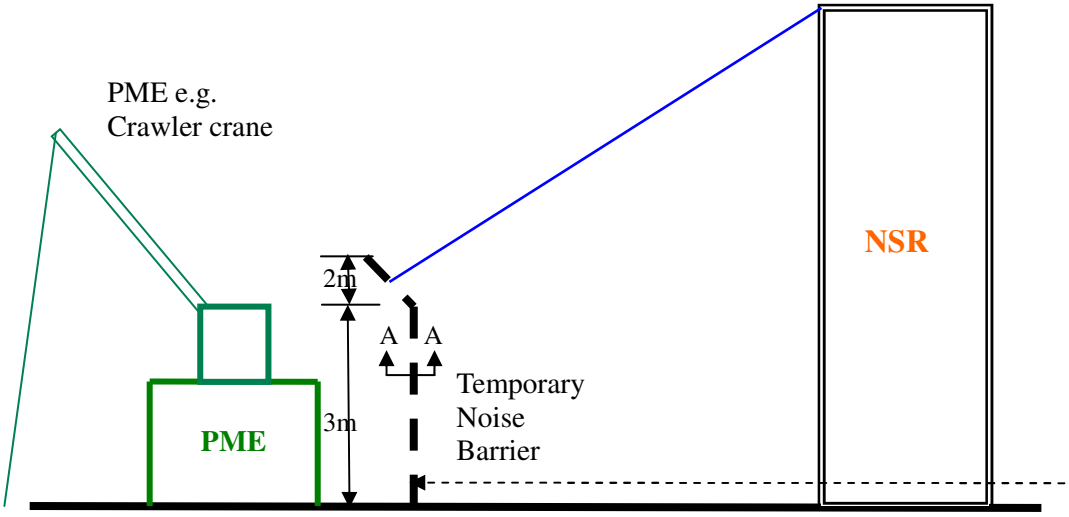


SECTIONAL VIEW OF TEMP. NOISE BARRIER

Contract No. HY/2009/19 Layout Plan for Installation of Noise Barrier (Area A4 & A5 of Appendix G)

C:\Ching Wing Li\HY200919\Temp\Fan\BridgeD_Profile_upto20121103.dwg, 11/16/12 11:55:11, ISO full bleed A3 (420.00 x 297.00 MM), 1:0.3

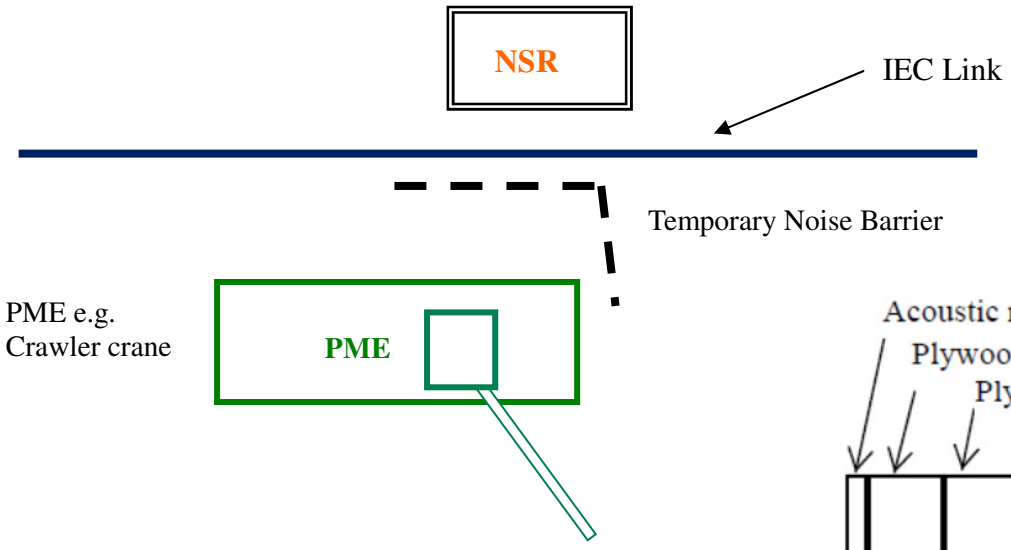
Typical Section View of Temporary Noise Barrier



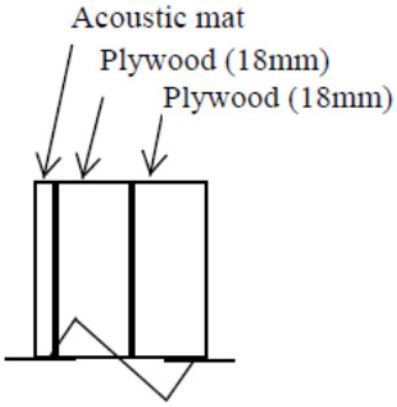
Temp. noise barriers will have 5m in height with cantilevered upper portion 3.5m in length

Temporary Noise Barrier with cantilevered upper portion located within 5m from PME. The PME will be totally screened when viewed from the NSR. Further, the inner surface of the barrier will be lined with the proposed sound absorptive sheet.

Plan View of Temporary Noise Barrier



PME that will be totally screened when viewed from the NSR



Section A-A of Noise Barrier

LEGEND:
ROAD MARKING & TEMP. LIGHTING INSTALLATION WORKS
PARAPET REMOVAL

EXISTING PARAPET

EXISTING PARAPET TO BE DEMOLISHED FROM PIER F7 TO PIER F15

ROAD MARKING & TEMPORARY LIGHTING INSTALLATION WORKS - REALIGNMENT TO DIVERT TRAFFIC

67.293

61.348

CITY GARDEN

PROVIDENT CENTRE

Contract No. HY/2009/19 Layout Plan for Installation of Noise Barrier for the demolition of IEC Link Parapet

CONTRACTOR
俊和-中國中鐵-中鐵大橋局聯營
CHUN WO - CRGL - MBEC JOINT VENTURE

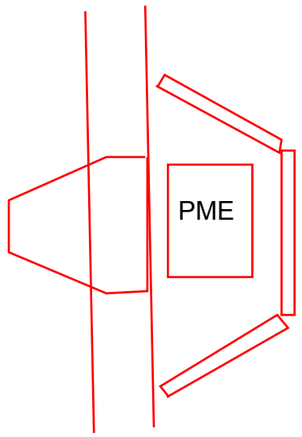
CONTRACT
CONTRACT NO. HK/2009/19
CENTRAL - WAN CHAI BYPASS TUNNEL (NORTH POINT SECTION) AND ISLAND EASTERN CORRIDOR LINK

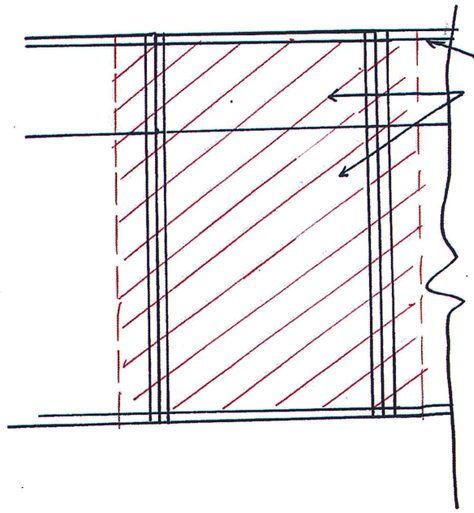
REV.	DATE	DESCRIPTION

DRG. TITLE:

LOCATION PLAN OF DEMOLITION OF IEC PARAPET

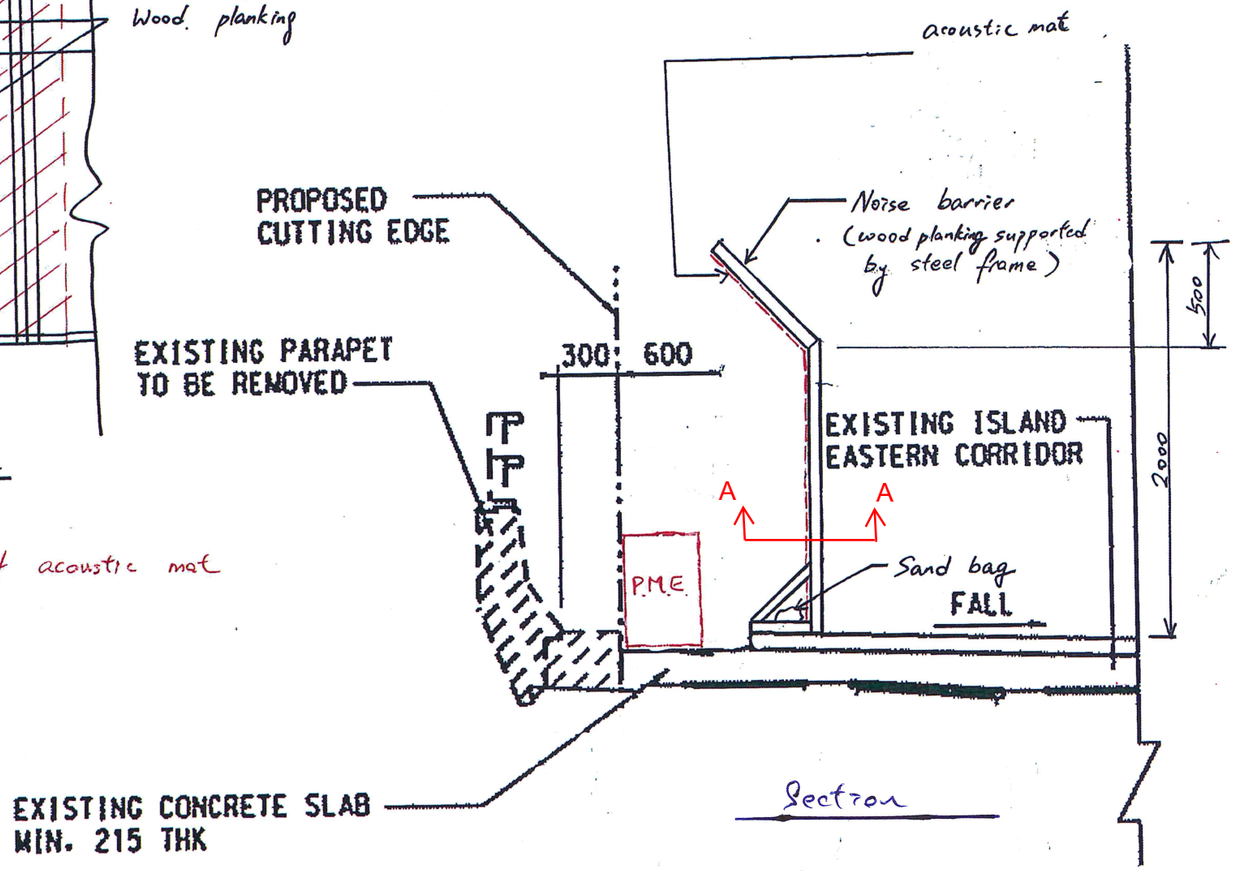
DRAWN	ML	DESIGNED	WL	CAD REF.
CHECKED	AC	APPROVED	WL	
SCALE	N.T.S.	DRG. NO.	SK/235	REV. 0
DATE	8-5-2012			





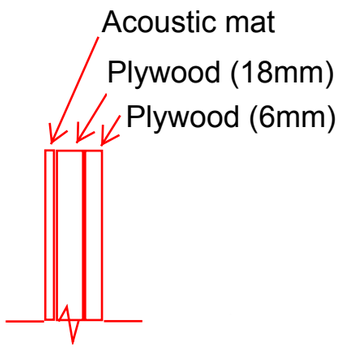
Elevation
N.T.S.

Single layer of acoustic mat

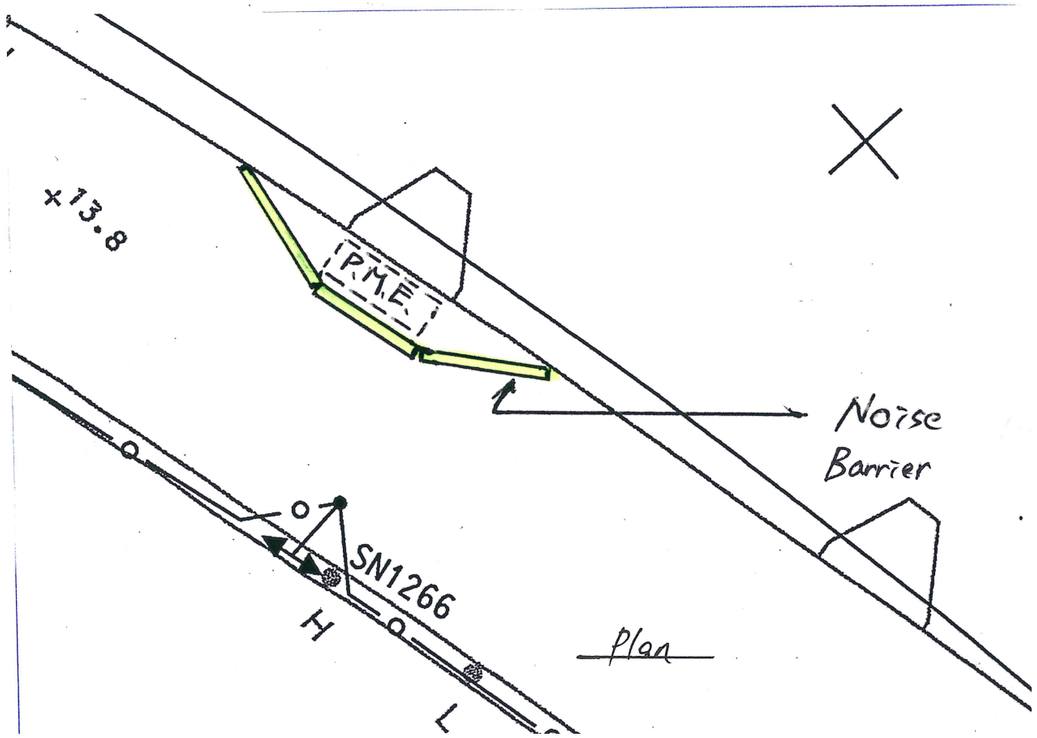


Section

Detail of noise barrier



Section A-A of Noise Barrier



Plan

Contract No. HY/2009/19 Layout Plan for Installation of Noise Barrier for the demolition of IEC Link Parapet

俊和-中國中鐵-中鐵大橋局聯營
CHUN WO - CRGL - MBEC JOINT VENTURE

NOISE MANAGEMENT PLAN

FOR

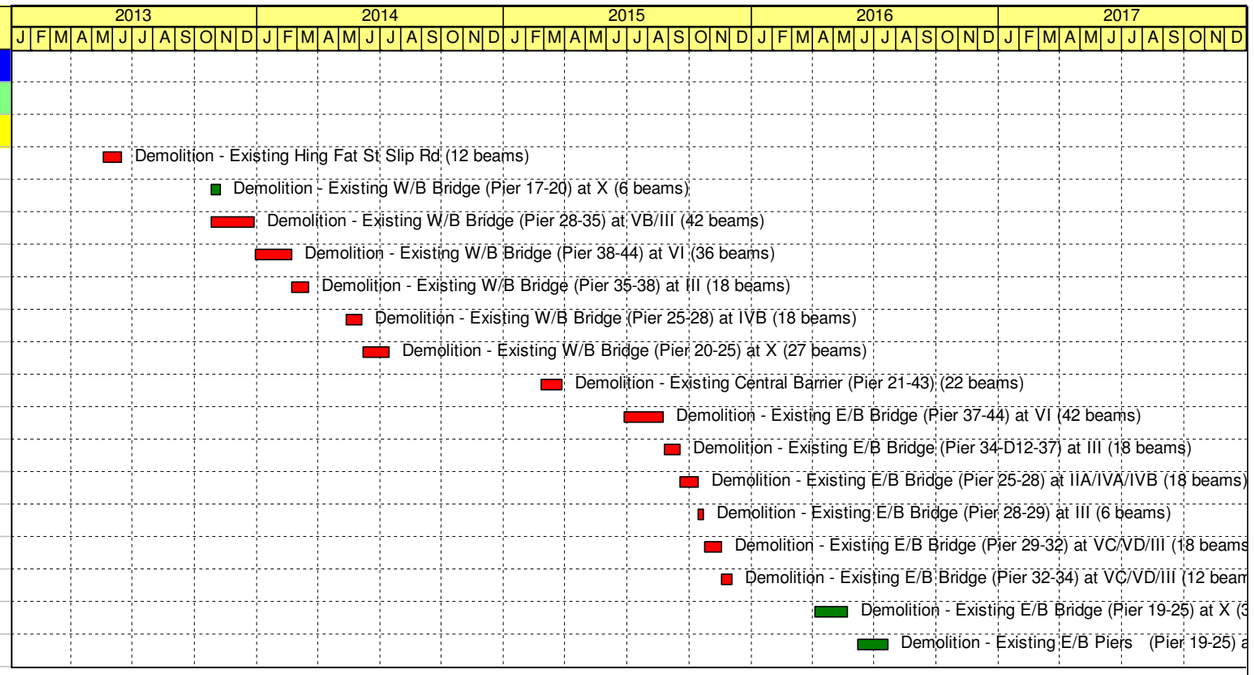
Contract No.: HY/2009/19

Central – Wan Chai Bypass Tunnel (North Point Section) and Island Eastern Corridor Link

Appendix E

Construction Works Programme

Activity ID	Activity Name	Orig Dur	Start	Finish	Total Float
Contract HY/2009/19 - DWP					
10 - SECTION X OF THE WORKS					
10.4 - Bridge Deck Demolition					
1042-1010	Demolition - Existing Hing Fat St Slip Rd (12 beams)	24	18-May-13	15-Jun-13	0
1041-1070	Demolition - Existing W/B Bridge (Pier 17-20) at X (6 beams)	12	26-Oct-13	08-Nov-13	46
1041-1020	Demolition - Existing W/B Bridge (Pier 28-35) at VB/III (42 beams)	54	26-Oct-13	28-Dec-13	0
1041-1030	Demolition - Existing W/B Bridge (Pier 38-44) at VI (36 beams)	42	30-Dec-13	20-Feb-14	0
1041-1040	Demolition - Existing W/B Bridge (Pier 35-38) at III (18 beams)	21	21-Feb-14	17-Mar-14	0
1041-1050	Demolition - Existing W/B Bridge (Pier 25-28) at IVB (18 beams)	21	12-May-14	05-Jun-14	0
1041-1060	Demolition - Existing W/B Bridge (Pier 20-25) at X (27 beams)	32	06-Jun-14	14-Jul-14	0
1042-1020	Demolition - Existing Central Barrier (Pier 21-43) (22 beams)	28	24-Feb-15	27-Mar-15	0
1042-1025	Demolition - Existing E/B Bridge (Pier 37-44) at VI (42 beams)	49	27-Jun-15	24-Aug-15	0
1042-1030	Demolition - Existing E/B Bridge (Pier 34-D12-37) at III (18 beams)	21	25-Aug-15	17-Sep-15	0
1042-1050	Demolition - Existing E/B Bridge (Pier 25-28) at IIA/IVA/IVB (18 beams)	21	18-Sep-15	14-Oct-15	0
1042-1060	Demolition - Existing E/B Bridge (Pier 28-29) at III (6 beams)	7	15-Oct-15	23-Oct-15	0
1042-1070	Demolition - Existing E/B Bridge (Pier 29-32) at VC/VD/III (18 beams)	21	24-Oct-15	17-Nov-15	0
1042-1075	Demolition - Existing E/B Bridge (Pier 32-34) at VC/VD/III (12 beams)	14	18-Nov-15	03-Dec-15	0
1042-1080	Demolition - Existing E/B Bridge (Pier 19-25) at X (36 beams)	42	05-Apr-16	23-May-16	3
1042-1100	Demolition - Existing E/B Piers (Pier 19-25) at X	36	07-Jun-16	20-Jul-16	3



俊和-中國中鐵-中鐵大橋局聯營
CHUN WO - CRGL - MBEC JOINT VENTURE

Project : Contract HY/2009/19 - DWP

Layout : Bridge Demolition

Page : 1 of 1

CWB - Tunnel (North Point Section) and IEC Link

Bridge Demolition Works

Remaining Level of Effort ◆ ◆ Milestone
Actual Work
Remaining Work
Critical Remaining Work

Contract HY/2009/19 - Detail Works Programme			
Date	Revision	Checked	Approved
27-Jul-11	DWP Rev. A		

俊和-中國中鐵-中鐵大橋局聯營
CHUN WO - CRGL - MBEC JOINT VENTURE

NOISE MANAGEMENT PLAN

FOR

Contract No.: HY/2009/19

Central – Wan Chai Bypass
Tunnel (North Point Section)
and
Island Eastern Corridor Link

Appendix F

Mitigation Measures for Powered Mechanical Equipment (PME) for the different Construction Tasks during Normal Daytime Working Hours

Appendix F

Appendix 4.13 **Powered Mechanical Equipment (PME) for the Different Construction Tasks during Normal Daytime Working Hours (With Mitigation Measures)**

6.0 Construction of IECL

6.2 IEC Connection Work

6.2A Substructures(Group 1 and 2 PME)

Powered Mechanical Equipment (PME)	TM Ref./ other Ref.	No. Items	SWL/Item dB(A)	On-time %	Noise Barrier Reduction	Total SWL dB(A)
Concrete Lorry Mixer*#	Table C6/35	2	100.0	100.0%	10.0	93.0
Poker Vibrator*#	TableC6/32	2	100.0	70.0%	10.0	91.5
Crane*#	TableC7/114	1	101.0	70.0%	10.0	89.5
Air Compressor*#	TableC7/16	5	96.0	100.0%	10.0	93.0
Excavator*#	TableC3/97	2	105.0	70.0%	10.0	96.5
Water Pump#	CNP 281	6	88.0	100.0%	10.0	85.8
Concrete Pump*#	TableC6/35	2	100.0	100.0%	10.0	93.0
Piling, Large diameter bored#	CNP 164	1	115.0	100.0%	10.0	105.0
					Total	106.5

6.2A Substructures(Group 1 PME)

Powered Mechanical Equipment (PME)	TM Ref./ other Ref.	No. Items	SWL/Item dB(A)	On-time %	Noise Barrier Reduction	Total SWL dB(A)
Concrete Lorry Mixer*#	TableC6/35	1	100.0	70.0%	10.0	88.5
Poker Vibrator*#	TableC6/32	1	100.0	70.0%	10.0	88.5
Crane*#	TableC7/114	1	101.0	70.0%	10.0	89.5
Compressor*#	TableC7/16	1	96.0	100.0%	10.0	86.0
Concrete Pump*#	TableC6/36	1	106.0	100.0%	10.0	96.0
					Total	98.2

6.2A Substructures(Group 2 PME)

Powered Mechanical Equipment (PME)	TM Ref./ other Ref.	No. Items	SWL/Item dB(A)	On-time %	Noise Barrier Reduction	Total SWL dB(A)
Crane*#	TableC7/114	1	101.0	70.0%	10.0	89.5
Excavator*#	TableC3/97	1	105.0	50.0%	10.0	92.0
Water Pump#	CNP 281	1	88.0	100.0%	10.0	78.0
Piling, Large diameter bored#	CNP 164	1	115.0	100.0%	10.0	105.0
					Total	105.3

6.2B Superstructures

Powered Mechanical Equipment (PME)	TM Ref./ other Ref.	No. Items	SWL/Item dB(A)	On-time %	Noise Barrier Reduction	Total SWL dB(A)
Concrete Lorry Mixer#	TableC6/35	2	100.0	100.0%	0.0	103.0
Poker Vibrator*#	TableC6/32	2	100.0	70.0%	5.0	96.5
Crane*	TableC7/114	1	101.0	70.0%	0.0	99.5
Compressor*#	TableC7/16	5	96.0	100.0%	10.0	93.0
Excavator*#	TableC3/97	2	105.0	70.0%	5.0	101.5
Water Pump#	CNP 281	6	88.0	100.0%	10.0	85.8
Concrete Pump*#	TableC6/35	2	100.0	100.0%	10.0	93.0
Bar Bender#	CNP 021	2	90.0	100.0%	10.0	83.0
					Total	107.1

6.2A Substructures(Group 1 and 2 PME)(For Marine Works)

Powered Mechanical Equipment (PME)	TM Ref./ other Ref.	No. Items	SWL/Item dB(A)	On-time %	Noise Barrier Reduction	Total SWL dB(A)
Concrete Lorry Mixer*#	Table C6/35	2	100.0	100.0%	0.0	103.0
Poker Vibrator*#	TableC6/32	2	100.0	70.0%	5.0	96.5
Crane*#	TableC7/114	1	101.0	70.0%	0.0	99.5
Air Compressor*#	TableC7/16	5	96.0	100.0%	10.0	93.0
Water Pump#	CNP 281	6	88.0	100.0%	10.0	85.8
Concrete Pump*#	TableC6/35	2	100.0	100.0%	10.0	93.0
Piling, Large diameter bored#	CNP 164	1	115.0	100.0%	5.0	110.0
Tug boat	CNP 221	1	110.0	50.0%	0.0	107.0
Barges	-	2	0.0	100.0%	0.0	0.0
					Total	112.7

*Use of QPME
#Use of Barrier
**EPD website (www.epd.gov.hk/cgi-bin/npg/qpme/search.gen.pl)
Note: No noise emits from barges during dredging

Information Source: Appendix 4.13 of EIA (AEIAR-125/2008)

6.2A Substructures(Group 1 PME)(For Marine Works)

Powered Mechanical Equipment (PME)	TM Ref./ other Ref.	No. Items	SWL/Item dB(A)	On-time %	Noise Barrier Reduction	Total SWL dB(A)
Concrete Lorry Mixer*#	TableC6/35	1	100.0	70.0%	0.0	98.5
Poker Vibrator*#	TableC6/32	1	100.0	70.0%	5.0	93.5
Crane*#	TableC7/114	1	101.0	70.0%	0.0	99.5
Compressor*#	TableC7/16	1	96.0	100.0%	10.0	86.0
Concrete Pump*#	TableC6/36	1	106.0	100.0%	10.0	96.0
Tug boat	CNP 221	1	110.0	50.0%	0.0	107.0
Barges	-	1	0.0	100.0%	0.0	0.0
					Total	108.6

6.2A Substructures(Group 2 PME)(For Marine Works)

Powered Mechanical Equipment (PME)	TM Ref./ other Ref.	No. Items	SWL/Item dB(A)	On-time %	Noise Barrier Reduction	Total SWL dB(A)
Crane*#	TableC7/114	1	101.0	70.0%	0.0	99.5
Water Pump#	CNP 281	1	88.0	100.0%	10.0	78.0
Piling, Large diameter bored#	CNP 164	1	115.0	100.0%	5.0	110.0
Tug boat	CNP 221	1	110.0	50.0%	0.0	107.0
Barges	-	1	0.0	100.0%	0.0	0.0
					Total	112.0

6.2B Superstructures(For Marine Works)

Powered Mechanical Equipment (PME)	TM Ref./ other Ref.	No. Items	SWL/Item dB(A)	On-time %	Noise Barrier Reduction	Total SWL dB(A)
Concrete Lorry Mixer#	TableC6/35	2	100.0	100.0%	0.0	103.0
Poker Vibrator*#	TableC6/32	2	100.0	70.0%	5.0	96.5
Crane*	TableC7/114	1	101.0	70.0%	0.0	99.5
Compressor*#	TableC7/16	5	96.0	100.0%	10.0	93.0
Excavator*#	TableC3/97	2	105.0	70.0%	5.0	101.5
Water Pump#	CNP 281	6	88.0	100.0%	10.0	85.8
Concrete Pump*#	TableC6/35	2	100.0	100.0%	10.0	93.0
Bar Bender#	CNP 021	2	90.0	100.0%	10.0	83.0
Tug boat	CNP 221	1	110.0	50.0%	0.0	107.0
Barges	-	2	0.0	100.0%	0.0	0.0
					Total	110.1

6.2C Demolition of Structure (For IEC E/B)

Powered Mechanical Equipment (PME)	TM Ref./ other Ref.	No. Items	SWL/Item dB(A)	On-time %	Noise Barrier Reduction	Total SWL dB(A)
Breaker, excavator mounted*#	TableC8/13	2	110.0	80.0%	5.0	107.0
Hand-held Breaker*#	Table C2/10	2	110.0	100.0%	5.0	108.0
Backhoe*	TableC3/97	2	105.0	70.0%	5.0	101.5
Dump Truck*	TableC9/27	4	105.0	70.0%	0.0	109.5
Crane*	TableC7/114	1	101.0	100.0%	0.0	101.0
					Total	113.6

6.2C Demolition of Structure (For IEC W/B)

Powered Mechanical Equipment (PME)	TM Ref./ other Ref.	No. Items	SWL/Item dB(A)	On-time %	Noise Barrier Reduction	Total SWL dB(A)
Breaker, excavator mounted*#	TableC8/13	1	110.0	80.0%	5.0	104.0
Hand-held Breaker*#	Table C2/10	1	110.0	100.0%	5.0	105.0
Backhoe*	TableC3/97	1	105.0	70.0%	5.0	98.5
Dump Truck*	TableC9/27	2	105.0	70.0%	0.0	106.5
Crane*	TableC7/114	1	101.0	100.0%	0.0	101.0
					Total	110.8

6.2C Demolition of Structure (For IEC E/B)(For Marine Works)

Powered Mechanical Equipment (PME)	TM Ref./ other Ref.	No. Items	SWL/Item dB(A)	On-time %	Noise Barrier Reduction	Total SWL dB(A)
Breaker, excavator mounted*#	TableC8/13	2	110.0	80.0%	5.0	107.0
Hand-held Breaker*#	Table C2/10	2	110.0	100.0%	5.0	108.0
Backhoe*	TableC3/97	2	105.0	70.0%	5.0	101.5
Dump Truck*	TableC9/27	4	105.0	70.0%	0.0	109.5
Tug boat	CNP 221	1	110.0	100.0%	0.0	110.0
Barges	-	2	0.0	100.0%	0.0	0.0
Crane*	TableC7/114	1	101.0	100.0%	0.0	101.0
					Total	115.2

*Use of QPME
#Use of Barrier
**EPD website (www.epd.gov.hk/cgi-bin/npg/qpme/search.gen.pl)
Note: No noise emits from barges during dredging

Information Source: Appendix 4.13 of EIA (AEIAR-125/2008)

6.2C Demolition of Structure (For IEC W/B)(For Marine Works)

Powered Mechanical Equipment (PME)	TM Ref./ other Ref.	No. Items	SWL/Item dB(A)	On-time %	Noise Barrier Reduction	Total SWL dB(A)
Breaker, excavator mounted*#	TableC8/13	1	110.0	80.0%	5.0	104.0
Hand-held Breaker*#	Table C2/10	1	110.0	100.0%	5.0	105.0
Backhoe*	TableC3/97	1	105.0	70.0%	5.0	98.5
Dump Truck*	TableC9/27	2	105.0	70.0%	0.0	106.5
Tug boat	CNP 221	1	110.0	100.0%	0.0	110.0
Barges	-	2	0.0	100.0%	0.0	0.0
Crane*	TableC7/114	1	101.0	100.0%	0.0	101.0
					Total	113.4

6.3 East Portal and IEC Connection Work

6.3.1 Substructures

Powered Mechanical Equipment (PME)	TM Ref./ other Ref.	No. Items	SWL/Item dB(A)	On-time %	Noise Barrier Reduction	Total SWL dB(A)
Concrete Lorry Mixer*	TableC6/35	2	100.0	100.0%	10.0	93.0
Poker Vibrator*#	TableC6/32	2	100.0	70.0%	10.0	91.5
Crane*	TableC7/114	1	101.0	70.0%	10.0	89.5
Air Compressor*#	TableC7/16	5	96.0	100.0%	10.0	93.0
Excavator*#	TableC3/97	2	105.0	70.0%	10.0	96.5
Water Pump#	CNP 281	6	88.0	100.0%	10.0	85.8
Concrete Pump*#	TableC6/36	2	106.0	100.0%	10.0	99.0
Piling, Large diameter bored#	CNP 164	1	115.0	100.0%	10.0	105.0
					Total	107.0

6.3.2 Retaining Structures

Powered Mechanical Equipment (PME)	TM Ref./ other Ref.	No. Items	SWL/Item dB(A)	On-time %	Noise Barrier Reduction	Total SWL dB(A)
Concrete Lorry Mixer*#	TableC6/35	2	100.0	100.0%	0.0	103.0
Poker Vibrator*#	TableC6/32	2	100.0	70.0%	5.0	96.5
Crane*#	TableC7/114	1	101.0	70.0%	0.0	99.5
Air Compressor*#	TableC7/16	5	96.0	100.0%	10.0	93.0
Excavator*#	TableC3/97	2	105.0	70.0%	5.0	101.5
Water Pump#	CNP 281	6	88.0	100.0%	10.0	85.8
Concrete Pump*#	TableC6/36	2	106.0	100.0%	10.0	99.0
Piling, Large diameter bored#	CNP 164	1	115.0	100.0%	5.0	110.0
					Total	112.0

6.3.3 Demolition of Structure

Powered Mechanical Equipment (PME)	TM Ref./ other Ref.	No. Items	SWL/Item dB(A)	On-time %	Noise Barrier Reduction	Total SWL dB(A)
Breaker, excavator mounted*#	TableC8/13	2	110.0	70.0%	5.0	106.5
Excavator*#	TableC3/97	2	105.0	80.0%	5.0	102.0
Hand-held Breaker*#	TableC2/10	2	110.0	100.0%	5.0	108.0
Dump Truck*	TableC9/27	4	105.0	70.0%	0.0	109.5
Crane*	TableC7/114	1	101.0	100.0%	0.0	101.0
					Total	113.5

9.0 Tunnel Building and Installation

9.0 Tunnel Building and Installation at East Ventilation Building, Adminisatrtion Building, & Central Ventilation Building, West Ventilation Building

9.0A Substructures

Powered Mechanical Equipment (PME)	TM Ref./ other Ref.	No. Items	SWL/Item dB(A)	On-time %	Noise Barrier Reduction	Total SWL dB(A)
Concrete Lorry Mixer*	TableC6/35	2	100.0	100.0%	0.0	103.0
Poker Vibrator*#	TableC6/32	2	100.0	70.0%	5.0	96.5
Crane*	TableC7/114	1	101.0	70.0%	0.0	99.5
Compressor*#	TableC7/16	5	96.0	100.0%	10.0	93.0
Excavator*#	TableC3/97	2	105.0	70.0%	5.0	101.5
Water Pump#	CNP 281	6	88.0	100.0%	10.0	85.8
Concrete Pump*#	TableC6/35	2	100.0	100.0%	10.0	93.0
Piling, Large diameter bored#	CNP 164	1	115.0	100.0%	5.0	110.0
					Total	111.8

*Use of QPME
#Use of Barrier
**EPD website (www.epd.gov.hk/cgi-bin/npg/qpme/search.gen.pl)
Note: No noise emits from barges during dredging

Information Source: Appendix 4.13 of EIA (AEIAR-125/2008)

俊和-中國中鐵-中鐵大橋局聯營
CHUN WO - CRGL - MBEC JOINT VENTURE

NOISE MANAGEMENT PLAN

FOR

Contract No.: HY/2009/19

Central – Wan Chai Bypass
Tunnel (North Point Section)
and
Island Eastern Corridor Link

Appendix G

Schedule for the Installation of Noise Barrier

Legend: Noise Barrier Alignment

VICTORIA HARBOUR

NEW RECLAIMED LAND UNDER NPR

NEW IEC LINK

BOX CULVERT U1

BOX CULVERT T1

CWB TUNNEL

EXISTING ISLAND EASTERN CORRIDOR

VICTORIA CENTRE

SEA VIEW ESTATE

HARBOUR HEIGHTS

HARBOUR GRAND HONG KONG

EX-GOVERNMENT SUPPLIES DEPARTMENT DEPOT (LAND SALE SITE)

ESS

CITY GARDEN

THE ELECTRIC CENTRE

A1: Area to be occupied in End April 2013 (tentative) and Noise Barrier to be installed by other Contractor before possession of the site

A2: Temporary Noise Barrier already installed on site by other Contractor before possession of the site

A3: Area to be occupied in April 2013 (tentative) and Noise Barrier can then be installed

A4: Area to be occupied in April 2013 (tentative) and Noise Barrier can then be installed

A5: Area available but Noise Barrier can be installed in Early 2014

LEGEND :

- SITE BOUNDARY
- LANDSCAPED DECK
- TRUNK ROAD TUNNEL
- PROPOSED ELEVATED CARRIAGEWAY
- EXISTING ELEVATED CARRIAGEWAY TO BE DEMOLISHED
- EXISTING ELEVATED CARRIAGEWAY TO BE DEMOLISHED AND RECONSTRUCTED
- PROPOSED BOX CULVERT

VICTORIA HARBOUR

EXISTING ISLAND EASTERN CORRIDOR

CITY GARDEN

HENIRETTA SECONDARY SCHOOL

PLK YU LEE MO FAN MEMORIAL SCHOOL

PROVIDENT CENTRE

T:\HY_2009_19\User\RE(GROUP C)\RE(C4)-GORDON\2012-10-25\19SK0117G.dgn 25/10/12 2:57:03 PM

俊和-中國中鐵-中鐵大橋局聯營
CHUN WO - CRGL - MBEC JOINT VENTURE

NOISE MANAGEMENT PLAN

FOR

Contract No.: HY/2009/19

Central – Wan Chai Bypass
Tunnel (North Point Section)
and
Island Eastern Corridor Link

Appendix H

Specification of Noise Absorptive Material

AECOM

17B000514

15 JUL 2010

RESPONSE TO CONTRACTOR'S SUBMISSION

Our Ref. : CWB/(HY/2009/17)/M25/110/17B000514

To : Lam Woo & Co., Ltd. Attn. : Mr. Daniel Chan

Location : Aesthetic Panel (Type 1)	CSF No. : CMS/C&S/014/2	
Title of Submission : **Noise Absorptive Material – Rockwool for Aesthetic Panel (Type 1)** *(Originated from Contractor)*	Rev.: N/A	Date: 12 July 2010

The Engineer's Representative's Comment(s) :

Your submission ref: CMS/C&S/014/2, dated 13 July 2010 and received on 13 July 2010 refers.

I have no objection to the use of "IAC" Acoustic Panel (Standard Panel Size: 1900 x 500 x 50mm) for the Aesthetic Panel Type 1.

Please note that the colour of aluminium perforated sheet should be similar to the colour of steel posts.

Please submit the schedule of material delivery to site.

Status : ☐ Approved; ☐ Not approved and resubmission required;

☑ Approved subject to condition(s) as stated / further required information as stated.

☐ Approval not required. ☐ Others _____ *(Please specify)*

The Engineer's Representative : _____ Date of Response : 14 July 2010

Terry Siu

c.c. AECOM – Mr. Kelvin Cheng

TS/TL/SN/cw

Transportation Noise Barriers

Highways • Railroads • Buses • Airports • Light Rail Vehicles • Subways • Elevated Systems

- **Galvanized Steel or Aluminium**
- **Free-Draining**
- ***Light Weight***
- **Easily Installed**
- **Sound Absorptive**
- **Weather-Tested Finishes**
- **Freestanding or Add-on Cladding**
- **Horizontal or Vertical Installation**
- **Architectural Aesthetics**

Freestanding Barriers

Noise Barriers Types : FS, HB and HBS Barriers – sound absorptive on one and two sides respectively – optimize sound transmission losses and sound absorbing properties in a durable and attractive wall system in harmony with the community. Excellent low frequency absorption for heavy vehicles.

- Laboratory-rated sound absorption on one or both sides.
- Low weight, rugged construction – ideal for wall or roof mounting.
- 125mm thick modular system in steel or aluminium.
- Abuse resistant powder coated galvanized steel or aluminium construction.
- Readily relocated in the event of expansion or the re-use in other projects.
- Withstand wind load up to 4.23 KPa (max. 3m) - designs for specific wind loads are available.

Noise Barrier system Finishes

Noise Barriers are finished with a tough, thermosetting, polyester powder coating. A wide variety of standard colors allows complementary decorative schemes and attractive designs to reduce apparent wall height as perceived by the community and motorists.

- Salt spray tested for checking, blistering, loss or adhesion, or evidence of corrosion per ASTM B 117 for 3000 hours without coating failure.
- Tested for accelerated weathering per AAMA 2604-98 for 5 years Florida with colour change $\Delta E < 5$ and gloss retention > 30%.
- Optional facings include *stucco and others*.

iac

Industrial Acoustics Company...Making the World a Quieter Place .....

Suite 1601, 148 Electric Road, North Point, Hong Kong. *Tel : 852-25281138* *Fax : 852-25291961* *email : info@iachk.com*

Contract No. HY/2009/17 Noise Absorptive Material

Configuration		TYPE FS/A	TYPE FS/A/1	TYPE HB/A	TYPE HBS/A
		 Thickness 125mm	 Thickness 125mm	 Thickness 125mm	 Thickness 125mm
Weight (kg/m²)	Aluminium	10.70	24.50	12.20	25.40
Application		Freestanding alongside noisy equipment			Freestanding between multiple noise source

ACOUSTIC PERFORMANCE CHARACTERISTICS

1/1 Octave Band Center Frequency, Hz	125	250	500	1K	2K	4K	STC / Rw
SOUND TRANSMISSION LOSS DATA, dB (.)							
FS/A	14	19	27	33	38	39	31
FS/A/1	23	30	39	35	41	45	38
HB/A	14	17	24	32	36	43	29
HBS/A	14	15	22	40	48	53	27
SOUND ABSORPTION COEFFICIENT (..)							NRC
FS/A	0.79	1.14	1.18	1.12	1.06	1.01	1.10
FS/A/1	0.66	1.07	1.12	1.06	1.04	0.97	1.05
HB/A	0.62	1.07	1.22	1.14	1.17	1.10	1.15
HBS/A	0.43	0.60	0.92	1.06	1.04	1.13	0.90

. All data in accordance with ISO Standard 140 or ASTM E90.
.. All data in accordance with ASTM C423 or ISO Standard 354.

Specifications

Transportation Noise Barriers FS/A , FS/A/1, HB/A and HBS/A Module

1.0 GENERAL

1.1 Noise Barrier Modules shall be manufactured and installed with an acoustically absorptive surface, having guaranteed sound absorptive properties facing the predominant noise source. The barrier shall be constructed of vertical posts and polyester powder coated absorptive modules stacked to achieve the required wall heights. The pre-approved barrier system shall be Transportation NOISHIELD Type : FS, HB and HBS as manufactured by Industrial Acoustics Company (H.K.) Ltd.,Suite 1601, 148 Electric Road, North Point, Hong Kong.

1.2 Pre-bid submittals and approval shall include sample, structural calculations and wall design drawings: current test data illustrating compliance with the requirements of the acoustical and durability specifications for modules made on production line; proof of adequate manufacturing and financial capability consistent with project requirements; and a sample module made on production tooling.

2.0 DESIGN

2.1 Ground Mounted Barriers

2.1.1 Posts shall be spaced at 3000mm on center for steel posts, (plus concrete web thickness for concrete posts) consistent with the module spanning capability at the design wind pressure.

2.2 Color, Module Patterns

2.2.1 Modules shall have a consistent color from module to module. A sample of each color to be supplied shall be submitted for approval prior to the start of manufacturing.

2.2.2 Panels shall be stacked with joints aligned horizontally or joints may be uniformly stepped where the top or bottom of the wall change elevations. Barrier module color patterns shall be shown on shop drawings (using a legend keyed to color numbers).

2.3 Acoustical Characteristics

2.3.1 The barrier shall incorporate absorptive sound materials to prevent reverberation of noise between parallel walls, between vehicles and nearby sound barriers, and noise reflections to unshielded noise sensitive areas of the community.

3.0 MATERIALS

3.1 Modules shall be constructed of aluminium sheets manufactured in accordance with the requirements of AA1100 Specification, minimum 1.2mm solid side and 1.2mm perforated side. Modules shall be non-welded, free draining. Modules shall be coated in the factory with polyester powder coating applied through the use of an electrostatic charged and thermally bonded to the aluminium sheets.

3.2 Acoustic fill material shall be fiberglass, non-corrosive, resistant to be attacked by fungus, fire-resistant, vermin proof, and non-hygroscopic. Fill material shall be free draining, self supporting and shall retain physical and sound absorptive characteristics after long term exposure to the elements.

3.3 Posts shall be galvanized steel meeting the requirements of BS729 and BS4360 Grade 43A or approved equal. Color coating of posts shall be as required by the owner/architect.

3.4 Anchor bolts shall be stainless steel or approved equal.

3.5 Bearing blocks shall be EPDM, neoprene, or rubber, 60 durometer.

3.6 *Material Testing and* Certification.

3.6.1 Acoustical testing

3.6.1.1 Certified test reports shall be submitted to demonstrate compliance with the Sound Transmission Loss and Sound Absorption Coefficients specified. Tests have been conducted in a laboratory accredited by the National Voluntary Laboratory Accreditation Program (NVLAP) or HOKLAS.

3.6.1.2 Sound Absorption Coefficient Tests shall be performed in accordance with ASTM C423 or ISO 354.

3.6.1.3 Transmission Loss Tests shall be performed in accordance with ASTM E90 or ISO 140.

3.6.2 Module Testing

3.6.2.1 Fire properties of the panel shall be tested in accordance with ASTM E84-01 with the following results :

a) Flame Spread Index = 0
b) Smoke Developed Index ≈ 5

3.6.2.2 Salt spray tested for checking, blistering, loss or adhesion, or evidence of corrosion per ASTM B117 for 3000 hours without coating failure.

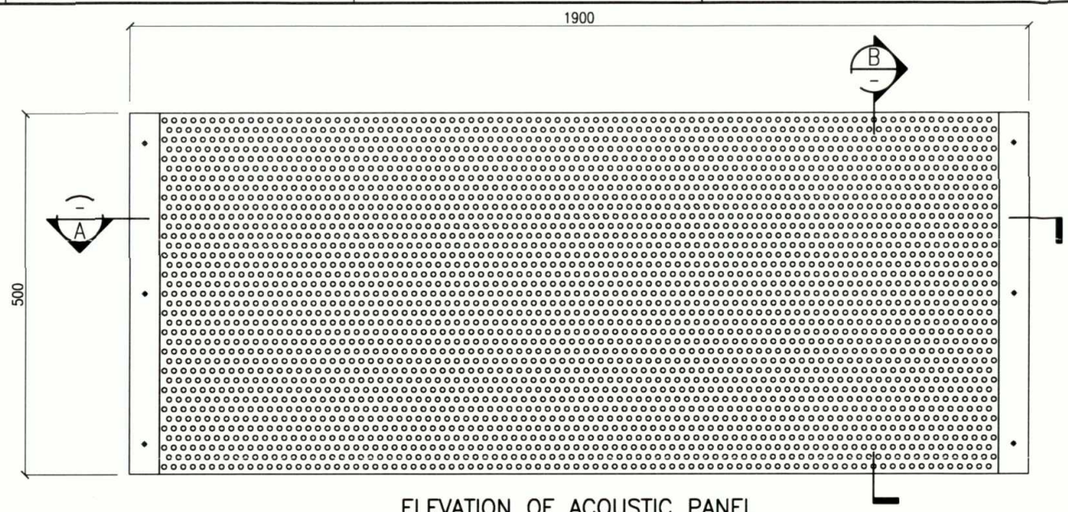
3.6.2.3 Tested for accelerated weathering per AAMA 2604-98 for 5 year Florida with colour change $\Delta E < 5$ and gloss retention > 30%.

INDUSTRIAL ACOUSTICS COMPANY (H.K.) LTD.
雅士消聲器材(香港)有限公司
Suite 1601, 148 Electric Road, North Point, Hong Kong
Tel: (852) 2528 1138 Fax: (852) 2529 1961
E-mail address: info@iachk.com Web Site: www.iachk.com

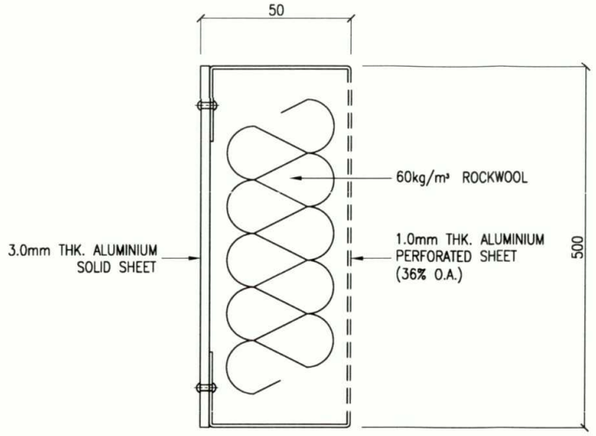
Calculation the weight of 50mm thick panel

panel size 1900x500 = 0.95 m2

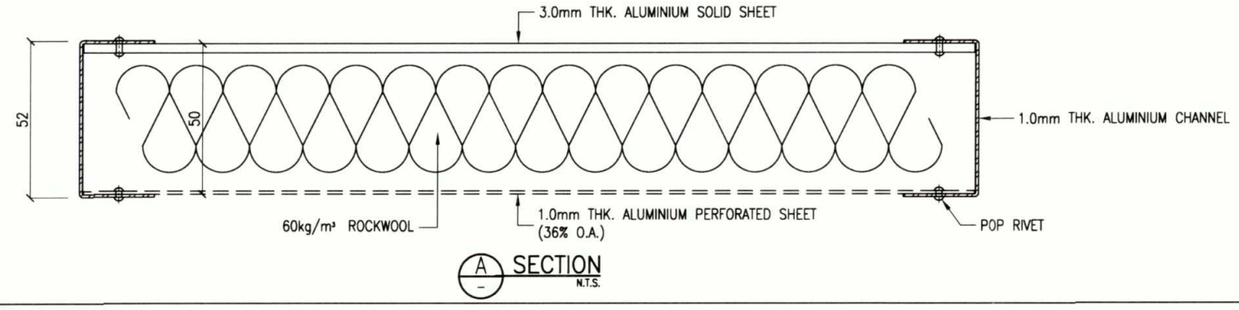
Material		Area		Weight	
1)	3mm thick aluminium sheet 1900x500	0.95	m2	7.84	kg
2)	1.0mm thick Aluminium perforated sheet 1900x700 (36% Opening)	1.33	m2	2.3408	kg
3)	1.0mm thick Aluminium End U	0.1	m2	0.275	kg
4)	50mm Thk. 60kg/m3 Rockwool	0.95	m2	2.85	kg
5)	Others (Pop revit and screws)			0.15	kg
		Total		13.4533	kg
		Unit Weight		14.16	kg/m2



ELEVATION OF ACOUSTIC PANEL
N.T.S.



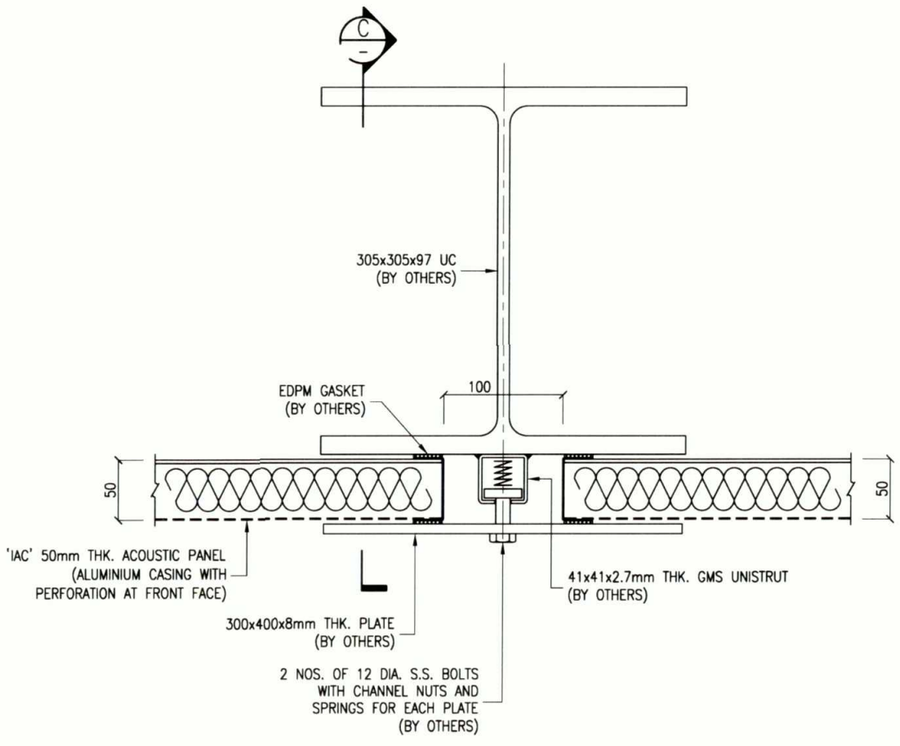
B SECTION
N.T.S.



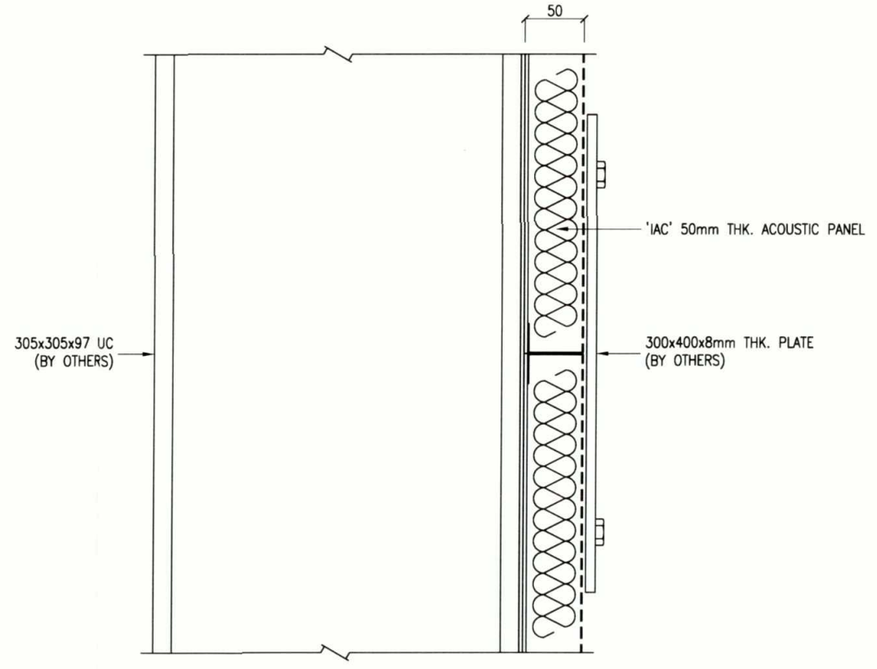
A SECTION
N.T.S.

NOTES:

1. THIS DRAWING SHALL BE READ IN CONJUNCTION WITH AECOM'S DWG. NO. 60095653/FEHD/1107A, 1108A.



FIXING DETAIL FOR ACOUSTIC PANEL
SCALE 1:5



C SECTION
SCALE 1:5

INDUSTRIAL ACOUSTICS COMPANY HONG KONG LIMITED
雅士消聲器材(香港)有限公司

PROJECT:
CONTRACTOR NO. HY/2009/17
CENTRAL – WAN CHAI BYPASS
FEHD WHITFIELD DEPOT
RE-PROVISIONING WORKS

TITLE:
LAYOUT AND FIXING DETAIL OF ACOUSTIC PANEL

DRAWN BY: SHL	DESIGNED BY: FML
SCALE: AS SHOWN@A3	CHECKED BY: FML
JOB NO: –	DATE: 9-JUL-2010
DRAWING NO: EW-2009/17-AP-D001	REV: 0

AECOM
8/F, Grand Central Plaza, Tower 2,
138 Shatin Rural Committee Road,
Shatin, Hong Kong
香港新界沙田鄉事會路 138 號
新城市中央廣場第 2 座 8 樓
www.aecom.com

Your Ref. : CHEC-CRBCJV/C-257/01.01/000243, CGS/000016/A
Our Ref. : CWB/(HY/2009/11)/M25/110/B000207

10 March 2010

Mr. Daniel Cheung
China Harbour Engineering Company Limited -
China Road and Bridge Corporation Joint Venture
19th Floor, China Harbour Building
370-374 King's Road
North Point
Hong Kong

Dear Sirs,

Contract No. HY/2009/11
Central-Wan Chai Bypass – North Point Reclamation

Submission CGS/000016/A for Noise Absorptive Material

I refer to your above referenced submission dated 12 February 2010 and your subsequent letter dated 5 March 2010 enclosing the manufacturer's testing report on the proposed Forster F2 absorptive panel.

Since the report shows that the absorptive panel can absorb 12 dB noise intensity which meets the EIA noise reduction requirement of 10dB, I have no further comment on their use for the special hoarding of this project.

Yours faithfully,
For and on behalf of
AECOM Asia Co. Ltd.

Terry Siu
Engineer's Representative
Transportation

c.c. AECOM - Attn : Mr. Kelvin Cheng

TS/ TL/SN/mt

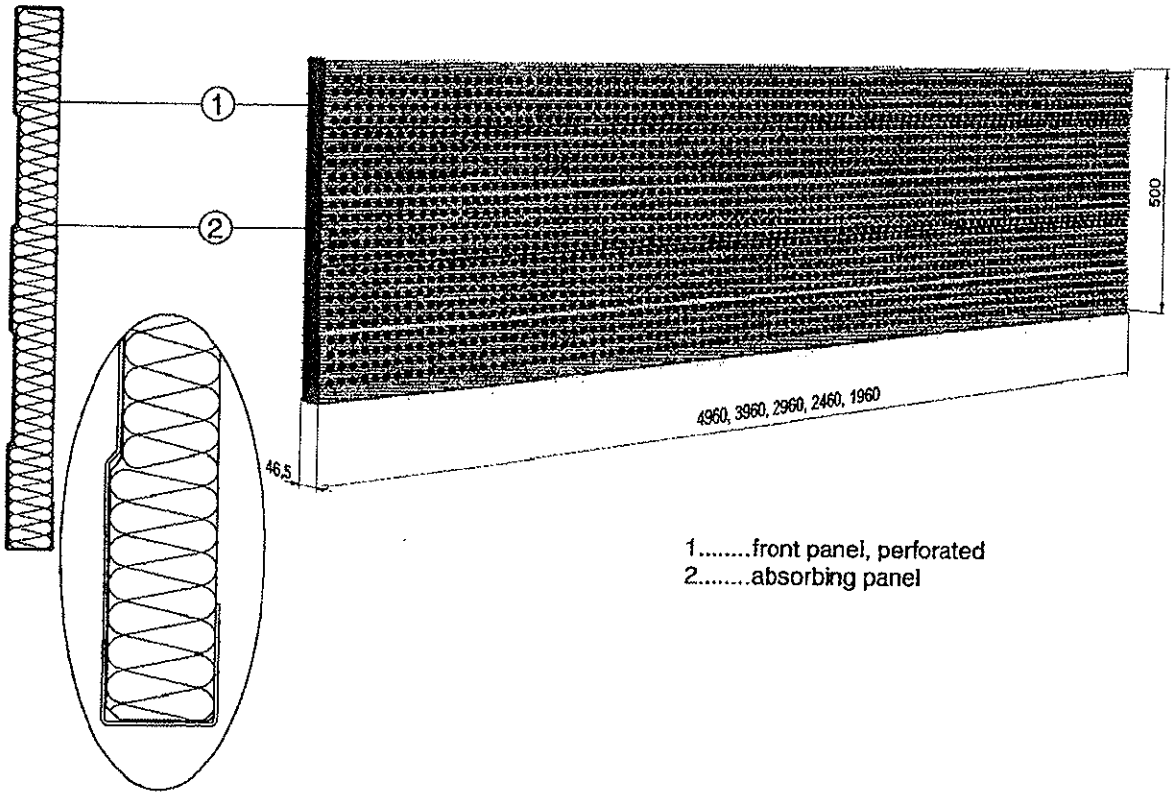
Forster Metallbau Gesellschaft m. b. H.
P.O. Box 176, Weyrer Strasse 135
A-3340 Waidhofen/Ybbs, Austria

Tel. (0) 74 42 / 501 - 0
Fax (0) 74 42 / 501 - 100
e-mail: forster@forster.at
http://www.forster.at

FORSTER

Traffic Engineering · Shelving Systems

highly absorbing aluminium cladding panel type F2



1.....front panel, perforated
2.....absorbing panel

Types:

F2/1,25 ..... sheet thickness 1,25 mm

Material:

Aluminium, polyester-powder-coated

Standard size : 1960mm x 500mm x 45mm

Description:

Aluminium cladding panel, highly absorbing, for cladding of reflecting walls, according to EN 1793-1, ZTV-LSW 06 and CE-label acc. to EN 14388.
Absorbing panel: 40 mm thick rockwool with 100 kg/m³, front side covered with black glass fleece (hydrophobic).
Front panel crimped for stiffening and profiled.

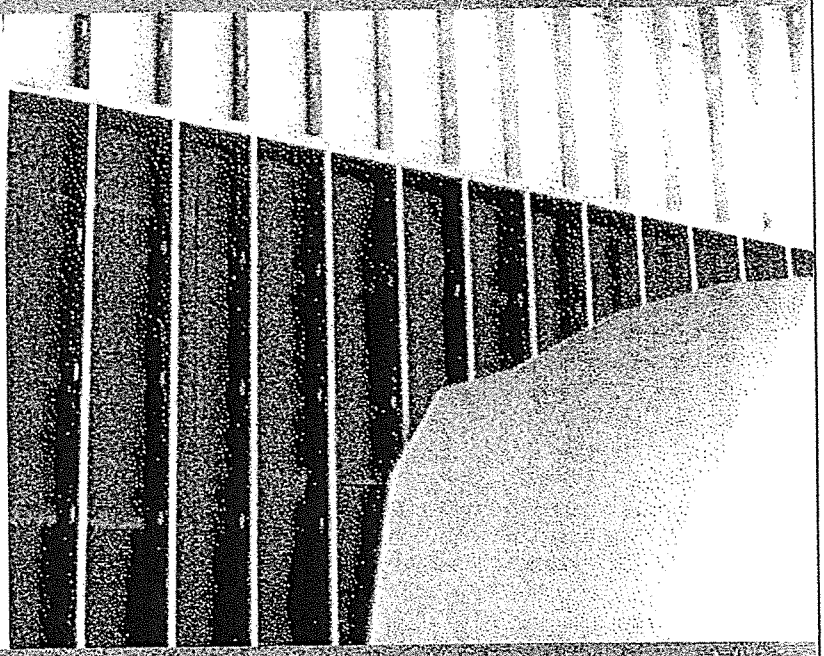
Characteristic values:

	sound absorption acc. EN 1793-1
	DL_α, dB
	min. 9 (A3)

專業隔音 給您真正寧靜空間

讓噪音成為絕響

SOUND PROOF



Contract No. HY/2009/19 Noise Absorptive Material

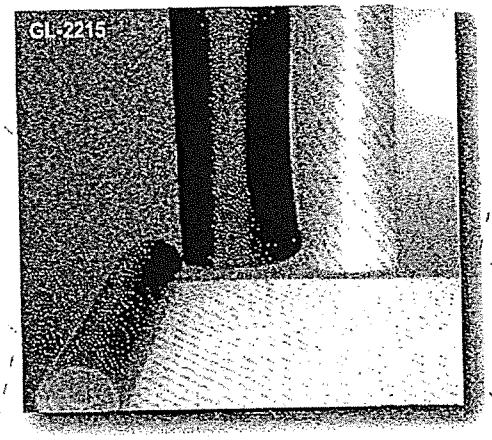
隔音材料

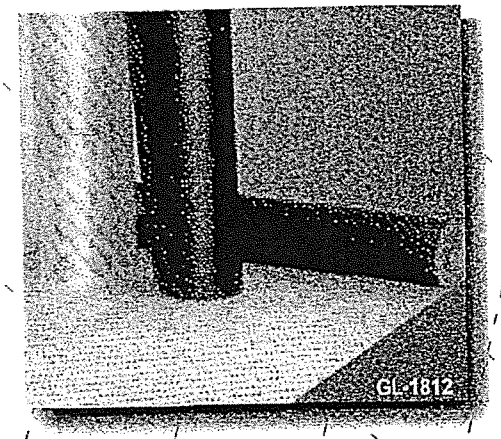
GOODLY隔音毯

1. 面積密度: **2.1Kg／m²**
   厚度: **1.5m／m**
   寬度: **0.9m.**
2. 標準長度: **10m** 耐燃度: **200℃.**
3. 特性: 音響透過 **STC-21.**
   抗拉強度為 **9.56MPa,** 延伸率為 **143.1%,** 可承受抗壓力為 **88.8N.** 不阻礙電波傳達, 具柔軟性, 可任意剪裁, 可配合各種施工方法, (如膠合, 壓合)等.
4. 組合成份: 聚乙稀加無機礦物粉, 加不銹鋼金屬纖維.
5. 可適用於工業廠房、空調機房、汽車、音響室、KTV、音樂教室等.

美國 ASTM 聲學量測結果表

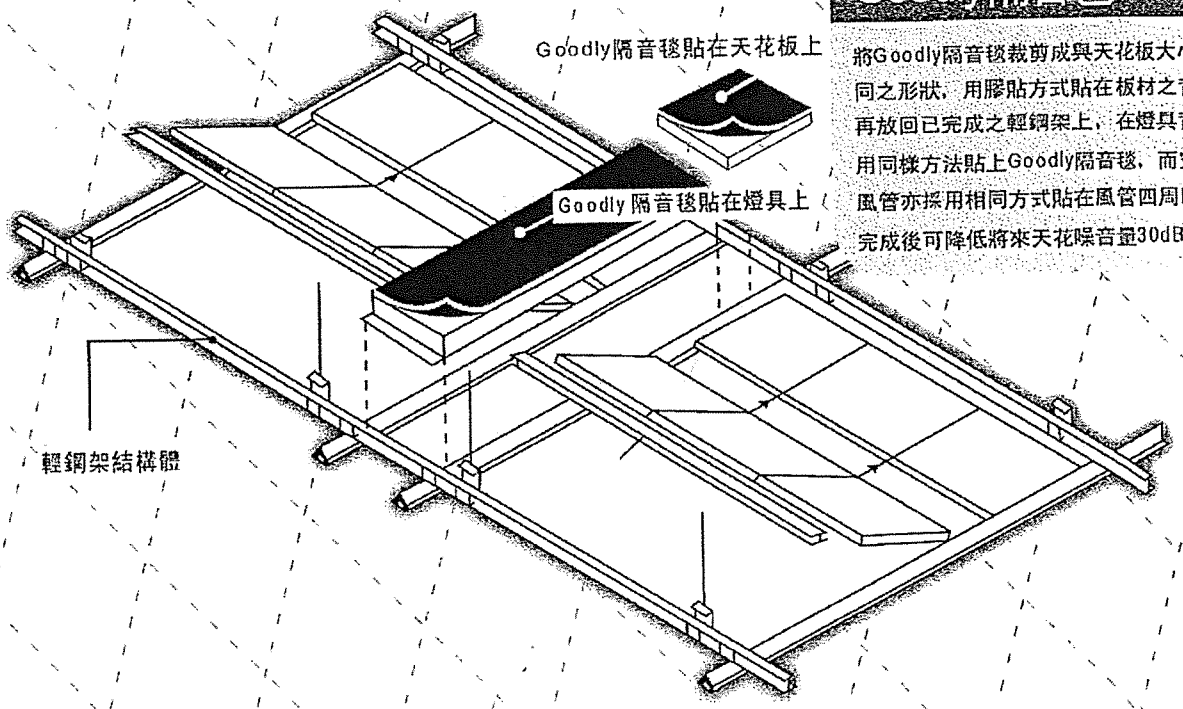
	125	250	500	1000	2000	4000	STC
GL-2215	12	12	16	22	27	32	21



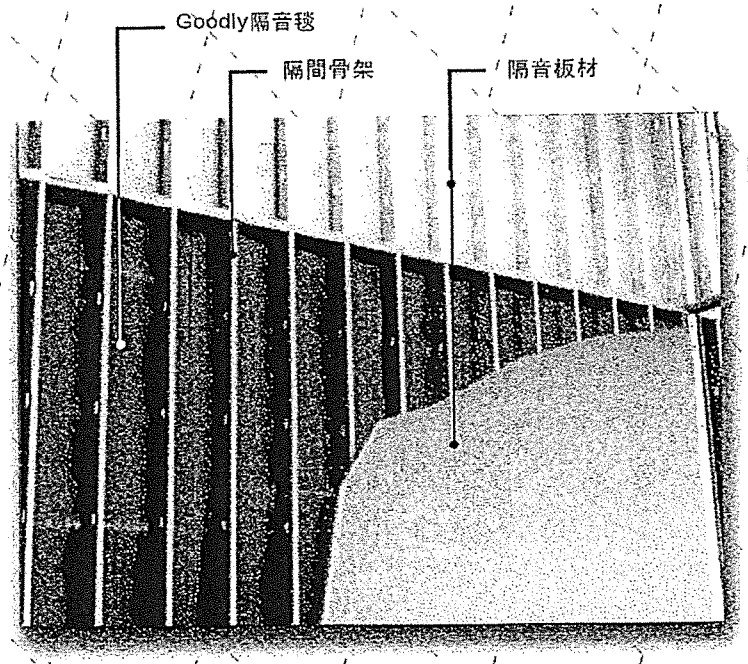


輕鋼架天花系統貼上Goodly隔音毯

將Goodly隔音毯裁剪成與天花板大小相同之形狀, 用膠貼方式貼在板材之背面, 再放回已完成之輕鋼架上, 在燈具背面亦用同樣方法貼上Goodly隔音毯, 而空調風管亦採用相同方式貼在風管四周即可。完成後可降低將來天花噪音量30dB.



GOODLY® 隔音毯施工法

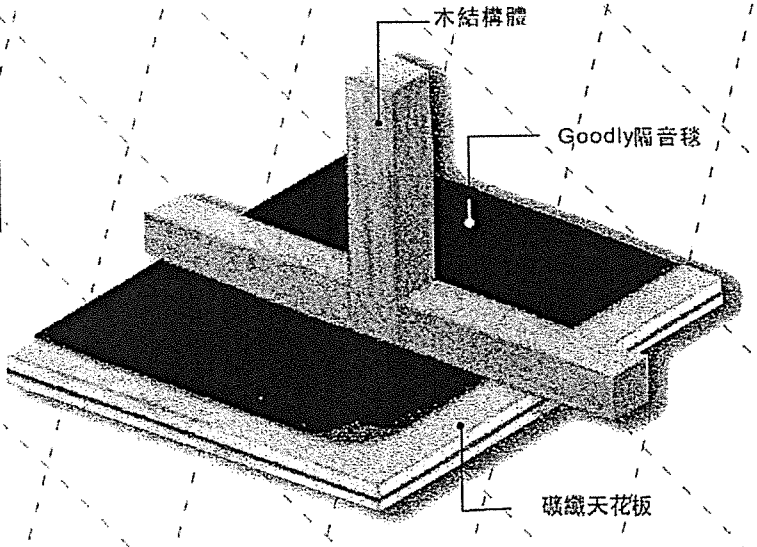


內貼Goodly隔音毯

先在已完成之單面板材上用膠貼或風壓釘方式，把Goodly隔音毯固定在板材上（黑色為面），面需貼向噪音來源點，再封釘另一片板材即可，再用粉刷漆上顏色或貼上壁紙修飾，完成后隔音量可達30dB

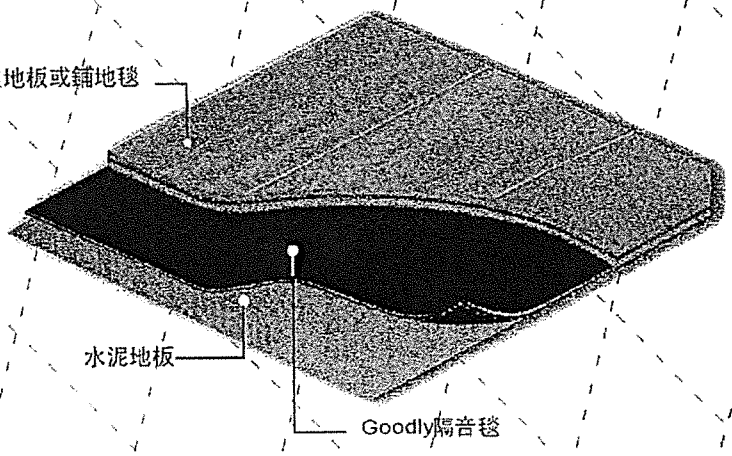
木作天花板貼上Goodly隔音毯

在木天花板第一層板材完成後，用膠貼或風壓釘把Goodly隔音毯固定在板面上（黑色為面），需面向噪音來源點，後再封釘另一面板材即可，再用粉刷或漆上顏色或貼上壁紙修飾。完成後可隔絕由上層所產生之噪音量為40dB



水泥、磚塊或木地板貼上Goodly隔音毯

先將原地面打掃乾淨，吸掉地面一切灰塵並吹乾地面，使表面乾燥後，再用白膠或強力膠塗滿地面，另在Goodly隔音毯底部（黑色為面）面需貼向噪音來源點，同樣塗滿膠貼物，待膠貼物1/3乾後，鋪貼在地面上即可，最後再鋪上地毯或木地板便完成。完工後隔音量可達40dB。



現代人
一直追求一個高品質的生活環境，
除在物質上的滿足外，我們更需要一個寧靜的居家休息環境。
但是在現實生活與工作中，我們常受到不同程度的噪音污染，如：
工廠的機械噪音、辦公室的空調馬達聲音、
電腦主機、打字的聲音或在户外活動時的機動車輛、攤販叫賣聲、
甚至連回家休息時，從鄰居家發出的音響聲、
電視、小朋友練琴聲...等等。
這些噪音對我們的情緒、心情、聽覺和心臟都會帶來
身心健康的影響。
GOODLY隔音毯能幫助您有效解決噪音的問題，
讓您有一個舒適、寧靜的休息空間。

KINETICS
Noise Control
Problem Solvers in vibration isolation, noise and shock control

KINETICS NOISE CONTROL (ASIA) LTD.
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Kwun Tong, Hong Kong
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中國內地經銷商：
東莞聯華五金制品有限公司
地址：東莞市虎門鎮龍眼管理區
Tel：86-769-85551248 85554024
Fax：86-769-85551848
E-mail:luenwah@hkstar.com

俊和-中國中鐵-中鐵大橋局聯營
CHUN WO - CRGL - MBEC JOINT VENTURE

NOISE MANAGEMENT PLAN

FOR

Contract No.: HY/2009/19

Central – Wan Chai Bypass
Tunnel (North Point Section)
and
Island Eastern Corridor Link

Appendix I

Minutes of Meeting – Harbour Grand HK Hotel

Interface Meeting with Harbour Grand Hong Kong

Venue : 12/F., Cheung Kong Center
Date : 30 January 2013
Time : 10:00am

Attendance:

Name	Company	Contract
Ms. Vanessa POON	Cheung Kong	Harbour Grand Hotel
Mr. H H WU	Cheung Kong	Harbour Grand Hotel
Mr. Ivan LI	Cheung Kong	Harbour Grand Hotel
Mr. Ringo LAM	Cheung Kong	Harbour Grand Hotel
Mr. Johan WONG	AECOM	HY/2009/19
Mr. Paul YIM	AECOM	HY/2009/19
Mr. K. C. CHEUNG	Chun Wo	HY/2009/19
Mr. Eric FONG	Chun Wo	HY/2009/19

ITEM	CONTENT	ACTION BY
1.0	**Carpark Requirements**	
1.1	Chun Wo tabled a layout plan to show the proposed land area for temporary relocation of Harbour Grand Hotel's (HGH) carpark to facilitate the bored piles construction (see Appendix A).	Note
1.2	In order to relocate the existing HGH carpark, Chun Wo agreed to provide the following Portion IVA, IVB and part of IIA/IIB: i) Carpark space – 1800m^2 and formation of run in-out ii) Fencing for temporary carpark iii) Sufficient lighting inside carpark iv) Security booth v) 24 hrs. security guard for monitoring vi) Temporary CCTV (record with stand along computer) for carpark area vii) Car park marking	Note
1.3	AECOM advised that FEHD would start to move out from their existing carpark area at Oil Street by April 2013 and the area would be handed over to Chun Wo immediately. Chun Wo confirmed that the said area as hatched in the layout plan would be ready for HGH's use as temporary carpark by early June 2013.	Note

ITEM	CONTENT	ACTION BY
1.4	HGH requested AECOM to confirm whether they could use the proposed land area as temporary carpark legally and free of charge.	AECOM
1.5	Refer to the discussion in previous meeting, Chun Wo requested to early possess the existing HGH carpark area for piling works in 3 stages. In order to start the piling works, Chun Wo asked whether the Stage 1 area could be possessed now (see Appendix B). HGH advised that the area could only be available for construction if the insurance arrangement of both HGH and Chun Wo in regards with the use of concerned land area had been cleared.	HGH / Chun Wo
1.6	HGH complaint that there were lots of construction works being carried out at Oil Street which caused negative impacts to HGH. AECOM / HyD were requested to review the associated works arrangement.	AECOM
1.7	Programme for temporary and permanent relocation of HGH's car park would be provided for reference.	Chun Wo
1.8	In regards with the site boundary line, HGH requested AECOM to provide the coordinates of the setting out points for their reference.	AECOM
1.9	HGH would like to know whether Chun Wo could relocate the hoarding line away from the hotel and not possess the area of café shop.	Note
1.10	Chun Wo confirmed that in order to fulfill the condition of Environmental Permit (EP-364/2009/B), special hoarding (approx. 12m high) had to be erected. And in order to provide sufficient working space for the demolition and reconstruction of the bridge, the special hoarding had to be erected along the site boundary line which is within the HGH's café shop open area. To minimize the adverse impact to the café shop's operation, it was suggested that, instead of 12m high special hoarding, 5m high movable noise barrier would be erected outside the café shop's area along the boundary line as marked by Highways Department (HyD). And during the demolition of the existing bridge, Chun Wo suggested the café shop's	Note

ITEM	CONTENT	ACTION BY
	open area should be closed. The tentative closing date would be around Jun. 2015 to Sept. 2015. HGH preferred to have the works carried out at (winter time) and requested Chun Wo to confirm if the arrangement is feasible HGH had no objection to the arrangement of having the 5m high hoarding.	
1.11	HGH asked Chun Wo to send them a formal letter together with insurance information about the request for works area with a clear demarcation of responsibility held by each party. HGH requested the presence of representative from HyD in meetings	Note

- End –

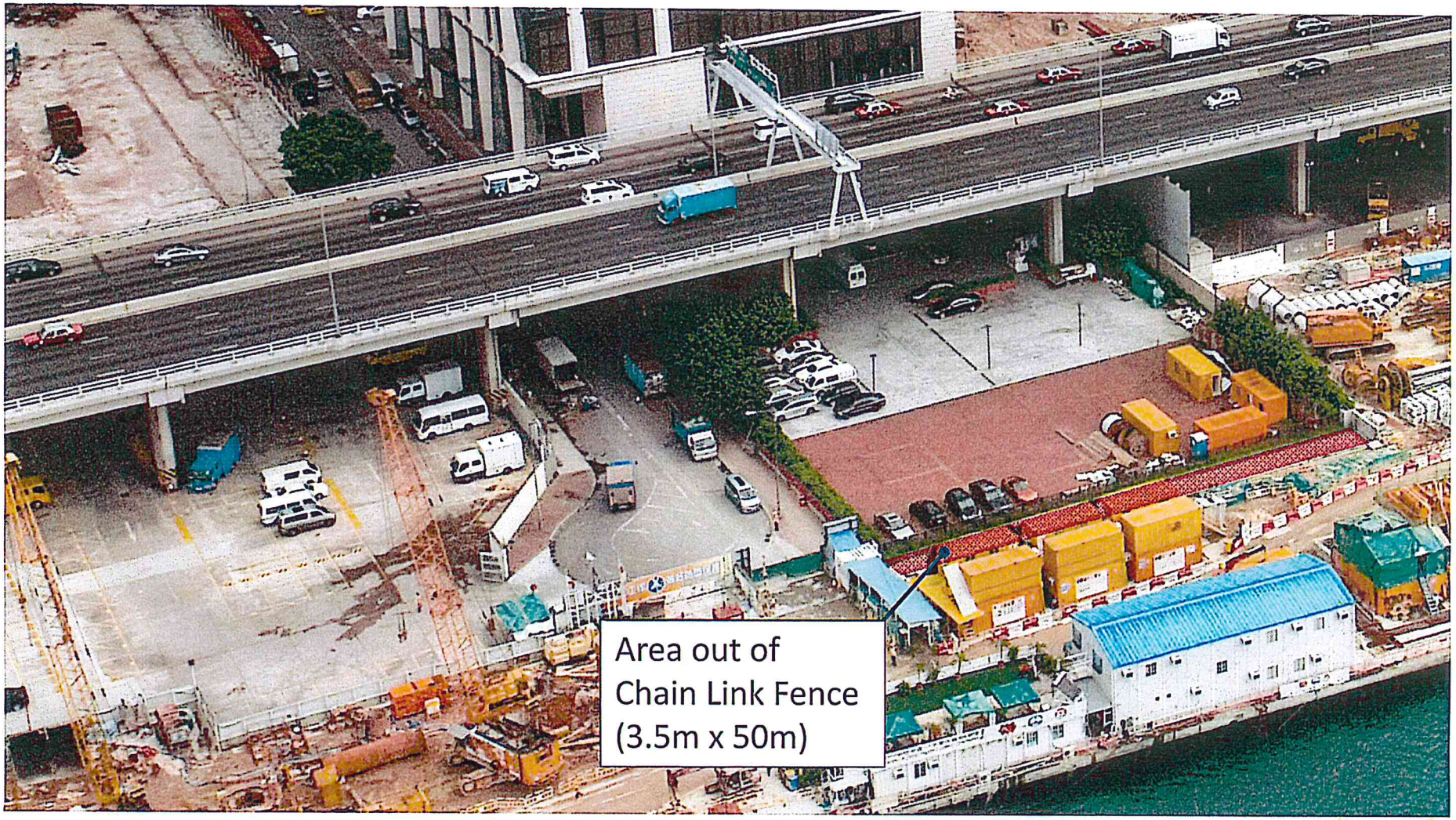
Appendix B

Appendix A

PIER D4
PIER D5
PIER D6
PIER D7
PIER D8
PIER D9
PIER 23
PIER 24
PIER 25
PIER 26
PIER 27
PIER 28
PIER 29
PIER 30
PIER 31
PIER 32
PORTION IIA/IIB
PORTION III
(HANDED OVER) (IN NOV 2011
PORTION IVA/IVB
PORTION IVC/IVD
CARPARK 1800m²
PORTION VA/VB
(HANDED OVER) (IN NOV 2011)
PORTION VA/VB
(HANDED OVER) (IN DEC 2011)
PORTION VI
(HANDED OVER IN APR 2011)
Adm. building approx. shifted to right position
CAR WASH
WORKS IN PROGRESS
Existing Rolling
CONCRETE BLOCK
Elevated Road
Car Park
Podium
Harbour Grand Hong Kong
Home Affairs Department Causeway Bay Community Centre
The Electric Centr
OIL STREET
NULLAH
OLD SEAWALL
SEAWALL
ASPHALT
ENTRANCE
INSTRUMENTATION
EXISTING STEEL PILE
CONCRETE PAVED SLOPE
EXISTING Ø1350 CONC. PIPE OUT FALL IL+0.40
EXISTING Ø300 CONC. PIPE OUT FALL IL+2.54
EXISTING Ø450 CONC. PIPE OUT FALL IL+1.65
EXISTING Ø225 CONC. PIPE OUT FALL IL+2.72
EXISTING Ø300 CONC. PIPE OUT FALL IL+2.67
EXISTING Ø1950 CONC. PIPE OUT FALL IL+0.44
EXISTING Ø1500 CONC. PIPE OUT FALL IL+0.49
EXISTING Ø100 PIPE IL+2.63
EXISTING Ø225 CONC. PIPE IL+0.80
EXISTING Ø300 CONC. PIPE IL+0.30
EXISTING Ø300 CONC. PIPE IL+0.23
EXISTING Ø300 CONC. PIPE IL+3.22
EXISTING Ø300 CONC. PIPE IL+2.30
EXISTING Ø300 CONC. PIPE IL+2.53
EXISTING Ø200 D.I. PIPE IL+2.70
EXISTING Ø150 D.I. PIPE IL+2.71
Ø100 PVC PIPES
EXISTING BUILDING ROOF LEVEL +10.20 SOFFIT LEVEL +8.97
ACCESS
ESS
CS 5199.434
CS 5996.829
CS 5229.434

Appendix B


Stage 1 - Required Area



Stage 1 – End Dec 2012

Stage 2 – Apr ~ Jul 2013

Stage 3 – Aug ~ Nov2013

俊和-中國中鐵-中鐵大橋局聯營
CHUN WO - CRGL - MBEC JOINT VENTURE

NOISE MANAGEMENT PLAN

FOR

Contract No.: HY/2009/19

Central – Wan Chai Bypass
Tunnel (North Point Section)
and
Island Eastern Corridor Link

Appendix J

Contract HY/2009/17 – FEHD Depot Basement & Ground Floor Layout Plan

LEGEND :

- EXISTING VIADUCT PIER WITH FOUNDATION
- TRAFFIC MOVEMENT
- SMOKE VENT
- VENTILATION DUCT SHAFT ABOVE
- (Y) FIRE SHUTTER
- PARKING SPACE

NOs. OF PARKING SPACES:

- REFUSE TRUCKS (3.5 x 11m)
- TRUCKS/ WATER TRUCKS (3m x 8m)
- LIGHT VEHICLES (2.5m x 6m)
- MOTOR CYCLE (1m x 3m)

DOOR MARK:

- (M) METAL DOOR
- (D1) 1 HR. F.R.P. SELF-CLOSING DOOR W/ CLEAR GLASS UPPER PANEL
- (D2) 1 HR. F.R.P. SOLID SELF CLOSING DOOR

Rev.	Date	Description	Drawn	Prepared	Checked
-	01/02/13	FOR INFORMATION	SCL	MC	CMC

AECOM

CENTRAL - WAN CHAI BYPASS AND IEC LINK
CENTRAL - WAN CHAI BYPASS
FEHD WHITFIELD DEPOT RE-PROVISIONING WORKS

TITLE:
FEHD DEPOT
BASEMENT FLOOR LAYOUT PLAN
IN MARCH 2013

SKETCH NO. 60095653/FEHD/DF0312 | SCALE 1:500(A3)

EXTRACTED FROM WORKING DRAWING NO. 60095653/FEHD/1001

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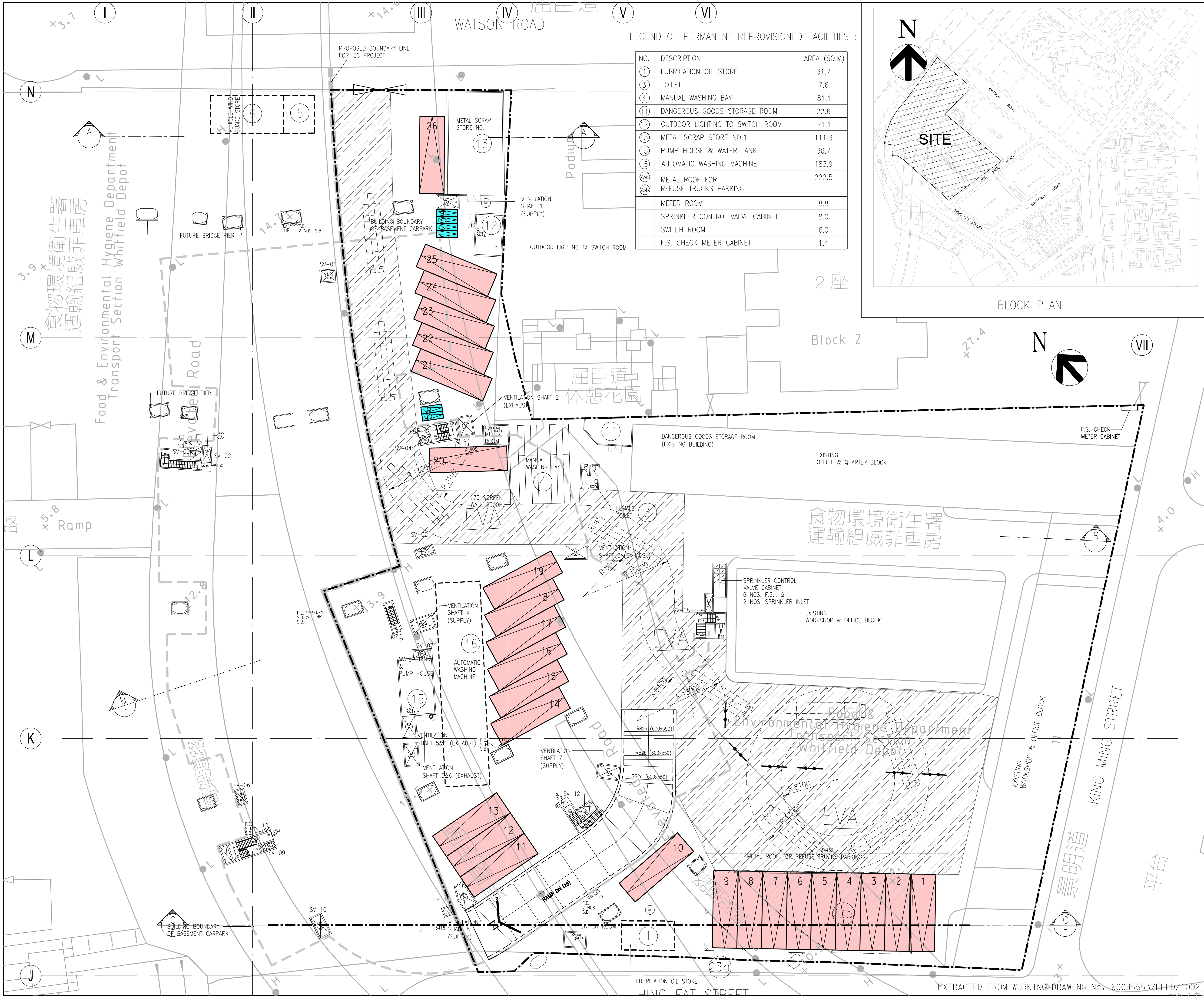

LEGEND OF PERMANENT REPROVISIONED FACILITIES :

NO.	DESCRIPTION	AREA (SQ.M)
1	LUBRICATION OIL STORE	31.7
3	TOILET	7.6
4	MANUAL WASHING BAY	81.1
11	DANGEROUS GOODS STORAGE ROOM	22.6
12	OUTDOOR LIGHTING TO SWITCH ROOM	21.1
13	METAL SCRAP STORE NO.1	111.3
15	PUMP HOUSE & WATER TANK	36.7
16	AUTOMATIC WASHING MACHINE	183.9
23a 23b	METAL ROOF FOR REFUSE TRUCKS PARKING	222.5
	METER ROOM	8.8
	SPRINKLER CONTROL VALVE CABINET	8.0
	SWITCH ROOM	6.0
	F.S. CHECK METER CABINET	1.4

BLOCK PLAN

LEGEND :

- SITE BOUNDARY
- EXISTING VIADUCT PIER WITH FOUNDATION
- TRAFFIC MOVEMENT
- SMOKE VENT
- VENTILATION DUCT SHAFT ABOVE
- FIRE SHUTTER
- PARKING SPACE

NOs. OF PARKING SPACES:

- REFUSE TRUCKS (3.5 x 11m)
- TRUCKS/ WATER TRUCKS (3m x 8m)
- LIGHT VEHICLES (2.5m x 6m)
- MOTOR CYCLE (1m x 3m)

DOOR MARK:

- M METAL DOOR
- D1 1 HR. F.R.P. SELF-CLOSING DOOR W/ CLEAR GLASS UPPER PANEL
- D2 1 HR. F.R.P. SOLID SELF CLOSING DOOR

Rev.	Date	Description	Drawn	Prepared	Checked
-	01/02/13	FOR INFORMATION	SCL	MC	CMC

AECOM

CENTRAL - WAN CHAI BYPASS AND IEC LINK
CENTRAL - WAN CHAI BYPASS
FEHD WHITFIELD DEPOT RE-PROVISIONING WORKS

TITLE:
FEHD DEPOT
GROUND FLOOR LAYOUT PLAN
IN MARCH 2013

EXTRACTED FROM WORKING DRAWING No. 60095653/FEHD/1002

SKETCH NO. 60095653/FEHD/DF0313 SCALE 1:600(A3)

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