Submission of Noise Management Plan
(Clause 2.23 in Part C of the EP)

Lam Geotechnics Limited
11/F, Centre Point, 181-185 Gloucester Road, Wan Chai, Hong Kong.
Tel : (852) 2882-3939 Fax : (852) 2882-3331

華益土力有限公司

Ref : G1001/CS/L305a/EP-356/2009
Date : 11 March 2011

Gammon Leader Joint Venture
28/F Devon House Taikoo Place,
979 King's Road,
Quarry Bay,
Hong Kong

Attn: Mr. Simon Tong

Dear Sir,

EP-356/2009
Contract No. HK/2010/06
Wan Chai Development Phase II – Central- Wan Chi Bypass – Tunnel over MTR Tsuen Wan Line
Noise Management Plan

Referring to your letter ref no. 1101/05.03.00.00/0111L dated 11 March 2011, we have reviewed your submitted details of the captioned plan and hereby certify this submission in accordance with Condition 2.23 of Further Environmental Permit no. EP-356/2009.

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*	*- Mr. Patrick Keung*	*(By Fax: 2577 5040)*
	HyD	*- Mr. Jones Lai*	*(By Fax 2714 5289)*
	AECOM CWB	*- Mr. Peter Poon*	*(By Fax: 3529 2829)*
	AECOM WDII	*- Mr. Frankie Fan*	*(By Fax: 2587 1877)*
	ENVIRON	*- Mr. David Yeung*	*(By Fax: 3548 6988)*

ENVIRON

Ref.: AACWBIECEM00_0_1083L.11 11 March 2011

Gammon - Leader Joint Venture
28/F, Devon House Taikoo Place
979 King's Road
Quarry Bay
Hong Kong

By Post and Fax (2529 2880)

Attention: Mr. Simon TONG

Dear Sir,

Re: Contract No. HK/2010/06
Wan Chai Development Phase II - Central – Wan Chai Bypass over MTR Tsuen Wan Line
Noise Management Plan (Revision 2)

Reference is made to your letter (REF: 1101/05.03.00.00/0111L) dated 11 March 2011 regarding the submission of Noise Management Plan (Revision 2) 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 2.23 of EP-356/2009.

Thank you for your kind attention.

Yours sincerely,

David Yeung
Independent Environmental Checker

c.c.	CEDD	Mr. Patrick Keung	by fax: 2577 5040
	AECOM (CWB)	Mr. Peter Poon	by fax: 3529 2829
	AECOM (WDII)	Mr. Frankie Fan	by fax: 2587 1877
	AECOM	Mr. Kelvin Cheng	by fax: 2691 2649
	LAM	Mr. Raymond Dai (ETL)	by fax: 2882 3331

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金門 - 利達聯營
Gammon - Leader Joint Venture

Gammon – Leader Joint Venture
28/F Devon House
TaiKoo Place, 979 King's Road
PO Box 9711 GPO Hong Kong

Tel (852) 2516 8823
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Site Tel (852) 2529 2068
Site Fax (852) 2529 2880

Our Ref. : 1101/05.03.00.00/0111L
Date : 11 March 2011

To Distribution

Dear Sir,

By Hand and Email

Contract No. HK/2010/06
Wan Chai Development Phase II-
Central- Wan Chai Bypass over MTR Tsuen Wan Line
Noise Management Plan

Pursuant to the Condition 2.23 of Part C of EP-356/2009, we herewith submit the Noise Management Plan for ET's certification and IEC's verification.

Thank you for your kind attention.

Yours faithfully,
For and on behalf of
Gammon- Leader Joint Venture

Book Kin Man
Site Agent

KMB/sc

cc. AECOM (Head Office) (by hand)
Gammon (Site Office- Attn: CL) (by ftp link)

Our Ref. : 1101/05.03.00.00/0111L
Date : 11 March 2011

Distribution List

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金門 - 利達聯營
Gammon – Leader Joint Venture

Wan Chai Development Phase II - Central - Wan Chai Bypass over MTR Tsuen Wan Line

Contract No.: HK/2010/06

Noise Management Plan for EP-356/2009

Rev.	Date of Issue	Remarks	Prepared by	Checked by
0	4 March 2011	Initial issue	WML	KMB
1	9 March 2011	Amendment for ET IEC comment	WML	KMB
2	10 March 2011	General Amendment	WML	KMB

Table of Content

1. Introduction

Wan Chai Development Phase II – Central – Wan Chai Bypass over MTR Tusen Wan Line (Contract no. HK/2010/06) – Marine Works is a part of the "permanent and temporary reclamation works including associated dredging works" in Wan Chai Development Phase II (WDII) area covered in Environmental Permit no. EP-356/2009.

Under the Condition 2.23 of Part C of the EP-356/2009, the permit holder shall submit a Noise Management Plan (NMP) showing the noise mitigation measures to be adopted, at least 2 weeks prior to the commencement of construction of the corresponding components of Project.

2. Environmental Legislation, Policies, Plan, Standard and Criteria

Noise impacts have been assessed in accordance with the criteria and methodology given in t

he Technical Memoranda (TM) made under the Noise Control Ordinance (NCO) and the Technical Meorandum on Environmental Impact Aeessment Process (EIAO-TM)

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

- Technical Memorandum on Environmental Impact Assessment Process (EIAO-TM)
- Technical Memorandum on Noise from Construction Work other than Percussive Piling (GW-TM)
- Technical Memorandum on Noise from Construction Work in Designated Area (DA-TM)
- Technical Memorandum on Noise from Places other than Domestic Premises, Public Places or Construction Sites (IND-TM)

3. Noise Limit

The NCO provides the statutory framework for noise control of construction work other than percussive piling using power 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)** Leq (30min) at the facades of dwellings and **70dB(A)** Leq (30min) at the facades of school (65dB(A) during examinations). The construction noise criteria are summarized in Table 1.

Table 2 Daytime Construction Noise Criteria

Uses	**Noise Level in $L_{eq(30\ min)}$, dB(A)**
Domestic Premises	75
Educational Institution	70
Educational Institution (during exam)	60

Between 1900 and 0700 hours and all day on Sundays and public holiday, activities involving the use of powered mechanical equipment (PME) for use 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 complied with. ANLs are assigned depending upon the Area Sensitivity Ratings (ASRs). The corresponding basic noise levels (BNLs) for evening and night time period are given in Table 2.

Table 3 Construction Noise Criteria for Activity other than Percussive Piling

Time Period	**Basic Noise Level (BNLs)**		
	ASR A	**ASR B**	**ASR C**
Evening (1900-2300)	60	65	70
Night (2300-0700)	45	50	55

4. Identified Noise Sensitive Receivers (NSRs)

In order to evaluate the construction noise impacts from the project, representative noise sensitive receivers (NSRs) for this contract which are identified in the EIA report (Register No. AEIAR-125/2008) were selected below:

Table 4 List of relevant NSRs according to EIA report

NSRs in EIA report	Use	Nearest Dist. from Site Boundary
HKAPA (N1)	Performing Art Centre	140m

In addition, as identified in the Community Liaison Group (CLG), Grand Hyatt Hotel is referred as a concerned stakeholder close to the project site. Hence, it is also considered to be a NSR to the project.

Table 5 List of other NSRs

Other NSRs considered relevant	Use	Nearest Dist. from Site Boundary
Grand Hyatt Hotel	Hotel	110m

5. Construction Noise and Use of Powered Mechanical Equipment

The following construction tasks will likely lead to emission of construction noise:

- MTR Tunnel crossing (including the pilling works along both side of the existing MTR immersed tubes)

Type and number of powered mechanical equipment which would be used on site are referred to Appendix 4.5 of AEIAR-125/2008 and grouped according to different stage of works. Detail list of PME and specific noise impact of individual construction task will be reviewed in relevant method statement

6. Mitigation of Environmental Impact

GLJV will taken all reasonable precautions to avoid any nuisance arising from the construction works. All works will be carried out in a matter as to cause as little inconvenience as possible and to minimize adverse impacts on the indoor and outdoor environment during construction works.

The following combination of noise mitigation measure shall be utilized during the construction. No single noise noise mitigation measure would be most effective at reducing noise level. The following mitigation measures are considered to offer the most potential for application to this project and incorporated into this plan as described below. Regular monitoring, inspection and audit will be conducted to ensure the effectiveness of the mitigation measures.

PME schedule and mitigation measures shall be submitted to check for each construction task regarding the total anticipated Sound Power Level generated by the group of PMEs integrated against the value in Appendix 4.13 of AEIAR-125/2008.

6.1 Quality Powered Mechanical Equipment (QPME)

According to Sec 4.8.3 and Appendix 4.13 of AEIAR-125/2008, uses of the following QPME will be considered to reduce noise impacts:

- Mobile crane
- Generator
- Air Compressor
- Concrete Pump
- Concrete Lorry Mixer

6.2 Silent Method for Installation of Sheetpile

Giken silent piler will be used whenever possible to drive sheet piles by jacking mechanism, hence, the noise and vibration generated will be significantly reduced.

6.3 Multi Phase Schedule

Construction equipment will be turned off when not in operation as far as practical to shorten the duration of the noise impact. In additional, equipments are divided into groups and only one group of equipment will be operated in one time.

6.4 Noise Barrier

In order to reduce the excessive noise impacts at the affected NSRs, mitigation measures such as movable noise barriers and temporary noise barriers will be considered.

The use of noise barrier to PMEs mentioned in Appendix 4.13 of AEIAR-125/2008 will be considered.

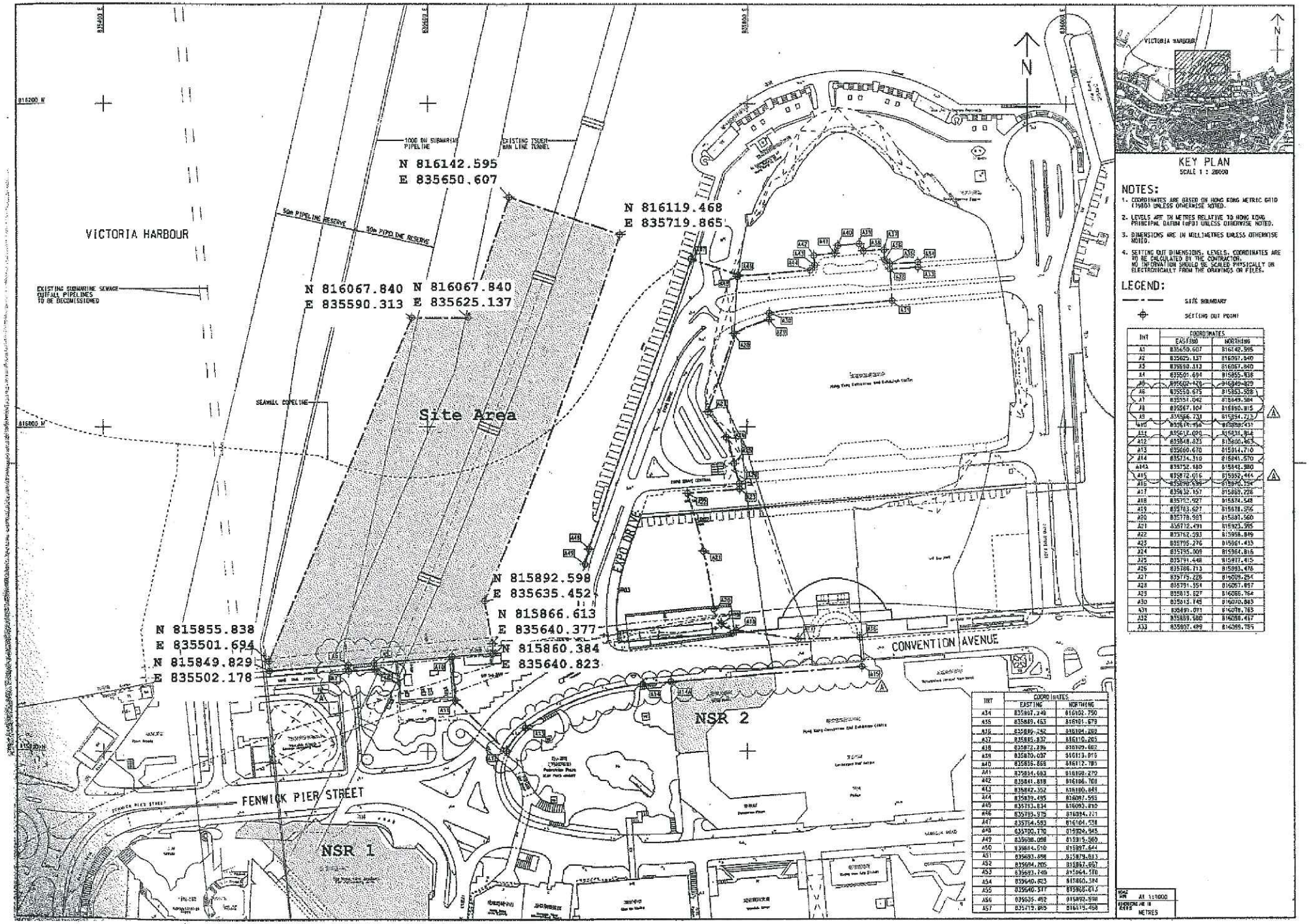
A typical noise barrier is attached in Appendix C.

6.6 Other mitigation measures

The following good practices will be adopted when practical to alleviate noise impacts:

- All PMEs to be used on site should be properly maintained;
- Mobile plants should be sited as far as away from NSRs as possible;
- Plants shall be avoided to start up all engines simultaneously;
- PMEs known to emit noise strongly in one direction should, where possible, be orientated so that the noise is directed away from the nearby NSRs
- Close liaison, coordinate and communicate with neighborhoods (such as Grand Hyatt, HKCEC, HKAPA) on noise mitigation measure adopted
- Only arrange unavoidable work as far as practical outside normal work hours in the application of construction noise permit.

Appendix A – Location Plan for Noise Sensitive Receivers



NOTES:

1. COORDINATES ARE BASED ON HONG KONG METRIC GRID (1980) UNLESS OTHERWISE NOTED.
2. LEVELS ARE IN METRES RELATIVE TO HONG KONG PRINCIPAL DATUM (HPD) UNLESS OTHERWISE NOTED.
3. DIMENSIONS ARE IN MILLIMETRES UNLESS OTHERWISE NOTED.
4. SETTING OUT DIMENSIONS, LEVELS, COORDINATES ARE TO BE CALCULATED BY THE CONTRACTOR. NO INFORMATION SHOULD BE SCALED PHYSICALLY OR ELECTRONICALLY FROM THE DRAWINGS OR FILES.

LEGEND:

SITE BOUNDARY

SETTING OUT POINT

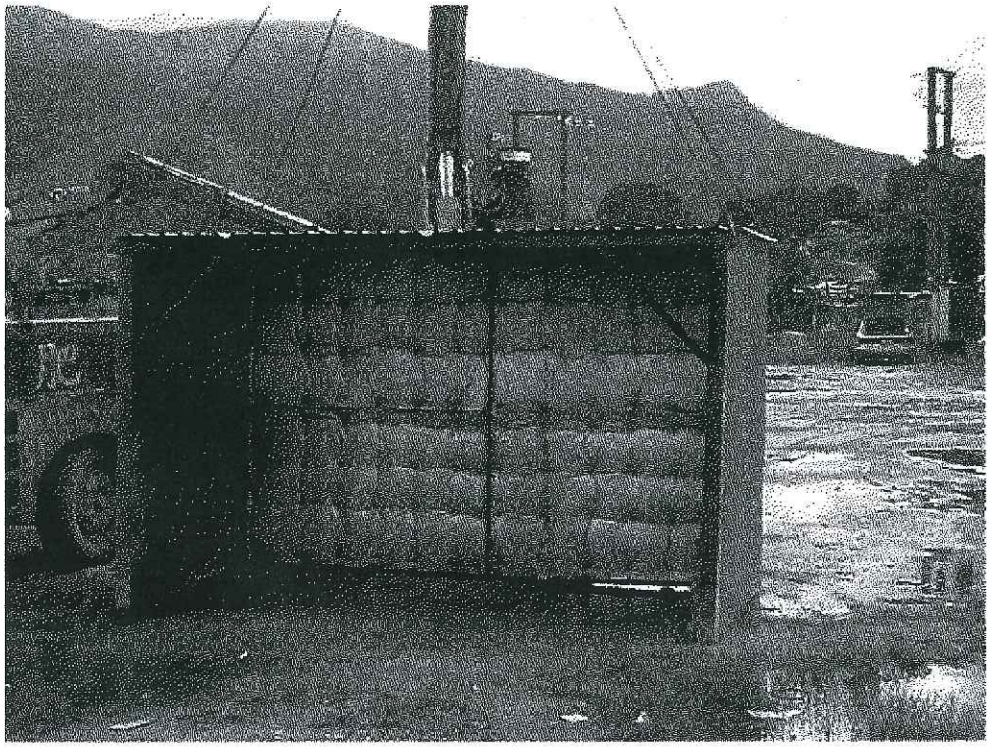
PNT	COORDINATES EASTING	NORTHING
A1	835650.607	816142.595
A2	835625.137	816067.840
A3	835590.313	816067.840
A4	835501.694	815855.838
A5	835502.178	815849.829
A6	835550.975	815853.328
A7	835557.042	815849.384
A8	835567.104	815850.815
A9	835586.731	815854.713
A10	835615.458	815888.431
A11	835612.090	815834.814
A12	835848.823	815800.463
A13	835660.670	815914.710
A14	835734.310	815841.570
A14A	835752.180	815842.380
A15	835872.016	815852.464
A16	835898.699	815890.159
A17	835930.157	815887.228
A18	835797.427	815874.548
A19	835763.627	815878.356
A20	835778.981	815867.560
A21	835712.491	815923.595
A22	835762.593	815958.849
A23	835795.276	815961.433
A24	835755.009	815964.816
A25	835791.648	815977.415
A26	835786.713	815893.476
A27	835775.228	816009.254
A28	835791.554	816067.857
A29	835815.627	816086.764
A30	835815.748	816070.845
A31	835891.011	816078.765
A32	835859.580	816086.457
A33	835807.489	816089.784

PNT	COORDINATES EASTING	NORTHING
A34	835867.249	816102.750
A35	835849.453	816101.679
A36	835849.252	816104.288
A37	835885.837	816110.265
A38	835872.896	816109.662
A39	835870.037	816113.915
A40	835855.866	816112.785
A41	835834.683	816108.270
A42	835841.888	816106.708
A43	835842.352	816100.845
A44	835839.495	816087.595
A45	835793.834	816090.810
A46	835789.975	816094.221
A47	835764.583	816104.538
A48	835700.170	815924.945
A49	835698.058	815915.360
A50	835684.510	815907.644
A51	835683.698	815878.613
A52	835694.205	815867.697
A53	835693.740	815864.570
A54	835640.823	815860.384
A55	835640.517	815900.615
A56	835635.452	815892.598
A57	835719.865	816119.468

SCALE AS 1:1000

DIMENSIONS ARE IN METRES

Appendix B – Detail of Noise Barrier



Mitigation Measure
Typical noise barrier