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環境保護署分處
香港灣仔
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修頓中心廿八樓

19th October 2016

MTR Headquarters Building,

Environmental Impact Assessment (EIA) Ordinance, Cap.499
Application for Variation of an Environmental Permit

Project Title: South Island Line (East)
(Application No. VEP-508/2016)

I refer to your above application received on 30 September 2016 for variation of an environmental permit under Section 13(1) of the EIA Ordinance.

Pursuant to Section 13(5) of the EIA Ordinance, we have amended the Environmental Permit (EP-407/2010/E). I attach the Environmental Permit as amended (No. EP-407/2010/F) for your use.

Under Section 15 of the EIA Ordinance, the amended Environmental Permit will be placed on the EIA Ordinance Register. It will also be placed on the EIA Ordinance website (<http://www.epd.gov.hk/eia/>).

Please note that if you are aggrieved by any of the conditions imposed in this Permit, you may appeal under Section 17 of the EIA Ordinance within 30 days of receipt of this Permit.

Should you have any queries on the above application, please contact my colleague Mr. Richard Wong at 2835 1128.

Yours sincerely,

(Ken Y.K. WONG)

Principal Environmental Protection Officer
for Director of Environmental Protection

**ENVIRONMENTAL IMPACT ASSESSMENT ORDINANCE
(CHAPTER 499)**

**Sections 10 & 13
環境影響評估條例
(第499章)
第10及第13條**

**ENVIRONMENTAL PERMIT TO CONSTRUCT AND OPERATE
A DESIGNATED PROJECT**

建造及營辦指定工程項目的環境許可證

PART A (MAIN PERMIT)

A部 (許可證主要部分)

Pursuant to Section 10 of the Environmental Impact Assessment Ordinance, the Director of Environmental Protection (the Director) granted the Environmental Permit (No. EP-407/2010) to the **MTR Corporation Limited** (hereinafter referred to as the "Permit Holder") on 8 December 2010. Pursuant to Section 13 of the EIAO, the Director amends the Environmental Permit (No. EP-407/2010/E) based on the Application No. VEP-508/2016. The amendments, described below, are incorporated into this Environmental Permit (No. EP-407/2010/F). This Environmental Permit as amended is for the construction and operation of the designated project described in Part B of this Permit subject to the conditions specified in or attached to Part C of this Permit. The issue of this environmental permit is based on the documents, approvals or permissions described below :-

根據環境影響評估條例第10條的規定，環境保護署署長（署長）於2010年12月8日將環境許可證編號EP-407/2010批予香港鐵路有限公司（下稱許可證持有人）。根據條例第13條的規定，署長因應更改環境許可證的申請編號VEP-508/2016修訂環境許可證編號EP-407/2010/E。以下修訂已包含在本環境許可證編號EP-407/2010/F內。本經修訂的環境許可證，只適用於建造及營辦本許可證B部所說明的指定工程項目，並須遵守C部所說明或附載的條件。本環境許可證的發出，乃以下表所列的文件、批准或許可作為根據：-

Application No. 申請書編號	VEP-508/2016
Document in the Register 登記冊上文件	(1) South Island Line (East) Environmental Impact Assessment (EIA) Report, Environmental Monitoring and Audit (EM&A) Manual and Executive Summary (Register No.: AEIAR - 155/2010) [Hereinafter referred to as "the EIA Report"] 南港島綫（東段）環境影響評估報告(登記冊編號:AEIAR - 155/2010) [下稱環評報告] (2) The Director's letter of approval of the EIA report dated 26 Oct 2010 [Ref.: (91) in EP2/G/A/148 Pt.4] (2) 署長於2010年10月26日發出批准環評報告的信件 [檔案編號: (91) in EP2/G/A/148 Pt.4] (3) Application for an Environmental Permit No. AEP-407/2010. [Hereafter referred to as "the Application No. AEP-407/2010"] (3) 申請環境許可證編號 AEP- 407/2010。[下稱“申請書編號 AEP-407/2010”] (4) Environmental Permit issued on 8 December 2010 (Permit No. EP-407/2010) (4) 於2010年12月8日發出的環境許可證(許可證編號:EP-407/2010)



	<p>(5) Application for Variation of an Environmental Permit No. VEP-344/2011 and attached document submitted by the Permit Holder on 28 November 2011 (5) 許可證持有人於2011年11月28日提交更改環境許可證申請編號 VEP-344/2011和附件</p> <p>(6) Environmental Permit issued on 14 December 2011 (Permit No. EP-407/2010/A) (6) 於2011年12月14日發出的環境許可證(許可證編號 : EP-407/2010/A)</p> <p>(7) Application for Variation of an Environmental Permit No. VEP-384/2012 and attached document submitted by the Permit Holder on 12 November 2012 (7) 許可證持有人於2012年11月12日提交更改環境許可證申請編號 VEP-384/2012和附件</p> <p>(8) Environmental Permit issued on 4 December 2012 (Permit No. EP-407/2010/B) (8) 於2012年12月4日發出的環境許可證(許可證編號 : EP-407/2010/B)</p> <p>(9) Application for Variation of an Environmental Permit No. VEP-399/2013 and attached document submitted by the Permit Holder on 28 March 2013 (9) 許可證持有人於2013年3月28日提交更改環境許可證申請編號 VEP-399/2013和附件</p> <p>(10) Environmental Permit issued on 18 April 2013 (Permit No. EP-407/2010/C) (10) 於2013年4月18日發出的環境許可證(許可證編號 : EP-407/2010/C)</p> <p>(11) Application for Variation of an Environmental Permit No. VEP-419/2013 and attached document submitted by the Permit Holder on 31 October 2013 (11) 許可證持有人於2013年10月31日提交更改環境許可證申請編號 VEP-419/2013和附件</p> <p>(12) Environmental Permit issued on 15 November 2013 (Permit No. EP-407/2010/D) (12) 於2013年11月15日發出的環境許可證(許可證編號 : EP-407/2010/D)</p> <p>(13) Application for Variation of an Environmental Permit No. VEP-451/2014 and attached document submitted by the Permit Holder on 6 August 2014 (13) 許可證持有人於2014年8月6日提交更改環境許可證申請編號 VEP-451/2014和附件</p> <p>(14) Environmental Permit issued on 29 August 2014 (Permit No. EP-407/2010/E) (14) 於2014年8月29日發出的環境許可證(許可證編號 : EP-407/2010/E)</p> <p>(15) Application for Variation of an Environmental Permit No. VEP-508/2016 and attached document submitted by the Permit Holder on</p>
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	<p>30 September 2016 (15) 許可證持有人於2016年9月30日提交更改環境許可證申請編號 VEP-508/2016和附件</p>
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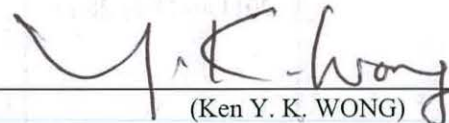
Application No. 申請書編號	Date of Application 申請日期	List of Amendments Incorporated into this Environmental Permit 已包含在本環境許可證內的修訂項目	Date of Amendment 修訂日期
VEP-344/2011	28 November 2011 2011 年 11 月 28 日	(1) Vary Condition 2.16 and Figure 2a and Figure 9 in Part C of the Environmental Permit (No. EP-407/2010) (一) 更改環境許可證(編號 EP-407/2010) C 部的第 2.16 項條件和圖 2a 及圖9	14 December 2011 2011 年 12 月 14 日
VEP-384/2012	12 November 2012 2012 年 11 月 12 日	(1) Add Conditions 2.17, 2.18 and 2.19 and renumber the conditions thereafter in Part C of the Environmental Permit (No. EP-407/2010/A) (一) 加入環境許可證(編號 EP-407/2010/A)的C 部的第 2.17, 2.18 及 2.19 項條件及將其後的條件重新編號 (2) Add Figures 16 and 17 (二) 新增圖16 及 17	4 December 2012 2012 年 12 月 4 日
VEP-399/2013	28 March 2013 2013 年 3 月 28 日	(1) Add Conditions 2.20, 2.21 and 2.22 and renumber the conditions thereafter in Part C of the Environmental Permit (No. EP-407/2010/B) (一) 加入環境許可證(編號 EP-407/2010/B)的C 部的第 2.20, 2.21 及 2.22 項條件及將其後的條件重新編號 (2) Add Figures 18 and 19 (二) 新增圖18 及 19	18 April 2013 2013 年 4 月 18 日
VEP-419/2013	31 October 2013 2013 年 10 月 31 日	(1) Vary Figures 11 to 13 and Appendix 1 of the Environmental Permit (No. EP-407/2010/C) (一) 更改環境許可證(編號 EP-407/2010/C)的圖 11 至 13 及附錄 1	15 November 2013 2013 年 11 月 15 日
VEP-451/2014	6 August 2014 2014 年 8 月 6 日	(1) Add Condition 2.34 in Part C of the Environmental Permit (No. EP-407/2010/E) (一) 加入環境許可證(編號 EP-407/2010/E) 的 C 部的第 2.34 項條件	29 August 2014 2014 年 8 月 29 日



		(2) Update Figure 10 (二) 更新圖 10	
VEP-508/2016	30 September 2016 2016 年 9 月 30 日	(1) Vary Condition 2.31 in Part C of Environmental Permit No. EP-407/2010/E to include updated maximum sound power levels for the fixed plant noise sources conforming to the requirements of the Technical Memorandum on Environmental Impact Assessment Process. (一)更改環境許可證編號 EP-407/2010/E, C 部的條件第 2.31 項, 以包括更新的固定機器噪音源的最高聲功率級, 該最高聲功率級須符合環境影響評估程序技術備忘錄的要求。	21 October 2016 2016 年 10 月 21 日

19th October 2016
 Date

日期


 (Ken Y. K. WONG)

Principal Environmental Protection Officer
 For Director of Environmental Protection
 環境保護署署長
 (首席環境保護主任黃耀光代行)



PART B (DESCRIPTIONS OF DESIGNATED PROJECT(S))
B部 (指定工程項目的說明)

Hereunder is the description of the designated project(s) mentioned in Part A of this environmental permit :-
下列為本環境許可證A部所提及的指定工程項目的說明：

<p>Title of Designated Project(s) 指定工程項目的名稱</p>	<p>South Island Line (East) [This designated project is hereinafter referred to as "the Project"] 南港島綫 (東段) [這指定工程項目下稱“工程項目”]</p>
<p>Nature of Designated Project(s) 指定工程項目的性質</p>	<p>Construction and operation of a railway, its associated stations, a railway depot and an explosive magazine 興建和運作一條鐵路，有關的車站，鐵路維修車廠及爆炸品倉庫。</p>
<p>Location of Designated Project(s) 指定工程項目的地點</p>	<p>Railway alignment from South Horizons via Lei Tung, Wong Chuk Hang, Ocean Park to Admiralty and a temporary explosive magazine at Chung Hom Shan. The location of this Project and its works areas are shown in Figures 1, 2a & 2b attached to this Permit. 鐵路路線由海怡半島，途經利東，黃竹坑和海洋公園至金鐘，以及於春坎山興建臨時爆炸品倉庫。工程項目及其工地的位置見載於本許可證夾附的圖 1, 2a 及 2b。</p>
<p>Scale and Scope of Designated Project(s) 指定工程項目的規模和範圍</p>	<p>Construction and operation of:-</p> <ul style="list-style-type: none"> • an approximately 7km of partly underground and partly viaduct railway alignment from South Horizons to Admiralty; • South Horizons, Lei Tung, Wong Chuk Hang and Ocean Park stations as well as expansion of Admiralty Station, and associated ventilation shafts and electrical and mechanical plant buildings; • a railway depot at ex-Wong Chuk Hang Estate site; and • a temporary explosive magazine at Chung Hom Shan. <p>Decommissioning of the temporary explosive magazine at Chung Home Shan.</p> <p>興建和運作:</p> <ul style="list-style-type: none"> • 全長約7公里包括隧道及高架橋的鐵路，路線由海怡半島至金鐘; • 於海怡半島，利東，黃竹坑和海洋公園設置車站，並在金鐘站擴建，及與鐵路相關連的通風口和機樓; • 位於前黃竹坑邨的鐵路維修車廠; 及 • 於春坎山的臨時爆炸品倉庫。 <p>解除於春坎山運作的臨時爆炸品倉庫。</p>

PART C (PERMIT CONDITIONS)

1. General Conditions

- 1.1 The Permit Holder and any person working on the Project shall comply with all conditions set out in this Permit. Any non-compliance by any person may constitute a contravention of the Environmental Impact Assessment Ordinance (Cap. 499) and may become the subject of appropriate action being taken under the Ordinance.
- 1.2 The Permit Holder shall ensure full compliance with all legislation from time to time in force including but without limitation to the Noise Control Ordinance (Cap. 400), Air Pollution Control Ordinance (Cap. 311), Water Pollution Control Ordinance (Cap. 358), Waste Disposal Ordinance (Cap. 354), and Dangerous Goods Ordinance (Cap.295). This Permit does not of itself constitute any ground of defense against any proceedings instituted under any legislation.



- 1.3 The Permit Holder shall make copies of this Permit together with all documents referred to in this Permit or the documents referred to in Part A of the Permit readily available at all times for inspection by the Director or his authorised officers at all sites/offices covered by this Permit. Any reference to the Permit shall include all documents referred to in the Permit and also the relevant documents in the Register.
- 1.4 The Permit Holder shall give a copy of this Permit to the person(s) in charge of the site(s) and ensure that such person(s) fully understands all conditions and all requirements incorporated by the Permit. The site(s) refers to site(s) of construction and operation of the Project and shall mean the same hereafter.
- 1.5 The Permit Holder shall display conspicuously a copy of this Permit on the construction site(s) at all vehicular site entrances/exits or at a convenient location for public's information at all times. The Permit Holder shall ensure that the most updated information about the Permit, including any amended permit, is displayed at such locations. If the Permit Holder surrenders a part or the whole of the Permit, the notice he sends to the Director shall also be displayed at the same locations as the original Permit. The suspended, varied or cancelled Permit shall be removed from display at the construction site(s).
- 1.6 The Permit Holder shall construct and operate the Project in accordance with the project descriptions in Part B of this Permit.
- 1.7 The Permit Holder shall ensure that the Project is designed, constructed and operated in accordance with the information and all recommendations described in the approved EIA Report (Register No.: AEIAR-155/2010), the application documents for environmental permits, other relevant documents in the Register; and the information or mitigation measures described in this Permit, and mitigation measures to be recommended in submissions that shall be deposited with or approved by the Director as a result of permit conditions contained in this Permit, and mitigation measures to be recommended under on going surveillance and monitoring activities during all stages of the Project. Where recommendations referred to in the documents of the Register are not expressly referred to in this Permit, such recommendations are nevertheless to be implemented unless expressly excluded or impliedly amended in this Permit.
- 1.8 All deposited submissions, as required under this Permit, shall be rectified and resubmitted in accordance with the comments, if any, made by the Director within one month of the receipt of the Director's comments or otherwise as specified by the Director.
- 1.9 All submissions approved by the Director, all submissions deposited without comments by the Director, and all submissions rectified in accordance with comments by the Director under this Permit shall be construed as part of the permit conditions described in Part C of this Permit. Any variation of the submissions shall be approved by the Director in writing or as prescribed in the relevant permit conditions. Any non-compliance with the submissions may constitute a contravention of the Environmental Impact Assessment Ordinance (Cap. 499). All submissions or any variation of the submissions shall be certified by the Environmental Team (ET) Leader and verified by the Independent Environmental Checker (IEC) referred to in Conditions 2.1 and 2.2 below, before submitting to the Director under this Permit.
- 1.10 The Permit Holder shall release all finalised submissions as required under this Permit, to the public by depositing copies in the Environmental Impact Assessment Ordinance Register Office, or in any other places, or any internet websites as specified by the Director, or by any means as specified by the Director, for public inspection. For this purpose, the Permit Holder shall provide sufficient copies of the submissions.
- 1.11 The Permit Holder shall notify the Director in writing the commencement date of construction of the Project no later than one month prior to the commencement of construction of the Project. The Permit Holder shall notify the Director in writing immediately if there is any change of the commencement date of the construction.
- 1.12 All submissions to the Director required under this Permit shall be delivered either in person or by registered mail to the Environmental Impact Assessment Ordinance Register Office (currently at 27/F, Southorn Centre, 130 Hennessy Road, Wanchai, Hong Kong). Electronic copies of all finalised submissions required under this Permit shall be prepared in Hyper Text Markup Language (HTML) (version 4.0 or later) and in Portable Document Format (PDF) (version 1.3 or later), unless otherwise agreed by the Director and shall be submitted at the same time as the hardcopies.
- 1.13 For the purpose of this Permit, "commencement of construction" does not include works related to site clearance and preparation, or other works as agreed by the Director.



- 1.14 The Permit Holder shall notify the Director in writing the commencement date of operation of the Project no later than two months prior to the commencement of operation of the Project. The Permit Holder shall notify the Director in writing immediately if there is any change of the commencement date of the operation.

2 Special Conditions

Submissions or Measures before Commencement of Construction of the Project

Employment of Environmental Monitoring and Audit (EM&A) Personnel

- 2.1 An Environmental Team (ET) shall be established by the Permit Holder no later than one month before the commencement of construction of the Project. The ET shall not be in any way an associated body of the Contractor or the Independent Environmental Checker (IEC) for the Project. The ET shall be headed by an ET Leader. The ET Leader shall be a person who has at least 7 years of experience in environmental monitoring and auditing (EM&A) or environmental management. The ET and the ET Leader shall be responsible for the implementation of the EM&A programme in accordance with the EM&A requirements as contained in the EM&A Manual of the Project. The ET Leader shall keep a contemporaneous log-book of each and every instance or circumstance or change of circumstances, which may affect the compliance with the recommendations of the approved EIA Report and this Permit. The ET Leader shall notify the IEC within one working day of the occurrence of any such instance or circumstance or change of circumstances. The ET Leader's log-book shall be kept readily available for inspection by all persons assisting in supervision of the implementation of the recommendations of the approved EIA Report and this Permit or by the Director or his authorized officers. Failure to maintain records in the log-book, failure to discharge the duties of the ET Leader as defined in the EM&A Manual or failure to comply with this Condition would entitle the Director to require the Permit Holder by notice in writing to replace the ET Leader. Failure by the Permit Holder to make replacement, or further failure to keep contemporaneous records in the log-book despite the employment of a new ET Leader may render the Permit liable to suspension, cancellation or variation.
- 2.2 An Independent Environmental Checker (IEC) shall be employed by the Permit Holder no later than one month before commencement of construction of the Project. The IEC shall not be in any way an associated body of the Contractor or the ET for the Project. The IEC shall be a person who has at least 7 years of experience in EM&A or environmental management. The IEC shall be responsible for duties defined in the EM&A Manual and shall audit the overall EM&A performance, including the implementation of all environmental mitigation measures, submissions required in the EM&A Manual, and any other submissions required under this Permit. In addition, the IEC shall be responsible for verifying the environmental acceptability of permanent and temporary works, relevant design plans and submissions under this Permit. The IEC shall verify the log-book(s) mentioned in Condition 2.1 of this Permit. The IEC shall notify the Director by fax, within one working day of receipt of notification from the ET Leader of each and every occurrence, change of circumstances or non-compliance with the approved EIA Report and this Permit, which might affect the monitoring or control of adverse environmental impacts from the Project. In the case where the IEC fails to so notify the Director of the same, fails to discharge the duties of the IEC as defined in the EM&A Manual or fails to comply with this Condition, the Director may require the Permit Holder by notice in writing to replace the IEC. Failure to replace the IEC as directed or further failure to so notify the Director despite employment of a new IEC may render the Permit liable to suspension, cancellation or variation. Notification by the Permit Holder is the same as notification by the IEC for the purpose of this Condition.

Employment of Qualified Ecologist

- 2.3 The Permit Holder shall appoint a Qualified Ecologist with 7 or more years of relevant experience, for the Project to advise on, monitor and ensure proper implementation of measures for habitat loss due to the Project, in particular the habitat compensation at Wong Chuk Hang Nullah, and to prepare submissions as required under Conditions 2.13 and 2.14. The qualification and experience of the Qualified Ecologist shall be certified by the ET Leader and verified by the IEC. The Qualified Ecologist shall form part of the ET.

Employment of Certified Arborist

- 2.4 The Permit Holder shall appoint a Certified Arborist for the Project to advise on, monitor and ensure proper



implementation of measures for protecting trees affected by the Project, in particular the Old and Valuable Trees within the Project boundary, and to prepare submissions as required under Condition 2.15. The Certified Arborist shall form part of the ET.

Management Organization of Main Construction Companies

- 2.5 The Permit Holder shall, no later than two weeks before the commencement of construction of the Project, inform the Director in writing the management organization of the main construction companies and/or any form of joint ventures associated with the construction of the Project. The submitted information shall include at least an organization chart, names of responsible persons and their contact details.

Submission of Construction Programme and EP Submission Schedule

- 2.6 The Permit Holder shall, no later than two weeks before commencement of the land-based and marine-based construction works of the Project, deposit with the Director four hard copies and one electronic copy of the construction programme showing the commencement and completion dates of major items of construction works; together with the anticipated schedule of submissions for fulfilling the submission requirements as contained in this Permit. The Permit Holder shall inform the Director accordingly in writing in case of any subsequent changes of items contained in this submitted construction programme and EP Submission Schedule.

Community Liaison Groups

- 2.7 The Permit Holder shall set up Community Liaison Groups comprising representatives of concerned and affected parties, including owners' corporations, management offices, local committees and schools in the affected areas, to facilitate communication, enquiries and complaints handling on all environmental issues throughout the entire construction period, including the follow up on the implementation of remedial mitigation measures, and other initiatives by the Permit Holder such as Indirect Technical Remedy in the form of upgraded glazing and air conditioning for eligible dwellings affected by construction air-borne noise impact, as well as continuous noise monitoring mechanism and any need for web camera monitoring. The Permit Holder shall notify the Director the date of setting up the Community Liaison Groups at least one month before commencement of construction of the Project. A designated complaint hotline shall also be set up for the Project to address such concerns and complaints in an efficient manner.

Submission of Updated EM&A Manual for Continuous Noise Monitoring Mechanism

- 2.8 The Permit Holder shall, no later than one month before the commencement of construction of the Project, submit to the Director for approval four hard copies and one electronic copy of an updated EM&A Manual for the Project. The updated EM&A Manual shall include:
- (a) updated environmental monitoring and audit requirements relating to continuous noise monitoring referred to in Condition 2.10;
 - (b) drawings in the scale of 1:5,000 or other appropriate scale as agreed by the Director showing the proposed locations for conducting continuous noise monitoring;
 - (c) monitoring methodology and measurement parameters;
 - (d) a system to report the continuous noise monitoring results on a website within a period of 2 working days, after the relevant noise monitoring data are collected or become available; and
 - (e) an Event and Action Plan with proposed immediate remedial action(s).

Before submission to the Director, the updated EM&A Manual shall be certified by the ET and verified by the IEC as conforming to the relevant information and recommendations contained in the approved EIA Report or the updated prediction of noise levels as contained in the construction noise mitigation measures plan referred to in Condition 2.9. All measures recommended in the updated EM&A Manual approved under this Condition shall be fully and properly implemented.

Submissions or Measures During Construction Stage

Submission and measures for mitigating construction noise

- 2.9 To further reduce the construction noise impacts on the 12 noise sensitive receivers (NSRs) with predicted exceedance in air-borne construction noise and the 2 NSRs with predicted exceedance in ground-borne construction noise in the approved EIA Report, the Permit Holder shall, at least one month before commencement of construction of the project, submit to the Director for approval four hard copies and one



electronic copy of a construction noise mitigation measures plan. The location of these NSRs are as shown in Figures 3 to 6. The Plan shall include:-

- (a) a schedule of construction works to be carried out at the works areas of the Project within 300m from the NSRs;
- (b) an updated construction methodology of the construction works;
- (c) an updated powered mechanical equipment (PME) list for the construction works;
- (d) an updated proposal of air-borne noise mitigation measures for the 12 NSRs as shown in Figures 3 to 6, including the provision of noise barriers, enclosures and Indirect Technical Remedies;
- (e) an updated proposal of ground-borne noise mitigation measures for the 2 NSRs as shown in Figure 5; and
- (f) an updated prediction of noise levels in accordance with the above updated information and mitigation proposals in place.

The submission(s) shall be certified by the ET Leader and verified by the IEC as conforming to the relevant information and recommendations contained in the approved EIA Report. All measures recommended in the approved construction noise mitigation measures plan shall be fully and properly implemented.

- 2.10 The Permit Holder shall set up a continuous noise monitoring mechanism, at least 2 weeks before the commencement of construction of the Project in accordance with the requirements as contained in the updated EM&A Manual approved under Condition 2.8, and as part of EM&A works under Condition 3.1. This system shall be provided throughout the entire construction period. In the event that the measured noise levels exceed the worst case scenario(s) predicted in the approved EIA report or the updated prediction of noise levels as contained in the construction noise mitigation measures plan referred to in Condition 2.9 above, the Permit Holder shall take immediate remedial action(s) following the procedures specified in the updated EM&A Manual.

Submission and measures for handling construction and demolition materials (C&DM)

- 2.11 The Permit Holder shall, no later than 2 weeks before commencement of construction of the Project, submit to the Director for approval four hard copies and one electronic copy of a construction and demolition (C&D) materials management plan. The C&D materials management plan should include:-

- (a) drawings in the scale of 1:5000 or other appropriate scale as agreed by the Director showing the designated transport routes of C&D materials to and from each of the specific barging points at Telegraph Bay, Lee Nam Road and Western Public Cargo Working Area;
- (b) maximum volume of C&D materials to be handled per day at each specific barging point;
- (c) operation hours and day of each specific barging point throughout the construction period;
- (d) maximum number of truck movements per working day to and from each specific barging point;
- (e) a mitigation plan listing out measures to minimize potential environmental impacts due to truck movements to and from each specific barging point as well as potential environmental impacts due to operation of each specific barging point;
- (f) a monitoring and auditing programme to ensure implementation of the mitigation plan and the EM&A results shall be reported in the monthly EM&A report as required in Condition 3.4; and
- (g) results of consultation with relevant Community Liaison Groups as set up under Condition 2.7 regarding the proposals in this C&D materials management plan.

The submission(s) shall be certified by the ET Leader and verified by the IEC as conforming to the relevant information and recommendations contained in the approved EIA Report. All measures recommended in the approved Plan shall be fully and properly implemented.

Submission and measures for mitigating ecological impacts

- 2.12 To reduce the impact to ardeids at Wong Chuk Hang Nullah, the Permit Holder shall not carry out:

- (a) site clearance works between December to February of the following year inclusively at the area as shown in diagonal-stripped blue in Figure 7. This is to avoid disturbance to ardeid roosting activities in winter ; and
- (b) construction works with PME between 18:00 to 06:00 hours of the following day inclusively at the area as shown in diagonal-stripped green in Figure 7. This is to avoid disturbance to the ardeid night roosting activities.



2.13 To compensate the loss for ardeid roosting sites due to the construction works at Wong Chuk Hang Nullah, the Permit Holder shall:

- (a) no later than one month before commencement of site clearance works, submit to the Director for approval four hard copies and one electronic copy of an ecological planting and landscape plan showing:
 - i. types and locations of tree species such as *Mallotus paniculatus*, *Macaranga tanarius*, *Leucaena leucocephala*, *Ficus hispida*, *Cratoxylum cochinchinense* and other fruit-bearing species, to be planted at the area as shown in diagonal-stripped red in Figure 7;
 - ii. habitat compensation/enhancement works by planting the Nullah sides with plant species, including *Celtis sinensis*, *Reevesia thyrsoidea*, *Schima superba*, *Schefflera heptaphylla*, *Sapium discolor*, *Mallotus paniculatus*, *Liquidambar formosana*, *Aquilaria sinensis*, *Sterculia lanceolata*, *Litsea rotundifolia*, *Ilex asprella*, *Rhaphiolepis indica*, *Psychotria rubra* and *Rhodomyrtus tomentosa*; and
 - iii. a 3-year post-planting care and maintenance plan, including the details of monitoring periods, monitoring frequency, duties of the Qualified Ecologist who will carry out the monitoring work, a contingency plan for remedial actions and reporting requirements, and the requirements and proposed contents of a final monitoring report to be submitted by the Qualified Ecologist at the end of the 3-year post-planting care and maintenance period.

The ecological planting and landscape plan shall be prepared by a Qualified Ecologist as appointed under Condition 2.3 and shall be certified by the ET Leader and verified by the IEC as conforming to the information and recommendations contained in the approved EIA Report. All recommended planting works or measures as set out in the approved ecological planting and landscape plan shall be fully and properly implemented.

- (b) no later than one month after completion of planting works at the area as shown in diagonal-stripped red in Figure 7 and the Nullah sides, deposit with the Director four hard copies and one electronic copy of a set of as-built drawing(s) showing the planting works carried out under Condition 2.13 (a). Before submission to the Director, this set of as-built submission(s) shall be certified by the ET Leader and verified by the IEC to demonstrate that Condition 2.13 (a) is fulfilled; and
- (c) no later than 1 month after completion of the 3-year post-planting care and maintenance period as stipulated under Condition 2.13(a)(iii) above, the Qualified Ecologist shall deposit with Director four hard copies and one electronic copy the Final Monitoring Report mentioned in Condition 2.13 (a)(iii) above.

2.14 To reduce the impact to plant species of conservation interest due to construction of the Project, transplantation of the species, including *Gleditsia australis*, *Aquilaria sinensis*, *Lagerstroemia fordii*, *Pavetta hongkongensis* and *Houttuynia cordata*, and other uncommon plant species if identified during a detailed transplanting baseline survey, shall be carried out. The Permit Holder shall:

- (a) no later than one month before commencement of site clearance works of the Project, deposit with the Director four hard copies and one electronic copy of a detailed transplanting baseline survey report showing the survey results, methodology, survey periods, types and locations of plants identified within the Project boundary as suitable for transplantation;
- (b) no later than one month before commencement of plant transplantation, deposit with the Director four hard copies and one electronic copy of transplantation proposal showing:
 - i. types and locations of plants identified in the detailed transplanting baseline survey;
 - ii. locations of reception sites for transplantation;
 - iii. methodology and implementation programme of transplantation; and
 - iv. post-transplantation monitoring and maintenance programme.

The transplanting baseline survey and the transplanting proposal shall be prepared by a Qualified



Ecologist appointed under Condition 2.3 and shall be certified by the ET Leader and verified by the IEC as conforming to the information and recommendations contained in the approved EIA Report. All recommended measures as set out in the deposited transplanting proposal shall be fully and properly implemented.

- (c) no later than one month after completion of transplanting works, deposit with the Director four hard copies and one electronic copy of a set of as-built drawing(s) showing the transplanting works carried out under Condition 2.14 (b). Before submission to the Director, this set of as-built submission(s) shall be certified by the ET Leader and verified by the IEC to demonstrate that Condition 2.14 (b) is fulfilled.

Measures for mitigating visual and landscape impacts

2.15 The Permit Holder shall, no later one month before the commencement of site clearance works of the Project, deposit with the Director four hard copies and one electronic copy of a Tree Protection Plan detailing the requirements and measures for the proper protection and monitoring of trees affected by the construction of the Project, including all Old and Valuable Trees and Protected trees within the Project boundary. The Tree Protection Plan shall include:

- (a) detailed working method statement for the protection of retained trees;
(b) tree transplanting proposal including final location for transplanted trees that will be affected by the works and are trees of high to medium survival rate; and
(c) an audit report proposal on the tree protection activities to be implemented throughout the construction period.

The Tree Protection Plan shall be prepared by Certified Arborist as appointed under Condition 2.4 and shall be certified by the ET Leader and verified by the IEC as conforming to the information and recommendations contained in the approved EIA Report. All recommended tree protection works or measures as set out in the deposited Tree Protection Plan shall be fully and properly implemented.

Measures for mitigating water quality and marine ecological impacts

2.16 To reduce the dispersion of suspended solids during marine-based construction/demolition works, including the piers/pier foundations of railway bridge over Aberdeen Channel and temporary barging point at Telegraph Bay as shown in Figures 8 and 9 respectively, the Permit Holder shall:

- (a) install a silt curtain system to enclose the marine-based construction/demolition works in accordance with the silt curtain plan(s) deposited on the Register. All recommended measures and requirements as set out in the deposited silt curtain plan(s) shall be fully and properly implemented. No marine-based construction/demolition works shall be carried out without a properly installed and maintained silt curtain system in place. If there is any subsequent changes in the silt curtain plan(s), the Permit Holder shall, no later than 1 month before implementation of the amended plan, deposit with the Director four hard copies and one electronic copy of the amended silt curtain plan(s). Before submission to the Director, the amended silt curtain plan(s) shall be certified by the ET Leader and verified by the IEC as conforming to the information, requirements and recommendations as set out in the approved EIA report.
(b) carry out marine-based construction works for the piers/pier foundations of railway bridge over Aberdeen Channel inside a watertight enclosure in the form of a cofferdam or steel pile casing, to avoid spillage of suspended sediment or wastewater into the sea.

Measures for On-site Re-use of excavated marine sediment

2.17 For on-site re-use of the marine sediment excavated from Pier E2, the Permit Holder shall:

- (a) carry out cement stabilization / solidification (CS/S) treatment for the excavated marine sediment in accordance with requirements as set out in Table 1 of this Permit and collect sample(s) from the trial mix of treated marine sediment.
(b) no later than one month after the sample(s) are collected, submit to the Director for approval four hard copies and one electronic copy of sample test results. No bulk mixing of the remaining marine sediment shall be carried out prior to the approval of the sample test results.
(c) no later than two months after the completion of land based backfilling of the treated marine



sediment at the location shown in Figure 16, deposit with the Director four hard copies and one electronic copy of the Sediment Sampling Report showing the sample test results of the bulk mixing and backfilling records.

Before submission to the Director, the sample test results and the Sediment Sampling Report prepared under Condition 2.17(b) and (c) above shall be certified by the ET Leader and verified by the IEC as conforming to the information, requirements and recommendations as set out in the VEP application document (VEP No. 384/2012).

- 2.18 The cement stabilization / solidification (CS/S) treatment for the excavated marine sediment shall be carried out in a sheltered working platform to minimize dust nuisance and a impervious sheet such as a tarpaulin shall be laid on the ground of the working platform to avoid direct contact with the soil underneath the working platform.

Measures for drill and blast work at LET Entrance B shaft

- 2.19 To mitigate noise and air quality impact (including impacts from dust, fumes and smokes) during and after blasting, the following measures shall be implemented:
- (a) An acoustic shed shall be erected at the location as shown in Figure 17 and shall fully cover the shaft entrance during drill and blast work and mucking out activities.
 - (b) A solid steel blast door shall be installed at the shaft entrance as shown in Figure 17 and shall be closed during each blast.
 - (c) An automatic water spraying system shall be installed under the shaft decks and shall be operated at least 60 minutes before, during and 60 minutes after each blast for dust settling.
 - (d) A ventilation system with bag filter shall be installed to reduce dust in the exhaust from the acoustic shed.

Measures for drill and blast work at Admiralty (ADM) Station Box

- 2.20 To mitigate noise and air quality impact (including impacts from dust, fumes and smokes) during and after blasting, the following measures shall be implemented:
- (a) Blast covers and reinforced concrete infill panels shall be installed at the locations as shown in Figure 18 and shall be closed during each blast.
 - (b) An automatic water sprinkler system shall be installed within the blasting area as shown in Figures 18 & 19 and shall be operated at least 2 minutes before, during and 15 minutes after each blast for dust settling.
 - (c) A mist system shall be installed near the ventilation exhaust at the top of the ADM Station Box as shown in Figure 19 and shall be operated at least 2 minutes before, during and 15 minutes after each blast for dust settling.
 - (d) A ventilation system with dust filter shall be installed to reduce the dust in the exhaust from the ADM Station Box. The ventilation system shall be turned off immediately before each blast and remain switched off for at least 15 minutes to allow sufficient time for dust settling.
- 2.21 In case delivery of explosives by Mines Division of Civil Engineering and Development Department directly to ADM Station Box site is not available, the rock excavation at the blasting area as shown in Figure 18 shall be carried out by mechanical means.
- 2.22 No more than two production blasts per day shall be carried out within the blasting area as shown in Figure 18.

Measures for mitigating aerial emissions from PME

- 2.23 The Permit Holder shall ensure that all diesel fuelled PME used within the work areas of the Project are powered by ultra low sulphur diesel fuel.

Submissions or Measures Before and During Operational Stage

Measures for mitigating operational noise

- 2.24 The Permit Holder shall operate 3-car K-Stock train, or other train type with equivalent or better noise



performance supported with justifications by the ET Leader and verified by the IEC as conforming to the information, requirements and recommendations as set out in the approved EIA report, of approximately 68m in length for the Project. The maximum train frequency operating in the Project from hours 0700 to 2300 shall not exceed 15 trains per 30 minutes in each direction. The maximum train frequency operating in the Project from hours 2300 to 0700 of the following day shall not exceed 8 trains per 30 minutes in each direction.

- 2.25 The Permit Holder shall, no later than one month after completion of corresponding parts of the tunnel excavation of the Project, deposit with the Director four hard copies and one electronic copy of an Operational Ground-borne Noise Review Plan to justify the adequacy of the proposed operational ground borne noise mitigation measure recommended for that part of the tunnel in the approved EIA Report. The Operational Ground-borne Noise Review Plan shall include the verification of the assumptions adopted in the approved EIA Report, such as Line Source Response and ground vibration conditions, and shall include justifications and recommendations for any additional noise mitigation measures. Before submission to the Director, the Operational Ground-borne Noise Review Plan shall be certified by the ET Leader and verified by the IEC as conforming to the information, requirements and recommendations as set out in the approved EIA report.
- 2.26 The Permit Holder shall, no later than one month prior to the installation of rail tracks of the Project, deposit with the Director four hard copies and one electronic copy of an Operational Ground-borne Noise Mitigation Measures Plan showing:
- (a) Type 1a Trackform – Resilient Baseplate shall be installed at the track section between Chainage 16730 and 16980 as shown in Figure 10; and
 - (b) any additional or changes in noise mitigation measures as required in accordance with the Operational Ground-borne Noise Review Plan deposited under Condition 2.25.

Before submission to the Director, the Operational Ground-borne Noise Mitigation Measures Plan shall be certified by the ET Leader and verified by the IEC as conforming to the information, requirements and recommendations as set out in the approved EIA report. All recommended measures as set out in the deposited Plan shall be fully and properly implemented.

- 2.27 The Permit Holder shall, no later than one month after the completion of installing the tracks, deposit with the Director four hard copies and one electronic copy of a set of as-built drawing(s) for the operational ground-borne noise mitigation measures as recommended in the Operational Ground-borne Noise Mitigation Measures Plan deposited under Condition 2.26 above. Before submission to the Director, the set of as-built drawing(s) shall be certified by the ET Leader and verified by the IEC to demonstrate that measures as set out in the Plan deposited under Condition 2.26 has been fully and properly implemented.
- 2.28 To mitigate the operational air-borne noise from the viaduct section as shown in Figure 1, before commencement of operation of the Project, the Permit Holder shall fully and properly implement all noise mitigation measures as shown in Appendix 1 and Figures 11 to 13 of this Permit.
- 2.29 The Permit Holder shall, no later than one month after the completion installing noise mitigation measures on the viaduct section, deposit with the Director four hard copies and one electronic copy of a set of as-built drawing(s) showing:
- (a) the operational air-borne noise mitigation measures under Condition 2.28 above; and
 - (b) any additional or changes in measures that may have been implemented after consultation with concerned parties.

Before submission to the Director, the set of as-built drawing(s) shall be certified by the ET Leader and verified by the IEC as conforming to the information and recommendations contained in the approved EIA Report.

- 2.30 At least one month before commencement of operation of the Project, the Permit Holder shall carry out noise performance test and deposit with the Director four hard copies and one electronic copy of a Noise Performance Test Report to confirm the compliance of the operational air-borne and ground-noise levels in accordance with the approved EIA Report. Before submission to the Director, the Noise Performance Test Report shall be certified by the ET Leader and verified by the IEC as conforming to the information and recommendations contained in the approved EIA Report. Any necessary measure(s) as recommended in the Noise Performance Test Report shall be fully and properly implemented.



- 2.31 At least one month before commencement of operation of the Project, the Permit Holder shall carry out fixed plant noise audit and deposit with the Director four hard copies and one electronic copy of an audit report showing that the design of the fixed plant noise sources associated with the Project complies with the maximum sound power levels determined in the approved EIA Report (Register No. AEIAR-155/2010) and all relevant documents in the Register, or otherwise approved by the Director in compliance with the requirements in "Technical Memorandum on Environmental Impact Assessment Process" having due regard to the characteristics of tonality, implusiveness and intermittency. The audit report shall be certified by the ET Leader and verified by the IEC as conforming to the information and recommendations contained in the approved EIA Report.

Measures for mitigating visual and landscape impacts

- 2.32 To reduce the landscape and visual impact due to the Project, in particular the reinstated Harcourt Garden, the new structures of ventilation shafts and electrical and mechanical plant buildings and the viaduct section along reinstated Wong Chuk Hang Nullah, the Permit Holder shall, at least one month before the commencement of corresponding parts of landscape works of the Project, deposit with the Director four hard copies and one electronic copy of a visual and landscape plan. The Plan shall include the design details, locations, implementation programme, maintenance and management schedules, and drawings in the scale of 1:1,000 or other appropriate scale as agreed by the Director of the landscape and visual mitigation measures of the Project as recommended in the approved EIA Report. Before submission to the Director, the Plan shall be certified by the ET Leader and verified by the IEC as conforming to the information and recommendations contained in the approved EIA Report.

Measures for mitigating water quality impacts

- 2.33 To maintain the water flow regime and flushing capacity in Aberdeen Channel and reinstated Wong Chuk Hang Nullah, the Permit Holder shall (a) align the railway bridge piers/pier foundations in parallel with the existing Ap Lei Chau Bridge piers as shown in Figure 8 and adopt streamline-shaped pier foundations for the railway bridge and (b) construct a nullah decking structure of approximately 600m in length as shown in Figures 14a to 14d and the viaduct piers aligned along the Nullah side as shown in Figures 15a to 15d.

Decommissioning of the temporary explosive magazine at Chung Hom Shan

- 2.34 The Permit Holder shall ensure that there is no explosive being stored in the magazine and the "Licence to Possess Category 1 Dangerous Goods" has been returned and accepted by Mines Division of Civil Engineering and Development Department before the commencement of the works (including any site preparation, site clearance and decommissioning works).

3. Environmental Monitoring and Audit Requirements

- 3.1 The EM&A programme of the Project, including the monitoring for noise, air quality and ecological impacts during the construction stage and the monitoring of ecological impacts after completion of construction activities, shall be implemented in accordance with the procedures and requirements as set out in the EM&A Manual (Register No. AEIAR – 155/2010) of the Project and an updated EM&A Manual submitted under Condition 2.8 above. The Permit Holder shall review the EM&A requirements or programme based on the submitted construction programme required under Condition 2.6. Any changes to the EM&A requirements or programme and termination of the EM&A programme shall be supported with justifications by the ET Leader and verified by the IEC to their conformance with the requirements as set out in the EM&A Manual (Register No. AEIAR – 155/2010) of the Project and the updated EM&A Manual submitted under Condition 2.8 above; and the prior approval from the Director shall be sought before their implementation.
- 3.2 Samples, measurements and necessary remedial actions shall be taken in accordance with the requirements of the EM&A Manual/updated EM&A Manual by:
- (a) conducting baseline environmental monitoring;
 - (b) conducting impact monitoring; carrying out remedial actions described in the Event/ Action Plans of the EM&A Manual in accordance with the time frames set out in the Event/ Action Plans, or as agreed by the Director, in case where specified criteria in the EM&A Manual/updated EM&A Manual are exceeded; and logging and keeping records of details of all parameters within 3 working



days of the collection of data or completion of remedial action(s), for the purpose of preparing and submitting the monthly EM&A Reports and to make available for inspection on site; and

(c) conducting post-construction ecological monitoring and carrying out actions described in the contingency plan of the EM&A Manual.

3.3 Four hard copies and one electronic copy of the Baseline Monitoring Report shall be submitted to the Director at least 2 weeks before the commencement of construction. The submissions shall be certified by the ET Leader and verified by the IEC as complied with the requirements as set out in the EM&A Manual/updated EM&A Manual before submission to the Director. Additional copies of the submission shall be provided upon request by the Director.

3.4 Four hard copies and one electronic copy of the monthly EM&A Reports for the construction shall be submitted to the Director within two weeks after the end of the reporting month. The monthly EM&A Reports shall include a summary of all non-compliance with the recommendations in the approved EIA Report or this Permit. The submissions shall be certified by the ET Leader and verified by the IEC as complying with the requirements as set out in the EM&A Manual/updated EM&A Manual before submission to the Director. Additional copies of the submission shall be provided upon request by the Director.

3.5 All environmental monitoring and audit results submitted under this Permit shall be true, valid and correct.

4. **Electronic Reporting of EM&A Information**

4.1 To facilitate public inspection of the Baseline Monitoring Report and the monthly EM&A Reports via the EIAO Internet Website and at the EIAO Register Office, electronic copies of these Reports shall be prepared in the Hyper Text Markup Language (HTML) (version 4.0 or later) and in Portable Document Format (PDF) (version 1.3 or later), unless otherwise agreed by the Director and shall be submitted at the same time as the hard copies as described in Conditions 3.3 and 3.4 of this Permit. For the HTML version, a content page capable of providing hyperlink to each section and sub-section of these Reports shall be included in the beginning of the document. Hyperlinks to all figures, drawings and tables in these Reports shall be provided in the main text from where the respective references are made. All graphics in these Reports shall be in interlaced GIF format unless otherwise agreed by the Director. The content of the electronic copies of these Reports must be the same as the hard copies.

4.2 The Permit Holder shall set up a dedicated web site and notify the Director in writing the internet address where the environmental monitoring and project data is to be placed within 1 month after the commencement of construction of the Project. All environmental monitoring results described in Condition 4.1 above and all submissions required by this Permit shall be made available to the public via this dedicated web site to be set up by the Permit Holder in the shortest time practicable, and in no event later than 2 weeks after the relevant environmental monitoring data are collected or become available, unless otherwise agreed with the Director. The Permit Holder shall maintain the dedicated website for public access of the environmental monitoring data and reports throughout the entire construction period and during the first 3-year of operation of the Project, or otherwise as agreed by the Director.

4.3 The internet website as described in Condition 4.2 above shall enable user-friendly public access to the monitoring data and project data including the EIA report, the environmental permit(s) and project profile of the Project. The internet website shall have features capable of:

- (a) providing access to all environmental monitoring data collected since the commencement of work and all submissions under this permit;
- (b) searching by date;
- (c) searching by types of monitoring data; and
- (d) hyperlinks to relevant monitoring data after searching;

or otherwise as agreed by the Director.

Notes :

1. This Permit consists of three parts, namely, PART A (Main Permit), PART B (Description of Designated



Project) and PART C(Permit Conditions). Any person relying on this permit should obtain independent legal advice on the legal implications under the Ordinance, and the following notes are for general information only.

2. If there is a breach of any conditions of this Permit, the Director or his authorized officer may, with the consent of the Secretary for the Environment, order the cessation of associated work until the remedial action is taken in respect of the resultant environmental damage, and in that case the Permit Holder shall not carry out any associated works without the permission of the Director or his authorized officer.
3. The Permit Holder may apply under Section 13 of the Ordinance to the Director for a variation of the conditions of this Permit. The Permit Holder shall replace the original permit displayed on the construction site by the amended permit.
4. A person who assumes the responsibility for the whole or a part of the designated project may, before he assumes responsibility of the designated project, apply under Section 12 of the Ordinance to the Director for a further environmental permit.
5. Under Section 14 of the Ordinance, the Director may with the consent of the Secretary for the Environment, suspend, vary or cancel this Permit. The suspended, varied or cancelled Permit shall be removed from display at the construction site.
6. If this Permit is cancelled or surrendered during construction or operation of the Project, another environmental permit must be obtained under the Ordinance before the Project could be continued. It is an offence under section 26(1) of the Ordinance to construct or operate a designated project listed in Part I of schedule 2 of the Ordinance without a valid environmental permit.
7. Any person who constructs or operates the Project contrary to the conditions in the Permit, and is convicted of an offence under the Ordinance, is liable:-
 - i. on a first conviction on indictment to a fine of \$ 2 million and to imprisonment for 6 months;
 - ii. on a second or subsequent conviction on indictment to a fine of \$ 5 million and to imprisonment for 2 years;
 - iii. on a first summary conviction to a fine at level 6 and to imprisonment for 6 months;
 - iv. on a second or subsequent summary conviction to a fine of \$1 million and to imprisonment for 1 year; and
 - v. in any case where the offence is of a continuing nature, the court or magistrate may impose a fine of \$ 10,000 for each day on which he is satisfied the offence continued.
8. The Permit Holder may appeal against any condition of this Permit under Section 17 of the Ordinance within 30 days of receipt of this Permit.
9. The Notes are for general reference only and that the Permit Holder should refer to the EIA Ordinance for details and seek independent legal advice.



Table 1 - Summary of treatment target for metals

(This table was prepared based on Table 1 of Proposal for Treatment of Marine Sediment to Replace Marine Disposal in the VEP application document (VEP No. 384/2012))

Metal	Concentration in TCLP leachate before treatment (mg/L)	Test requirement	Target concentration in TCLP leachate after treatment (mg/L)
Antimony	< 0.1	< 1.15 mg/L	NA
Arsenic	< 0.1	< 5 mg/L	NA
Barium	0.2	< 21 mg/L	NA
Cadmium	< 0.01	< 0.11 mg/L	NA
Chromium	< 0.1	< 0.6 mg/L	NA
Cobalt	< 0.1	Reduction of 90% in mobility	NA
Copper	0.3	Reduction of 90% in mobility	Undetectable*
Lead	< 0.1	< 0.75 mg/L	NA
Manganese	4.5	Reduction of 90% in mobility	< 0.45
Molybdenum	< 0.1	Reduction of 90% in mobility	NA
Nickel	< 0.1	< 11 mg/L	NA
Tin	< 0.1	Reduction of 90% in mobility	NA
Zinc	0.8	< 4.3 mg/L	NA
Mercury	< 0.002	< 0.025 mg/L	NA

* Since the limit of reporting (LOR) of Copper is 0.1 mg/L, the target concentration in TCLP leachate after treatment 0.03 mg/L is undetectable.



Appendix 1

Noise Mitigation Measures to be Implemented before commencement of Operation of the Project

Remarks:

- The chain-age and length indicated in this table are for reference only. Please refer to Figures 11 to 13 attached to this Permit for the extent of the noise mitigation measures.

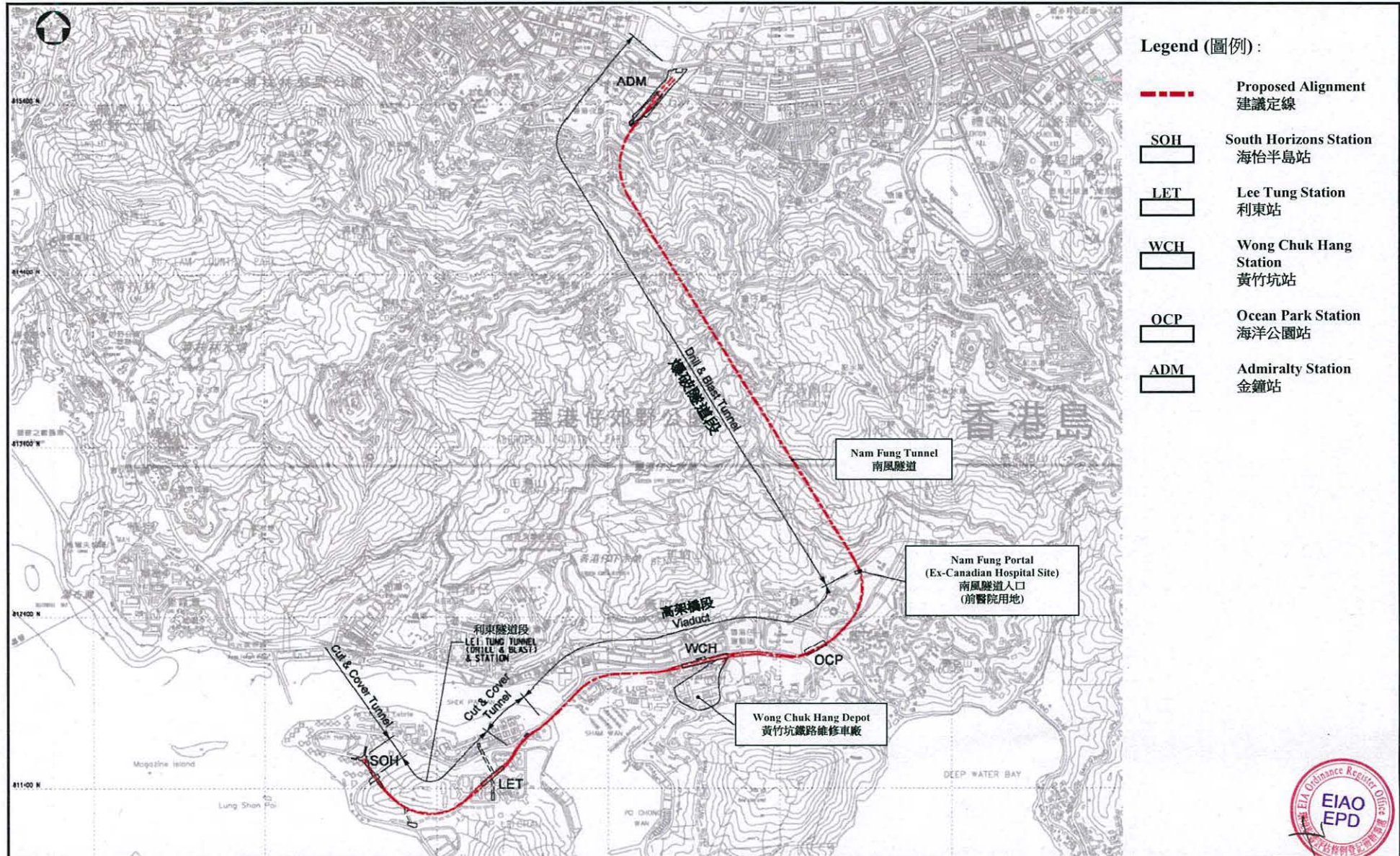
Track Direction	Location	Chain-age (Approx.)	Type of Noise Mitigation Measures	Height, m	Length (Approx.), m
Northern Track (From South Horizons to Admiralty)	TWGH Yeung Shing Memorial Long Stay Care Home	13530 – 13620	Full enclosure covering both tracks	6	90
	TWGH Yeung Shing Memorial Long Stay Care Home	13620 – 13710	Semi-enclosure covering northern track only	6	90
	West of Ocean Park G/IC Site	13930 – 14100	Semi-enclosure covering both tracks with opening along southern side	6	170
	East of Wong Chuk Hang Residential Zone	14200 – 14400	Semi-enclosure covering both tracks with opening along northern side	6	200
	West of Wong Chuk Hang Residential Zone	14660 – 14800	Semi-enclosure covering both tracks with opening along northern side	6	140
	Little Sisters of the Poor St. Mary's Home for the Aged	14830 – 14870	Semi-enclosure covering both tracks with opening along northern side	6	40
	TWGH Jockey Club Rehabilitation Complex	14870 – 14970	Full enclosure covering both tracks	6	100
	TWGH Jockey Club Rehabilitation Complex	14970 – 15010	Semi-enclosure covering both tracks with opening along northern side	6	40
	Sham Wan Towers	15530 – 15580	Semi-enclosure covering both tracks with opening along northern side	6	50
Southern Track (From Admiralty to South Horizons)	TWGH Yeung Shing Memorial Long Stay Care Home	13530 – 13620	Full enclosure covering both tracks	6	90
	West of Ocean Park G/IC Site	13930 – 14100	Semi-enclosure covering both tracks with opening along southern side	6	170
	West of Ocean Park G/IC Site	13985 – 14010	Vertical Barrier	1.0m above parapet	25
	Police School	14010 – 14095	Vertical Barrier	2.2m above parapet	85
	Police School	14095 – 14217	Vertical Barrier	1.0m above	122



Track Direction	Location	Chain-age (Approx.)	Type of Noise Mitigation Measures	Height, m parapet	Length (Approx.), m
	East of Wong Chuk Hang Residential Zone	14210 – 14400	Semi-enclosure covering both tracks with opening along northern side	6	190
	West of Wong Chuk Hang Residential Zone	14660 – 14800	Semi-enclosure covering both tracks with opening along northern side	6	140
	West of Wong Chuk Hang Residential Zone	14660 – 14720	Vertical Barrier	2.4 m above parapet	60
	Little Sisters of the Poor St. Mary's Home for the Aged	14800 – 14830	Semi-enclosure covering southern track only	6	30
	Little Sisters of the Poor St. Mary's Home for the Aged	14830 – 14870	Semi-enclosure covering both tracks with opening along northern side	6	40
	TWGH Jockey Club Rehabilitation Complex	14870 – 14970	Full enclosure covering both tracks	6	100
	TWGH Jockey Club Rehabilitation Complex	14970 – 15010	Semi-enclosure covering both tracks with opening along northern side	6	40
	TWGH Jockey Club Rehabilitation Complex	15010 – 15200	Semi-enclosure covering southern track only	6	190
	Holy Spirit Seminary	15200 – 15350	Semi-enclosure covering southern track only	6	150
	Sham Wan Towers	15530 - 15580	Semi-enclosure covering both tracks with opening along northern side	6	50

Notes: OCP station will be upgraded to fully decking design to block the direct line of sight to the tracks within the station from the planned NSRs at the G/IC site next to the station should the development at the site is noise sensitive use.





- Legend (圖例) :**
- - - Proposed Alignment
建議定線
 - SOH South Horizons Station
海怡半島站
 - LET Lee Tung Station
利東站
 - WCH Wong Chuk Hang Station
黃竹坑站
 - OCP Ocean Park Station
海洋公園站
 - ADM Admiralty Station
金鐘站

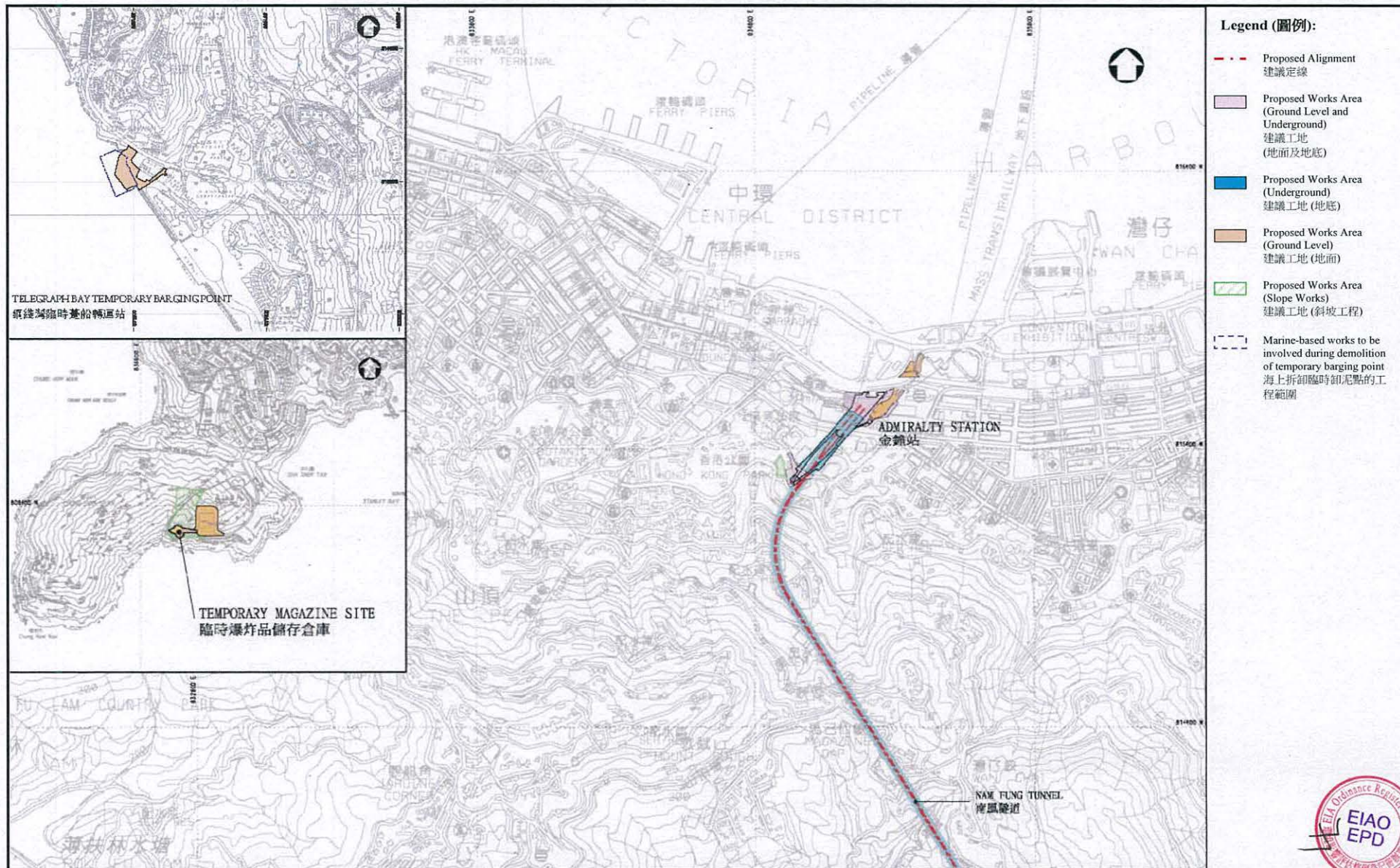


Project Title : South Island Line (East)
 工程項目名稱：南港島綫(東段)

Environmental Permit No. : EP-407/2010/E
 環境許可證編號：EP-407/2010/E

Figure 1: Location of the Project
 圖 1: 工程項目位置

(This figure was prepared based on Figure 2.1.1 of EIA report (Register No.: AEIAR-155/2010))
 (本圖是根據環評報告(登記冊編號 AEIAR-155/2010) 圖 2.1.1 編制)



- Legend (圖例):**
- - - Proposed Alignment
建議定線
 - Proposed Works Area (Ground Level and Underground)
建議工地 (地面及地底)
 - Proposed Works Area (Underground)
建議工地 (地底)
 - Proposed Works Area (Ground Level)
建議工地 (地面)
 - Proposed Works Area (Slope Works)
建議工地 (斜坡工程)
 - Marine-based works to be involved during demolition of temporary barging point
海上拆卸臨時卸泥點的工程範圍

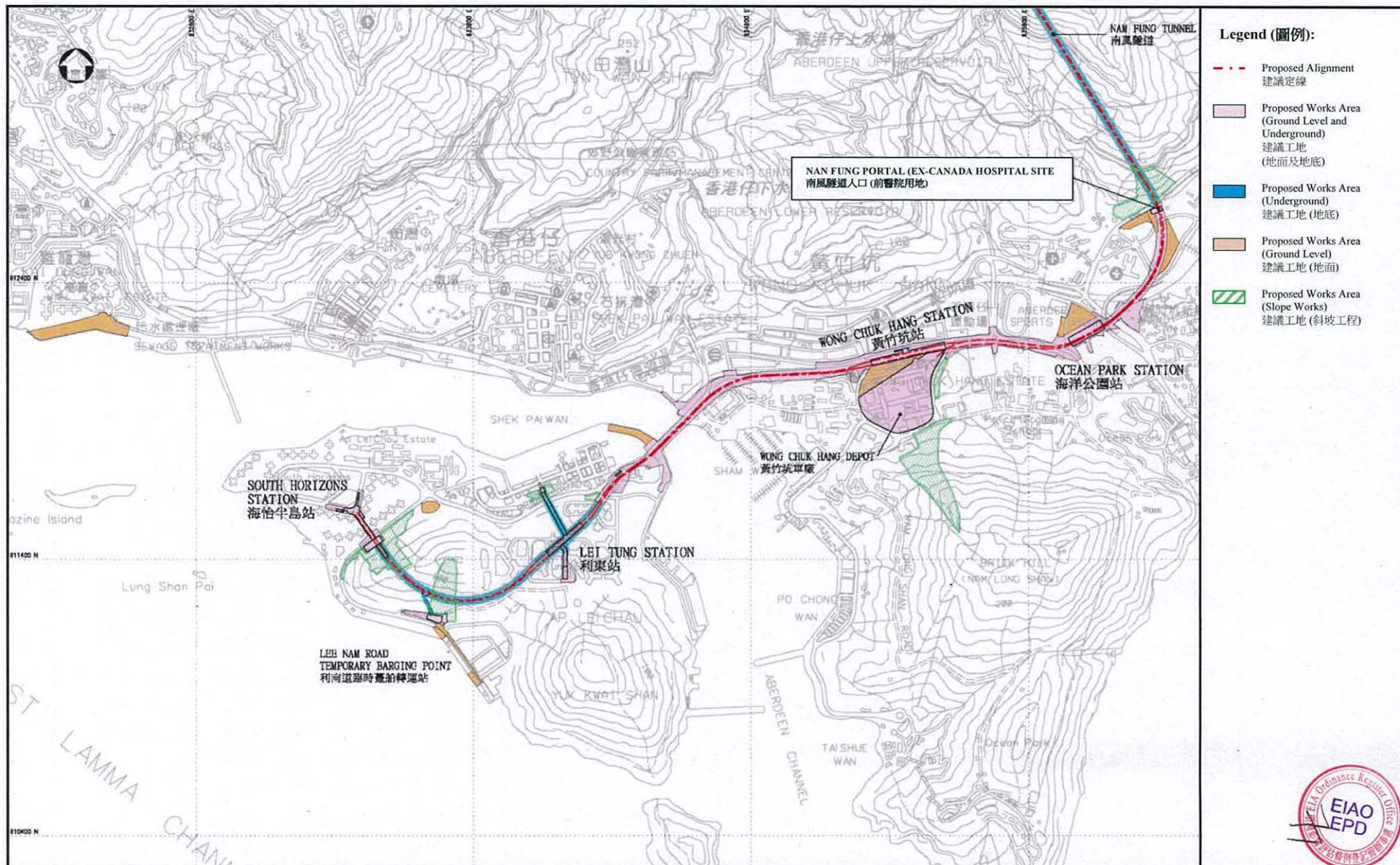


Project Title : South Island Line (East)
 工程項目名稱：南港島綫(東段)

Environmental Permit No. : EP-407/2010/E
 環境許可證編號：EP-407/2010/E

Figure 2a: Location of the Works Areas
 圖 2a: 工程項目的工地位置圖

(This figure was prepared based on VEP Application (No. VEP-344/2011))
 (本圖是根據申請更改環境許可證 (編號 VEP-344/2011) 編制)

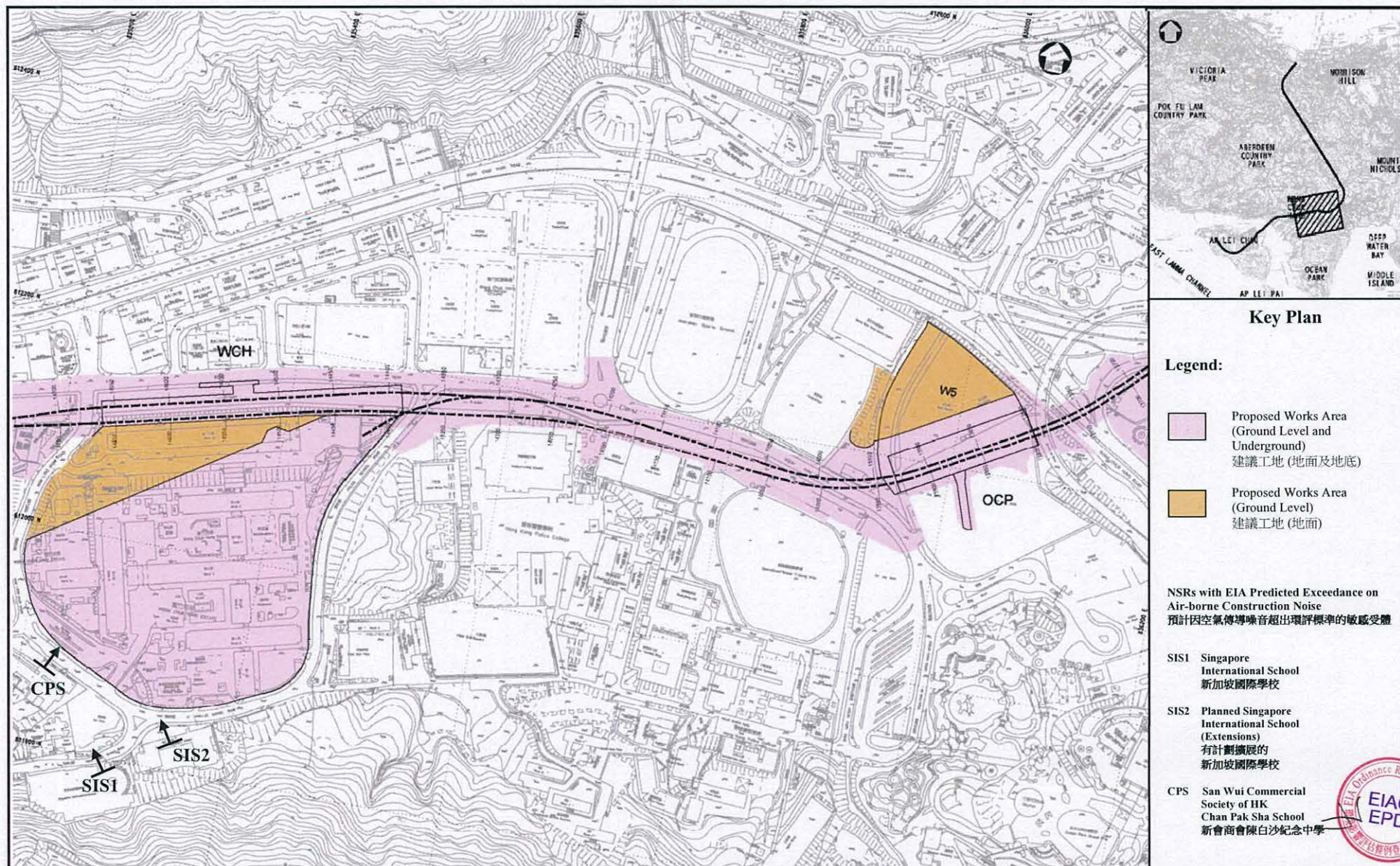


Project Title : South Island Line (East)
工程項目名稱：南港島綫(東段)

Environmental Permit No. : EP-407/2010/E
環境許可證編號 : EP-407/2010/E

Figure 2b: Location of the Works Areas
圖 2b: 工程項目的工地位置圖

(This figure was prepared based on Figure 1.1b of the Application for Environmental Permit (AEP-407/2010))
 (本圖是根據環境許可證申請 (AEP-407/2010) 圖 1.1b 編制)

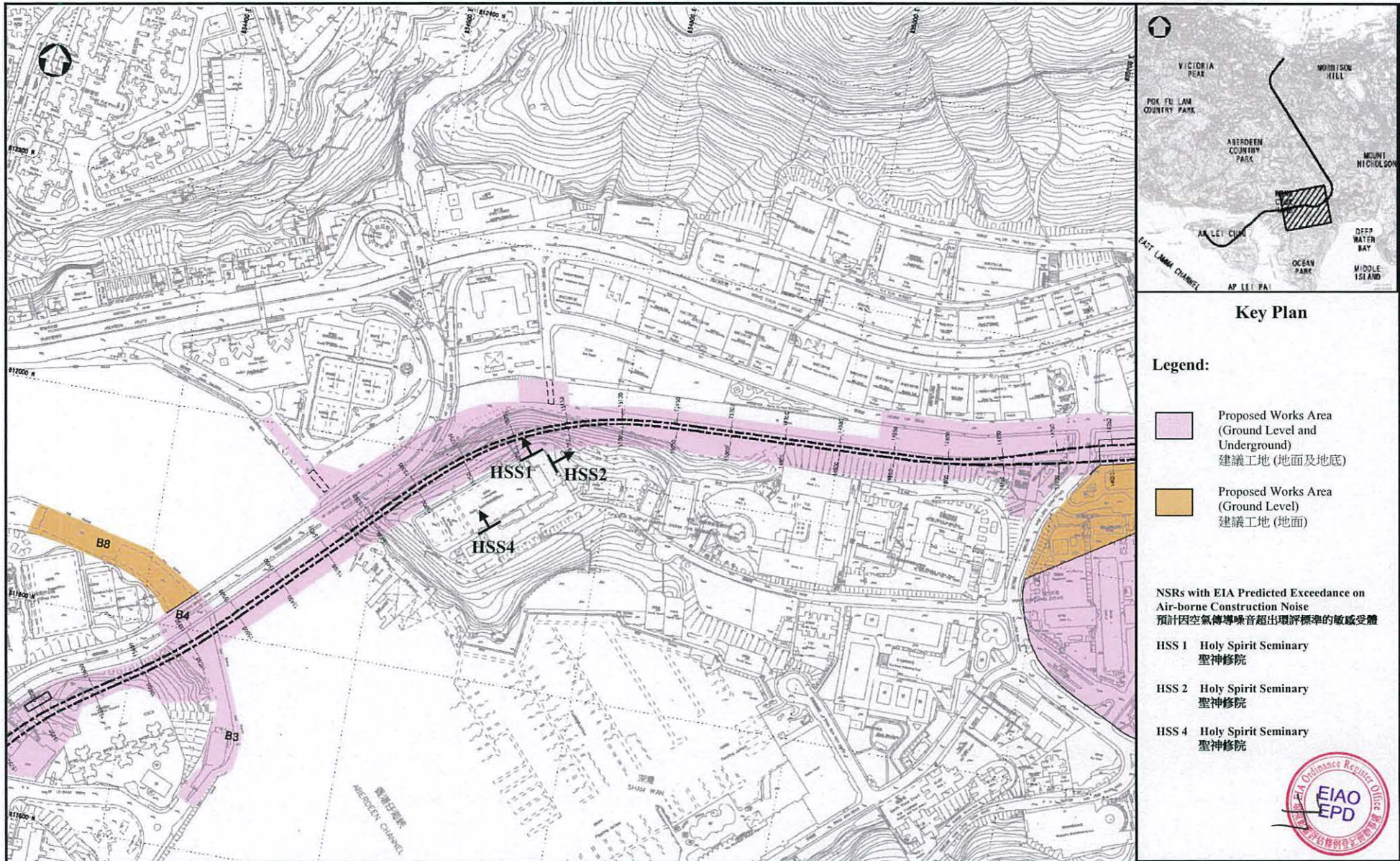


Project Title : South Island Line (East)
 工程項目名稱：南港島綫(東段)

Environmental Permit No. : EP-407/2010/E
 環境許可證編號 : EP-407/2010/E

Figure 3: Noise Sensitive Receivers with EIA Predicted Exceedance
 圖 3: 預計超出環評噪音標準的敏感受體

(This figure was prepared based on Figure 2.6.6 of EIA report (Register No.: AEIAR-155/2010))
 (本圖是根據環評報告(登記冊編號 AEIAR-155/2010) 圖 2.6.6 編制)



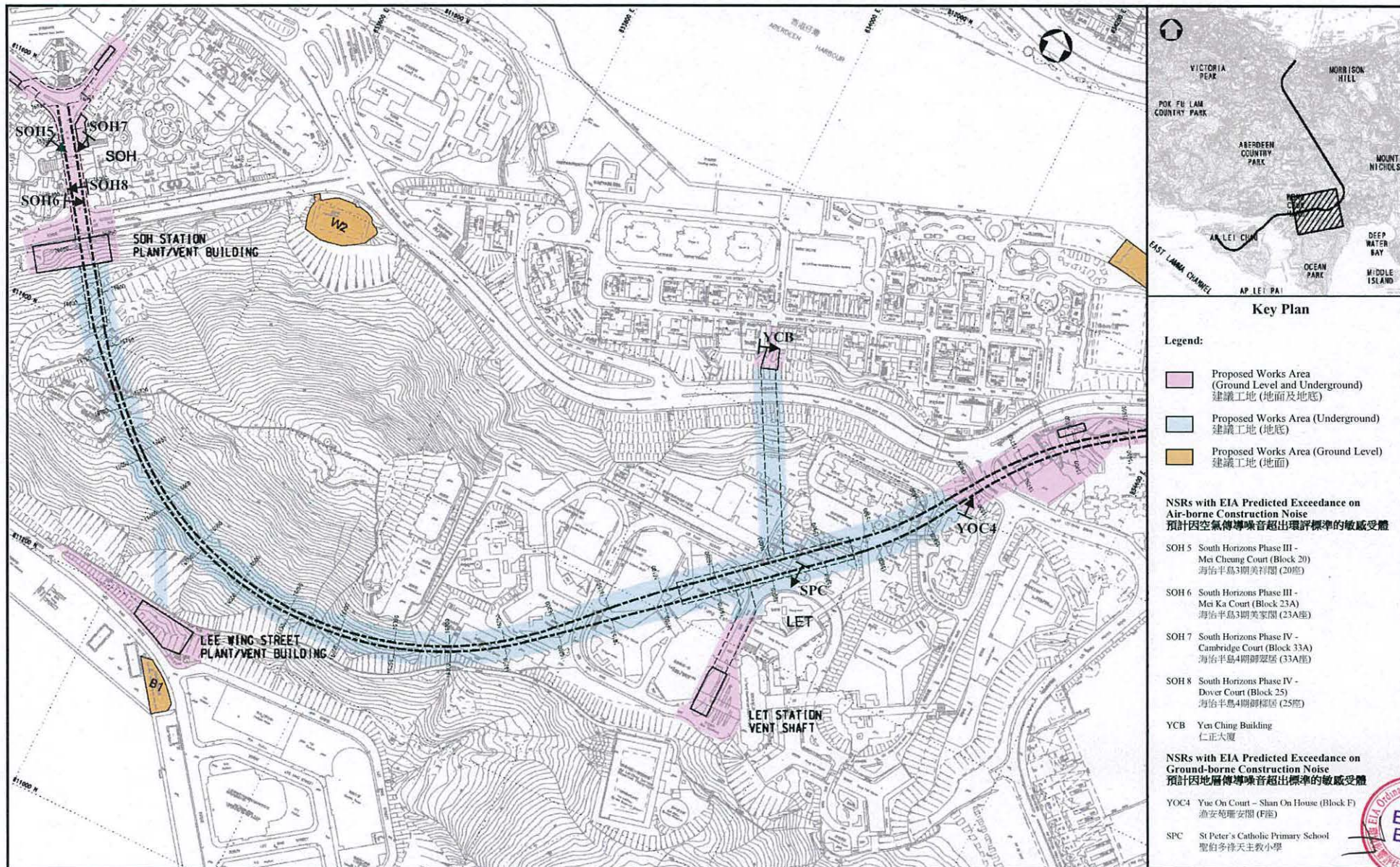
Project Title : South Island Line (East)
工程項目名稱：南港島綫 (東段)

Environmental Permit No. : EP-407/2010/E
環境許可證編號 : EP-407/2010/E

Figure 4: Noise Sensitive Receivers with EIA Predicted Exceedance
圖 4: 預計超出環評噪音標準的敏感受體

(This figure was prepared based on Figure 2.6.7 of EIA report (Register No.: AEIAR-155/2010))
(本圖是根據環評報告 (登記冊編號 AEIAR-155/2010) 圖 2.6.7 編制)





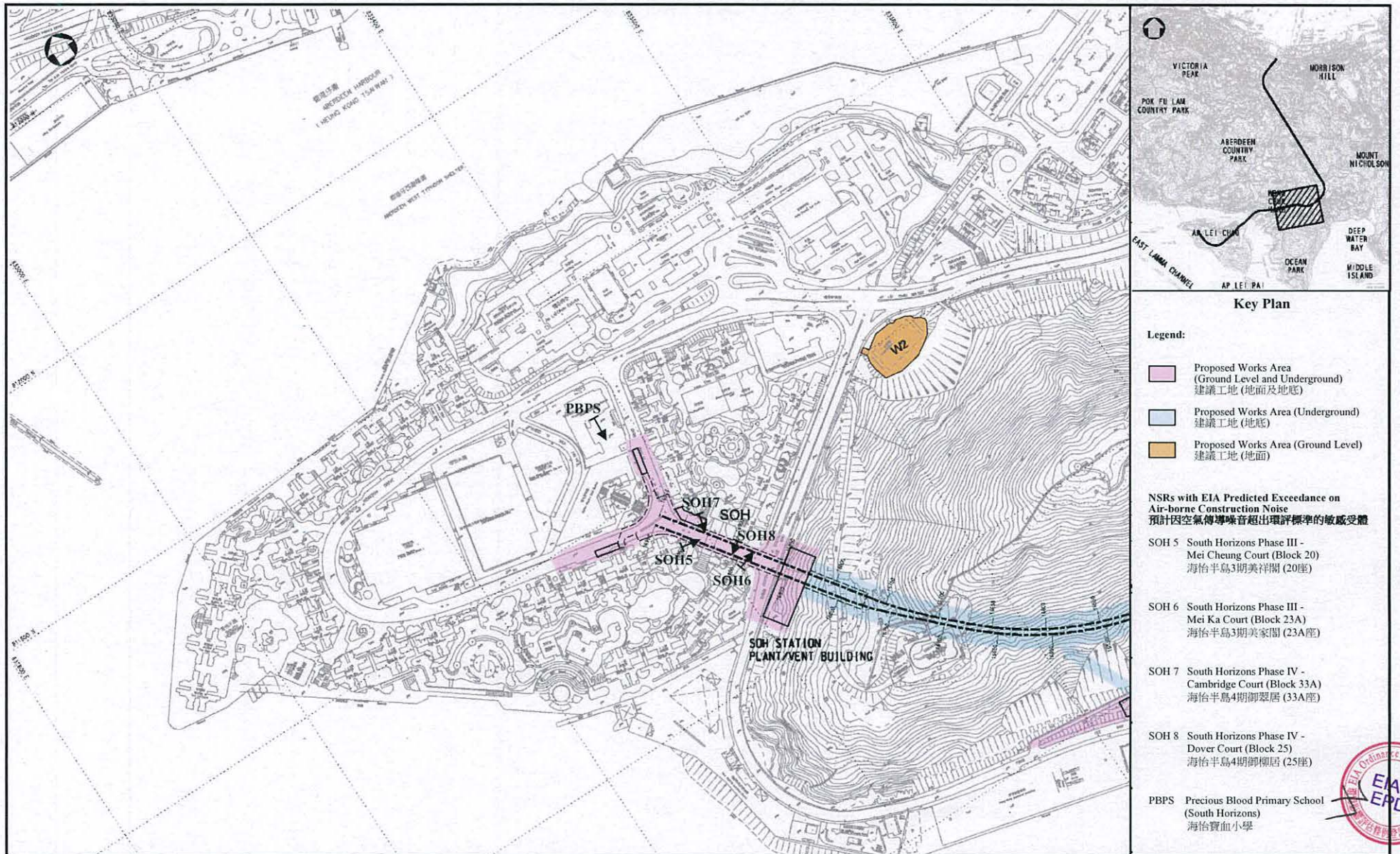
Project Title : South Island Line (East)
工程項目名稱：南港島綫(東段)

Environmental Permit No. : EP-407/2010/E
環境許可證編號 : EP-407/2010/E

Figure 5: Noise Sensitive Receivers with EIA Predicted Exceedance
圖 5: 預計超出環評噪音標準的敏感受體

(This figure was prepared based on Figure 2.6.8 of EIA report (Register No.: AEIAR-155/2010))
(本圖是根據環評報告(登記冊編號 AEIAR-155/2010)圖 2.6.8 編制)





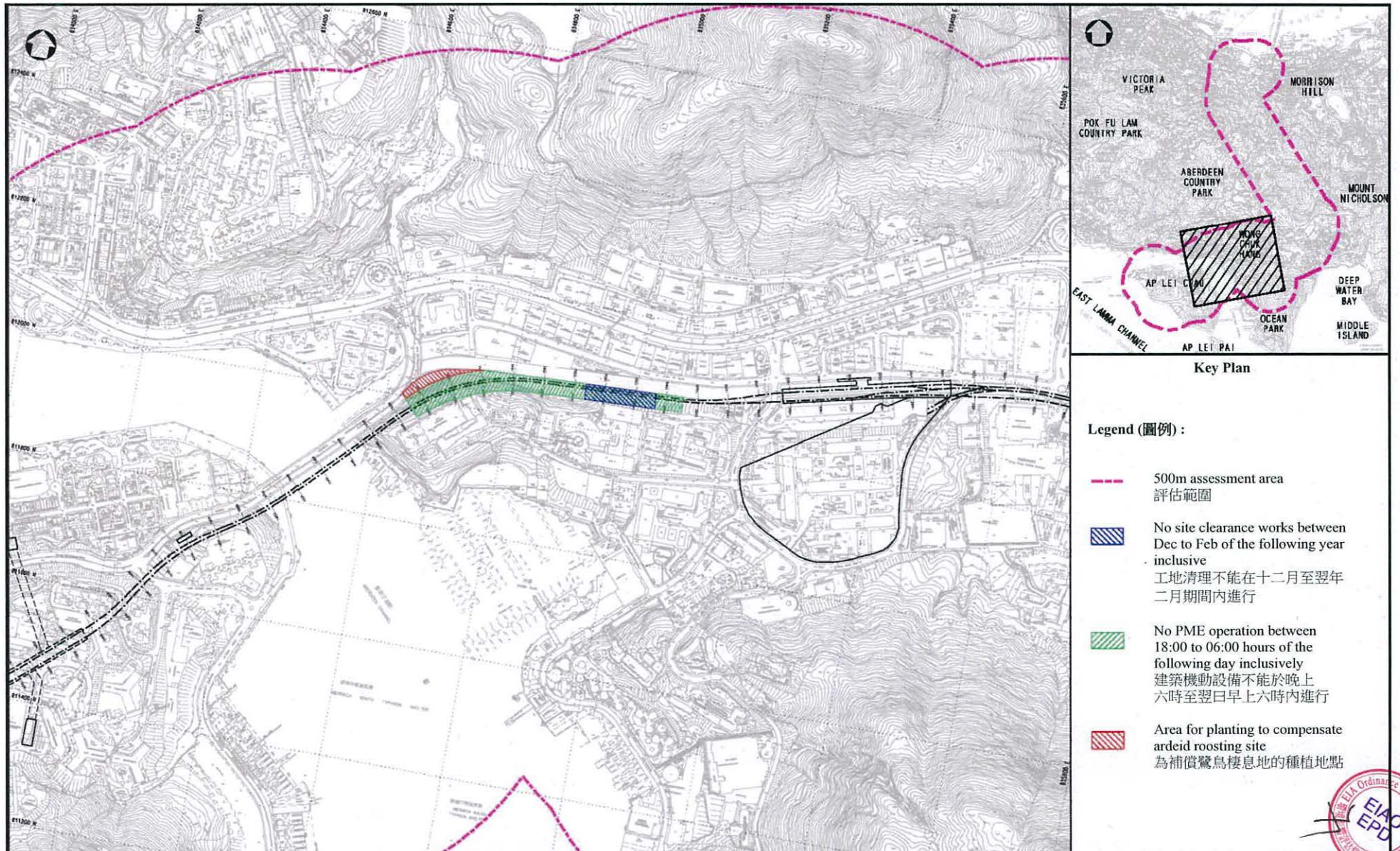
Project Title : South Island Line (East)
工程項目名稱：南港島綫(東段)

Environmental Permit No. : EP-407/2010/E
環境許可證編號 : EP-407/2010/E

Figure 6: Noise Sensitive Receivers with EIA Predicted Exceedance
圖 6: 預計超出環評噪音標準的敏感受體

(This figure was prepared based on Figure 2.6.9 of EIA report (Register No.: AEIAR-155/2010))
 (本圖是根據環評報告(登記冊編號 AEIAR-155/2010) 圖 2.6.9 編制)





Legend (圖例):

- - - 500m assessment area
評估範圍
- ▨ No site clearance works between Dec to Feb of the following year inclusive
工地清理不能在十二月至翌年二月期間內進行
- ▨ No PME operation between 18:00 to 06:00 hours of the following day inclusively
建築機動設備不能於晚上六時至翌日早上六時內進行
- ▨ Area for planting to compensate ardeid roosting site
為補償鷺鳥棲息地的種植地點

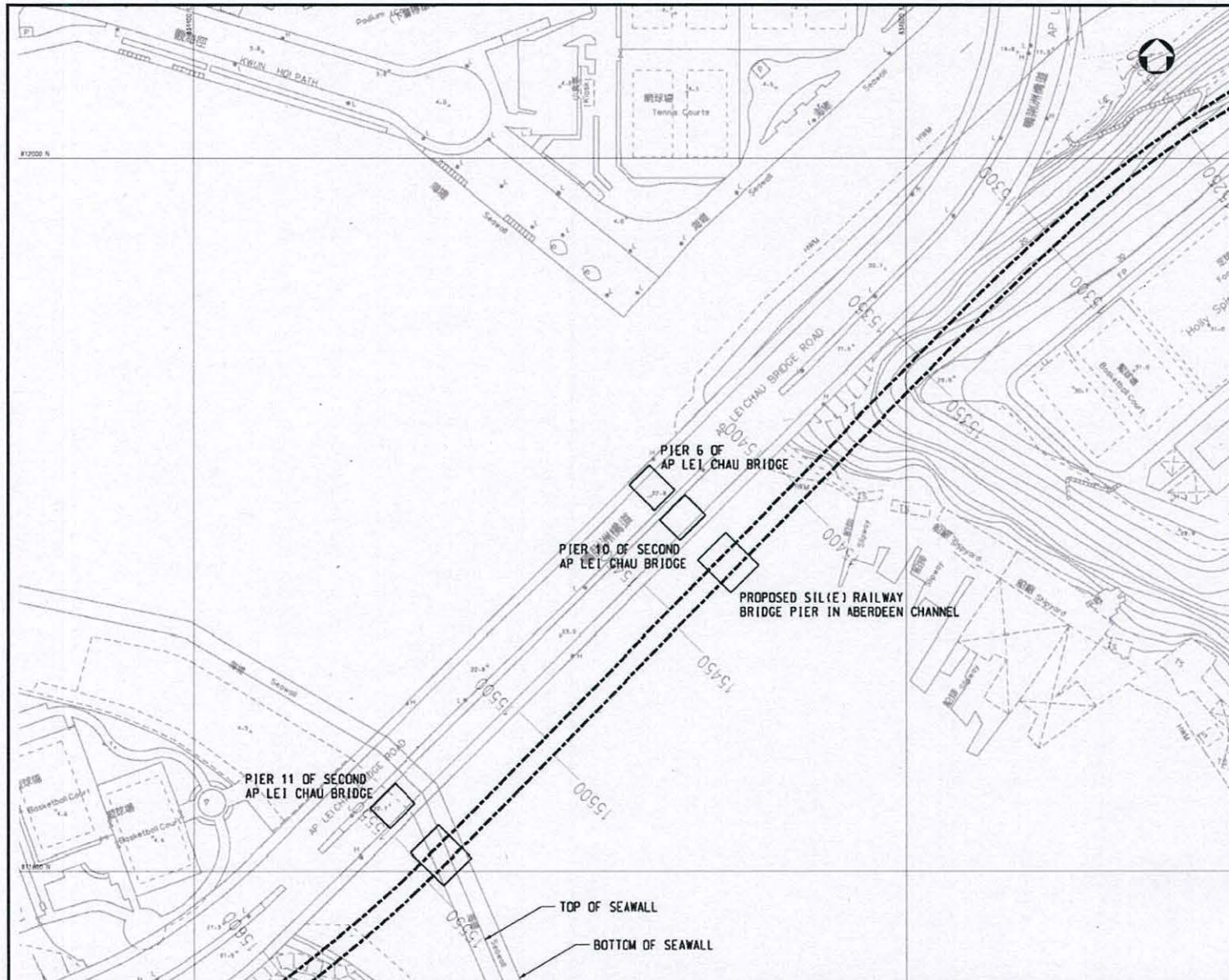


Project Title : South Island Line (East)
工程項目名稱：南港島綫(東段)



Environmental Permit No. : EP-407/2010/E
環境許可證編號 : EP-407/2010/E

Figure 7: Mitigation Measures to Reduce the Impact on Ardeid
圖 7: 緩解對鷺鳥影響的措施

(This figure was prepared based on Figure 4.15 of EIA report (Register No.: AEIAR-155/2010))
 (本圖是根據環評報告(登記冊編號 AEIAR-155/2010) 圖 4.15 編制)



Legend (圖例):

-  Pier Foundation
橋墩地基
-  Proposed SIL(E)
Alignment
計劃的南港島綫定綫

Remark (註解):

Location of piers are indicative only and subject to refinement
橋墩位置乃顯示性質，有待詳細設計作調整





Project Title : South Island Line (East)
 工程項目名稱：南港島綫(東段)

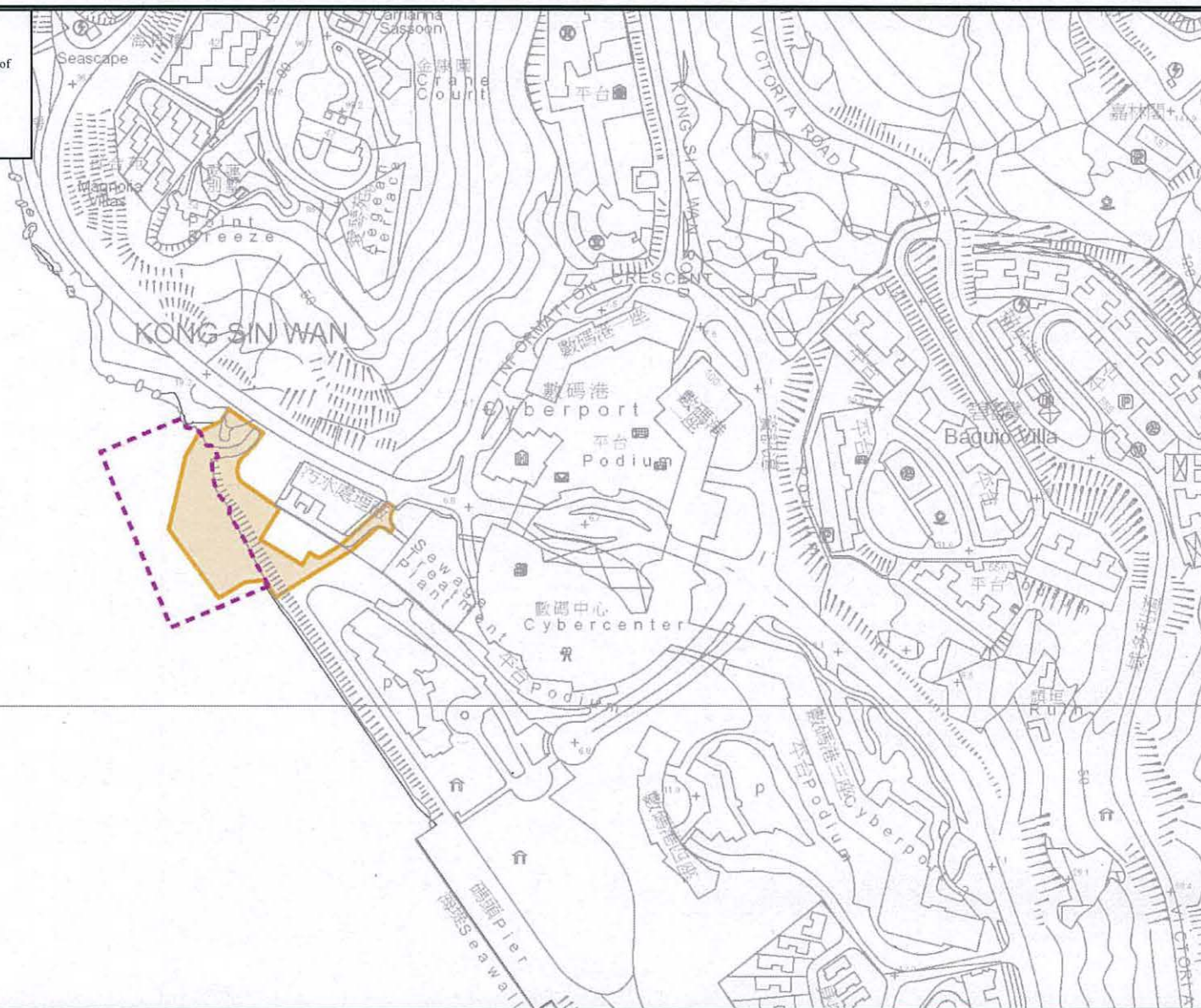
Environmental Permit No. : EP-407/2010/E
 環境許可證編號 : EP-407/2010/E

Figure 8: Railway Bridge Pier Foundation
 圖 8: 鐵路橋的橋墩地基

(This figure was prepared based on Figure 5.4 of EIA report (Register No.: AEIAR-155/2010))
 (本圖是根據環評報告(登記冊編號 AEIAR-155/2010)圖 5.4 編制)

Key (圖例):

-  Boundary of Marine-based works to be involved during demolition of temporary barging point
海上拆卸臨時卸泥點的工程範圍
-  Boundary of Temporary Telegraph Bay Barging Point
鋼綫灣臨時卸泥點範圍



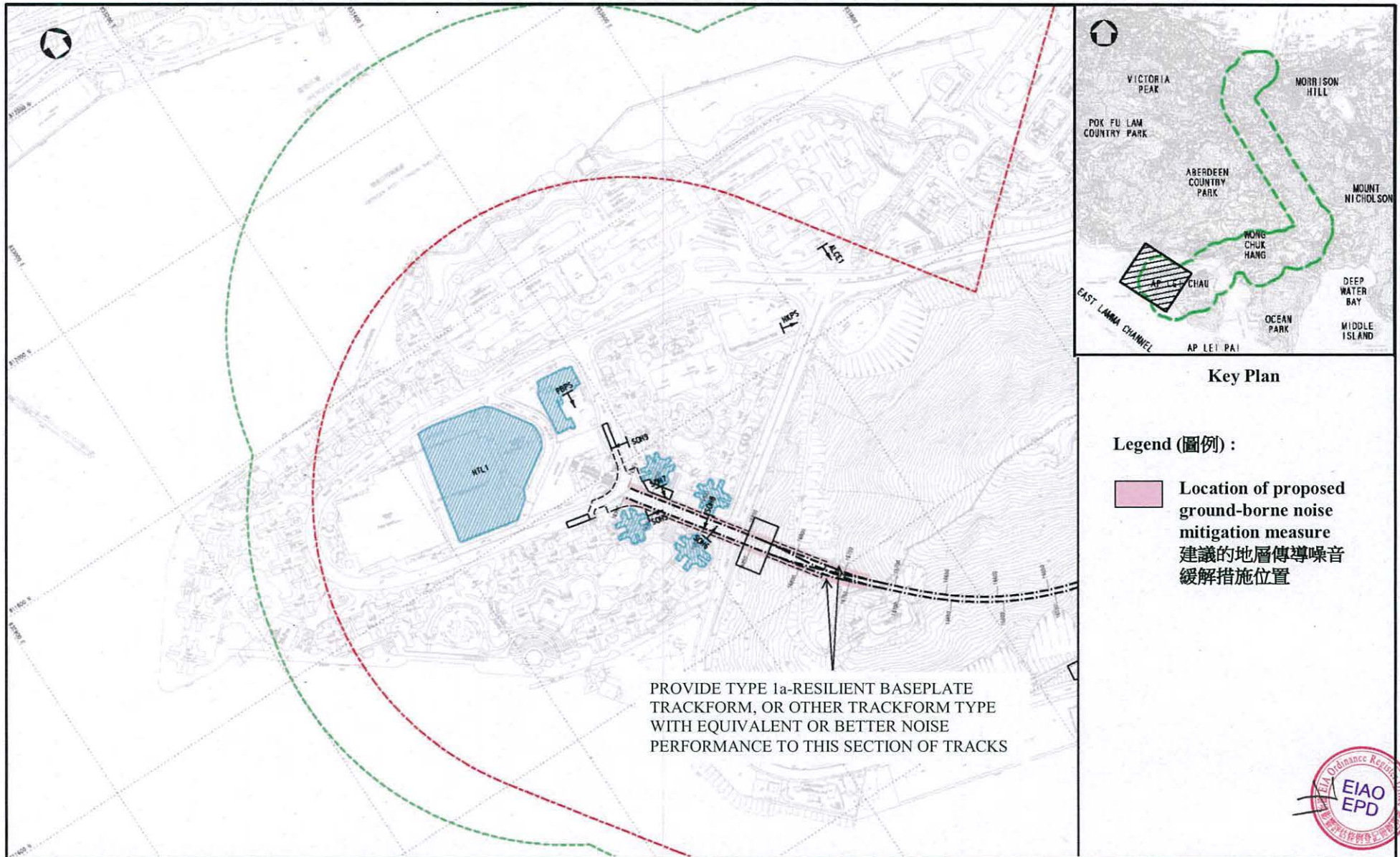
Project Title : South Island Line (East)
 工程項目名稱：南港島綫(東段)

Environmental Permit No. : EP-407/2010/E
 環境許可證編號 : EP-407/2010/E

Figure 9: Location of Temporary Telegraph Bay Barging Point
圖 9: 鋼綫灣臨時卸泥點位置

(This figure was prepared based on the VEP Application (No. VEP-344/2011))
 (本圖是根據申請更改環境許可證 (編號 VEP-344/2011) 編制)





Project Title : South Island Line (East)
工程項目名稱：南港島綫(東段)

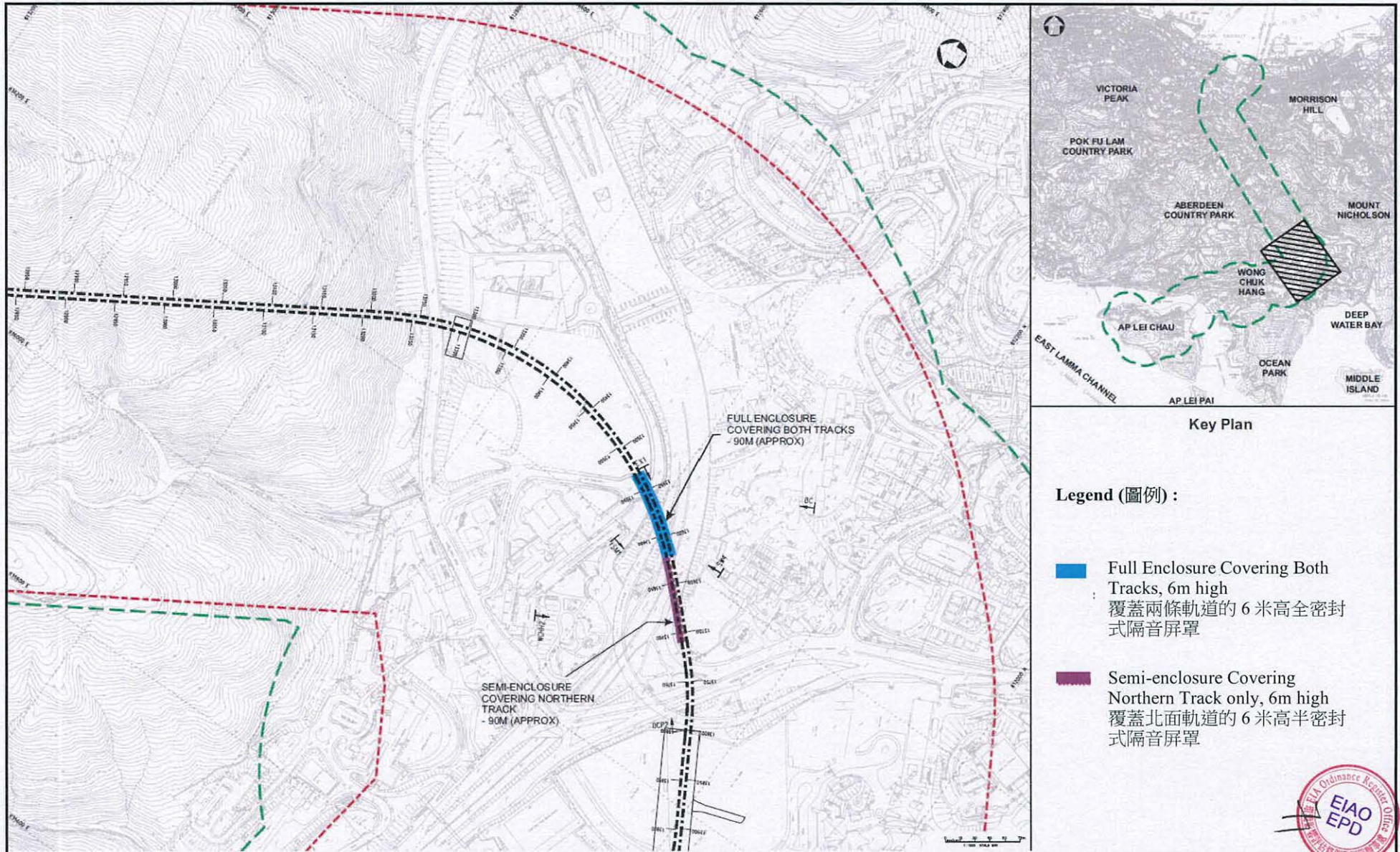
Environmental Permit No. : EP-407/2010/E
環境許可證編號 : EP-407/2010/E

Figure 10: Noise Mitigation Measures for Operational Ground-Borne Noise Near South Horizons Station

圖 10: 營辦期間近海怡半島的地層傳導噪音緩解措施

(This figure was prepared based on Figure 3.44 of VEP Application (No.: VEP-451/2014))

(本圖是根據申請更改環境許可證(編號 VEP-451/2014) 圖 3.44 編制)



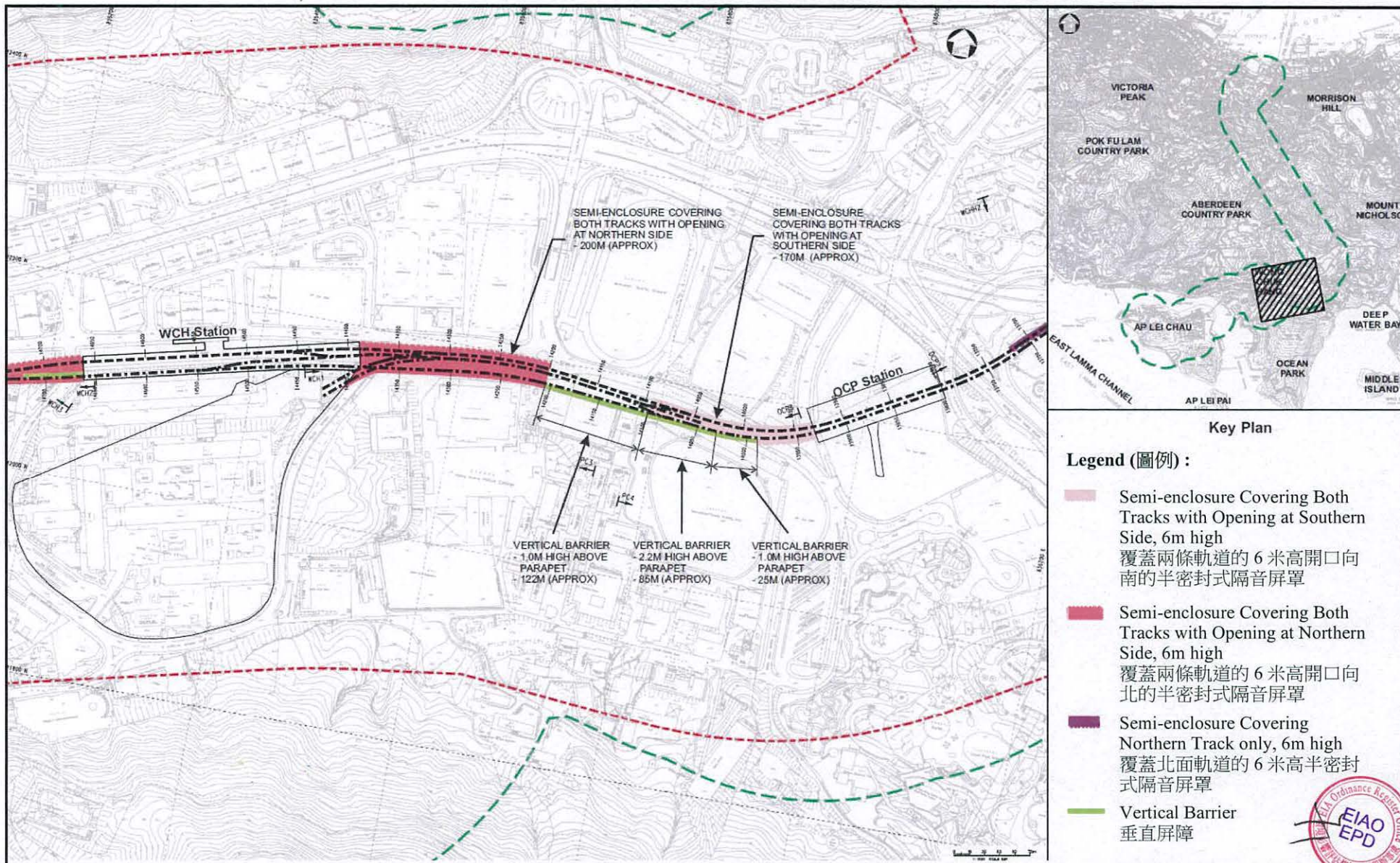
Project Title : South Island Line (East)
 工程項目名稱：南港島綫(東段)

Environmental Permit No. : EP-407/2010/E
 環境許可證編號 : EP-407/2010/E

Figure 11: Mitigation Measures for Operational Air-Borne Noise
 圖 11: 營辦期間的空氣傳導噪音緩解措施

(This figure was prepared based on Figure 11 in Annex D of the "Review Report for the Enhanced Noise Mitigation Measures for SIL(E)")

(本圖是根據南港島綫(東段)增強噪音緩解措施檢討報告內附件 D 圖 11 編制)



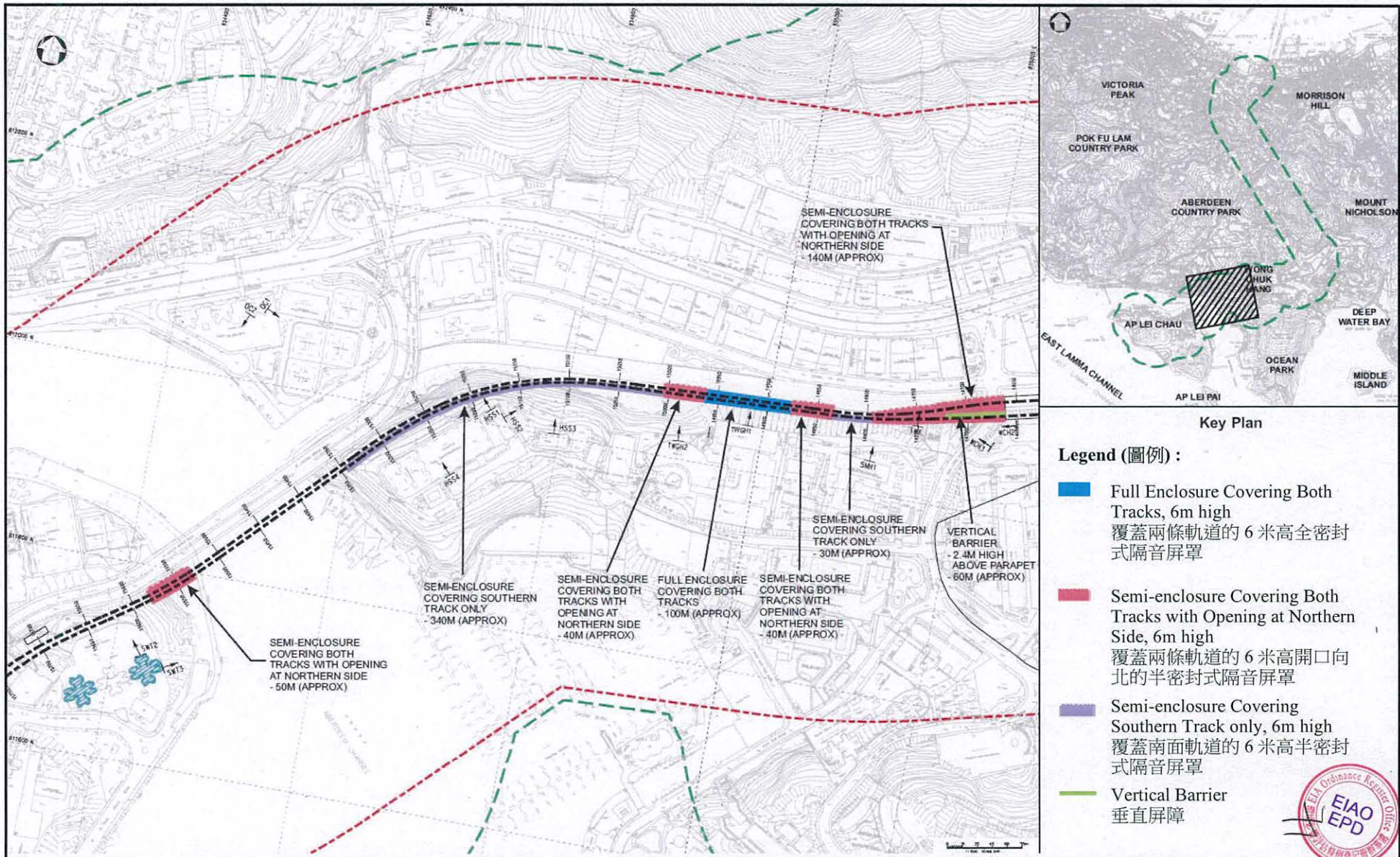
Project Title : South Island Line (East)
工程項目名稱：南港島綫(東段)

Environmental Permit No. : EP-407/2010/E
環境許可證編號 : EP-407/2010/E

Figure 12: Mitigation Measures for Operational Air-Borne Noise
圖 12: 營辦期間的空氣傳導噪音緩解措施

(This figure was prepared based on Figure 12 in Annex D of the "Review Report for the Enhanced Noise Mitigation Measures for SIL(E)")

(本圖是根據南港島綫(東段)增強噪音緩解措施檢討報告內附件 D 圖 12 編制)



Project Title : South Island Line (East)
工程項目名稱：南港島綫(東段)

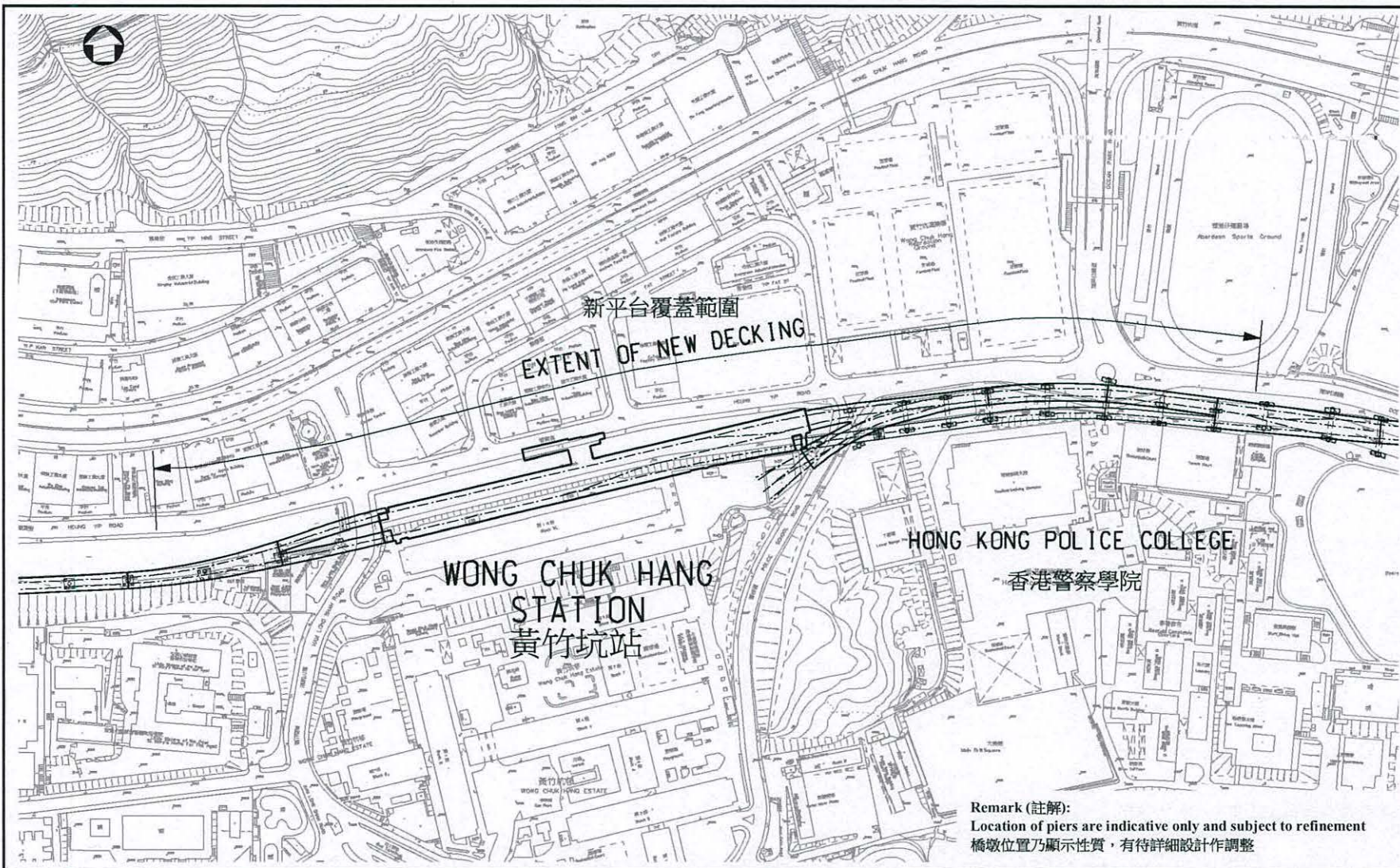
Environmental Permit No. : EP-407/2010/E
環境許可證編號 : EP-407/2010/E

Figure 13: Mitigation Measures for Operational Air-Borne Noise
圖 13: 營辦期間的空氣傳導噪音緩解措施

(This figure was prepared based on Figure 13 in Annex D of the "Review Report for the Enhanced Noise Mitigation Measures for SIL(E)")

(本圖是根據南港島綫(東段)增強噪音緩解措施檢討報告內附件 D 圖 13 編制)





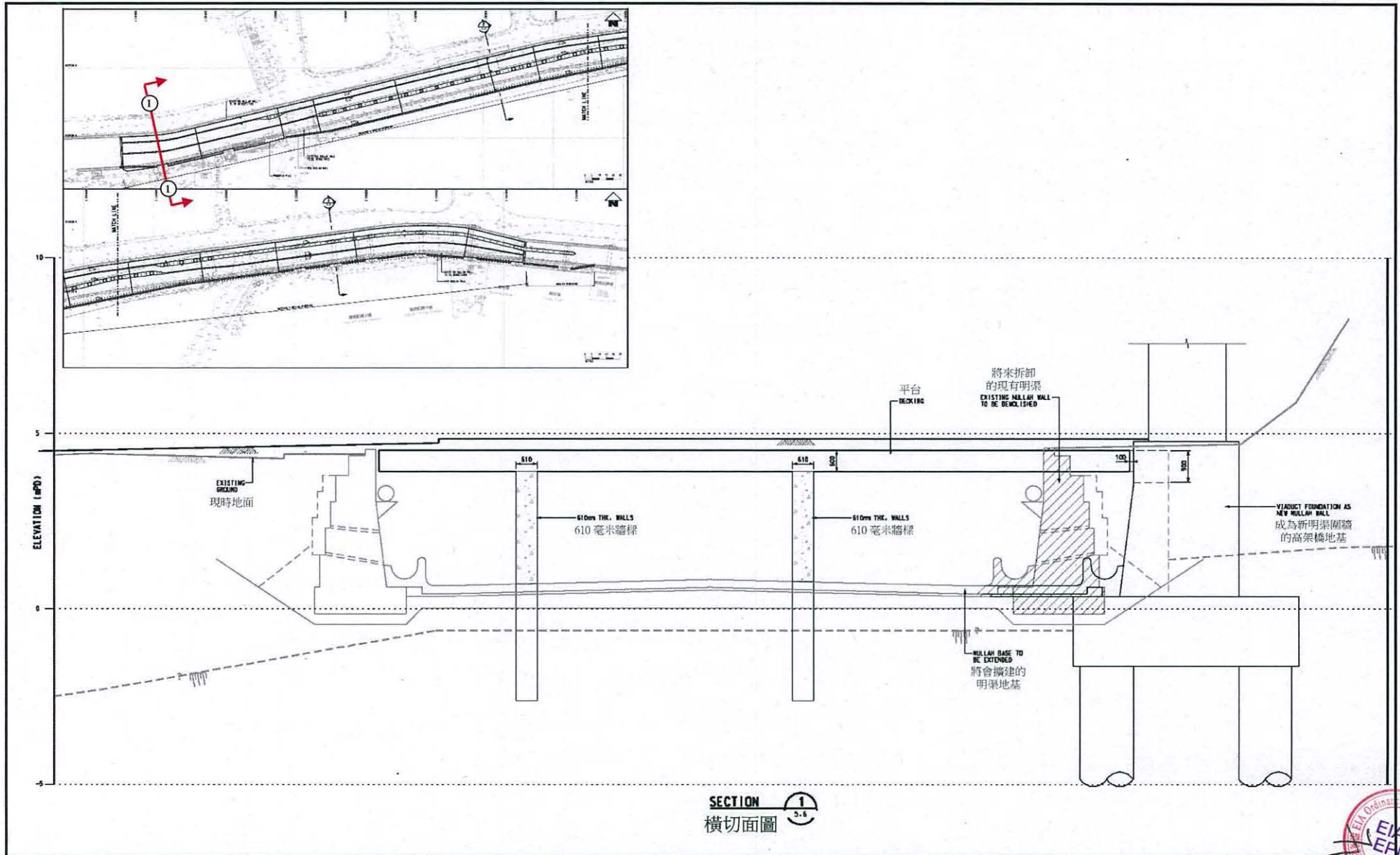
Project Title : South Island Line (East)
工程項目名稱：南港島綫(東段)

Environmental Permit No. : EP-407/2010/E
環境許可證編號 : EP-407/2010/E

Figure 14a: Extent of the Decking Structure of Wong Chuk Hang Nullah
圖 14a: 黃竹坑明渠平台建築範圍

(This figure was prepared based on Figure 5.5 of EIA report (Register No.: AEIAR-155/2010))
(本圖是根據環評報告(登記冊編號 AEIAR-155/2010)圖 5.5 編制)





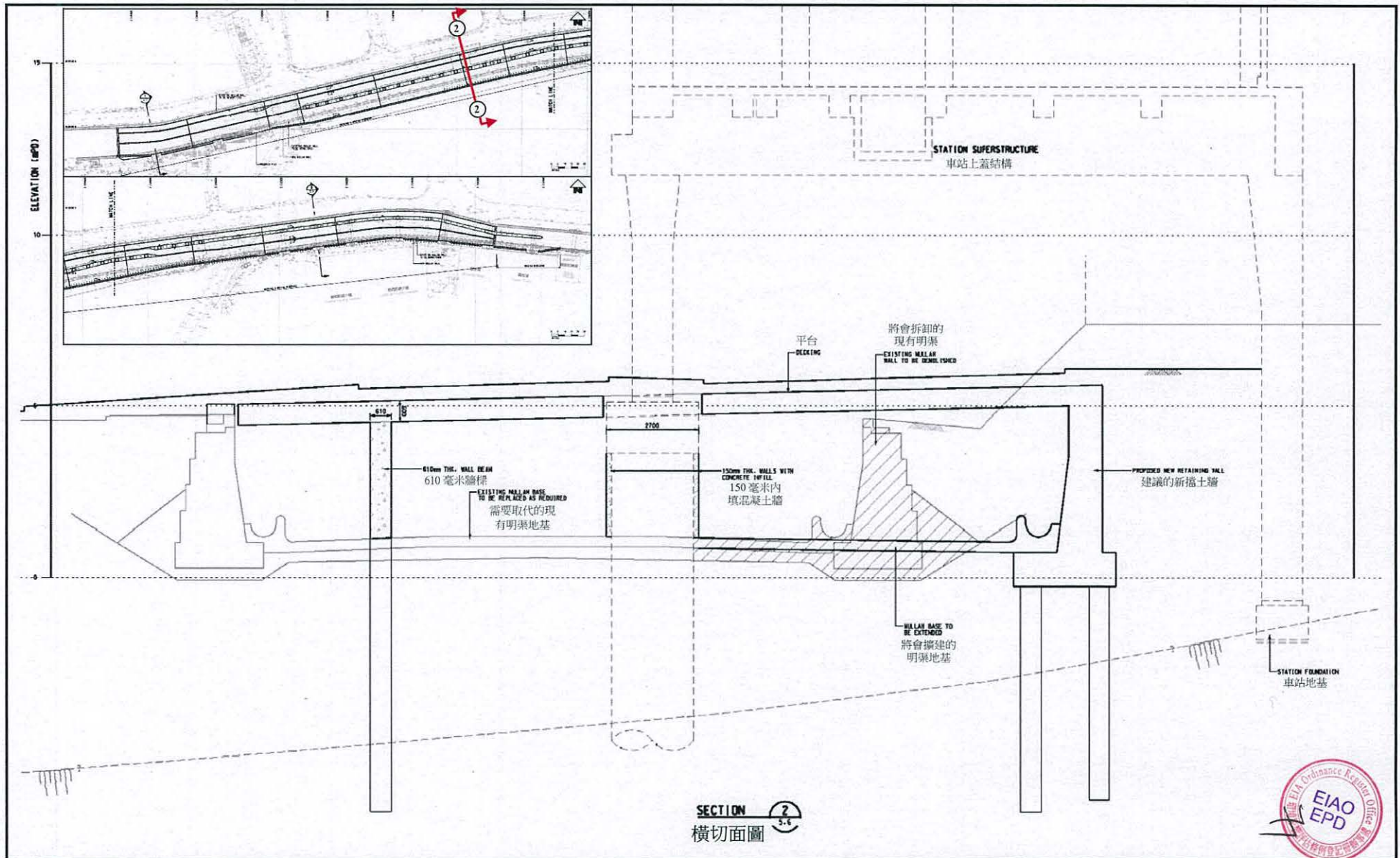
Project Title : South Island Line (East)
工程項目名稱：南港島綫(東段)

Environmental Permit No. : EP-407/2010 /E
環境許可證編號 : EP-407/2010 /E

Figure 14b: Cross Section of Decking Structure of Wong Chuk Hang Nullah
圖 14b: 黃竹坑明渠平台建築橫切面圖

(This figure was prepared based on Figure 5.7 of EIA report (Register No.: AEIAR-155/2010))
 (本圖是根據環評報告(登記冊編號 AEIAR-155/2010) 圖 5.7 編制)





SECTION 2
橫切面圖 5.6

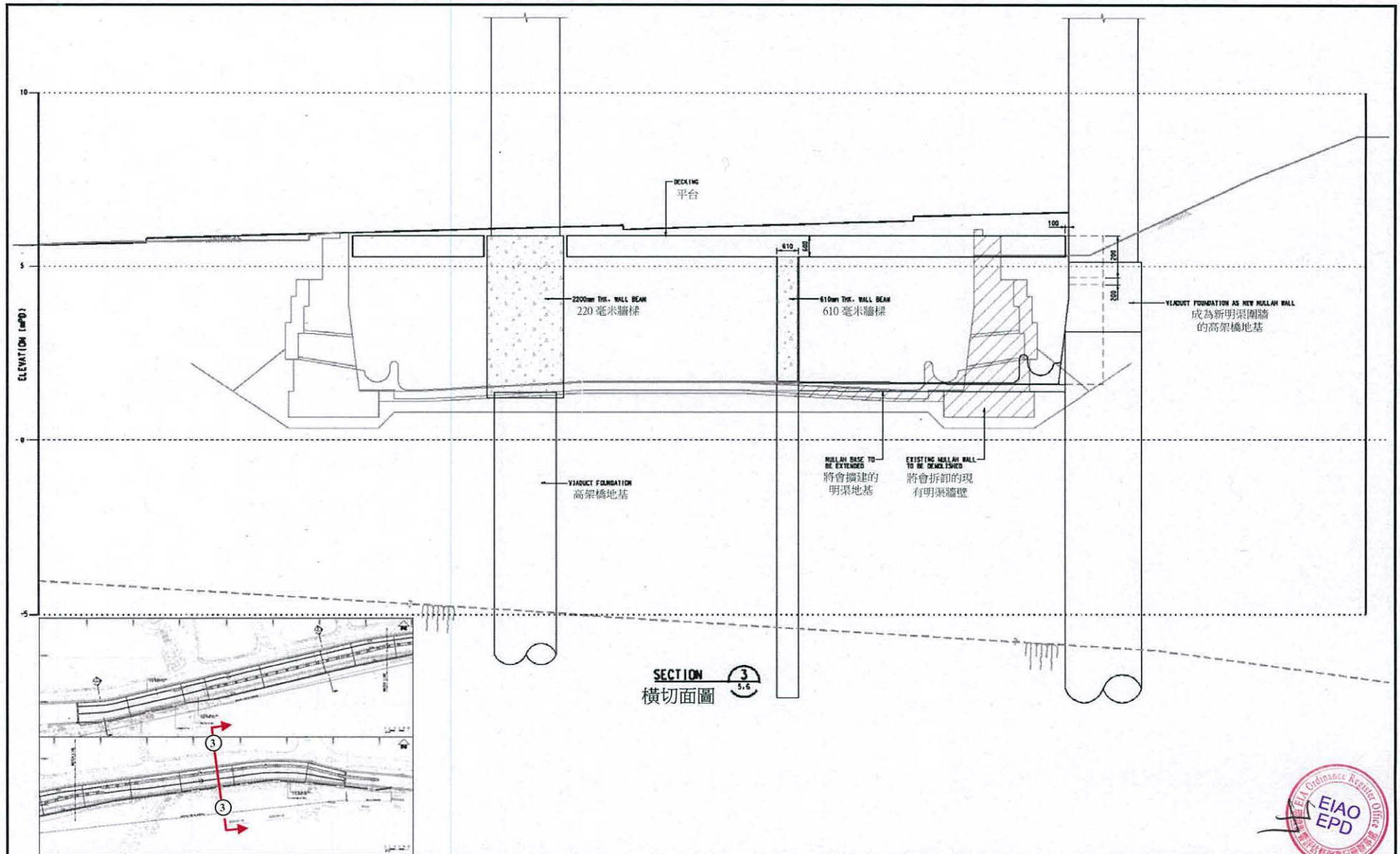


Project Title : South Island Line (East)
 工程項目名稱：南港島綫(東段)

Environmental Permit No. : EP-407/2010/E
 環境許可證編號 : EP-407/2010/E

Figure 14c: Cross Section of Decking Structure of Wong Chuk Hang Nullah
 圖 14c: 黃竹坑明渠平台建築橫切面圖

(This figure was prepared based on Figure 5.8 of EIA report (Register No.: AEIAR-155/2010))
 (本圖是根據環評報告(登記冊編號 AEIAR-155/2010) 圖 5.8 編制)



SECTION 3
橫切面圖 5.6

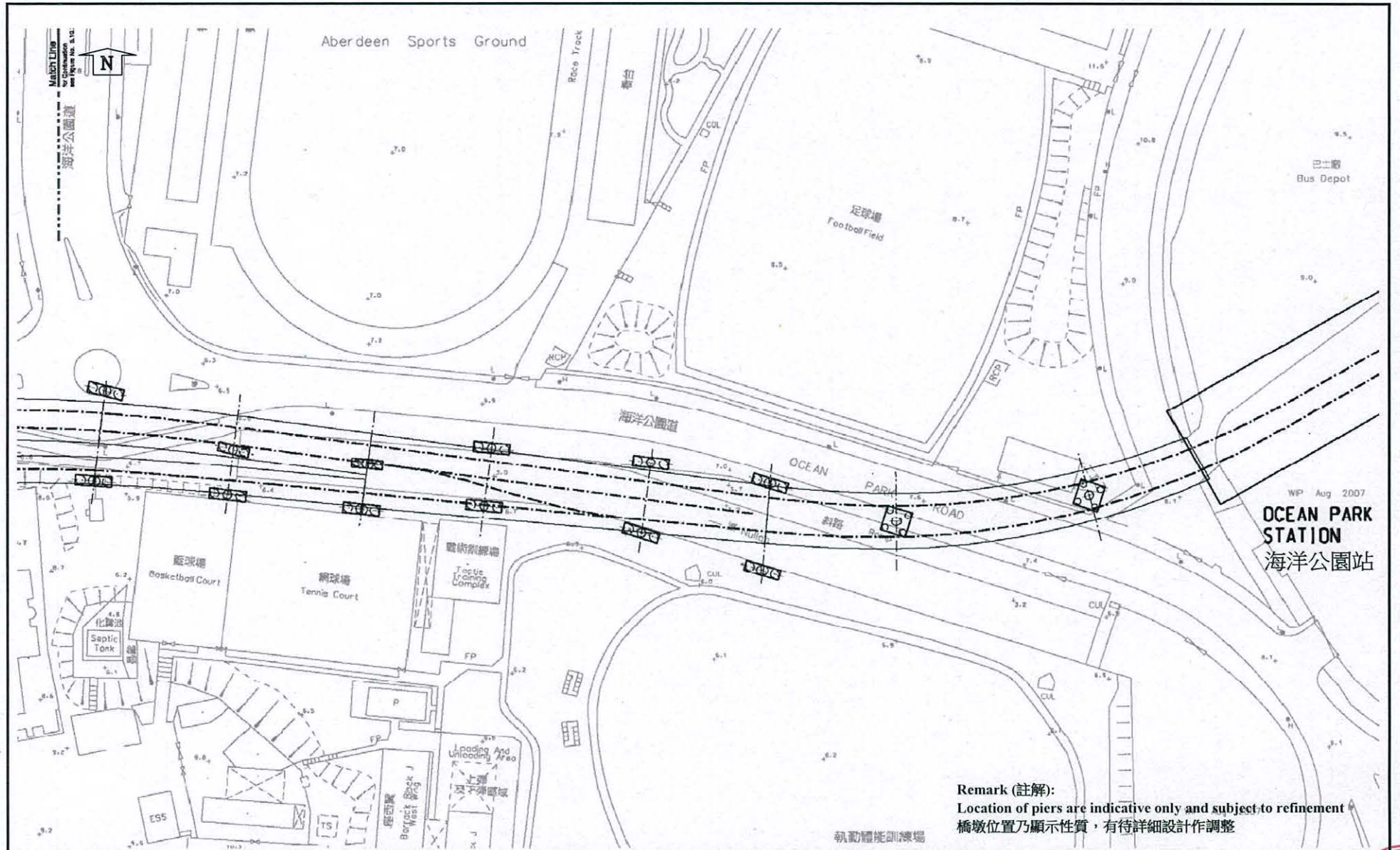


Project Title : South Island Line (East)
工程項目名稱：南港島綫(東段)

Environmental Permit No. : EP-407/2010/E
環境許可證編號 : EP-407/2010/E

Figure 14d: Cross Section of Decking Structure of Wong Chuk Hang Nullah
圖 14d: 黃竹坑明渠平台建築橫切面圖

(This figure was prepared based on Figure 5.9 of EIA report (Register No.: AEIAR-155/2010))
 (本圖是根據環評報告(登記冊編號 AEIAR-155/2010) 圖 5.9 編制)



Remark (註解):
 Location of piers are indicative only and subject to refinement
 橋墩位置乃顯示性質，有待詳細設計作調整

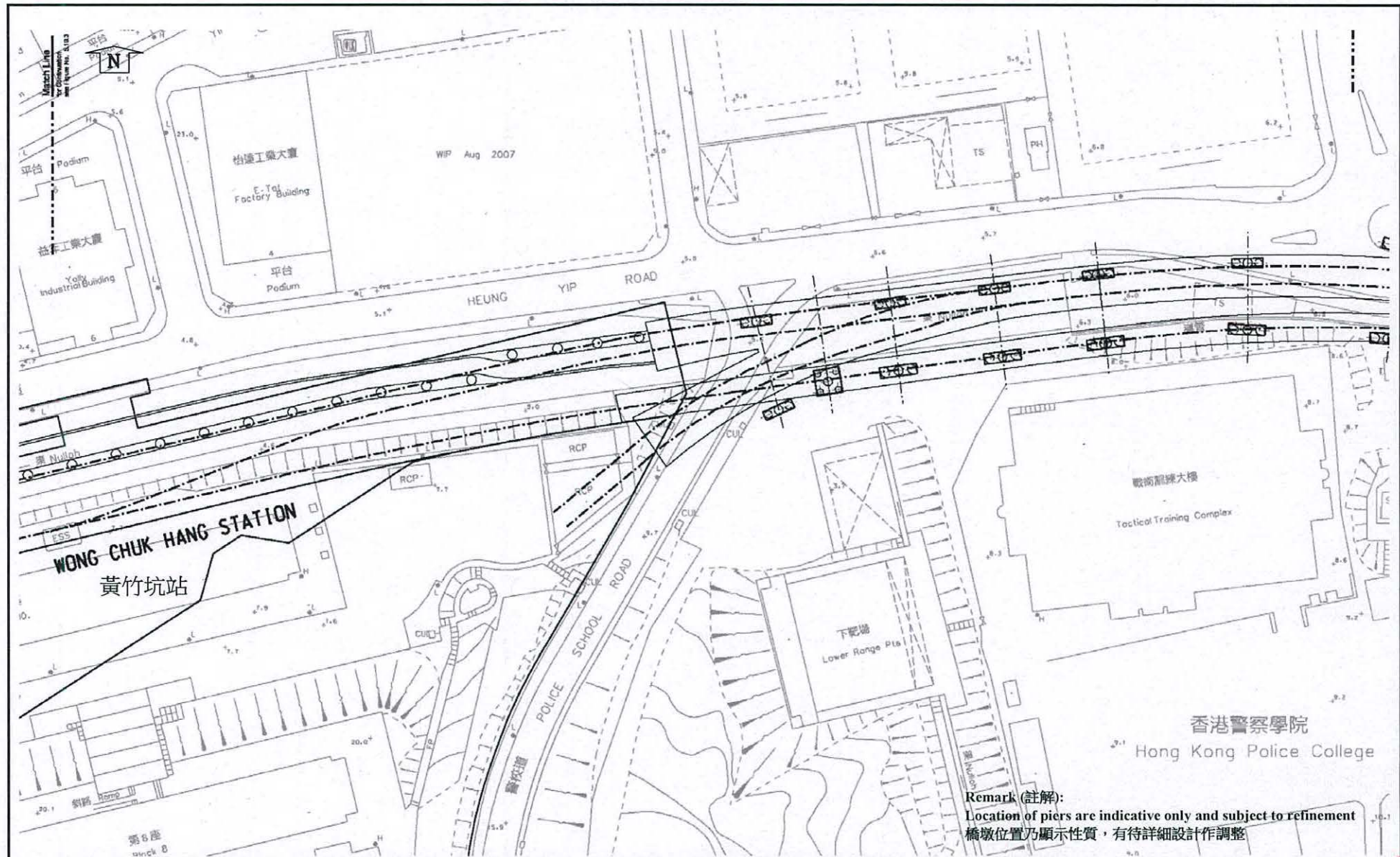


Project Title : South Island Line (East)
 工程項目名稱：南港島綫(東段)
Environmental Permit No. : EP-407/2010/E
 環境許可證編號 : EP-407/2010/E

Figure 15a: Piers/Pier Foundations of Viaduct Section
 圖 15a: 高架橋路段的鐵路橋橋墩/地基

(This figure was prepared based on Figure 5.10.1 of EIA report (Register No.: AEIAR-155/2010))
 (本圖是根據環評報告(登記冊編號 AEIAR-155/2010) 圖 5.10.1 編制)





Remark (註解):
 Location of piers are indicative only and subject to refinement
 橋墩位置乃顯示性質，有待詳細設計作調整



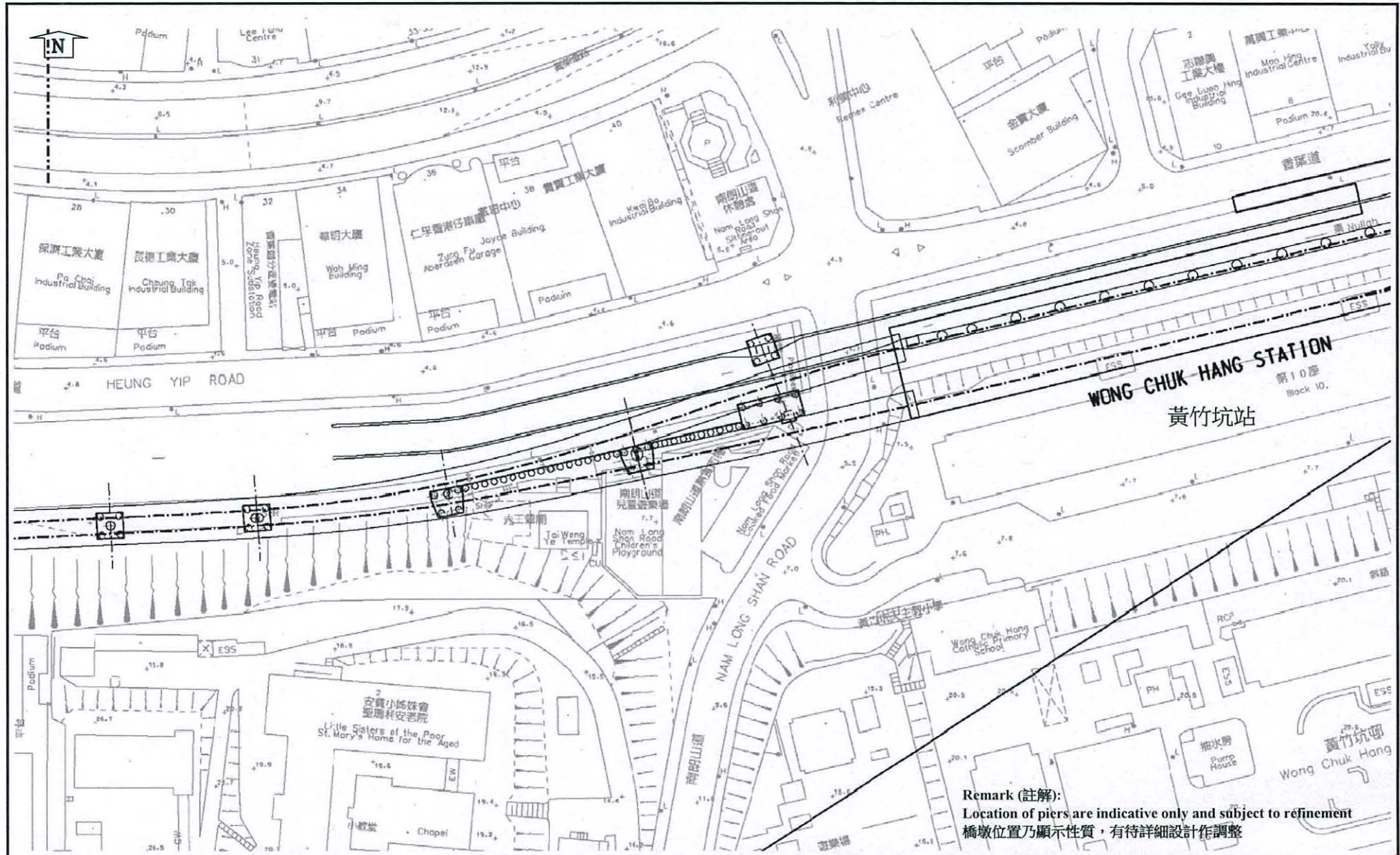
Project Title : South Island Line (East)
 工程項目名稱：南港島綫(東段)

Environmental Permit No. : EP-407/2010/E
 環境許可證編號 : EP-407/2010/E

Figure 15b: Piers/Pier Foundations of Viaduct Section
 圖 15b: 高架橋路段的鐵路橋橋墩/地基

(This figure was prepared based on Figure 5.10.2 of EIA report (Register No.: AEIAR-155/2010))
 (本圖是根據環評報告(登記冊編號 AEIAR-155/2010) 圖 5.10.2 編制)





Remark (註解):
 Location of piers are indicative only and subject to refinement
 橋墩位置乃顯示性質，有待詳細設計作調整

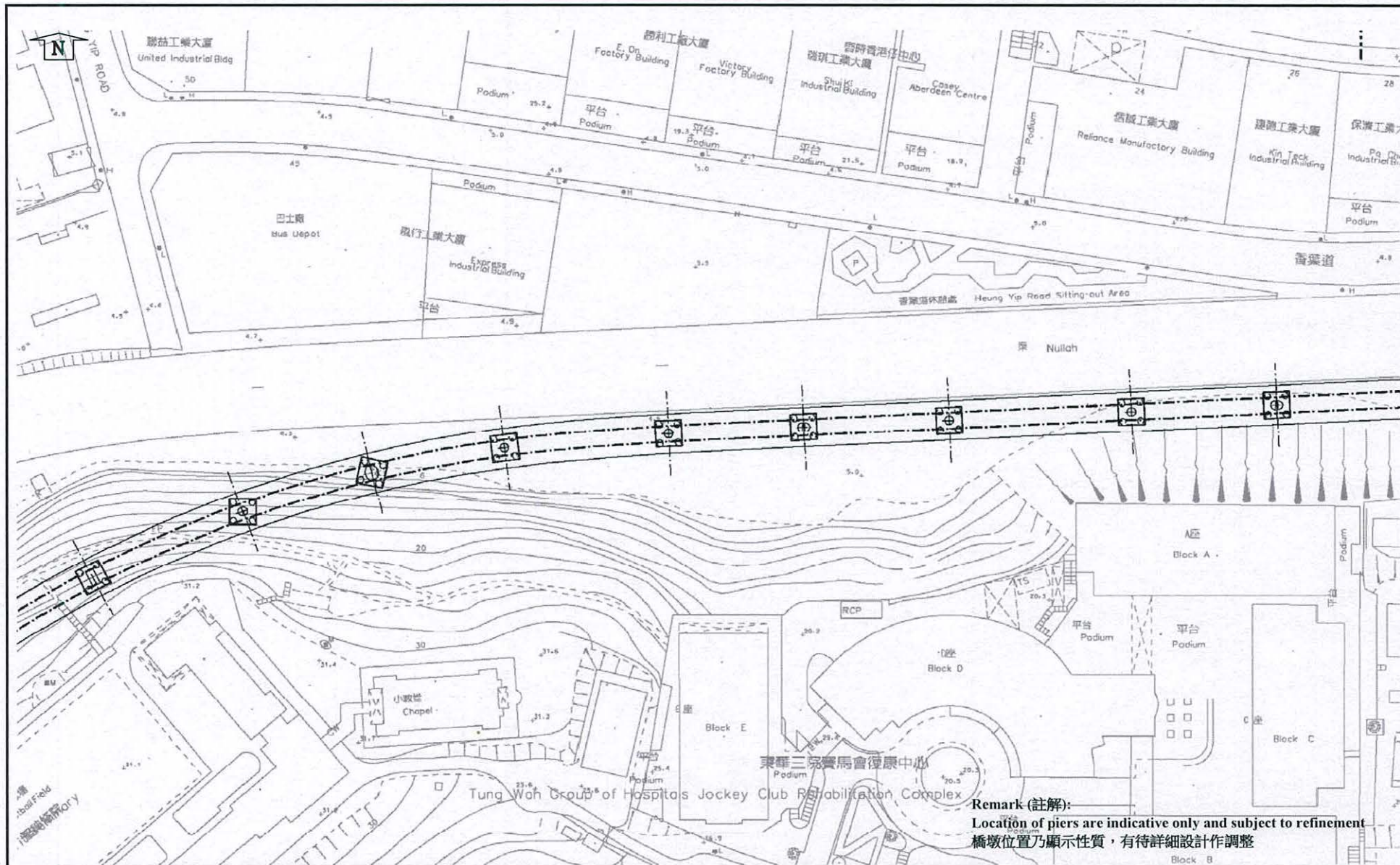


Project Title : South Island Line (East)
 工程項目名稱：南港島綫(東段)
Environmental Permit No. : EP-407/2010/E
 環境許可證編號 : EP-407/2010/E

Figure 15c: Piers/Pier Foundations of Viaduct Section
 圖 15c: 高架橋路段的鐵路橋橋墩/地基

(This figure was prepared based on Figure 5.10.3 of EIA report (Register No.: AEIAR-155/2010))
 (本圖是根據環評報告(登記冊編號 AEIAR-155/2010) 圖 5.10.3 編制)





Remark (註解):
 Location of piers are indicative only and subject to refinement
 橋墩位置乃顯示性質，有待詳細設計作調整

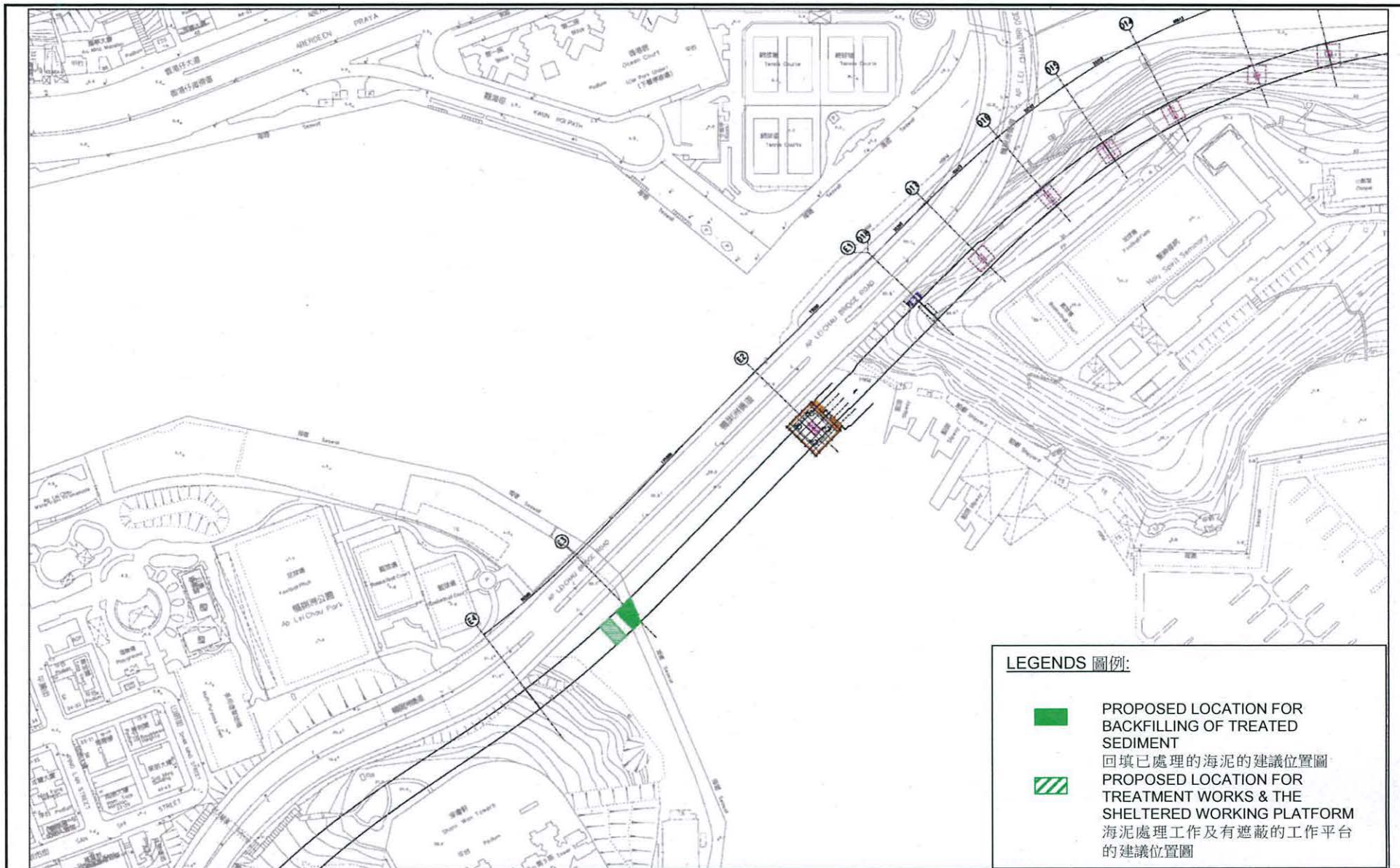


Project Title : South Island Line (East)
 工程項目名稱：南港島綫(東段)
Environmental Permit No. : EP-407/2010/E
 環境許可證編號 : EP-407/2010/E

Figure 15d: Piers/Pier Foundations of Viaduct Section
 圖 15d: 高架橋路段的鐵路橋橋墩/地基

(This figure was prepared based on Figure 5.10.4 of EIA report (Register No.: AEIAR-155/2010))
 (本圖是根據環評報告(登記冊編號 AEIAR-155/2010) 圖 5.10.4 編制)





Project Title: South Island Line (East)
 工程項目名稱：南港島綫(東段)

Environmental Permit No. : EP-407/2010/E
 環境許可證編號 : EP-407/2010/E

Figure 16: Location Plan of Treatment of Excavated Marine Sediment
 圖 16 : 處理已挖掘海泥位置圖

(This figure was prepared based on Drawing No. 903/T/LCA/1377-2 of Proposal for Treatment of Marine Sediment to Replace Marine Disposal)

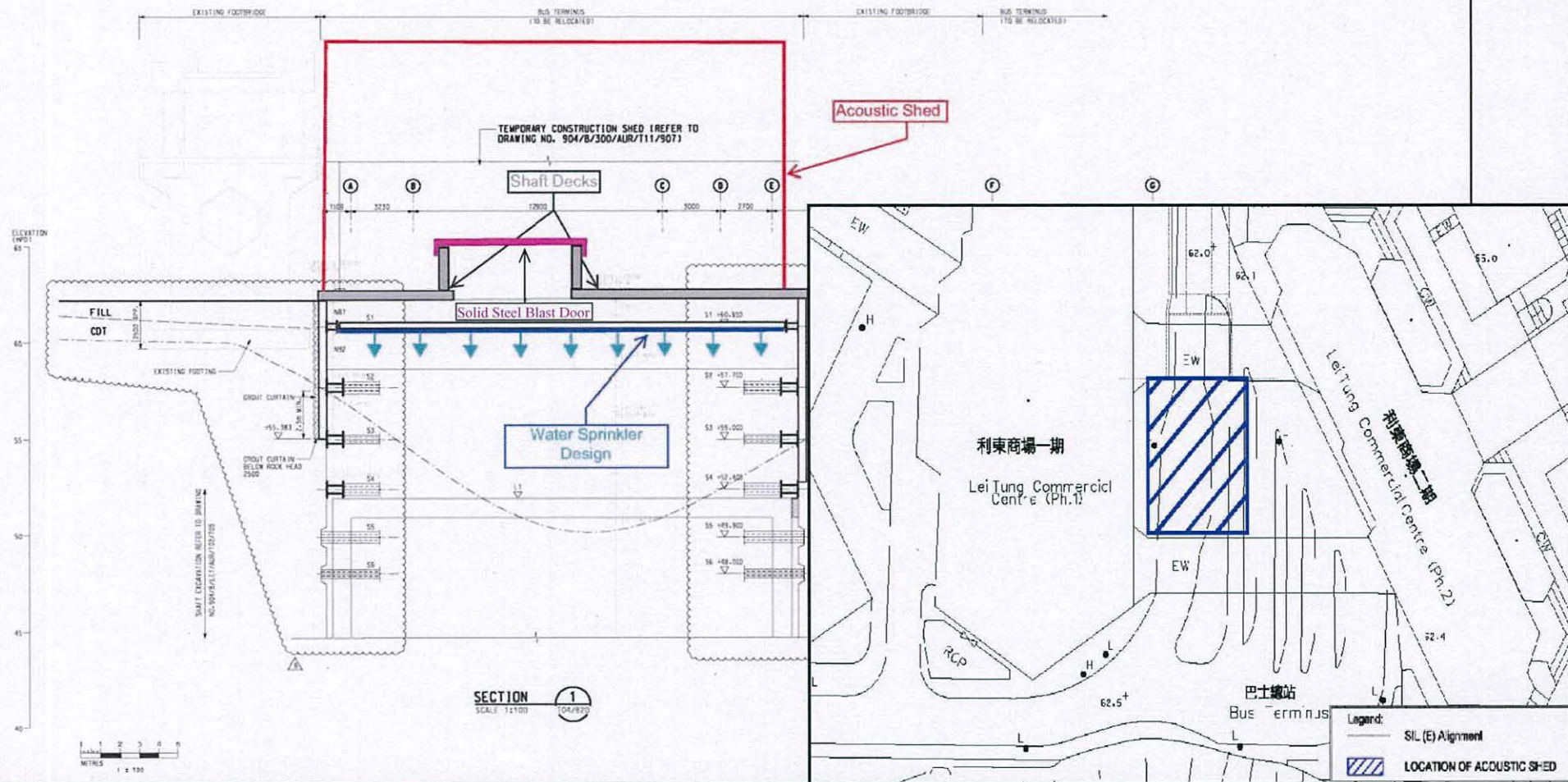
(本圖是根據處理海泥代替海洋棄置的建議內的圖編號 903/T/LCA/1377-2 編制)



Detailed Layout and Specification for the Blast Door and Acoustic Shed
 爆破門及隔音棚的詳細設計及規格

NOTES :
 1. REFER TO DRAWING NO. 904/B/300/AUR/108/1 FOR SETTING OUT PILES POLYS WITH BEINGS TO SHIP STRUCTURE
 2. REFER TO DRAWING NO. 904/B/300/AUR/108/2 FOR TYPICAL CONSTRUCTION EVIDENCE

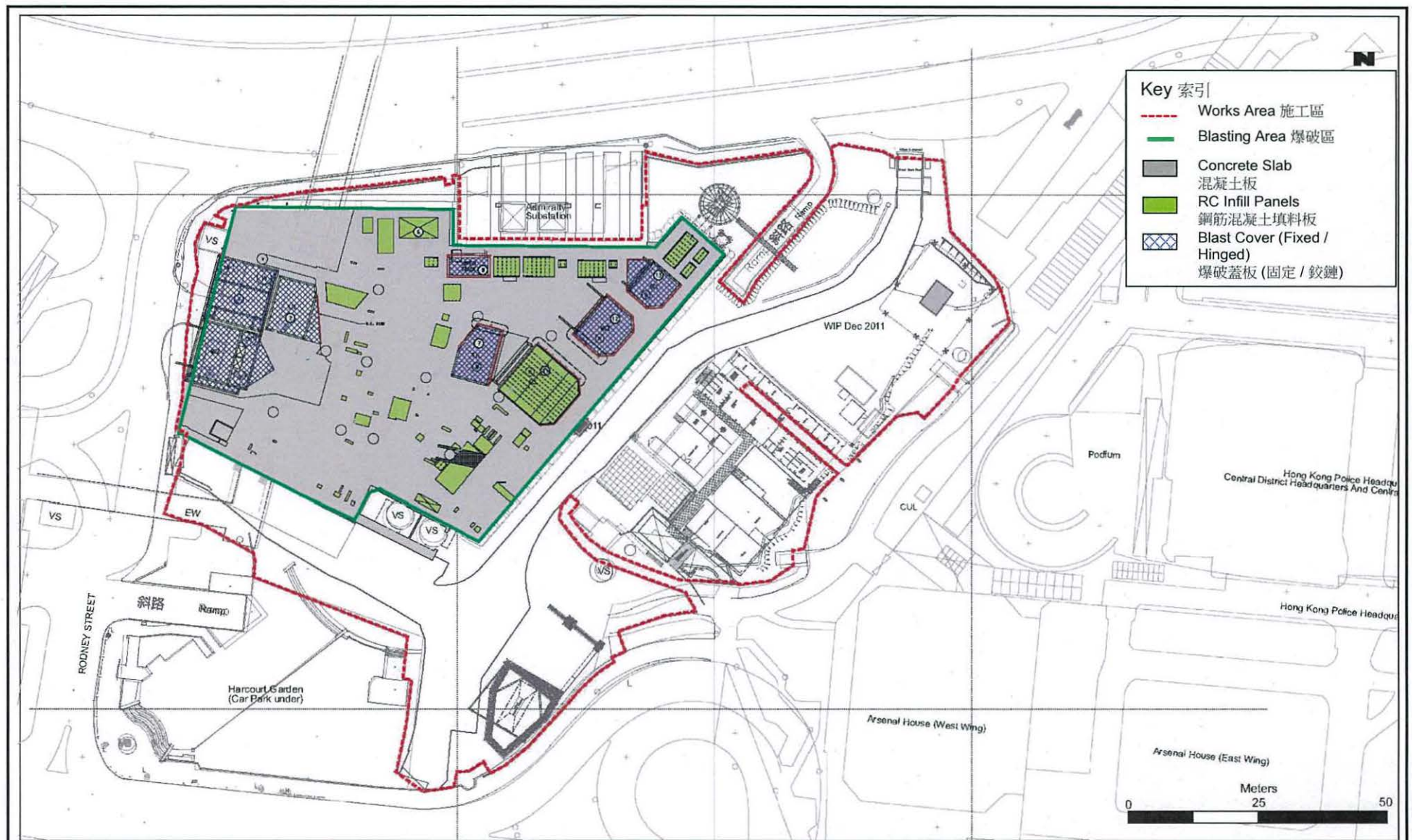
LEGEND :
 MASS CONCRETE FILL
 BACKFILL



Project Title: South Island Line (East)
 工程項目名稱：南港島綫(東段)
Environmental Permit No. : EP-407/2010/E
 環境許可證編號 : EP-407/2010/E

Figure 17: Location Plan of Blast Door and Acoustic Shed
 圖 17: 爆破門及隔音棚位置圖
 (This figure was prepared based on Drawing No. Appendix E of Environmental Review Report for Lei Tung Station – Excavation for LET Entrance B Shaft by Drill and Blast Method)
 (本圖是根據利東站環境檢討報告 - 以鑽擊及爆破形式挖掘利東站入口 B 圖附件 E 編制)





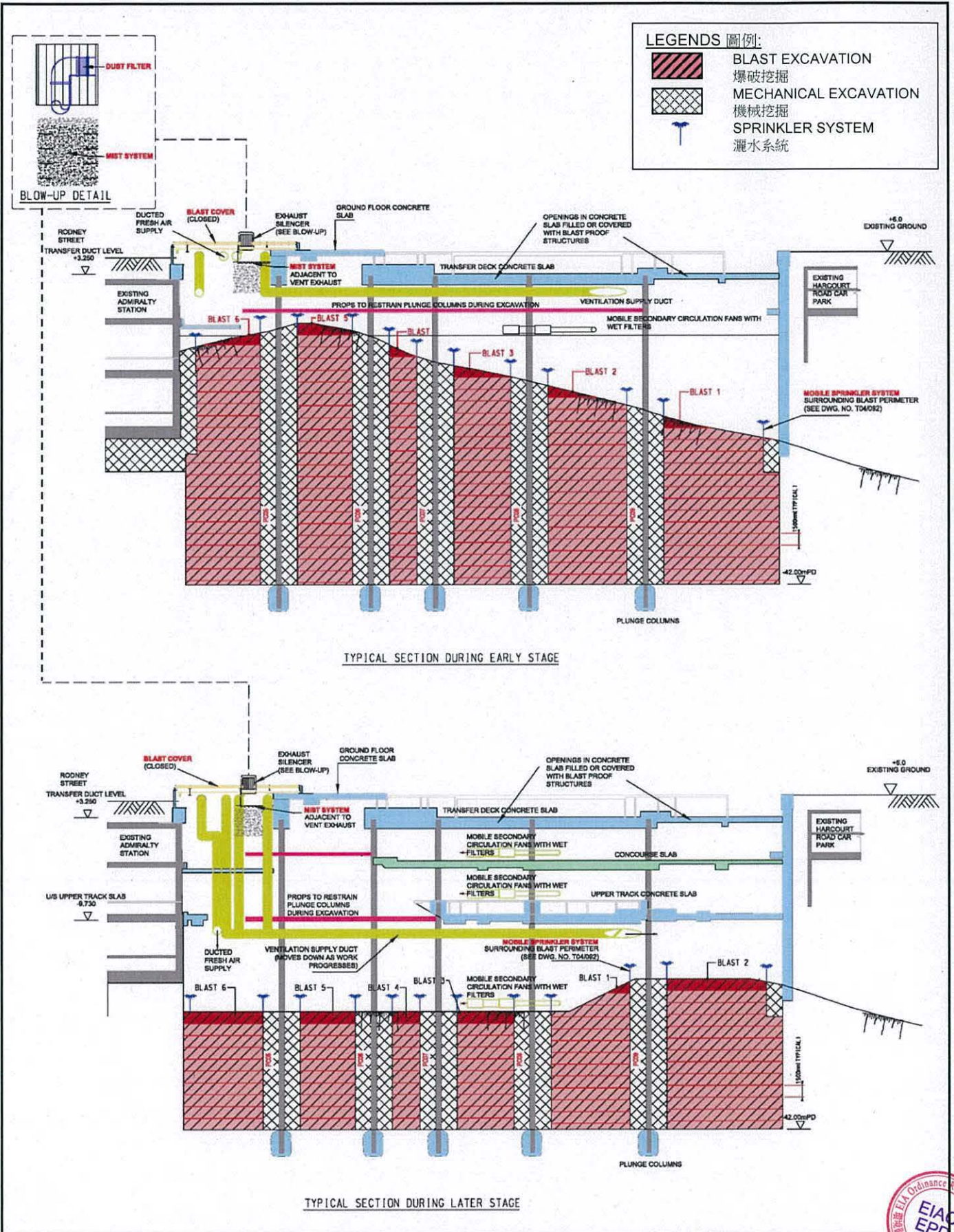
Project Title: South Island Line (East)
 工程名稱 : 南港島綫(東段)

Environmental Permit No. : EP-407/2010/E
 環境許可證編號 : EP-407/2010/E

Figure 18: Location Plan of Proposed Blasting Area at ADM Station Box
 圖 18 : 金鐘站建議爆破區的位置圖

(This figure was prepared based on Figure 1.1 of the "MTR South Island Line (East) (SIL(E) Works Contract No. 901 – Drill and Blast Method at Admiralty (ADM) Station Box - Environmental Review")
 (本圖是根據“香港鐵路有限公司南港島綫(東段)工程合約編號 901 – 金鐘站內隔間的鑽探與爆破方法 – 環境檢討”圖 1.1 編制)





TYPICAL SECTION DURING LATER STAGE



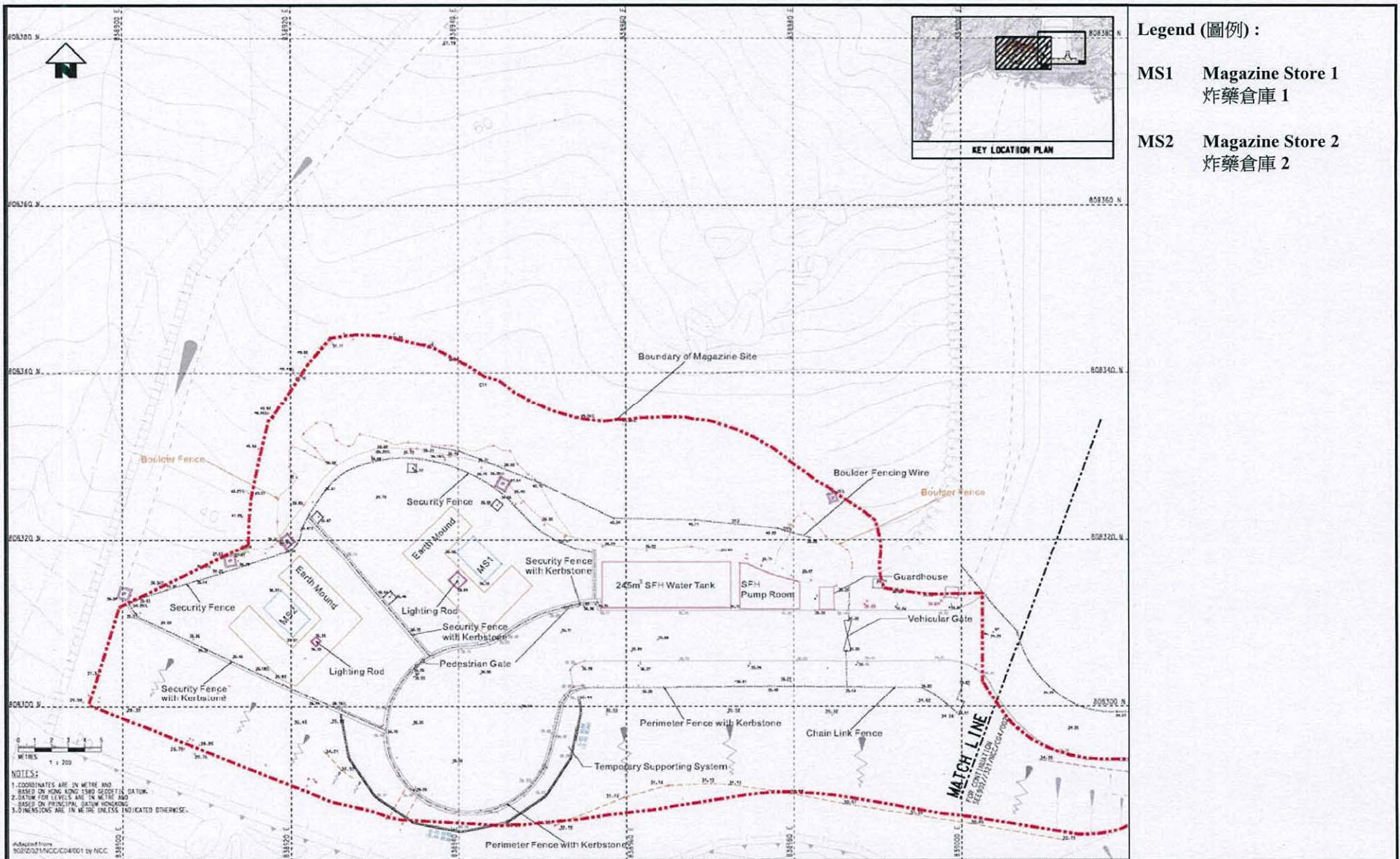
Project Title: South Island Line (East)
 工程名稱：南港島綫(東段)

Environmental Permit No.: EP-407/2010/E
 環境許可證編號：EP-407/2010/E

Figure 19: Location of Sprinkler and Ventilation System
 圖 19：灑水系統及通風系統的位置圖

(This figure was prepared based on Drawing No. 901/W/ADM/CLK/T04/090 - 091 of the "MTR South Island Line (East) (SIL(E) Works Contract No. 901 - Drill and Blast Method at Admiralty (ADM) Station Box - Environmental Review") (本圖是根據“香港鐵路有限公司南港島綫(東段)工程合約編號 901 - 金鐘站內隔間的鑽探與爆破方法 - 環境檢討”圖編號 901/W/ADM/CLK/T04/090 - 091 編制)





Legend (圖例):

- MS1 Magazine Store 1
炸藥倉庫 1
- MS2 Magazine Store 2
炸藥倉庫 2



Project Title : South Island Line (East)
工程項目名稱：南港島綫(東段)
Environmental Permit No. : EP-407/2010/E
環境許可證編號 : EP-407/2010/E

Figure 20: General Arrangement of the Magazine Site at Chung Hom Shan for SIL(E)
圖 20: 於春坎山的炸藥倉工地的整體排列
 (This figure was prepared based on Annex A1 of VEP Application (No.: VEP-451/2014))
 (本圖是根據申請更改環境許可證(編號 VEP-451/2014) 附錄 A1 編制)

