



金門 - 利達聯營
Gammon - Leader Joint Venture



Our Ref. : 1101/03.09.00.00/1344L
Date : 26 November 2012

The EIA Ordinance Register Office
27th floor, Southern Centre,
130 Hennessy Road
Wan Chai, Hong Kong

Dear Sir / Madam,

Contract No. HK/2010/06
Wan Chai Development Phase II-
Central- Wan Chai Bypass over MTR Tsuen Wan Line
Noise Management Plan for FEP-08/364/2009/A

We are the holder of the Further Environmental Permit, FEP-08/364/2009/A.

Pursuant to Condition 2.9 of Part C of captioned FEP, we herewith enclose the Noise Management Plan certified by ET and verified by IEC for your record.

Should you have any queries regarding this issue, please feel free to contact our Environmental Officer Mr. W. M. Lee at 9481 6024 or our Environmental Supervisor Clement Pang at 9735 9200.

Thank you for your kind attention.

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

Keith Tse
Site Agent

KT/WML

Encl

cc AECOM (Site Office & Head Office)
CEDD - Attn: Mr. Patrick S.K. Keung, Senior Engineer
Gammon - Site Office- Attn: C.L. Lee

Lam (ET)- Mr. Raymond Dai
Environ (IEC)- Mr. David Yeung

by hand
by email pkeung@cedd.gov.hk
by email
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by email: raymond dai@lamenviro.com
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Tel (852) 2516 8823
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By Hand



Lam Geotechnics Limited

Ground Investigation & Instrumentation Professionals

Ref : G1120/CS/L320/FEP-08/364/2009/A
Date : 22 November 2012

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

Attn: Mr. Keith Tse, Site Agent

Dear Sir,

Contract No. HK/2010/06
Wanchai Development Phase II – Central –Wan Chai Bypass over MTR Tsuen Wan Line

Noise Management Plan

Referring to the captioned submission dated 19 October 2012 received through email on 21 November 2012, we have reviewed your submitted details and hereby certified this submission in accordance with Condition 2.9 of FEP-08/364/2009/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.

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



Ref.: AACWBIECEM00_0_3402L.12

22 November 2012

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

By Fax (2516 6260) & Post

Attention: Mr. Keith TSE

Dear Sir,

Re: FEP-08/364/2009/A
Contract No. HK/2010/06
Wan Chai Development Phase II - Central – Wan Chai Bypass over MTR
Tsuen Wan Line
Noise Management Plan

Reference is made to your letter (REF: 1101/03.09.00.00/1339L) dated 21 November 2012 regarding the submission of Noise Management Plan 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-08/364/2009/A.

Thank you for your kind attention.

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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**Wan Chai Development Phase II -
Central - Wan Chai Bypass
over MTR Tsuen Wan Line
Contract No.: HK/2010/06**

**Noise Management Plan
for FEP-08/364/2009/A**

Rev.	Date of Issue	Remarks	Prepared by	Checked by
0	06 Sept 2012	Initial issue	WML	KT
1	04 Oct 2012	Revised for ET IEC comment	WML	KT
2	19 Oct 2012	Appendix B revised for ET IEC comment	WML	KT



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1. Introduction

Wan Chai Development Phase II – Central – Wan Chai Bypass over MTR Tsuen Wan Line (Contract no. HK/2010/06) is a part of the “Central – Wan Chai Bypass (CWB) including its Road Tunnel and Slip Roads” covered in Environmental Permit no. EP-364/2009/A.

Gammon-Leader Joint Venture was granted on 15 July 2012 the Further Environmental Permit (No FEP-08/364/2009/A) for the contract HK/2010/06 under the master Environmental Permit.

Under the Condition 2.9 of Part C of the FEP-08/364/2009/A, 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 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 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 2.

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 3.



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 no. AEIAR-041/2001 are selected below:

Table 4 List of relevant NSRs according to EIA report AEIAR-041/2001

NSRs in EIA report	Use	Nearest Dist. from Site Boundary
HKAPA (N4)	Performing Art Centre	140m
Art Centre (N5)	Performing Art Centre	150m

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 6 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:

- Installation of the precast tunnel box unit
- Structural work inside the precast tunnel box unit

Type and number of powered mechanical equipment which would be used on site are referred to Appendix 4.1 of AEIAR-041/2001 which the PME are grouped according to different stage of works. Detail list of PME to be implemented on site and specific noise impact of individual construction task will be reviewed in relevant method statements



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 combination of the following noise mitigation measure shall be utilized during the construction.. The 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 checked for each construction task regarding the total anticipated Sound Power Level generated by the group of PMEs integrated against the value in EIA reports.

6.1 Quality Powered Mechanical Equipment (QPME)

According to Sec 4.8.3 and Appendix 4.1 of AEIAR-041/2001, uses of the following QPME will be considered to reduce noise impacts. Also adoption of QPME according to the EIA reports will be considered.

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



6.2 Silent Method for Construction

Delivery of foam concrete from batching plant will be considered to avoid site mixing of cement material, the noise and vibration generated will be significantly reduced.

The majority of the tunnel box unit, including the removable slot panels, will be precast and installed off-site such that the noise generated will be significantly reduced.

After the installation of the precast unit in Hong Kong, the remaining works are located inside the precast unit and below ground level. Allocation of the PME away from the visibility of NSR (for example: inside the box unit) will be considered.

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 addition, 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 generated by stationary plants, such as concrete pump, concrete truck in unloading and air compressor, movable acoustic shelter and flexible noise barriers will be considered.

The barrier and shelter could be made of a sheeting not less than 5kg/m² or baffles comprised of sound absorbing lining and 1mm thick steel backing.

The detail of the noise barriers is attached in Appendix B.

6.5 Other mitigation measures

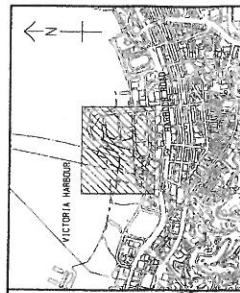
The following good practices will be adopted when practical to alleviate noise impacts:

- 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 NSR



KEY PLAN
SCALE 1 : 20000

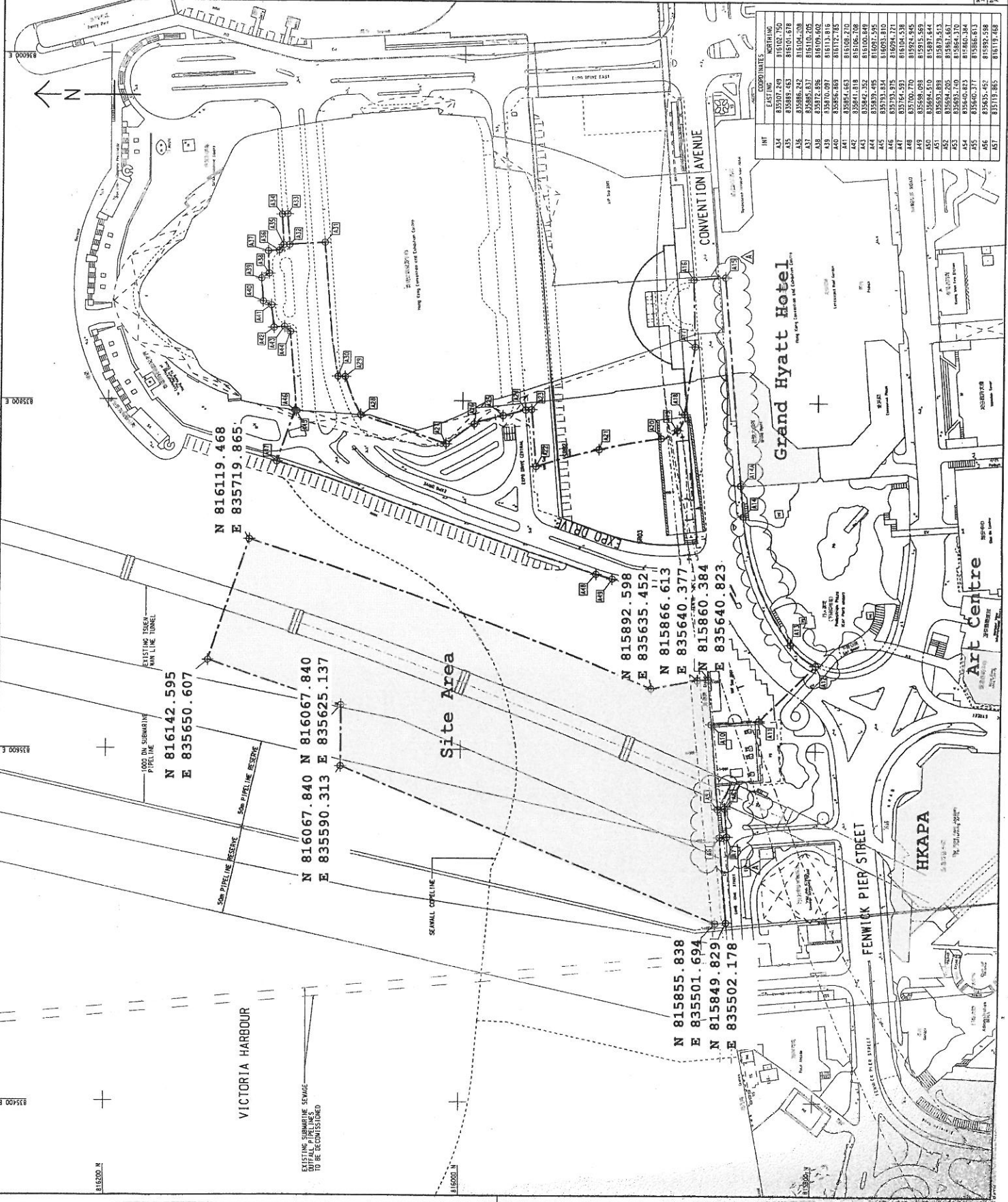
NOTES:

1. COORDINATES ARE BASED ON HONG KONG METRIC GRID (1980) UNLESS OTHERWISE NOTED.
2. PRINTING, DIALING AND PLOTTING DIMENSIONS ARE IN METERS UNLESS OTHERWISE NOTED.
3. DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE NOTED.
4. SETTING OUT DIMENSIONS, LEVELS, COORDINATES ARE TO BE CALCULATED BY THE CONTRACTOR OR ELECTRONICALLY FROM THE DRAWINGS OR FILES.

LEGEND:

- SITE BOUNDARY
- SETTING OUT POINT

INT	EASTING	NORTHING
A1	835650.607	816142.595
A2	835625.137	816067.840
A3	835590.313	815992.585
A4	835555.489	815917.330
A5	835520.665	815842.075
A6	835485.841	815766.820
A7	835451.017	815691.565
A8	835416.193	815616.310
A9	835381.369	815541.055
A10	835346.545	815465.800
A11	835311.721	815390.545
A12	835276.897	815315.290
A13	835242.073	815240.035
A14	835207.249	815164.780
A15	835172.425	815089.525
A16	835137.601	815014.270
A17	835102.777	814939.015
A18	835067.953	814863.760
A19	835033.129	814788.505
A20	834998.305	814713.250
A21	834963.481	814638.000
A22	834928.657	814562.745
A23	834893.833	814487.490
A24	834859.009	814412.235
A25	834824.185	814336.980
A26	834789.361	814261.725
A27	834754.537	814186.470
A28	834719.713	814111.215
A29	834684.889	814035.960
A30	834650.065	813960.705
A31	834615.241	813885.450
A32	834580.417	813810.195
A33	834545.593	813734.940

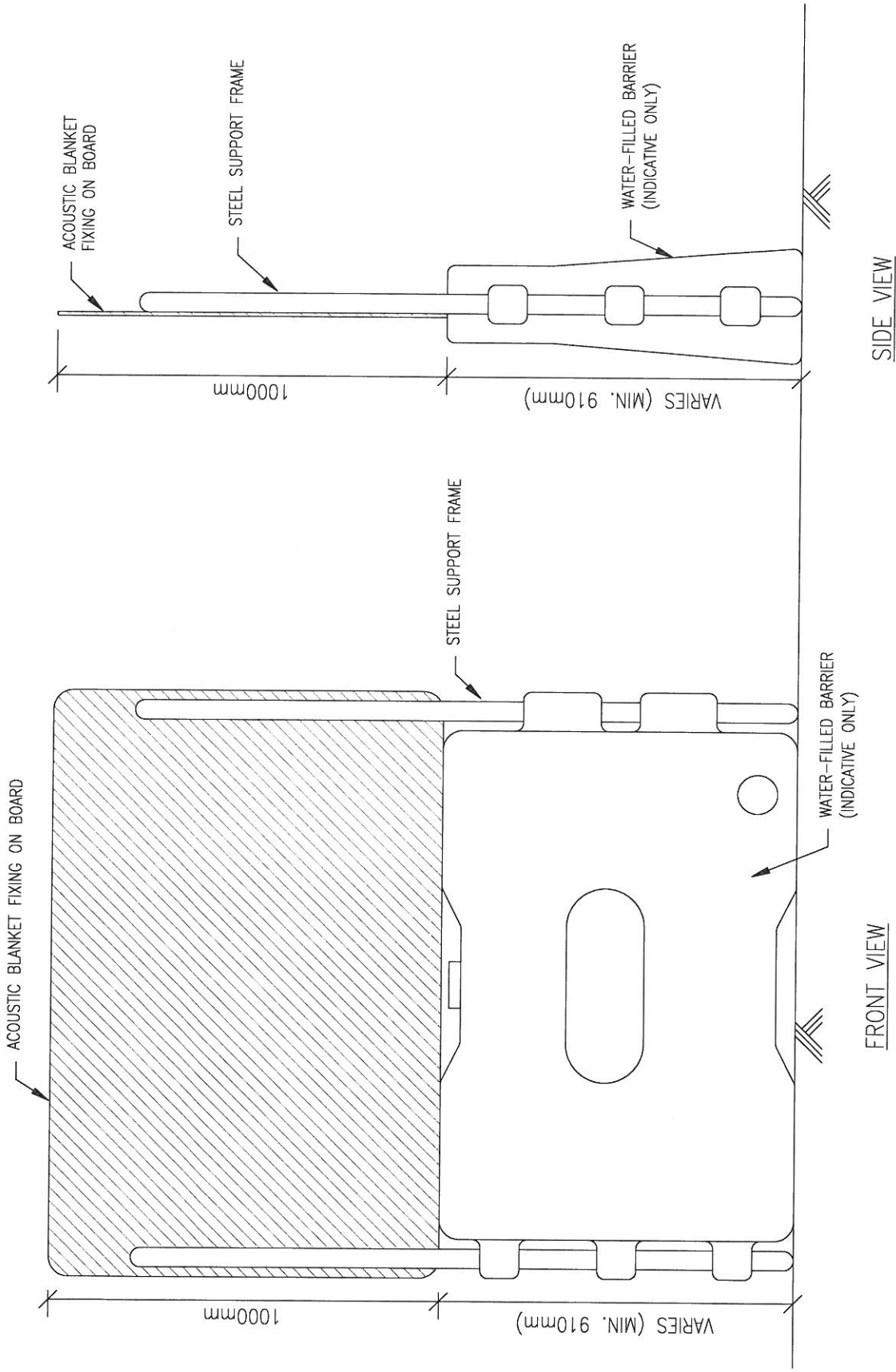


INT	EASTING	NORTHING
A34	83507.249	816102.750
A35	83588.483	816102.750
A36	83588.483	816102.750
A37	83588.483	816102.750
A38	83588.483	816102.750
A39	83588.483	816102.750
A40	83588.483	816102.750
A41	83588.483	816102.750
A42	83588.483	816102.750
A43	83588.483	816102.750
A44	83588.483	816102.750
A45	83588.483	816102.750
A46	83588.483	816102.750
A47	83588.483	816102.750
A48	83588.483	816102.750
A49	83588.483	816102.750
A50	83588.483	816102.750
A51	83588.483	816102.750
A52	83588.483	816102.750
A53	83588.483	816102.750
A54	83588.483	816102.750
A55	83588.483	816102.750
A56	83588.483	816102.750
A57	83588.483	816102.750

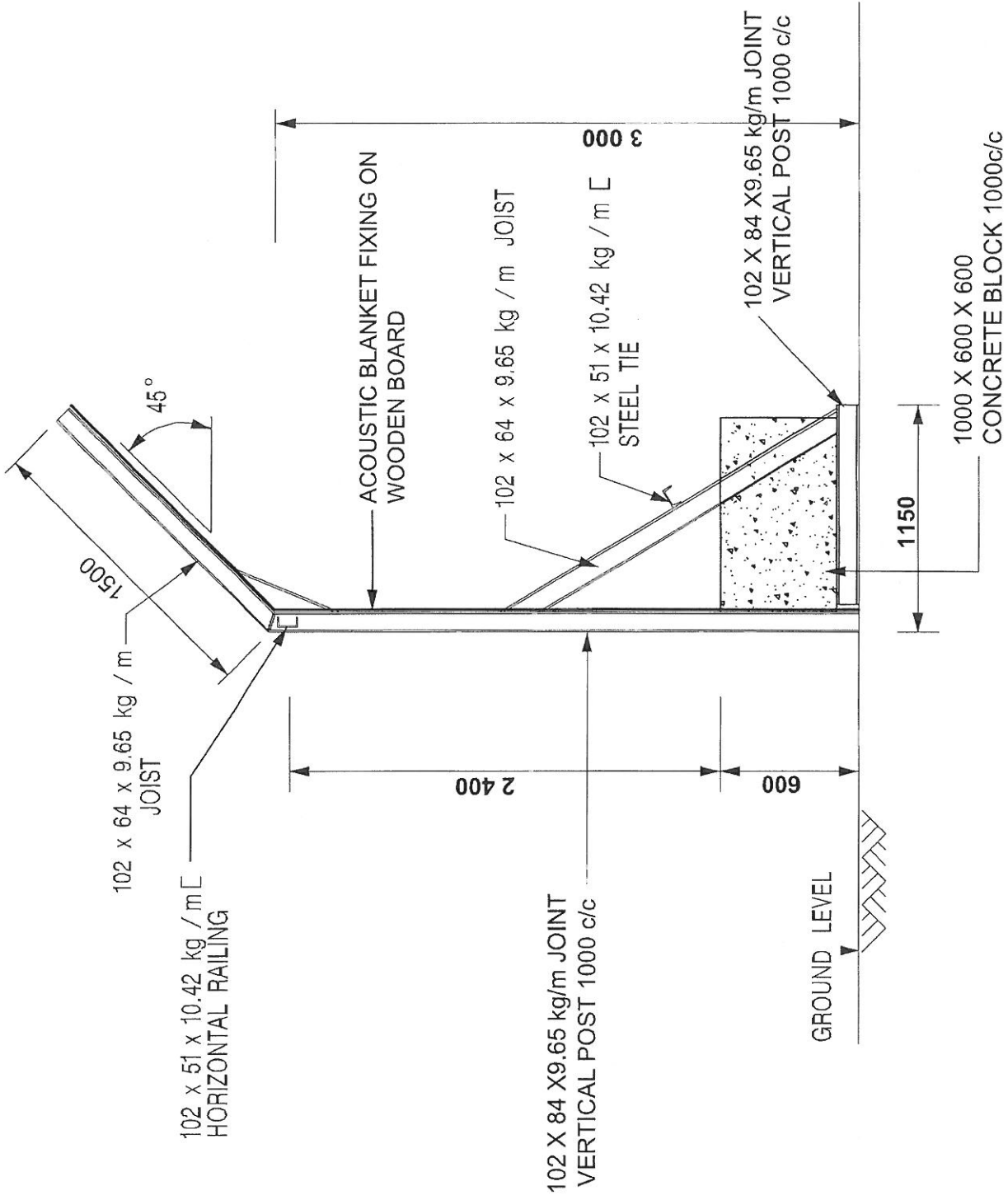
SCALE 1 : 1000
METRES

APPENDIX B

Detail of a Typical Noise Barrier



MOVEABLE NOISE BARRIER



DETAIL FOR NOISE BARRIER