The Government of the Hong Kong Special Administrative Region

Civil Engineering and Development Department

Improvement Works at Cheung Chau Tung Wan Beach, Kwun Yam Beach and Lo So Shing Beach

Project Profile

August 2009

Contents

1. Basic Information 3

1.1 Project Title 3
1.2 Purpose and Nature of the Project 3
1.3 Name of Project Proponent 3
1.4 Location of Project, Scale of Project and History of Site 3
1.5 Number and Types of Designated Projects to be Covered by the Project Profile 3
1.6 Name and Telephone Number of Contact Persons 3
1.7 Estimated Cost 4

2. Outline of Planning and Implementation Programme 4

3. Major Impacts on the Environment 4

3.1 Cheung Chau Tung Wan Beach 4
3.2 Kwun Yam Beach 4
3.3 Lo So Shing Beach 5

4. Construction Method 5

5. Possible Impacts on the Environment 6

5.1 Ecology 6
5.2 Water Quality 6
5.3 Noise 7
5.4 Air Quality 8
5.5 Odour 8
5.6 Traffic 8
5.7 Fisheries 8
5.8 Visual Appearance 8
5.9 Cultural Heritage 8
5.10 Other Residual Impacts 9

6. Environmental Protection Measures to be Incorporated in the Design and Any Further Environmental Implications 9

6.1 Measures to Minimize Environmental Impacts 9
6.2 Possible Severity, Distribution and Duration of Environmental Effects 10
6.3 Public Consultation 10
6.4 History of Similar Project 10

7. Use of Previously Approved EIA Reports 10

8. Conclusion 10

9. Appendices

Appendix A
Drawing No. PW-FD09-063 – Improvement Works at Cheung Chau Tung Wan Beach General Layout
Drawing No. PW-FD09-064 – Improvement Works at Kwun Yam Beach General Layout
Drawing No. PW-FD09-065 – Improvement Works at Lo So Shing Beach General Layout

Appendix B
Drawing No. PW-FD09-066 – Improvement Works at Cheung Chau Tung Wan Beach Location of Sensitive Receivers
Drawing No. PW-FD09-067 – Improvement Works at Kwun Yam Beach Location of Sensitive Receivers
Drawing No. PW-FD09-068 – Improvement Works at Lo So Shing Beach Location of Sensitive Receivers

Appendix C
Figure 1.1 – Visual Illustration of the Rock Outcrop at Cheung Chau Tung Wan Beach
Figure 1.2 – Visual Illustration of the Rock Outcrops at Kwun Yam Beach
Figure 1.3a – Visual Illustration of the Rock Outcrops at Lo So Shing Beach
Figure 1.3b – Visual Illustration of the Rock Outcrops at Lo So Shing Beach

Appendix D
Figure 2.1a – Visual Illustration of Noise Sensitive Receivers at Cheung Chau Tung Wan Beach
Figure 2.1b – Visual Illustration of Noise Sensitive Receivers at Cheung Chau Tung Wan Beach
Figure 2.2 – Visual Illustration of Noise Sensitive Receives at Kwun Yam Beach
Figure 2.3 – Visual Illustration of Noise Sensitive Receives at Lo So Shing Beach

1. Basic Information

1.1 Project Title

Improvement Works at Cheung Chau Tung Wan Beach, Kwun Yam Beach and Lo So Shing Beach (The Project).

1.2 Purpose and Nature of the Project

The purpose of the Project is to enhance the safety of swimmers by trimming and removing the rock outcrops within the boundary of Cheung Chau Tung Wan Beach, Kwun Yam Beach and Lo So Shing Beach.

1.3 Name of Project Proponent

Leisure and Cultural Services Department (LCSD) is the project proponent. Civil Engineering and Development Department (CEDD) is the works agent for the planning and implementation of the Project.

1.4 Location of Project, Scale of Project and History of Site

Cheung Chau Tung Wan Beach and Kwun Yam Beach are located on the east coast of Cheung Chau, while Lo So Shing Beach is located on the west coast of Lamma Island. Location plans for the Project are shown on drawing no. PW-FD09-063, 064 and 065 in **Appendix A**. The site area of Cheung Chau Tung Wan Beach, Kwun Yam Beach and Lo So Shing Beach is respectively about 12,100m^2, 9,960m^2 and 8,420m^2. The total amount of the rock outcrops to be removed is respectively about 5m^3, 300m^3 and 450m^3 with similar quantity of imported sand to replenish the sand surface of Kwun Yam Beach and Lo So Shing Beach. No work has been carried out within the sites.

1.5 Number and Types of Designated Projects to be Covered by the Project Profile

The Project comprising dredging operation within the boundary of existing bathing beaches and is classified as a designated project under Section C.12 of Schedule 2, Environmental Impact Assessment (EIA) Ordinance. Only one designated project is involved.

1.6 Name and Telephone Number of Contact Persons

Port Works Division, CEDD
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1.7 Estimated Cost

$ 2.5 million (at December 2008 price level).

2. Outline of Planning and Implementation Programme

2.1 The planning and implementation of the Project will be carried out by CEDD.

2.2 The works is scheduled to commence in November 2009 and for completion in January 2010.

3. Major Impacts on the Environment

3.1 Cheung Chau Tung Wan Beach

Sensitive receivers which are located within 500m of the Cheung Chau Tung Wan Beach are shown on drawing no. PW-FD09-66 in **Appendix B**. They include:-

3.1.1 Hotel/Hospital/Residential Buildings/School

The nearest sensitive receivers are Warwick Hotel, St John Hospital, a residential building and Sacred Heart School. They are located at a distance of 126m, 50m, 82m and 159m respectively from the rock outcrop [Drawing no. PW-FD09-66]. They are likely to be sensitive to air quality and noise.

3.2 Kwun Yam Beach

Sensitive receivers which are located within 500m of the Kwun Yam Beach are shown on drawing no. PW-FD09-67 in **Appendix B**. They include:-

3.2.1 Coastal Protection Area

The Coastal Protection Area (CPA) comprises flat rock area and other visually important landscape features. It is located at a distance of about 36m from the nearest boundary of the proposed site [Drawing no. PW-FD09-67]. However, no impact on the CPA is anticipated as the proposed works only involve removing the rock outcrops and

replenishing with the imported sand on a small area of the sand surface within the swimming zone of the bathing beach.

3.2.2 Youth Centre/Residential Buildings/Hotel

The nearest sensitive receivers are the Youth Centre Caritas Oi Fei Camp, the residential buildings and Warwick Hotel. They are located at a distance of 57m, 59m and 119m respectively from the nearest boundary of the proposed site [Drawing no. PW-FD09-67]. They are likely to be sensitive to air quality and noise.

3.3 Lo So Shing Beach

Sensitive receivers which are located within 500m of the Lo So Shing Beach are shown on drawing no. PW-FD09-68 in **Appendix B**. They include:

3.3.1 Coastal Protection Area/Conservation Area/Site of Special Scientific Interest

The Coastal Protection Area (CPA), the Conservation Area (CA) and the Site of Special Scientific Interest (SSSI) are located at close proximity to the boundary of the proposed site [Drawing no. PW-FD09-68]. However, no impact on the CPA, CA and SSSI is anticipated as the proposed works only involve removing the rock outcrops and replenishing with the imported sand on the sand surface within the swimming zone of the bathing beach.

3.3.2 Residential Buildings

The nearest residential buildings are the village houses located at a distance of 195m from the nearest boundary of the proposed site [Drawing no. PW-FD09-68]. The village houses are likely to be sensitive to air quality and noise.

4. Construction Method

The trimming and removal of rock outcrops at Cheung Chau Tung Wan Beach, Kwun Yam Beach and Lo So Shing Beach will be carried out during low tide periods by 1 excavator, 1 excavator mounted (hydraulic) breaker and 1~2 village vehicles to remove the disintegrated rock fragments which are to be delivered and disposed by barge to the public landfills. The maximum excavation rate will not exceed $50m^3$/day. The filling of imported sand to replenish the sand surface of Kwun Yam Beach and Lo So Shing Beach will be carried out by 1 excavator, 1 bulldozer and 1 conveyor belt barge. The imported sand will be delivered by sea from the conveyor belt barge to replenish the sand surface. No bulldozer will be working at Cheung Chau Tung Wan Beach as filling of imported sand is not required.

5. Possible Impacts on the Environment

As the nature and scale of the Project is small, it is expected that the impacts on the environment during the construction period is minimal. Details are as follows:

5.1 Ecology

5.1.1 Cheung Chau Tung Wan Beach

Figure 1.1 in **Appendix C** shows the visual illustration of the rock outcrop at Cheung Chau Tung Wan Beach. One rock outcrop at Cheung Chau Tung Wan Beach is to be trimmed and removed only, which will be carried out as land based excavation when the rock outcrop is exposed during low tide. The volume of rock outcrop to be removed is about $5m^3$. No species of conservation importance are observed on the rock outcrop surface [Figure 1.1].

5.1.2 Kwun Yam Beach

Figures 1.2 in **Appendix C** presents the rock outcrops at Kwun Kam Beach. The volume of rock outcrops that are to be trimmed and removed is about 300 m^3 with most of them to be removed as land based excavation when they are exposed during low tide. A few rock outcrops are submerged in the water [Figure 1.2]. Intertidal and diving inspection will be conducted by a qualified ecologist to confirm that there are no species of conservation importance within/adjacent to the works area before the commencement of the improvement works.

5.1.3 Lo So Shing Beach

Figure 1.3a and 1.3b in **Appendix C** shows the visual illustration of the rock outcrops at Lo So Shing Beach. The volume of rock outcrops that are to be trimmed and removed is about 450 m^3, which will be carried out as land based excavation when the rock outcrop is exposed during low tide. In view of the close proximity of the CPA, a marine ecological survey will be conducted by a qualified ecologist to assess the impact on the CPA before the commencement of the improvement works. Intertidal and diving inspection will be conducted by a qualified ecologist to confirm that there are no species of conservation importance within/adjacent to the works area before the commencement of the improvement works.

5.2 Water Quality

The Project involves only trimming of the rock outcrops and restoration of the sand surface by replenishing with the imported sand within the swimming zone of the bathing beaches. As the works will be carried out during dry season from November

2009 to January 2010, impact from surface runoff is avoided. In addition, due to the works to be carried out during low tide condition, it is expected that the impact to water quality is minimal. Before filling with the imported sand, samples will be taken for check on the sand contents. Regular checks will also be made that the imported sand is free from any organic content and contaminated materials. The disturbance to the seabed below the sand surface will be minimal and turbidity of water will not be increased significantly. To further safeguard the water quality in the area, silt curtain will be installed and environmental monitoring will be implemented.

5.3 Noise

5.3.1 Cheung Chau Tung Wan Beach

Figure 2.1a and 2.1b in **Appendix D** shows the visual illustration of the noise sensitive receivers at Cheung Chau Tung Wan Beach. St John Hospital is the nearest sensitive receiver located at about 50m from the rock outcrop [Drawing no. PW-FD09-66]. However, the Hospital is concealed behind the playground [Figure 2.1a], which acts as a buffer zone of the noise impacts. In addition, due to the small scale of works involving the removal of about 5 m^3 of rock, the process will be completed within a couple of days and will not generate significant noise problem. It is expected that the noise impact to the surrounding is very short term and is minimal.

5.3.2 Kwun Yam Beach

Figure 2.2 in **Appendix D** shows the visual illustration of the noise sensitive receivers at Kwun Yam Beach. The youth centre and nearest residential building is about 57m and 59m respectively from the boundary of the bathing beach [Drawing no. PW-FD09-67]. However, all the noise sensitive receivers are on the top of the hill with the existing topography [Figure 2.2] acts as natural noise barriers. It is expected that the noise impact to the surrounding is minimal.

5.3.3 Lo So Shing Beach

Figure 2.3 in **Appendix D** shows the visual illustration of the noise sensitive receivers at Lo So Shing Beach. The noise sensitive receivers are the village houses located 195m from the boundary of the bathing beach [Drawing no. PW-FD09-68]. However, the village houses are situated at the valley behind the hill with the existing topography [Figure 2.3] acts as natural noise barriers. It is expected that the noise impact to the surrounding is minimal.

5.3.4 Construction Plants

It is planned that the following plants would be used during the construction: -

Major construction activities	Construction plant likely to be used	Anticipated Noise Level (dB)
Removal of rock outcrops and fragments	Excavator + excavator mounted (hydraulic) breaker + village vehicles	69-75
Filling of imported sand (no sand filling at Cheung Chau Tung Wan Beach)	Excavator + bulldozer + conveyor belt barge	62-68

5.4 Air Quality

In view of small scale of the excavation and filling works, dust emission from the site is minimal. Moreover, the emitted gas from the plant is expected to be minimal as the number of plant on site is small.

5.5 Odour

As daily excavation rate is small, no odour problem is expected.

5.6 Traffic

The impact on marine traffic is considered insignificant because the marine plant only involves delivery of the construction plant and the imported sand in the Project. As the transportation of excavated materials will be restricted within the three bathing beaches, no impact to land traffic is envisaged.

5.7 Fisheries

The improvement works will be carried out within the swimming zones of the bathing beaches, no fish culture zone is identified in the vicinity.

5.8 Visual Appearance

Upon completion of trimming and removal of the rock outcrops, the area of sand surface will become larger and the visual appearance of the bathing beaches will be improved.

5.9 Cultural Heritage

In view of the shallow water in the vicinity and the Project involves trimming and removal of rock outcrops and only restoration of the sand surface with the imported sand within the swimming zones of the bathing beaches, no marine archaeological antiquities are expected within the site. If any antiquities are discovered in the course of the construction works, Antiquities and Monuments Office of Leisure and Cultural Services Department will be informed promptly.

5.10 Other Residual Impacts

No other operational impacts are identified.

6. Environmental Protection Measures to be Incorporated in the Design and Any Further Environmental Implications

6.1 Measures to Minimize Environmental Impacts

6.1.1 Ecology

No marine ecological impacts are anticipated during the improvement works at Cheung Chau Tung Wan Beach because only land based excavation will be involved to remove the rock outcrop exposed on the beach. Marine ecological surveys will be conducted by qualified ecologists at Kwun Yam Beach and Lo So Shing Beach before the commencement of the improvement works.

6.1.2 Water Quality

It is expected that there will be no significant impact on water quality during the works. However, to further safeguard the surrounding water, the following measures will be implemented:-

(a) Installation of silt curtain around the site

Most of the rock outcrops will be removed as land based excavation while they are exposed during low tides. For the few rock outcrops at Kwun Yam Beach and Lo So Shing Beach that are submerged in the water, silt curtain will be installed in order to minimize the water quality impact. The extent of the silt curtain depends on the size of the rock outcrops. With its bottom side reaching the sand surface and its top supported by floating booms, silt curtain can accommodate tidal rise and fall, and the egress of turbid water is limited.

(b) Water quality monitoring throughout the construction period

The water quality monitoring programme in this Project will follow the "Environmental Monitoring and Audit, Guidelines for Development Projects in Hong Kong". Baseline monitoring, impact monitoring and post-project monitoring on turbidity and suspended solids will be carried out 2 weeks prior to the construction, during the construction and 2 weeks after the construction respectively at mid-flood and mid-ebb tides, at a frequency of 3 days per week. Baseline Monitoring proposal, Environmental Monitoring & Audit (EM&A)

manual and monthly EM&A reports will be submitted to Environmental Protection Department for comments.

6.1.3 Noise

No noise impacts are anticipated during the construction works at Kwun Yam Beach and Lo So Shing Beach because the sensitive receivers are screened by the existing topography, which acts as natural noise barriers. The anticipated noise impact during the construction works at Cheung Chau Tung Wan Beach involving the trimming of $5m^3$ of rock outcrop is very short term and can be minimised by restricting the working hours of the removal works.

6.2 Possible Severity, Distribution and Duration of Environmental Effects

In view of the small scale of works that will be completed in less than 2 months, any environmental impacts, which may be caused by the Project, should be short-termed, localized and minimal.

6.3 Public Consultation

Islands District Council's District Facilities Management Committee (DFMC) was consulted on 11 May 2009. The DFMC had no objection to the Project.

6.4 History of Similar Project

No Project of similar nature was carried out near the Cheung Chau Tau Wan Beach, Kwun Yam Beach and Lo So Shing Beach.

7. Use of Previously Approved EIA Reports

No previously approved EIA report has been conducted in Cheung Chau Tung Wan, Kwun Yam Wan and Lo So Shing.

8. Conclusion

8.1 The Project involves the removal of about 750 m^3 of rock outcrops at Cheung Chau Tung Wan Beach, Kwun Yam Beach and Lo So Shing Beach and is required mainly to enhance the safety to swimmers.

8.2 Removal of the rock outcrops will be carried out mainly as land based excavation with a few submerged rock outcrops to be removed by dredging. Environmental impacts

mainly on ecological, water quality, noise and air quality arising from the Project are minimal with the implementation of the following mitigation measures:

(i) use of quiet machinery, conducting the works during daytime and no works during Sundays or general holidays; and

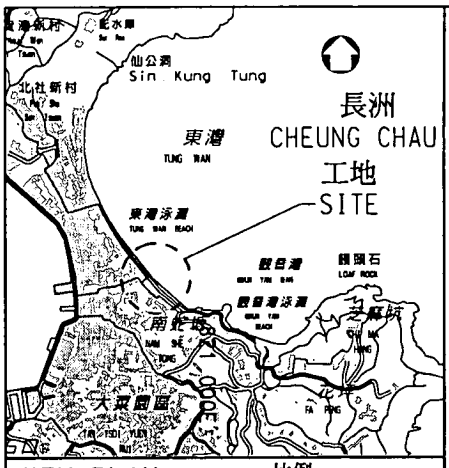
(ii) installation of a silt curtain

8.3 As the environmental impact arising from the Project is unlikely to be adverse, direct application for an environmental permit under EIA Ordinance will be adopted.

Appendix A

Drawing No. PW-FD09-063
Drawing No. PW-FD09-064
Drawing No. PW-FD09-065

- General Layout



KEY PLAN 索引圖 比例 SCALE 1:25 000

改善工程範圍的座標 CO-ORDINATES OF SEABED TO BE IMPROVED		
點 POINT	東距(米) EASTING (m)	北距(米) NORTHING (m)
A	821 225	807 841
B	821 275	807 883
C	821 425	807 708
D	821 380	807 712
E	821 364	807 710
F	821 332	807 736
G	821 246	807 811

821 500E

808 500N

808 000N

807 500N

東灣
TUNG WAN

長洲東灣泳灘
CHEUNG CHAU
TUNG WAN BEACH

擬議的工程範圍
PROPOSED BOUNDARY OF SITE

外露岩石
ROCK OUTCROP

B
A
C
E
D
F
G

0 50 100 150 200 250 m

1 : 5 000 SCALE BAR 比例尺

no. 編號	date 日期	description 說明	checked 核對	approved 核准

title 名稱

長洲東灣泳灘改善工程
- 總平面圖

IMPROVEMENT WORKS AT
CHEUNG CHAU TUNG WAN BEACH
- GENERAL LAYOUT

	name 姓名	initial 簡簽	date 日期
designed 設計	K S CHENG		3.8.09
drawn 繪畫	C K LI		3.8.09
checked 核對	S K TONG		3.8.09
approved 核准	S K LAM		3.8.09

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PORT WORKS DIVISION 海港工程部
CIVIL ENGINEERING OFFICE 土木工程處

drawing no. 圖則編號
PW-FD09-063

scale 比例
1:5 000

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CIVIL ENGINEERING AND DEVELOPMENT DEPARTMENT
土木工程拓展署

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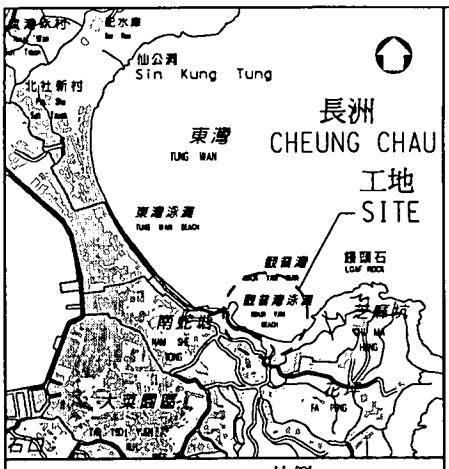

KEY PLAN 索引圖 比例 SCALE 1:25 000

821 500E

822 000E

808 000N

807 500N

改善工程範圍的座標 CO-ORDINATES OF SEABED TO BE IMPROVED		
點 POINT	東距(米) EASTING (m)	北距(米) NORTHING (m)
A	821 498	807 657
B	821 553	807 694
C	821 702	807 643
D	821 674	807 602
E	821 654	807 598
F	821 602	807 612
G	821 534	807 639
H	821 526	807 645

擬議的工程範圍
PROPOSED BOUNDARY OF SITE

觀音灣
KWUN YAM WAN

觀音灣泳灘
KWUN YAM BEACH

0 50 100 150 200 250 m

1 : 5 000 SCALE BAR 比例尺

no. 編號	date 日期	description 說明	checked 核對	approved 核准

title 名稱

長洲, 觀音灣泳灘改善工程
- 總平面圖

IMPROVEMENT WORKS AT
KWUN YAM BEACH, CHEUNG CHAU
- GENERAL LAYOUT

	name 姓名	initial簽	date 日期
designed 設計	K S CHENG		3.8.09
drawn 繪畫	C K LI		3.8.09
checked 核對	S K TONG		3.8.09
approved 核准	S K LAM		3.8.09

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drawing no. 圖則編號
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土木工程拓展署

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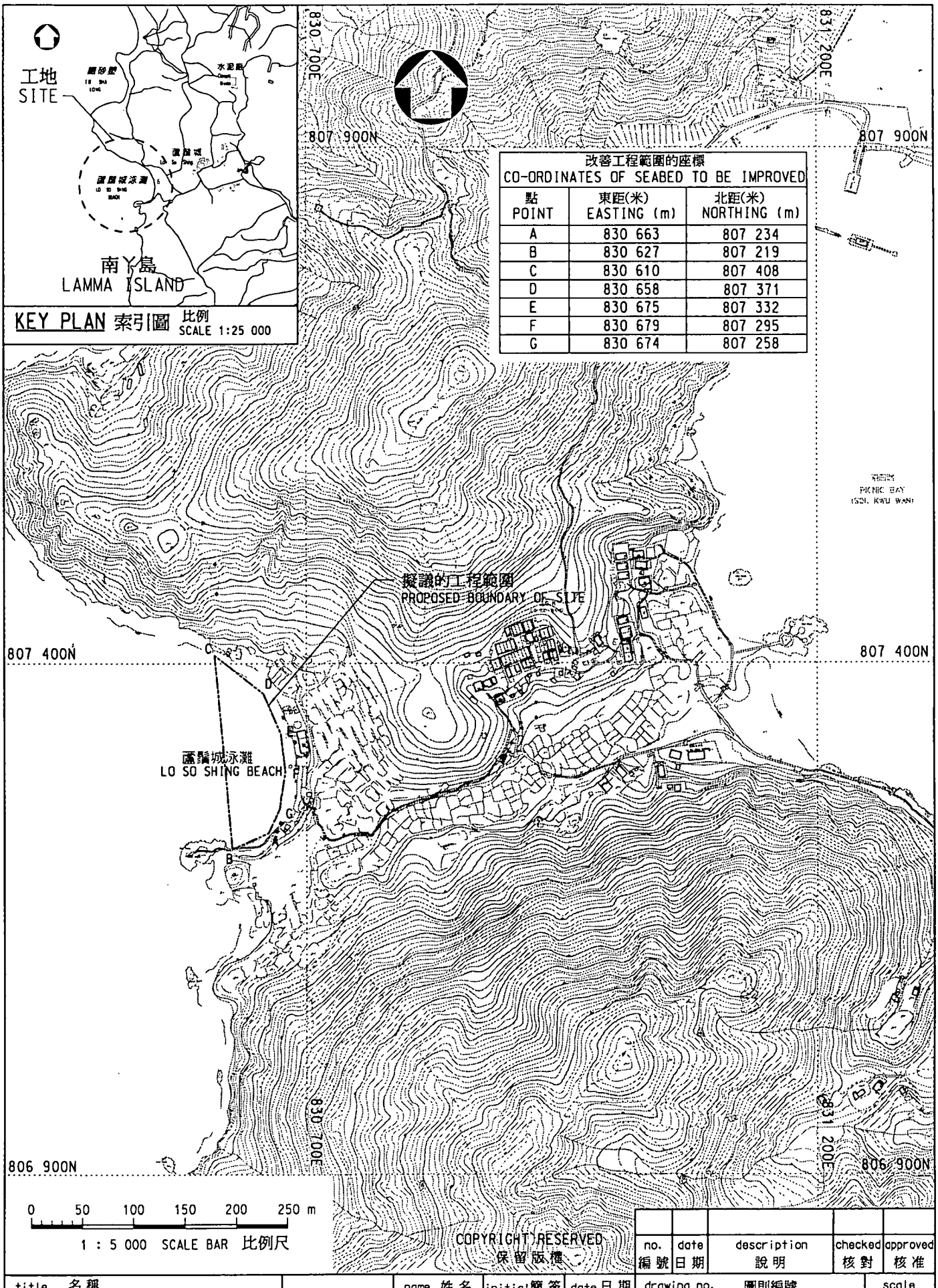

改善工程範圍的座標
CO-ORDINATES OF SEABED TO BE IMPROVED

點 POINT	東距(米) EASTING (m)	北距(米) NORTHING (m)
A	830 663	807 234
B	830 627	807 219
C	830 610	807 408
D	830 658	807 371
E	830 675	807 332
F	830 679	807 295
G	830 674	807 258

no. 編號	date 日期	description 說明	checked 核對	approved 核准

title 名稱

南丫島, 蘆鬚城泳灘改善工程
- 總平面圖

IMPROVEMENT WORKS AT
LO SO SHING BEACH,
LAMMA ISLAND
- GENERAL LAYOUT

	name 姓名	initial簡簽	date 日期
designed 設計	K S CHENG		3.8.09
drawn 繪畫	C K LI		3.8.09
checked 核對	S K TONG		3.8.09
approved 核准	S K LAM		3.8.09

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CIVIL ENGINEERING OFFICE 土木工程處

drawing no. 圖則編號
PW-FD09-065

scale 比例
1:5 000

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土木工程拓展署

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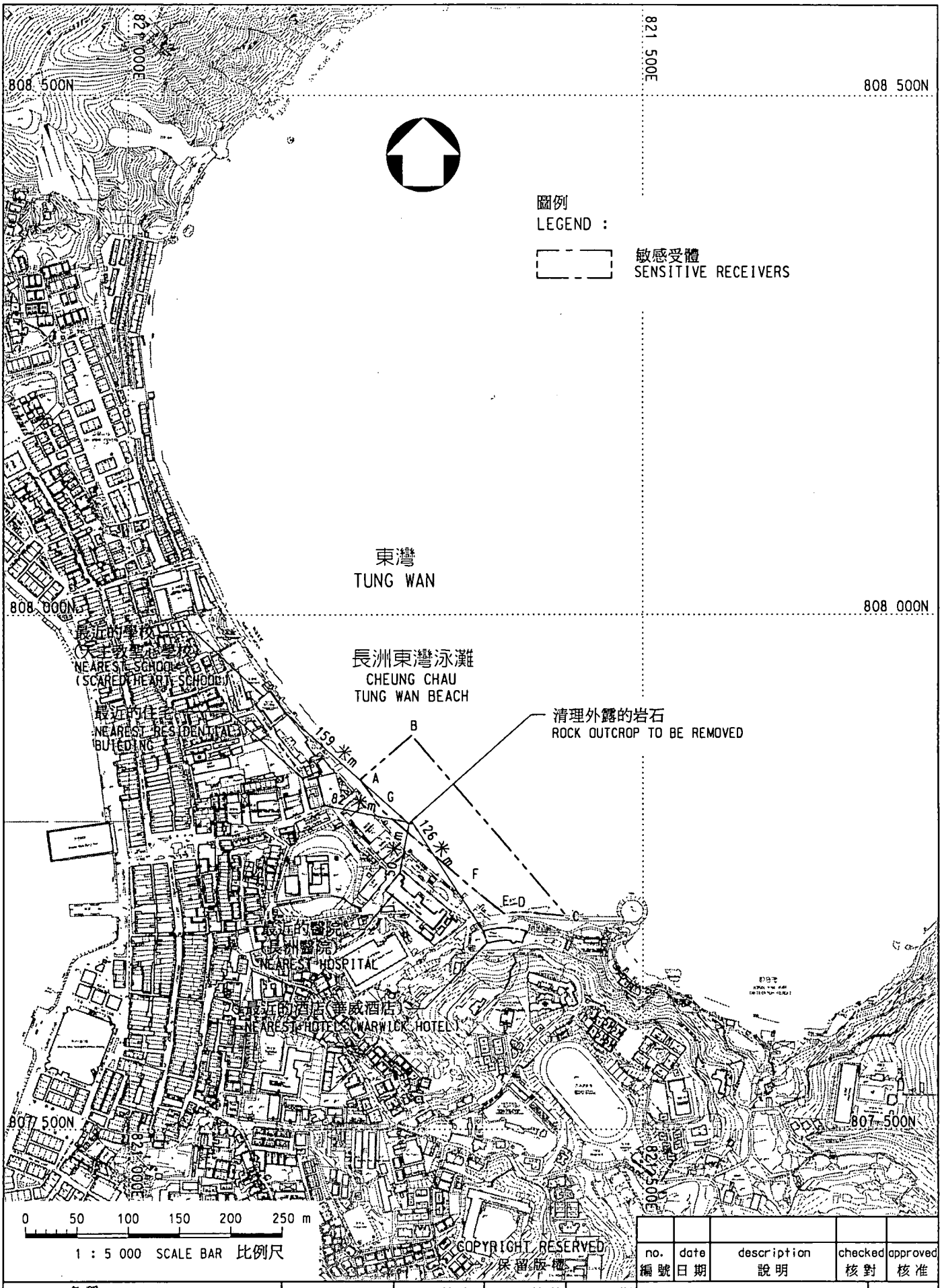
Appendix B

Drawing No. PW-FD09-066
Drawing No. PW-FD09-067
Drawing No. PW-FD09-068

- Location of Sensitive Receivers



no. 編號	date 日期	description 說明	checked 核對	approved 核准

title 名稱

長洲東灣泳灘改善工程
- 敏感受體位置圖

IMPROVEMENT WORKS AT
CHEUNG CHAU TUNG WAN BEACH
- LOCATION OF SENSITIVE
RECEIVERS

	name 姓名	initial簡簽	date 日期
designed 設計	K S CHENG		3.8.09
drawn 繪畫	C K LI		3.8.09
checked 核對	S K TONG		3.8.09
approved 核准	S K LAM		3.8.09

office
PORT WORKS DIVISION 海港工程部
CIVIL ENGINEERING OFFICE 土木工程處

drawing no. 圖則編號
PW-FD09-066

scale 比例
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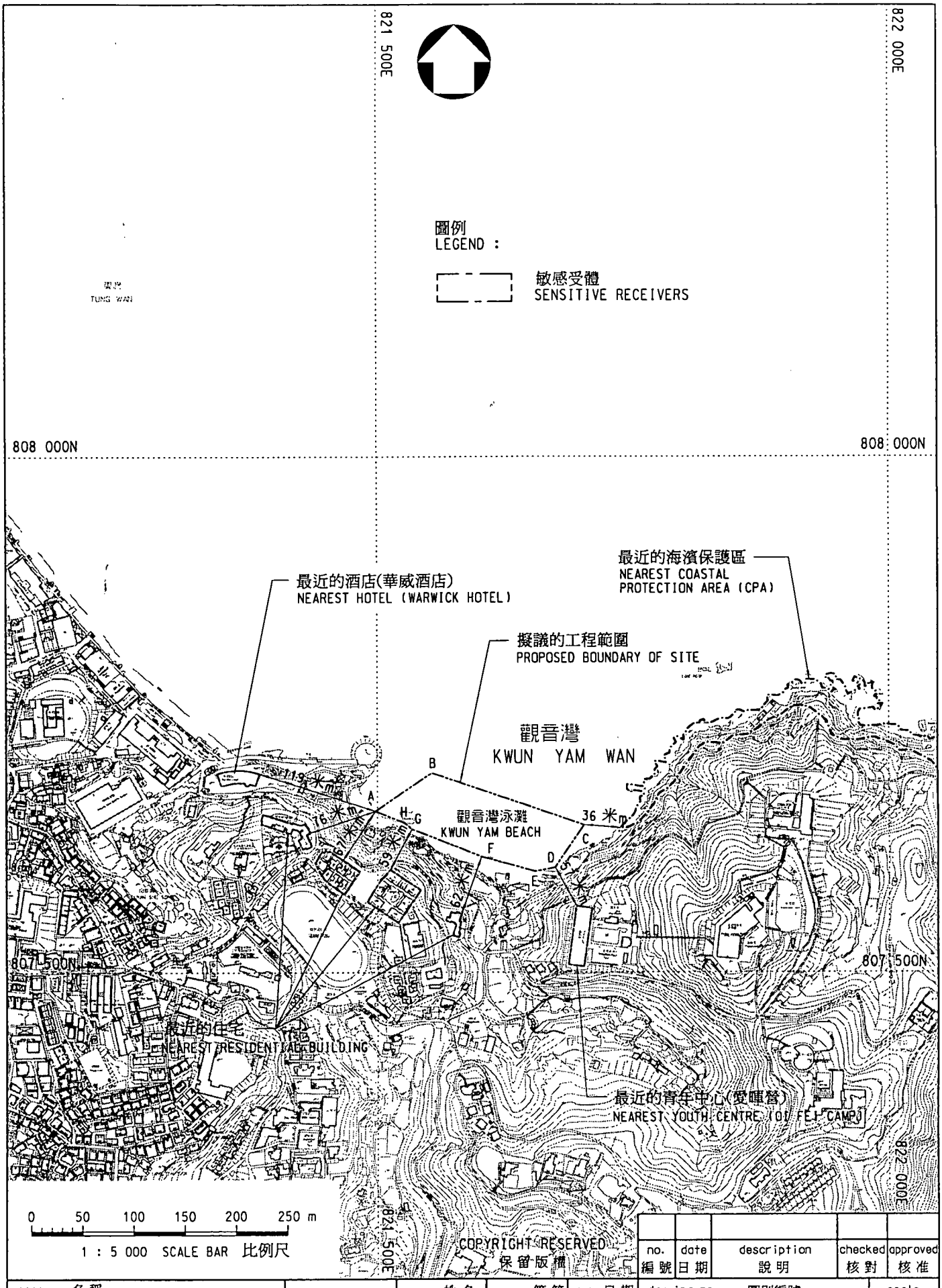

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title 名稱

南丫島, 蘆鬚城泳灘改善工程 - 敏感受體位置圖

IMPROVEMENT WORKS AT LO SO SHING BEACH, LAMMA ISLAND - LOCATION OF SENSITIVE RECEIVERS

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PORT WORKS DIVISION 海港工程部
CIVIL ENGINEERING OFFICE 土木工程處

drawing no. 圖則編號
PW-FD09-068

scale 比例
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CEDD
CIVIL ENGINEERING AND DEVELOPMENT DEPARTMENT
土木工程拓展署

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Appendix C

Figure 1.1 – Visual Illustration of the Rock Outcrop at Cheung Chau Tung Wan Beach
Figure 1.2 – Visual Illustration of the Rock Outcrops at Kwun Yam Beach
Figure 1.3a – Visual Illustration of the Rock Outcrops at Lo So Shing Beach
Figure 1.3b – Visual Illustration of the Rock Outcrops at Lo So Shing Beach

- Visual Illustration of Rock Outcrops

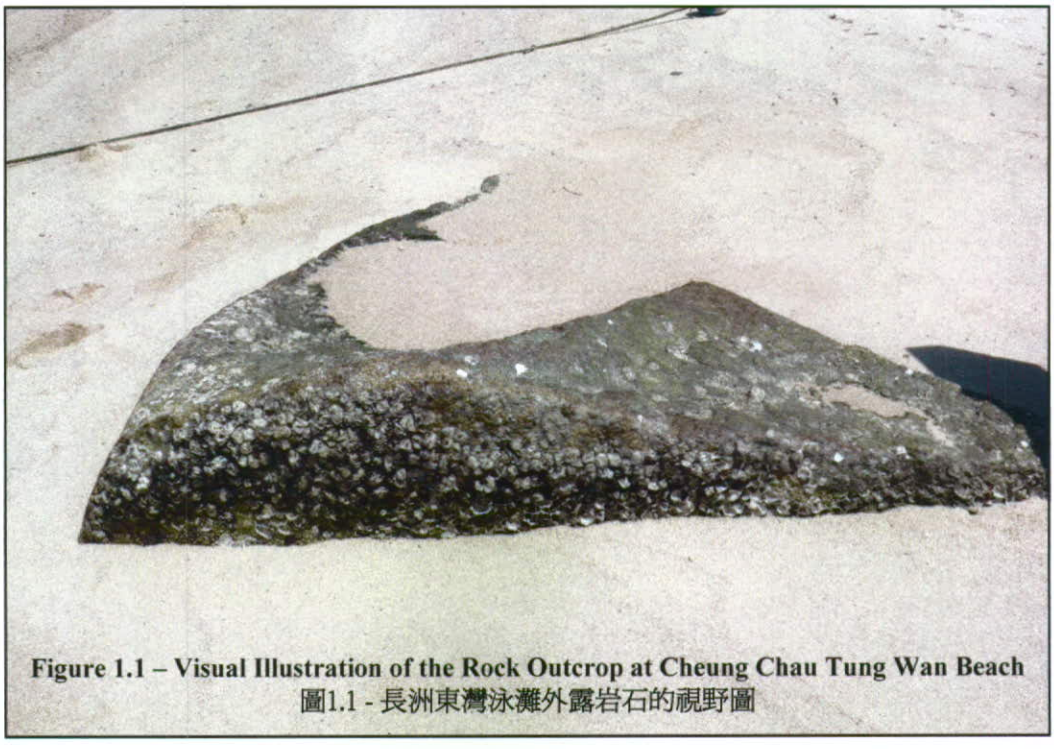

Figure 1.1 – Visual Illustration of the Rock Outcrop at Cheung Chau Tung Wan Beach
圖1.1 - 長洲東灣泳灘外露岩石的視野圖

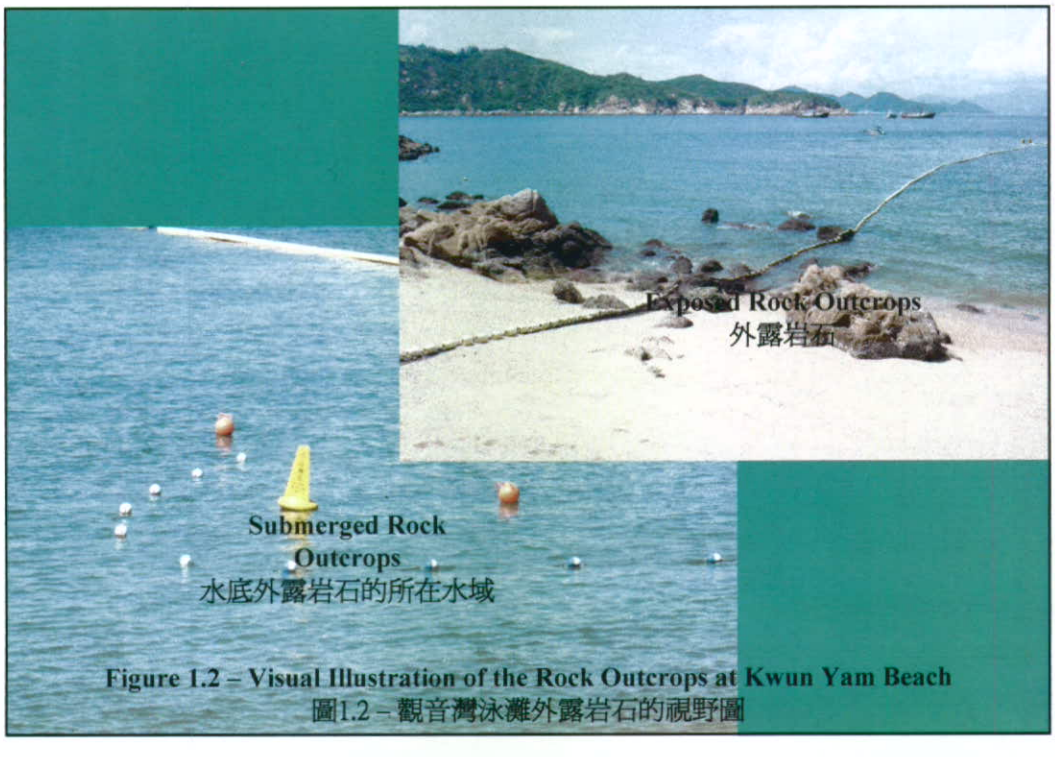

Figure 1.2 – Visual Illustration of the Rock Outcrops at Kwun Yam Beach
圖1.2 – 觀音灣泳灘外露岩石的視野圖

Figure 1.3a – Visual Illustration of the Rock Outcrops at Lo So Shing Beach
圖1.3a –蘆鬚城泳灘外露岩石的視野圖

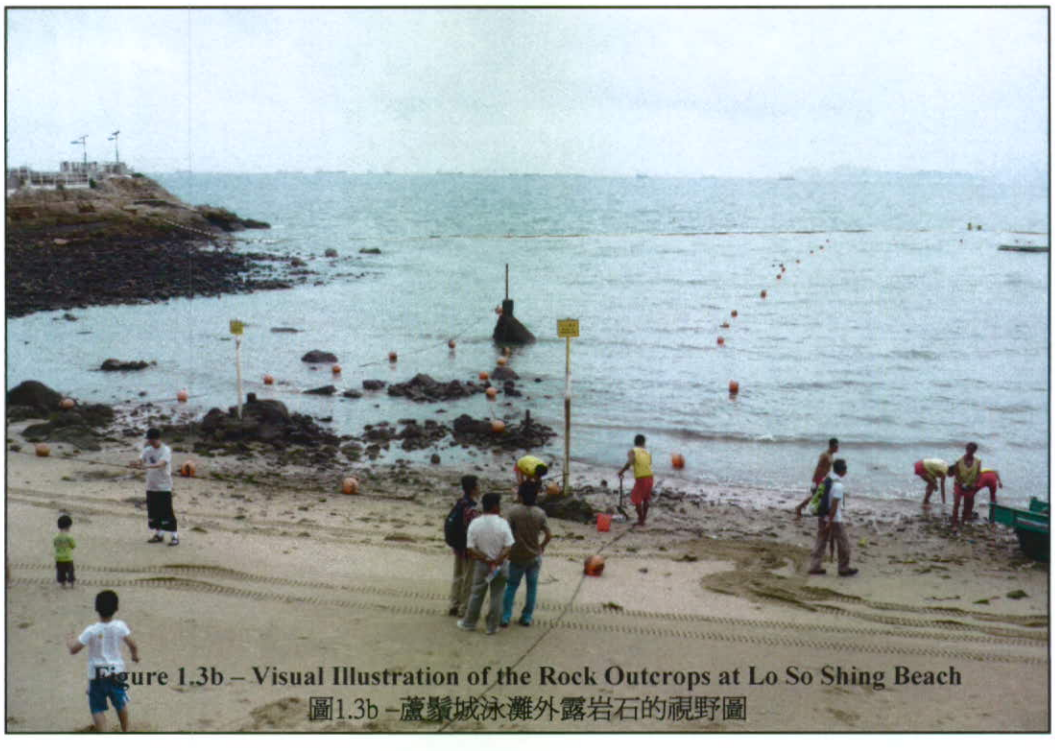

Figure 1.3b – Visual Illustration of the Rock Outcrops at Lo So Shing Beach
圖1.3b –蘆鬚城泳灘外露岩石的視野圖

Appendix D

Figure 2.1a – Visual Illustration of Noise Sensitive Receivers at Cheung Chau Tung Wan Beach
Figure 2.1b – Visual Illustration of Noise Sensitive Receivers at Cheung Chau Tung Wan Beach
Figure 2.2 – Visual Illustration of Noise Sensitive Receivers at Kwun Yam Beach
Figure 2.3 – Visual Illustration of Noise Sensitive Receivers at Lo So Shing Beach

- Visual Illustration of Noise Sensitive Receivers

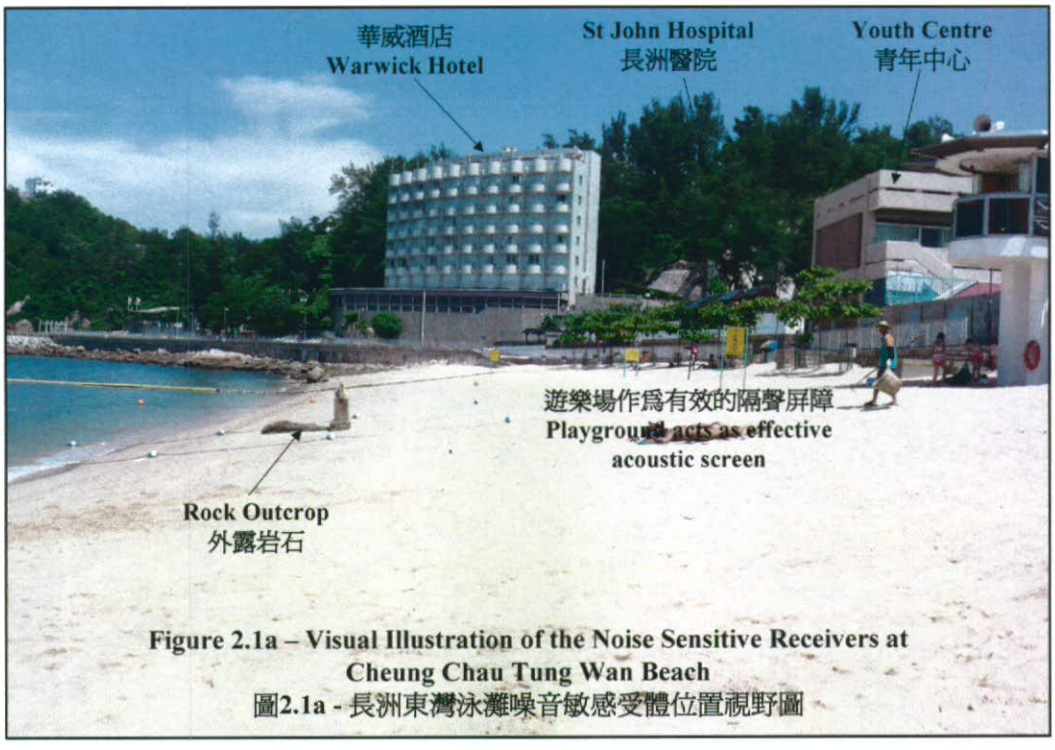

Figure 2.1a – Visual Illustration of the Noise Sensitive Receivers at Cheung Chau Tung Wan Beach
圖2.1a - 長洲東灣泳灘噪音敏感受體位置視野圖

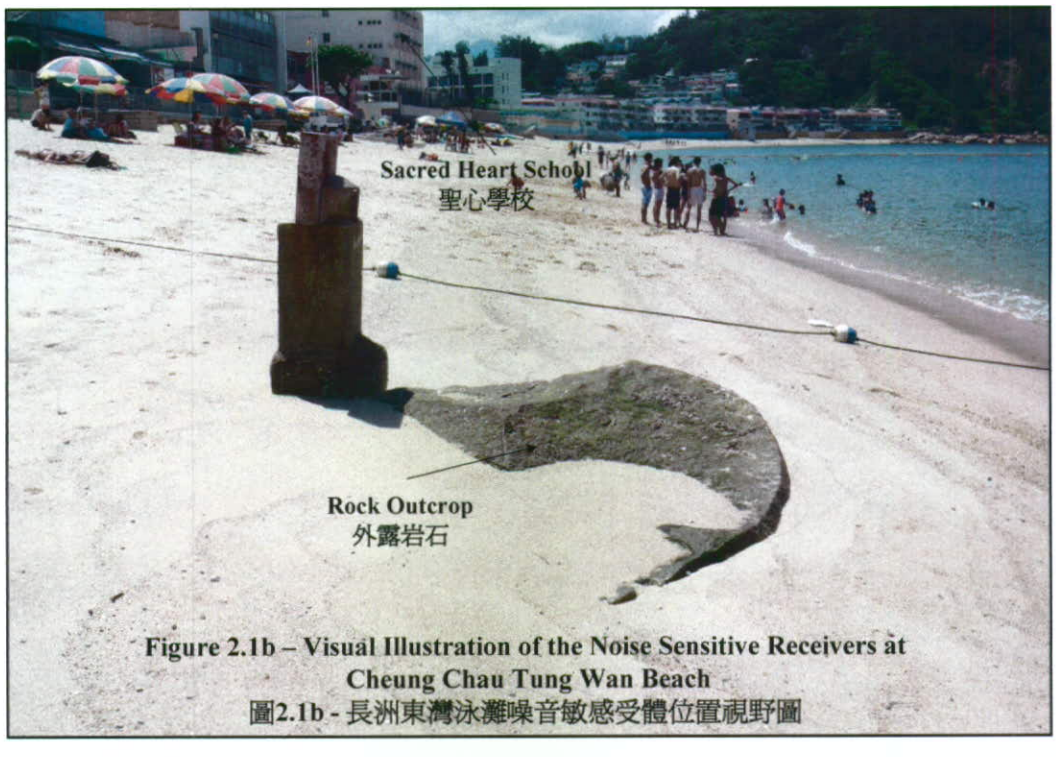

Figure 2.1b – Visual Illustration of the Noise Sensitive Receivers at Cheung Chau Tung Wan Beach
圖2.1b - 長洲東灣泳灘噪音敏感受體位置視野圖

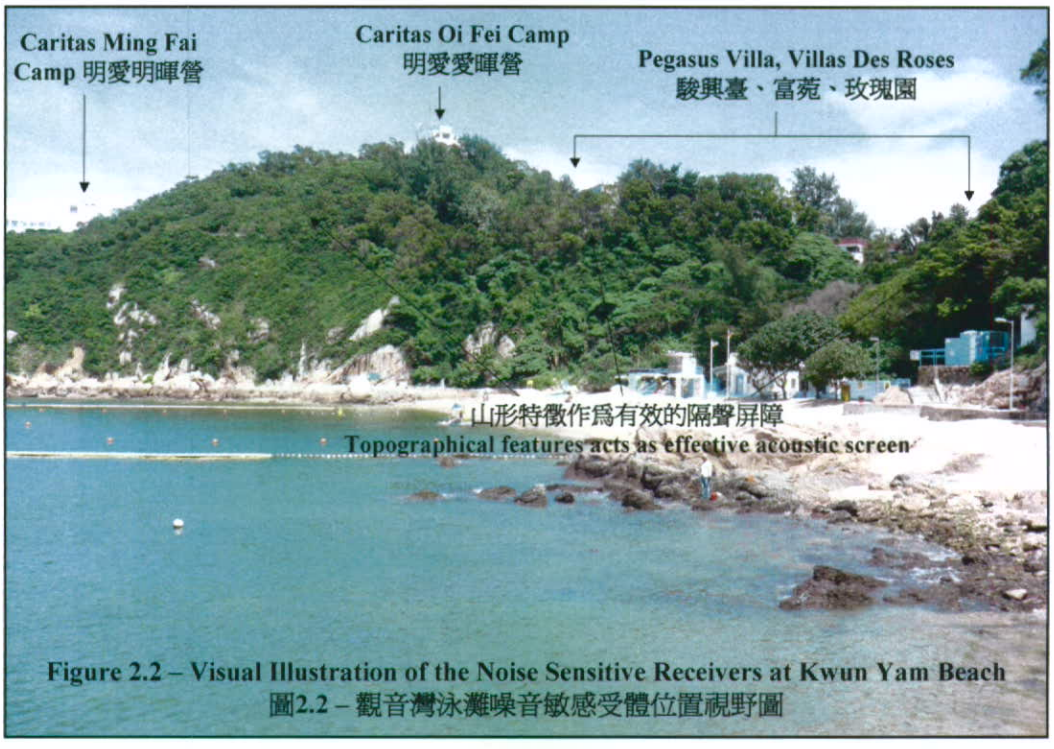

Figure 2.2 – Visual Illustration of the Noise Sensitive Receivers at Kwun Yam Beach
圖2.2 – 觀音灣泳灘噪音敏感受體位置視野圖

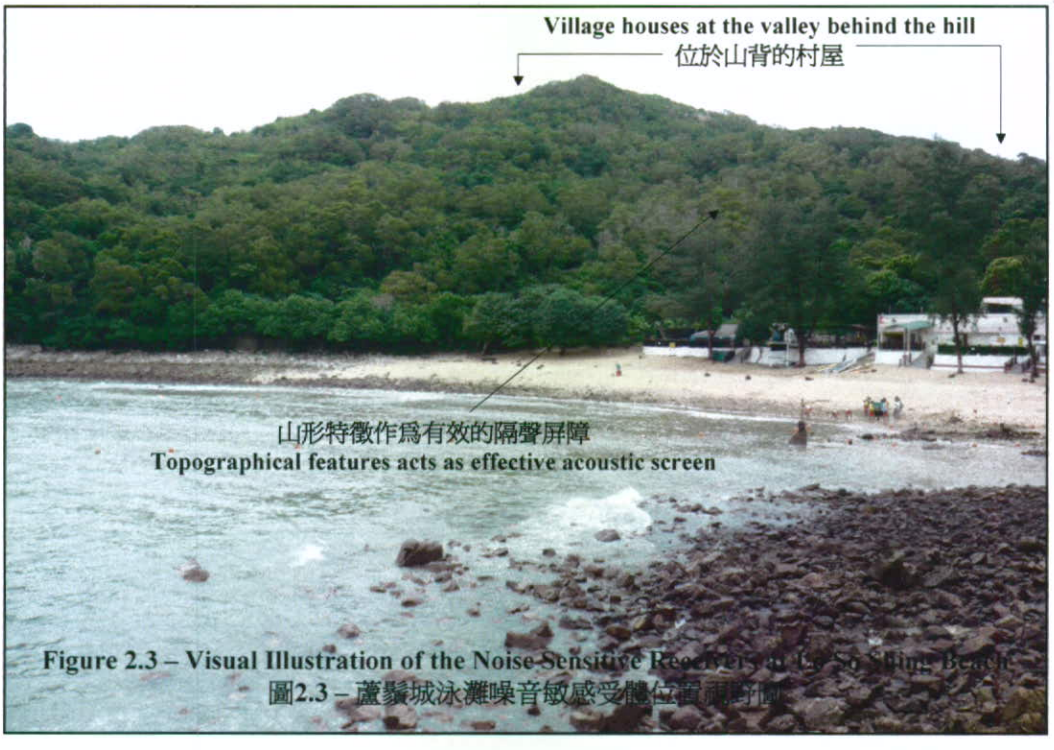

Figure 2.3 – Visual Illustration of the Noise Sensitive Receivers at Lo So Shing Beach
圖2.3 – 蘆鬚城泳灘噪音敏感受體位置視野圖