



拓展署
Territory Development Department
Hong Kong

九龍拓展處
Kowloon Development Office

Agreement No. CE 42/2000 (CE)

顧問合約編號CE 42/2000(CE)

**South East Kowloon Development
Infrastructure at North Apron Area of
Kai Tak Airport
Design & Construction**

**九龍東南發展計劃
啟德機場北面停機坪的基礎設施
設計及監工**



Project Profile 工程項目簡介
Sewage Pumping Stations 污水泵站

July 2002

ARUP

**Kowloon Development Office
Territory Development Department
The Hong Kong Special Administrative Region Government**

**Agreement No. CE 42/2000 (CE)
South East Kowloon Development
Infrastructure at North Apron Area of Kai Tak Airport
Design and Construction**

**Project Profile
Sewage Pumping Stations**

July 2002

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Job number 23462

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1. BASIC INFORMATION

1.1 Project Title

Sewage Pumping Stations at the South East Kowloon Development, Infrastructure at North Apron Area of Kai Tak Airport.

1.2 Purpose and Nature of the Project

In November 1999, the Territory Development Department commissioned the Comprehensive Feasibility Study for the Revised Scheme of South East Kowloon Development and an Outline Master Development Plan (OMDP) for South East Kowloon Development (SEKD) was developed from the feasibility study. The OMDP includes five proposed sewage pumping stations at the North Apron Area of Kai Tak Airport (NAKTA) referred in this Project Profile. The Revised Scheme of SEKD falls within Item 1 of Schedule 3 of the Environmental Impact Assessment Ordinance (EIAO) and is a Designated Project. An EIA study was undertaken for the Designated Project and the EIA Report for the Comprehensive Feasibility Study for the Revised Scheme of SEKD (SEKDCFS-EIA) (EIAO Register Ref: AEIAR-044/2001) was approved in September 2001.

Five proposed sewage pumping stations will form part of the early development works package of infrastructural development at NAKTA under Agreement No. CE 42/2000 (CE). The proposed sewage pumping stations will serve to convey the sewage collected within NAKTA and the hinterland to the existing To Kwa Wan Preliminary Treatment Works compound. Most of the potential environmental impacts arising from the proposed sewage pumping stations in SEKD have been assessed as part of the entire South East Kowloon Development under the SEKDCFS-EIA, including air quality impact, noise impact, water quality impact, sewerage system, waste management implications, land contamination impact, cultural heritage impact, landscape and visual impact, environmental monitoring and audit, and schedule of recommended mitigation measures.

1.3 Name of Project Proponent

Kowloon Development Office, Territory Development Department

1.4 Location and Scale of Project

Five sewage pumping stations namely PS1, PS1A, PS2, PS3, and PS4 are included in this project. The location and site plan of these five sewage pumping stations are shown in Drawing No. 23462/W/07/K/026 and 027 respectively. The average dry weather flow and the peak capacity of the five proposed sewage pumping stations are tabulated below. The proposed sewage pumping stations will have variable speed drives (PS1, PS2, PS4) and telemetry system.

Sewage Pumping Station	Average Dry Weather Flow (m ³ /day)	Peak Capacity (m ³ /sec)
PS1	28,500	1.09
PS1A	15,600	0.66
PS2	53,600	1.87
PS3	4,300	0.16
PS4	66,500	2.24

1.5 Number and Type of Designated Project to be Covered

Five sewage pumping stations namely PS1, PS1A, PS2, PS3, and PS4 are identified as Designated Projects under Part I F.3(b) of Schedule 2 of the EIAO. The associated rising mains, gravity sewers, and access roads are not Designated Projects and are therefore not included in this Project Profile.

1.6 Name and Telephone Number of Contact Person(s)

Mr KWONG Hing Ip, Patrick, Chief Engineer/Kowloon 2, Kowloon Development Office, Territory Development Department (Tel. 2301 1455)

2. OUTLINE OF PLANNING AND IMPLEMENTATION PROGRAMME

The Consultants of Agreement No. CE42/2000 (CE) will carry out the design of the five sewage pumping stations. They will also supervise the construction of the sewage pumping stations by qualified contractors. The Drainage Services Department will operate and maintain the sewage pumping stations.

The project will be implemented in accordance with the tentative program for the infrastructure development at NAKTA under Agreement No. CE42/2000 (CE) in five phases namely Review (January 2002 to April 2002), Design (April 2002 to March 2003), Tender (February 2003 to February 2004), Construction (June 2003 to September 2008), and Completion.

3. POSSIBLE IMPACT ON THE ENVIRONMENT

3.1 Possible Environmental Impacts During Construction

3.1.1 Dust

Section 2.4.1 of the SEKDCFS-EIA assessed the cumulative dust impacts during the construction of the infrastructure in SEKD. The major potential air quality impact during construction of this project is dust arising from general construction activities, including land clearing, ground excavation, demolition and construction of structures, and equipment traffic over the site area, and from wind erosion of open sites and stockpiling areas.

3.1.2 Noise

Section 3.6 of the SEKDCFS-EIA assessed the cumulative noise impacts during the construction of the infrastructure in SEKD. The construction activities involved in this project will include excavation and general concreting works. Common construction plant including backhoe and concrete mixer will be used. Sources of noise during the construction phase would be associated with the use of these powered mechanical equipment.

3.1.3 Water Quality

Section 4.4.2 of the SEKDCFS-EIA assessed the water quality impacts during the construction phase of SEKD. Water quality impacts of this project would be associated with site runoff and wastewater and sewage generated from construction activities. In view of the small scale of this project, significant water quality impact is not anticipated.

3.1.4 Construction and Demolition Materials

Section 7.4.1 of the SEKDCFS-EIA reviewed the construction waste management issues related to the construction of SEKD. For the proposed sewage pumping stations, excavation will be required for the construction of dry well and wet well. It is estimated that a total of

27,400m³ of excavated materials will be generated from the construction of the five proposed sewage pumping stations. These materials would either be reused or disposed of at public filling areas or landfills. The quantity of materials suitable for reuse or requiring disposal will be subject to the findings of the site investigation to be carried out in late 2002. Construction waste such as timber used in formwork and temporary works will also be generated. However, it is anticipated that the quantity of surplus construction and demolition materials generated will be small. The project will not involve reclamation or earth filling with imported fill.

3.1.5 Land Contamination

Section 8 of the SEKDCFS-EIA made reference to the findings of the Kai Tak Airport North Apron Decommissioning EIA Report (NAKTA Decommissioning EIA) (EIAO Register Ref: AEIAR-002/1998) approved in September 1998. The NAKTA Decommissioning EIA identified specific hotspots of land contamination within NAKTA for remediation. Under the conditions of approval of the NAKTA Decommissioning EIA, the decontamination works at the NAKTA area should be carried out such that the remediation targets are fully met. Besides, environmental monitoring and audit will be carried out in accordance with the respective Environmental Monitoring and Audit (EM&A) Manual. Provided that the decontamination works could be completed satisfactorily to meet the remediation targets, residual impacts on the remediated site due to land contamination site is not expected

3.1.6 Cultural Heritage

Section 12 of the SEKDCFS-EIA suggested that the northwestern part of NAKTA has a high archaeological potential based on the desktop historical review. As per the recommendations in Section 12.8 of the SEKDCFS-EIA, archaeological site investigation will be undertaken as part of Agreement No. CE42/2000 (CE) to assess the archaeological potential of the identified / potential archaeological sites within NAKTA prior to construction. Mitigation measures such as preservation *in-situ* or rescue excavation will be implemented for site(s) of cultural heritage importance identified during the site investigation prior to the construction of this project.

3.1.7 Visual

Sections 13.11 of the SEKDCFS-EIA summarised the landscape and visual impact during the construction stage of the sewage pumping stations in SEKD. Slight adverse residual landscape impacts and moderate to significant adverse residual visual impacts are expected during the construction stage of the proposed sewage pumping stations.

3.2 Possible Environmental Impacts During Operation

3.2.1 Odour

With reference to Section 2.4.2.22 of the SEKDCFS-EIA, the wet wells and the distribution chambers of the proposed sewage pumping stations would be the major sources of odour nuisance if not enclosed.

3.2.2 Noise

Section 3.10.2 of the SEKDCFS-EIA assessed the operational phase noise impacts from the proposed sewage pumping stations. The pumps and the ventilation system of the sewage pumping stations would be the main potential noise sources during the operational phase.

3.2.3 Water Quality

The key issues pertinent to water pollution that would arise during the operational phase of this project, being part of SEKD, were adequately assessed in detail in Section 4.4.3 of the

SEKDCFS-EIA. No adverse water quality impacts are anticipated during normal sewage pumping station operation. Potential sources of water pollution are associated with system failure, such as sewage surcharge caused by pipe blockage or prolonged power failure at sewage pumping stations, which could cause emergency overflows.

3.2.4 Waste

Screens will be installed at the inlet of the proposed sewage pumping stations to prevent large solid materials in sewage from entering the pumps and causing damage. A small quantity of screenings will thus be generated.

3.2.5 Visual

Sections 13.11 of the SEKDCFS-EIA summarised the landscape and visual impact during the operational stage of the sewage pumping stations in SEKD. Negligible to slight adverse residual landscape impacts and moderate to significant adverse residual visual impacts are expected during the operational stage of the proposed sewage pumping stations.

4. MAJOR ELEMENTS OF THE SURROUNDING ENVIRONMENT

All five proposed sewage pumping stations are located within NAKTA as shown in Drawing No. 23462/W/07/K/026. Sewage pumping station PS1 is located in Area 1E of NAKTA. Adjacent landuses include a planned school to the northeast, a planned residential development to the southeast, and a planned local open space to the southwest. The northwestern side of the sewage pumping station is the existing Prince Edward Road East and the proposed Road D3.

Sewage pumping station PS1A is located in Area 1B of NAKTA. The sewage pumping station is surrounded by a planned local open space on three sides and bounded by the proposed Road L1 on the western side. The sewage pumping station is separated from the proposed residential development and school sites in Area 1B and Area 1C by more than 50m.

Sewage pumping station PS2 is located in Area 1M of NAKTA. Adjacent landuses are largely non-sensitive and include a maintenance depot, an electric substation, a drainage channel and the proposed Road L2. The nearest sensitive use would be the proposed stadium to the west of the sewage pumping station at about 100m away.

Sewage pumping station PS3 is located in Area 2A of NAKTA facing the proposed Road D3 and the existing Prince Edward Road East to the northwest. The sewage pumping station is surrounded by a planned local open space on three sides and a school site is planned at about 20m to the southeast.

Sewage pumping station PS4 is located in Area 2G of NAKTA bounded by the proposed Road D1 and the existing Sung Wong Toi Road to the west. Adjacent landuses include a planned local open space and a planned G/IC building to the east and to the south respectively.

5. ENVIRONMENTAL PROTECTION MEASURES TO BE INCORPORATED

The environmental protection measures presented in this section made reference to the relevant recommendations in the SEKDCFS-EIA and include those measures contained in the Implementation Schedule of Environmental Mitigation Measures (Appendix A of the SEKDCFS-EIA EM&A Manual) for the proposed sewage pumping stations in SEKD.

5.1 Environmental Protection Measures During Construction Stage

5.1.1 Dust

Section 2.5.1 of the SEKDCFS-EIA recommended the implementation of proper dust control and suppression measures stipulated in the *Air Pollution Control (Construction Dust) Regulation* during the construction phase of SEKD. Relevant clauses will be incorporated into the contract documents of the proposed sewage pumping stations in this regard.

5.1.2 Noise

Section 3.6.3 of the SEKDCFS-EIA recommended a list of construction phase mitigation measures. The construction noise impacts could be reduced with the use of quiet plant, temporary noise barriers, etc. Clauses will be incorporated into the construction contract documents requiring the contractors to comply with the Noise Control Ordinance and its subsidiary regulations so as to control the noise level within acceptable limit during the construction stage.

5.1.3 Water Quality

Section 4.5.1 of the SEKDCFS-EIA recommended the adoption of the practices outlined in *ProPECC PN 1/94 Construction Site Drainage* to minimise site runoff and potential water pollution. Water quality impact will be further minimised during the construction stage of this project with the adoption of good site arrangement and management practices. Clauses will be incorporated into the construction contract documents requiring the contractors to comply with the Water Pollution Control Ordinance and its subsidiary regulations and the relevant measures recommended in the SEKDCFS-EIA.

5.1.4 Construction and Demolition Materials

Section 7.4.1 of the SEKDCFS-EIA outlined the waste management measures during the construction phase of SEKD. Clauses will be incorporated into the construction contract documents requiring the contractors to comply with the Waste Disposal Ordinance and its subsidiary regulations and the relevant measures recommended in Section 7.4.1 of the SEKDCFS-EIA. In addition, the contractors will be required to formulate and implement a recording system to monitor the amount of wastes generated, recycled, and disposed of. The contractors should also provide training to the workers about the concepts of site cleanliness and appropriate waste management procedures.

5.2 Environmental Protection Measures During Operational Stage

5.2.1 Odour

With reference to Section 2.5.2.10 of the SEKDCFS-EIA, the odours sources of the sewage pumping stations namely the wet well, inlet chamber, and screening chamber etc should be enclosed and with the odour emissions diverted to an odour scrubbing device before discharging to the atmosphere.

5.2.2 Noise

Section 3.10.2.2 of the SEKDCFS-EIA outlined the operational noise mitigation measures for sewage pumping stations as follow:

- The exhaust of the ventilation systems and any opening of the proposed sewage pumping station will be located away from nearby noise sensitive receivers; and
- Acoustic louvers will be applied to the exhausts of the proposed sewage pumping station;

- Pumps and mechanical ventilation system will be located underground or enclosed within a structure or building.

5.2.3 Water Quality

The proposed sewage pumping stations will collect sewage generated from NAKTA and pump it to the existing To Kwa Wan Preliminary Treatment Works for treatment prior to discharge. No adverse water quality impacts are anticipated during normal sewage pumping station operation. Nevertheless, abnormal operation conditions including damage to sewers, sewer blockage, equipment breakdown or power failure, and high wet weather flows could lead to sewage overflow and thus adversely affect water quality in the area. With reference to Section 4.4.3.61 of the SEKDCFS-EIA, the emergency overflow discharge locations of all the proposed sewage pumping stations will be kept away from the Kwun Tong Typhoon Shelter, marina, the embayment around the mouth of Tsui Ping Nullah, and the existing and other proposed seawater intakes.

Besides, routine monitoring, inspection, and maintenance will be undertaken to ensure satisfactory working condition of the system. While the *Water Pollution Control Ordinance* (WPCO) provides for operation of an emergency overflow bypass in exceptional circumstances, such as a prolonged power failure, it will only be done as a last resort. To reduce the water pollution impacts of potential overflows, the following will be applied to the proposed sewage pumping stations:

- standby pumps and screens to facilitate maintenance and repair of equipment;
- back-up power in the form of dual power supply;
- for sewage pumping station that is not manned 24-hour per day, a telemetric system will be installed and connected to other 24-hour manned facilities;
- a hand-cleaned bar screen at overflow bypass to prevent discharge of floating solids; and
- connect the overflow discharge pipe to an enclosed culvert at a point below the low water level where practical.

5.2.4 Waste

All the screenings will be properly packed and handled to avoid odour and hygienic nuisance. All the packing operation will be undertaken within the sewage pumping stations. The screenings will then be transported to strategic landfills for disposal.

5.2.5 Visual

With reference to Section 13.11 of the SEKFCFS-EIA, the proposed sewage pumping stations will be designed as a feature in the local landscape. This could be achieved by designing the proposed sewage pumping station with high-quality architectural finish. Besides, dense boundary tree and shrub planting will also be provided as screen and visual relief.

6. USE OF PREVIOUSLY APPROVED EIA REPORTS

The SEKDCFS-EIA was approved in September 2001. Most of the potential environmental impacts arising from this project have been assessed as part of the entire SEKD under the SEKDCFS-EIA, including air quality impact, noise impact, water quality impact, sewerage system, waste management implications, land contamination impact, cultural heritage impact, landscape and visual impact, environmental monitoring and audit, and schedule of recommended mitigation measures.

7. SUMMARY OF POTENTIAL ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES

The potential environmental impacts and the proposed environmental mitigation measures to be incorporated into the design and construction contract of the proposed sewage pumping stations are summarised in the following table.

Project Stage	Potential Environmental Impact	Mitigation Measures	Relevant Section in this Project Profile
Construction	Minor dust nuisance	Control by contract specifications	5.1.1
	Minor noise impact	Control by contract specifications	5.1.2
	Minor water quality impact	Control by contract specifications	5.1.3
	Minor waste impact	Control by contract specifications	5.1.4
Operation	Odour nuisance	1. Enclose odour sources 2. Install odour scrubbing device to remove odour	5.2.1
	Minor noise impact	1. Locate exhaust of ventilation system and openings of sewage pumping station away from noise sensitive receivers 2. Apply acoustic louvers to exhausts of sewage pumping station 3. Locate pumps and mechanical ventilation underground or enclose within structure	5.2.2
	Water quality impact from emergency sewage bypass	1. Standby pumps and screens to facilitate maintenance and repair of equipment 3. Back-up power in the form of dual power supply 4. Telemetric system for sewage pumping system not 24-hour manned 3. A hand-cleaned bar screen at overflow bypass to prevent discharge of floating solids 4. Connect the overflow discharge pipe to an enclosed culvert at a point below the low water level where practical	5.2.3
	Generation of screenings	1. Screenings containment 2. Proper disposal	5.2.4
	Visual impacts	1. Design the sewage pumping station as a feature in local landscape with high-quality architectural finish. 2. Peripheral planting	5.2.5

With proper implementation of the above environmental mitigation measures that will be incorporated into the design and construction contracts of the proposed sewage pumping

stations, insurmountable environmental impact during the construction and operational stages of the proposed sewage pumping stations is not expected.

香港特別行政區政府

拓展署

九龍拓展處

顧問合約編號 CE42/2000 (CE)

九龍東南發展計劃

啟德機場北面停機坪的基礎設施

設計及監工

工程項目簡介

污水泵站

2002年7月

奧雅納工程顧問

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圖

擬建污水泵站位置圖 (圖號 23462/W/07/K/026)

擬建污水泵站規劃佈局圖 (圖號 23462/W/07/K/027)

1. 基本資料

1.1 工程項目名稱

九龍東南發展計劃—啟德機場北面停機坪的基礎設施:污水泵站。

1.2 工程項目的目的及性質

在 1999 年 11 月, 拓展署展開了九龍東南修訂計劃的整體可行性研究。該研究提出了九龍東南發展之總綱發展規劃藍圖。該總綱發展規劃藍圖包括了本簡介的工程項目—啟德機場北面停機坪的五座擬建污水泵站。由於九龍東南發展修訂計劃的整體可行性研究屬於環境影響評估條例附表三第一項的指定項目, 因此該可行性研究需要進行環境影響評估研究。九龍東南發展修訂計劃整體可行性研究的環境影響評估報告(環境影響評估條例登記冊號: AEIAR-044/2001) 已於 2001 年 9 月獲得環境保護署批准。

作為啟德機場北面停機坪基礎設施發展早期工程整體合約(顧問合約編號 CE42/2000 (CE)) 的一部分, 這五座擬建的污水泵站將啟德機場北面停機坪及其腹地的污水輸送至土瓜灣初級污水處理廠。其主要潛在環境影響經已在九龍東南發展修訂計劃整體可行性研究的環境影響評估報告中進行了評估, 當中包括空氣質素影響、噪音影響、水質影響、污水收集系統、廢物管理影響、土地污染影響、文化古跡影響、景觀和視覺影響、環境監測和審核、以及建議的環境紓緩措施計劃表等。

1.3 工程項目倡議人

拓展署, 九龍拓展處。

1.4 工程項目的地點和規模

本工程項目包括名為 PS1、PS1A、PS2、PS3 和 PS4 的五座污水泵站。污水泵站位置及其規劃佈局分別參見圖號 23462/W/07/K/026 和 027。各個污水泵站的平均旱季流量和峰值流量列表如下。擬建污水泵站將具有無段變速驅動(PS1、PS2 和 PS4) 和遙測系統。

污水泵站	平均旱季流量 (立方米/日)	峰值流量 (立方米/秒)
PS1	28,500	1.09
PS1A	15,600	0.66
PS2	53,600	1.87
PS3	4,300	0.16
PS4	66,500	2.24

1.5 指定工程項目的數量和類型

已確定 PS1、PS1A、PS2、PS3 和 PS4 這五座擬建的污水泵站屬於環境影響評估條例附表二第一部分 F.3 (b) 的指定項目。相關的泵送管道、重力下水道和通路並不屬於指定工程項目, 因此它們將不會包括在本項目簡介內。

1.6 聯絡人姓名及電話號碼

拓展署九龍拓展處總工程師/九龍 2—鄭慶業先生 (電話: 2301 1455)

2. 規劃大綱及計劃的執行

承擔顧問合約編號 CE42/2000 (CE) 的顧問公司將負責這五座擬建污水泵站的設計及監督施工的承建商, 而渠務署則負責污水泵站的運作及維修。

本項目將根據啟德機場北面停機坪的基礎設施發展 (顧問合約編號 CE42/2000 (CE)) 中暫定計劃表分五個階段執行, 分別是檢討 (2002 年 1 月到 2002 年 4 月)、設計 (2002 年 4 月到 2003 年 3 月)、招標 (2003 年 2 月到 2004 年 2 月)、施工 (2003 年 6 月到 2008 年 9 月) 及竣工。

3. 對環境可能造成的影響

3.1 施工期間對環境可能造成的影響

3.1.1 塵埃

九龍東南發展修訂計劃整體可行性研究環境影響評估報告第 2.4.1 節評估了九龍東南發展中基礎設施施工期間所產生的塵埃累積影響。本項目施工期間潛在的主要空氣質素影響為一般施工活動所產生的塵埃, 如工地清理、土地挖掘、建築物的拆卸和興建、穿梭於工地的機械設備、以及空曠土地/堆存區受風力侵蝕等。

3.1.2 噪音

九龍東南發展修訂計劃整體可行性研究環境影響評估報告第 3.6 節評估了九龍東南發展中基礎設施施工期間所產生的噪音累積影響。本項目涉及的施工活動包括挖掘及一般的混凝土鋪設工作。將會使用的施工設備如反剷挖土機、混凝土攪拌機等均為施工期間噪音的來源。

3.1.3 水質

九龍東南發展修訂計劃整體可行性研究環境影響評估報告第 4.4.2 節評估了九龍東南發展施工期間產生的水質影響。本項目的水質污染將來自工地的場地徑流和施工活動產生的廢水和污水。由於本項目的規模很小, 因此預計不會帶來不良的水質影響。

3.1.4 建築及拆卸物料

九龍東南發展修訂計劃整體可行性研究環境影響評估報告第 7.4.1 節審核了與九龍東南發展施工有關的施工廢物管理問題。施工期間, 污水泵站中的分配井和濕井部份需要進行挖掘, 預計將會產生共 27,400 立方米的挖掘物料。這些物料可以循環再用或運往公眾傾卸區或堆填區。在 2002 年稍後進行的現場調查將可提供更精確的資料以預測循環再用物料及需要處置物料的數量。此外, 施工廢物如用於模板和臨時性工程的木料等亦會產生。然而, 預計剩餘建築和拆卸物料將會很少。本工程項目將不涉及填海或利用外來的填料進行填土。

3.1.5 土地污染

九龍東南發展修訂計劃整體可行性研究環境影響評估報告第 8 節參考了於 1998 年 9 月獲批准的啟德機場北面停機坪解除運作的環境影響評估報告 (環境影響評估登記冊號: AEIAR-002/1998)。該項環境影響評估報告確定了啟德機場北停機坪中由於土地

污染而需要實施補救的數個熱點。根據該項目的環境許可證的條件，啟德機場北面停機坪的補救工作一定要完全達到補救目標，以及需要根據相關的環境監測和審核手冊進行環境監測和審核工作。只要啟德機場北面停機坪的土地污染補救工作能夠圓滿完成並達到補救目標，應不會出現土地污染的殘餘影響。

3.1.6 文化古跡

九龍東南發展修訂計劃整體可行性研究環境影響評估報告第 12 節對歷史情況的書面檢討中，指出啟德機場北面停機坪的西北部具有高考古價值。因此，根據該環境影響評估報告第 12.8 節的建議，應將現場考古調查作為顧問合約編號 CE42/2000 (CE) 的一部分，以便於施工前評估啟德機場北面停機坪內已確定/潛在的考古遺址，以及在施工前對已確定的重要文化古跡遺址採取實地保存或拯救性發掘等紓緩措施。

3.1.7 視覺

九龍東南發展修訂計劃整體可行性研究環境影響評估報告第 13.11 節總結了在九龍東南發展中污水泵站施工期產生的景觀和視覺影響。預計污水泵站施工期將會產生輕微的殘餘景觀影響，及中等至嚴重的殘餘視覺影響。

3.2 運作期間對環境可能造成的影響

3.2.1 氣味

根據九龍東南發展修訂計劃整體可行性研究環境影響評估報告第 2.4.2.22 節指出，擬建污水泵站的濕井和分配井若不密封，將會是運作期間主要的氣味來源。

3.2.2 噪音

九龍東南發展修訂計劃整體可行性研究環境影響評估報告第 3.10.2 節評估了擬建污水泵站在運作期間的噪音影響。污水泵站中的污水泵和通風系統將會是運作期間主要的潛在噪音來源。

3.2.3 水質

本工程項目於運作期間與水質污染有關的因素已在九龍東南發展修訂計劃整體可行性研究的環境影響評估報告中第 4.4.3 節作出了充分的評估。預計在污水泵站於正常運作期間不會產生任何不利水質的影響。潛在的水質污染均與系統故障有關，如管道阻塞或因長時間的電力故障等導致的緊急污水溢流。

3.2.4 廢物

擬建污水泵站的進水池將會安裝隔濾裝置以防止污水中較大的固體進入污水泵而引致損壞。因此，在運作期間將會產生少量的隔濾物。

3.2.5 視覺

九龍東南發展修訂計劃整體可行性研究環境影響評估報告第 13.11 節匯總了九龍東南發展中污水泵站運作期間的景觀和視覺影響。預計在污水泵站的運作期間將產生可以忽略至輕微的殘餘景觀影響，及中度至嚴重的殘餘視覺影響。

4. 周圍環境的主要元素

如圖 23462/W/07/K/026 所示，五座擬建污水泵站均位於啟德機場北面停機坪內。污水泵站 PS1 位於啟德機場北面停機坪的 1E 區。其相鄰的土地用途有：擬建在東北面的學校、擬建在東南面的住宅發展區、及擬建在西南面的休憩用地。污水泵站西北面是現有的太子道東和擬建的 D3 公路。

污水泵站 PS1A 位於啟德機場北面停機坪的 1B 區域。它的西面是擬建的 L1 公路，其餘三面則被擬建的休憩用地所包圍。離開其 50 米外始有擬建於 1B 及 1C 區的住宅發展區和學校。

污水泵站 PS2 位於啟德機場北面停機坪的 1M 區。它臨近廣闊的非敏感地帶，包括維修倉庫、變電站、排水渠和擬建的 L2 公路。其最近的敏感用途是擬建在西面約 100 米處的運動場。

污水泵站 PS3 位於啟德機場北面停機坪的 2A 區域。其西北面面向擬建的 D3 公路和現有的太子道東，其餘三面則被擬建的休憩用地所包圍，它的東南面約 20 米處將有已規劃的學校區。

污水泵站 PS4 位於啟德機場北面停機坪的 2G 區。其西面為擬建的 D1 公路和現有的宋皇臺道。鄰近土地規劃包括東面擬建的休憩用地和南面擬建的政府、機構和社區用地。

5. 紓緩措施的詳情

本節中提出的九龍東南發展擬建污水泵站的環境保護措施參考了九龍東南發展修訂計劃整體可行性研究環境影響評估報告中的有關建議，包含了環境紓緩措施計劃表（九龍東南發展修訂計劃整體可行性研究環境影響評估報告—環境監測和審核手冊之附錄 A）中的措施。

5.1 施工期間的環境保護措施

5.1.1 塵埃

九龍東南發展修訂計劃整體可行性研究環境影響評估報告第 2.5.1 節建議在九龍東南發展的施工期間實施空氣污染管制（建造工程塵埃）規例中適當的塵埃控制和抑制措施。有關的條款將會訂定在擬建污水泵站的合約文件中。

5.1.2 噪音

九龍東南發展修訂計劃整體可行性研究環境影響評估報告第 3.6.3 節建議施工期間的噪音紓緩措施清單。施工噪音能夠通過採用寧靜設備和臨時噪音屏障等方法降低。擬建污水泵站的合約文件中將訂定有關條款，要求承建商遵守噪音管制條例及有關的附屬規例，以保證在施工期間將噪音降低至可接受的水平內。

5.1.3 水質

九龍東南發展修訂計劃整體可行性研究環境影響評估報告第 4.5.1 節建議採用專業人士環境事務諮詢委員會專業手冊 PN1/94 建造工地排水中提出的作業守則，以減少工地徑流和潛在的水質污染。在實施良好的工地安排和管理以後，可進一步將施工期間的水質影響降至最低。擬建污水泵站的施工合約文件中將訂定相關的條款，要求承建商

遵守水質管制條例、有關的附屬規例、及九龍東南發展修訂計劃整體可行性研究環境影響評估報告中建議的環境紓緩措施。

5.1.4 建築及拆卸物料

九龍東南發展修訂計劃整體可行性研究環境影響評估報告第 7.4.1 節論述了在九龍東南發展施工期間的廢物管理措施。施工合約文件中將訂定有關的條款，要求承建商遵守廢物處置條例、有關的附屬規例、及九龍東南發展修訂計劃整體可行性研究環境影響評估報告第 7.4.1 節中建議的環境紓緩措施。另外，還要求承建商編制和實施一套記錄系統以監督廢物產生、循環再用和棄置的數量。同時，承建商應為其建築工人提供有關工地清潔和廢物管理程序的培訓。

5.2 運作期間的環境保護措施

5.2.1 氣味

根據九龍東南發展修訂計劃整體可行性研究環境影響評估報告第 2.5.2.10 節，污水泵站產生的氣味主要來自濕井、進水池和隔濾池等。這些氣味來源應加以密封，並在氣味排放之前先將其送入氣味洗滌裝置以去除氣味。

5.2.2 噪音

九龍東南發展修訂計劃整體可行性研究環境影響評估報告第 3.10.2.2 節提出了在污水泵站運作期間的噪音紓緩措施如下：

- 擬建污水泵站的通風系統排氣口和出入通道將遠離附近的噪音敏感受體；
- 在擬建污水泵站的排氣口安裝隔音百葉簾；及
- 將水泵和機械通風系統安置於地庫或密閉的建築物中。

5.2.3 水質

擬建的五個污水泵站將收集來自啟德機場北面停機坪區域的污水，然後輸送至現有的土瓜灣初級處理廠，經處理後排放。正常情況下，預計污水泵站將不會產生對水質不利的影響。但在不正常情況下，如污水管損壞、污水管堵塞、設備故障、電力故障及高雨季流量等，均可導致污水溢流，對鄰近地區造成不利的環境影響。根據九龍東南發展修訂計劃整體可行性研究環境影響評估報告第 4.4.3.61 節，擬建污水泵站的緊急溢流排放點將會遠離觀塘避風塘、小艇船塢、翠屏明渠渠口周圍的港灣及現有和其它擬建的海水取水口。

另外，渠務署將進行定期的監測、檢查和維修以確保系統運作正常。雖然水污染管制條例列明在緊急情況下容許進行緊急溢流繞流如持續的電力故障，但這做法應視作最後辦法。為減少潛在溢流引起的水質污染，應遵從下列的建議：

- 安裝備用泵和隔濾裝置以便於設備的保養及維修；
- 以雙重電源方式提供備用電源；
- 對於不是 24 小時有人看守的污水泵站，將會安裝遙測系統，接連到其他 24 小時有人看守的設施；
- 在溢流繞流器上安裝手動清潔隔濾裝置，以隔濾漂浮固體；及
- 在許可的情況下，將溢流排放管接連在封閉暗渠的低水位線以下的高度。

5.2.4 廢物

所有隔濾物將恰當地密封及處置以避免氣味滋擾和發生不衛生的情況。經過污水泵站內密封環境下的處理後，隔濾物將會棄置於垃圾堆填區。

5.2.5 視覺

根據九龍東南發展修訂計劃整體可行性研究環境影響評估報告第 13.11 節，擬建污水泵站的設計將會採用高級的建築粉飾，使之成為當地景觀中的一個特色。另外，在其四周種植高密度的樹木和灌木以提供屏障和視覺舒緩。

6. 使用先前批准的環境影響評估報告

九龍東南發展修訂計劃整體可行性研究環境影響評估報告已在 2001 年 9 月獲得環境保護署批准。作為整個九龍東南發展的一部分，該可行性研究項目中絕大部分的潛在環境影響已經在該份環境影響評估報告中進行了評估，包括空氣質素影響、噪音影響、水質影響、污水收集、廢物管理影響、土地污染影響、文化古蹟影響、景觀和視覺影響、環境監測和審核以及建議的環境舒緩措施計劃表。

7. 潛在環境影響及其舒緩措施彙總

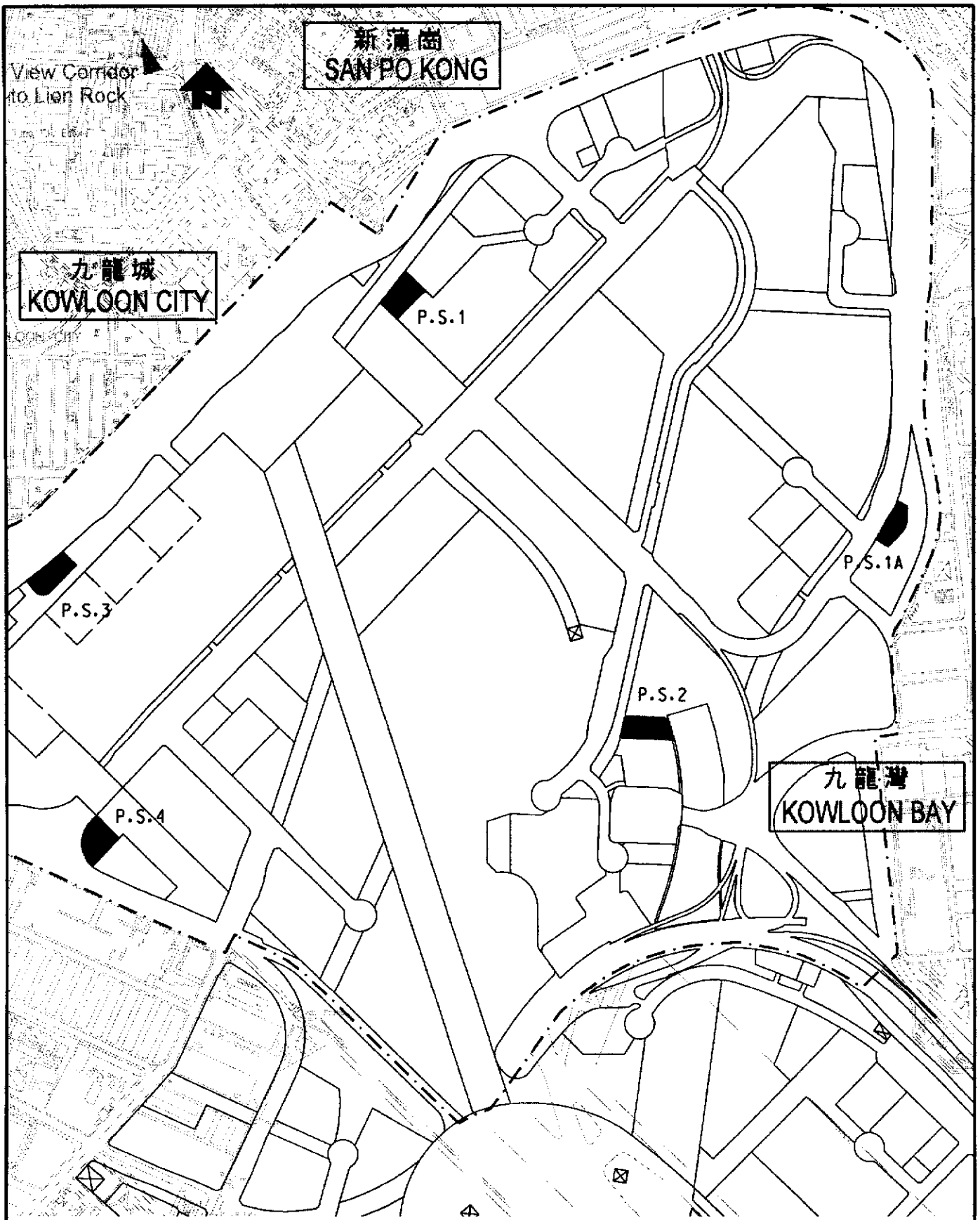
在擬建污水泵站的設計和監工合約中潛在的環境影響和建議的環境舒緩措施彙總於下表。

項目階段	潛在環境影響	舒緩措施	在本項目簡介中的章節
施工	輕微的塵埃滋擾	於合約訂定時進行管制	5.1.1
	輕微的噪音滋擾	於合約訂定時進行管制	5.1.2
	輕微的水質影響	於合約訂定時進行管制	5.1.3
	輕微的廢物影響	於合約訂定時進行管制	5.1.4
運作	氣味滋擾	1. 將氣味源密封 2. 安裝氣味洗滌裝置以去除氣味	5.2.1
	輕微的噪音影響	1. 污水泵站的通風系統排氣口和出入通道遠離噪音敏感受體 2. 在污水泵站的排氣口安裝隔音百葉簾 3. 將水泵和機械通風系統安置於地庫或密閉的建築物中	5.2.2

項目階段	潛在環境影響	紓緩措施	在本項目簡介中的章節
	緊急污水繞流產生的水質影響	1. 安裝備用泵和隔濾以方便設備的維護和修理 2. 採用雙重電源方式的備用電源 3. 在不是 24 小時有人看守的污水泵站安裝遙測系統 4. 在溢流繞流器上安裝手動清潔隔濾裝置，以隔濾漂浮固體 5. 在許可的情況下，將溢流排放管接連在封閉暗渠的低水位線以下的高度	5.2.3
	隔濾物的產生	1. 將隔濾物密封 2. 恰當的處置及棄置於堆填區	5.2.4
	視覺影響	1. 採用高級的建築粉飾將污水泵站設計成當地景觀的一個特色 2. 在四週種植高密度的樹木和灌木	5.2.5

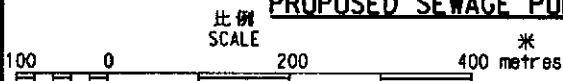
當實施了上述將訂定在擬建污水泵站設計和監工合約中的環境紓緩措施後，預計在污水泵站的施工期間和運作期間均不會產生任何不可克服的環境影響。

Drawings



擬建污水泵站位置圖

PROPOSED SEWAGE PUMPING STATION SITE LOCATION



圖例：
LEGEND：
 擬建污水泵站位置
 PROPOSED SEWAGE PUMPING STATION SITE LOCATION

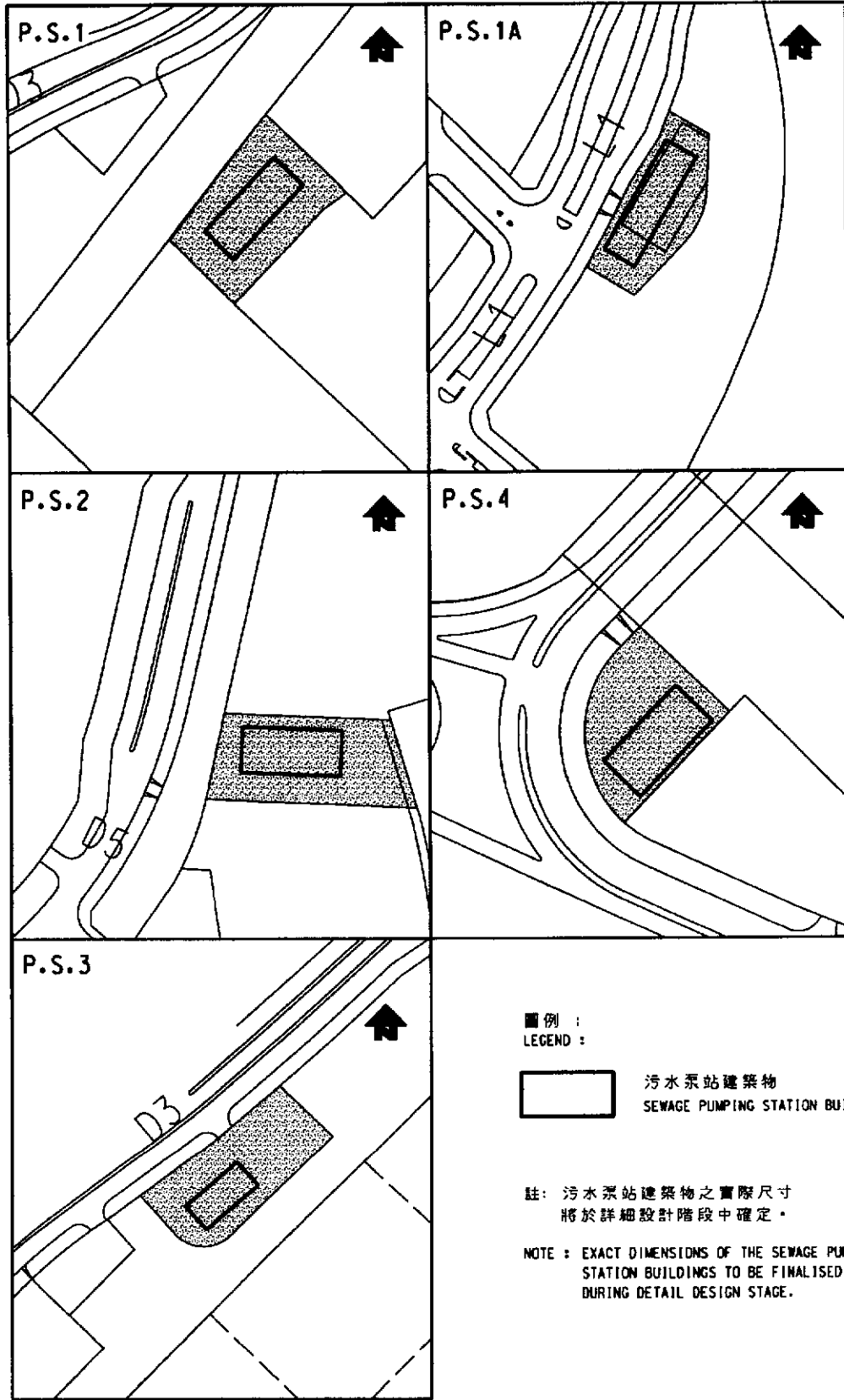
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Territory Development
Department, Hong Kong
九龍拓展處
KOWLOON DEVELOPMENT OFFICE

項目名稱
Project title
 顧問合約編號 CE 42/2000 (CE)
 九龍東南發展
 啓禧橋場北部停機坪的基礎設施
 Agreement No. CE 42/2000 (CE)
 South East Kowloon Development
 Infrastructure at North Apron
 Area of Kai Tak Airport

圖號
Drawing no. **23462 NI/07/K/026**
 顧問
Consultant
ARUP
 奧雅納工程顧問
Ove Arup & Partners Hong Kong Limited



擬建污水泵站的規劃佈局圖
PROPOSED SEWAGE PUMPING STATION LAYOUT PLANS



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香港機場北部停機坪的基礎設施
Agreement No. CE 42/2000 (CE)
South East Kowloon Development
Infrastructure at North Apron
Area of Kai Tak Airport

圖號
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顧問
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