Local Improvement to Tung Chung Road at Pak Kung Au and near Cheung Sha

Project Profile

September 1998

Highways Department/New Territories Region

1. Basic Information

1.1 Project Title

Local Improvement to Tung Chung Road at Pak Kung Au and near Cheung Sha

1.2 Purpose and Nature of the Project

Tung Chung Road is a single lane carriageway for 2 way traffic, with road width as narrow as 3m and very poor horizontal geometry and vertical profile. The project will improve the safety standard at 2 critical locations:

(a) Pak Kung Au

Tung Chung Road is highest in level here. With the very steep approach gradients (up to 20%), narrow road width and very poor vertical curvature, the location is a traffic accident black spot. The proposed works here include widening of the road for some 90m in length by cutting back an existing road side slope.

(b) Existing Catchwater near Cheung Sha

The T-junction of Tung Chung Road with an existing WSD access road was particular poor in both geometry and road width. It is also a location which requires utmost care and concentration in car driving. The proposed improvement works comprise:

(i) extension of an existing twin-cell box culvert;
(ii) construction of a vehicular bridge approximate 7.2m in span within the existing catchwater; and
(iii) associated drainage, traffic aids, lighting and landscaping works.

The risks of traffic accident to occur at the 2 locations should be much reduced after improvements which will bring the design of the 2 locations closer to the Transport Department standard.

1.3 Name of Project Proponent

The project is proposed by Transport Department. Planning, design and construction are handled in-house by Capital Works Division of Highways/NT Region.

1.4 Location of Project

Refer to drawing no. NH22541. The location is in remote ground without any human inhabitants in the neighbourhood.

1.5 Contact Person

1.6 Project Estimate
$11 million

2. Outline of Planning and Implementation Programme

2.1 Assuming that an environmental permit can be issued directly by EPD, it is scheduled to commence construction in March 1999 for completion in March 2000.

2.2 Contractor of the Approved List for Public Works will be appointed by open tenders.

2.3 HongKong Telecom had applied to set up a radio base station at Pak Kung Au for the improvement of mobile phone coverage along Tung Chung Road. The Country and Marine Parks Authority had no objection to the proposal. HongKong Telecom is now submitting the proposal to DLO/Is for land application.

3. Possible Impact on the Environment

3.1 Dust : (i) earthworks operation is minimal.
(ii) blasting operations will not be required nor permitted.
(iii) dust emissions from the construction activities will be controlled under the current legal restrictions.

3.2 Night-time operations : Not required.

3.3 Traffic generation : The purpose of the project is to improve the road safety. No additional traffic will be generated on completion of the works.

3.4 There will be no permanent process involving storage requirements, emissions, discharges and disposal of spoil material.

3.5 There will be no storage, handling, transport, or disposal of hazardous materials or wastes during construction.

3.6 The risk of accidents which would result in pollution or hazard is very low.

3.7 The disruption of water movement is minimal and water gathering will be no different from existing on completion of the works. Conditions given by WSD will be incorporated into the contract document for compliance during construction.

3.8 Completion of the project will not cause any significant change to the environment. Unsightly visual appearance is not anticipated.

3.9 No ecological impact is expected.

3.10 Noise : (i) noise impact on completion of the project will have no difference from existing.

(ii) noise emissions from the construction activities will be controlled under the current legal restrictions.

(iii) as the limitation of the site area and the need to maintain the traffic flow in Tung Chung Road, no large powered mechanical equipment is expected.

(iv) the proposed plants to be used and their number with the proposed activities are:

proposed activities	proposed plant	number
Pak Kung Au widening the carriageway by slope cutting		
(a) Trimming	excavator hand-held breaker	1 1
(b) Compaction and Formation	road roller compactor air compressor	1 1 1
(c) Pavement	concrete lorry mixer hand pokers	2 2
(d) Landscaping works	hand and small tractor	1
Near catchwater construction of box culvert and vehicular bridge		
(a) Earthwork	excavator water pump dump truck	1 1 1
(b) Structural works	excavator concrete lorry mixer hand pokers water pump	1 2 3 1
(c) Landscaping works	hand and small tractor	1

3.11 At the catchwater near Cheung Sha, no tree within the country park will be affected. Compensatory landscaping works will also be provided (details referred to drawing no. LU 641-2).

3.12 At Pak Kung Au, the existing southern road side cut slope is steep and comprises a topography of bare rock outcrop and boulder strewn hillsides resulting in an dramatic and rugged appearance (as attached photos). It will need to be cut further back to provide room for road widening. About 10 nos. of existing trees on the back of the cut slope will need to be removed. Compensatory landscaping works will be provided on the cut back slope which will be in form similar to existing (details referred to drawing no. LU 641-1).

4. Major Elements of the Surrounding Environment

4.1 No existing and planned noise sensitive receiver is located in the surrounding environment (refer to drawing nos. 1 and 2). The nearest dwelling is some 300m away from and at level about 50m below of the site at the catchwater. However,

(a) the proposed site at Pak Kung Au is close to a hiking trail finish point. From site observation, although hikers will leave the trail and get on transports at the nearby bus stop, they may take rest at the picnic site opposite to the proposed cutting work. As such, noise control measures should be implemented as Section 5.2.1.

(b) a picnic and rest area is adjacent to the site at waterworks catchment, noise control measures should also be taken as Section 5.2.1.

4.2 The proposed vehicular bridge will be constructed within the existing catchwater and part of the works were inside the Water Gathering Ground.

4.3 The proposed road widening and associated cut slope at Pak Kung Au are inside the Lantau South Country Park.

4.4 Part of the works at the existing catchwater near Cheung Sha also lies inside the Lantau South Country Park.

4.5 No ecology sensitive receiver is located in the surrounding environment. (refer to drawing no. 3)

4.6 No heritage sensitive receiver is located in the surrounding environment. (refer to drawing no. 4)

5. Environmental Protection Measures to be Incorporated in the Design and any Further Environmental Implications

5.1 Design Stage

The proposed road widening works are designed to minimize disruption to existing ground.

Compensatory landscaping works will be designed to restore the natural environment.

5.2 Construction Stage

5.2.1 Noise

As shown on the drawing nos. 1 and 2, there is no existing and planned noise sensitive receiver close to the project area. The noise impact to the nearest dwellings which are 300m away will not be noticeable. No percussive piling will be used for the project.

With reference to the EIA report of Agreement no. 26/96, the calculated Sound Power Levels (SWL) of the plants to be used during construction are summarized as follows:

Type of plants	number	SWL,DB(A)
air compressor, super silenced	1	104
breaker, hand-held	1	108
concrete lorry mixer	2	109
compactor	1	105
excavator	1	112
vibratory, hand-held	3	113
dump truck	1	117
road roller	1	108
water pump	1	103

The noise reduction corrections with mitigation measures are summarized as follows:

(a) dump truck and lorries - acoustic enclosure for exhaust pipes - 5dB(A)
(b) hydraulic breakers - mufflers - 7dB(A)
(c) concrete pumps and generators - acoustic enclosures - 19dB(A)

Although minimal noise impact is expected, the following measures will be incorporated into the contract document:

(a) Construction activities will be carried out in daytime as far as possible (07:00-19:00).

(b) The noise levels can be reduced with the following standard noise pollution control clauses:
   (i) good site practice to limit noise emissions at source;
   (ii) avoidance of simultaneous noisy activities; and
   (iii) selection of quiet plant and working methods.

(c) Since hikers enjoying their recreational activities in the Country Park at weekend and public holiday, the noisy operation activities will therefore be scheduled at weekday as far as possible in order to minimize the impact to hikers. Moreover, working on Sundays and public holidays is prohibited within country parks unless the specific written agreement of the Country and Marine Parks Authority is sought.

(d) Silencers should be installed at the exhaust pipes and acoustic enclosures for the engines of the dump trucks and lorries.

(e) Mufflers should be installed at the rock drills (hydraulic) and pneumatic breakers.

(f) Acoustic full enclosures should be installed for the concrete pumps and generators.

(g) The Contractor will be required under the Contract to make sure the noise level limits will not be exceeded when the construction works are being undertaken to ensure that the noise requirements are being satisfied.

5.2.2 Air Quality

The principal source of dust during the construction phase will be from exposed site areas, stockpiling, movement of vehicles along the road, excavation and handling of construction materials, all of which will be particularly relevant during the dry seasons.

SO_2 and NO_2 will be emitted from the diesel-powered equipment used during construction. However, because the numbers of such plant required on-site will be limited due to the small scale of the project, their gaseous emissions will be minimal.

The following dust control measures will be incorporated in the contract document for implementation during construction to ensure dust levels are within the acceptable limit:

(i) watering of unpaved roads will be carried out at least twice a day;

(ii) where breaking of oversize rock/concrete is required, watering will be carried out to control dust;

(iii) water spray will be used during the handling of fill material at the site and at active cuts, excavation and fill sites where dust is likely to be created;

(iv) dropping height for excavated materials will be controlled to a minimum height to minimize the fugitive dust arising from unloading;

(v) during transportation by truck, materials will not be loaded to a level higher than the side and tail boards, and will be dampened or covered before transport;

(vi) effective water sprays will be used on site at potential dust emission sources; and

(vii) wheel washing facilities will be used on site to prevent the generation of dust on site.

5.2.3 Water Quality

The conditions given by WSD for works carried out within water gathering grounds will be incorporated in the contract document:

(i) adequate measures shall be taken to ensure that no pollution or siltation occurs to the water gathering ground during and after the construction of the proposed widening works;

(ii) provision of any toilet system (including portable toilet) within water gathering ground shall be subject to the approval of the Director of Water Supplies. No toilet shall be less than 30 metres from any watercourse. All waste shall be cleared away daily and disposed of outside water gathering grounds;

(iii) no earth, building materials, soil and other materials which may cause contamination to the water gathering ground shall be allowed to be stockpiled on site;

(iv) no storage and discharge of flammable or toxic solvents, petroleum oil or tar and other toxic substance within the water gathering ground shall be allowed;

(v) any chemicals to be used including disinfectants and deodorants within the water gathering ground shall be subject to the approval of the Director of Water Supplies;

(vi) temporary drains with silt traps shall be constructed at the boundary of the site prior to the commencement of any earthwork; and

(vii) regular clearing of the silt traps shall be carried out to ensure that they function properly at all times.

Besides the above measures as required by WSD, the mitigation measures given in the ProPECC notes PN 1/94 for dealing with the construction site runoff will also be incorporated in the contract document.

Moreover, the contractor shall carry out any works in the stream courses during dry season as far as possible.

5.2.4 Waste Management

Excavated materials will be stockpiled in designated areas away from streams and drainage areas. The material will be removed off site as soon as they are not required. Stockpiles shall be covered at all times to avoid dust generation and wash off during windy and rainy conditions.

General construction and demolition waste materials will be sorted on-site to remove material which is suitable for re-cycling or use in public dumps. The remainder will be disposed of at the nearest landfill site.

Temporary storage areas for general refuse will be provided which are enclosed to avoid the attraction of pests. General refuse will be stored on site for the minimum time practical and will be disposed of to the nearest landfill.

5.2.5 Visual and Landscape

The existing slope at Pak Kung Au is steep and comprises a topography of bare rock outcrop and boulder strewn hillsides resulting in an dramatic and rugged appearance. Minor slope cutting with a lot of landscaping works will improve the visual appearance.

The following mitigation measures to reduce the visual and landscape impact will be carried out:

(i) The cut slope will be hydroseeded and planted with tree whips of native species appropriate to the location as soon as slope work is completed.

(ii) Railings and street furniture requiring a paint render will be given an appropriate chromatic treatment which blends with the colours of the landscape.

The tree felling application and compensatory proposal will be submitted to AFD under separate cover.

5.2.6 Heritage

As shown on the drawing no.4, no heritage sensitive receiver is located near the project area. Hence no heritage impact is expected.

5.2.7 Ecology

As shown on the drawing no. 3, no ecology sensitive receiver is located near the project area. Although the works are far away from the ecology sensitive receivers, the following mitigation measures during construction will still be implemented:

(i) explicit instructions will be given to the workforce concerning the importance of the area for wildlife and the limits of the construction work;

(ii) regular and tight site inspections will be carried out to ensure that the work site boundaries are not exceeded and that no damage is being caused to the surrounding areas;

(iii) the flow of pollutants and sediment into water bodies, including the streams, marshes and ponds within the works boundaries are not allowed;

(iv) high standards of dust control will be implemented to protect wildlife habitats adjacent to work sites; and

(v) restoration and aftercare of temporary construction sites will be undertaken to standards as good as, or better than, the original condition.

5.3 Comment on the Environmental Effects

5.3.1 No significant change in environment is anticipated as a result from the project implementation.

5.3.2 The minimal environmental impact during construction is a short term effect.

5.3.3 No secondary and induced effect is expected.

5.4 Comment on any Further Implication

5.4.1 Similar minor improvement works were carried out by HyD.

5.4.2 The project was presented in the Islands Provisional District Board meeting on 13.7.1998 and was supported by all DB members who urged for soonest implementation.

5.4.3 Implementation of the project is under mounting pressure from the public as more frequent traffic have been using Tung Chung Road. The demand for issue of more restricted road permits is ever increasing and the situation will unlikely change until other north-south link road is constructed on Lantau.

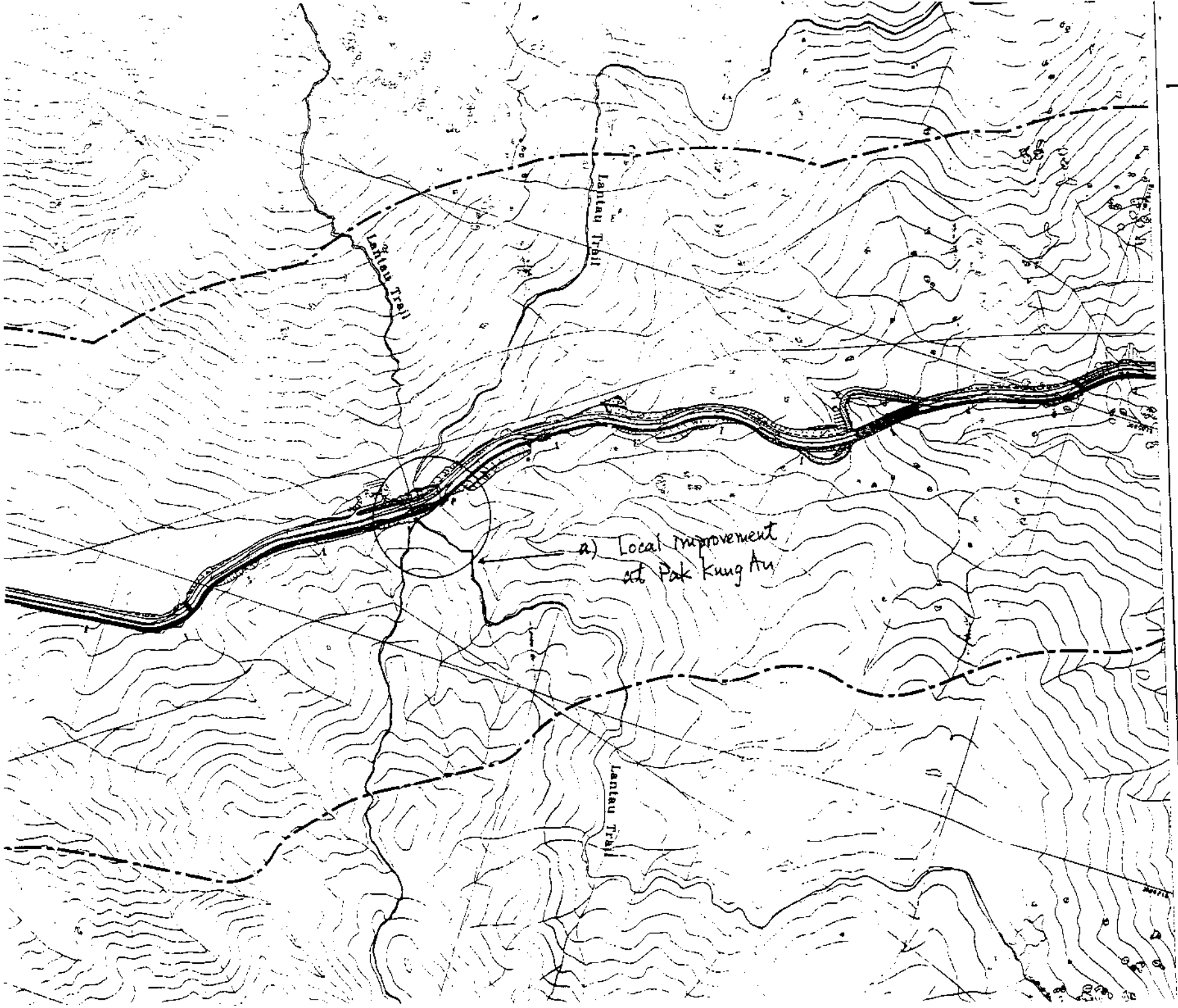
5.4.4 Upon completion of the project, the safety of the road users will be improved. Not only the public but also the residents in Tung Chung will be benefited from the project.

6. Use of Previously Approved EIA Reports

6.1 A previous EIA report was prepared for a project of similar nature and was endorsed by the Environmental Study Management Group in the meeting held on 28.8.1997. As the report was prepared before the operation of the EIA Ordinance, this report was not registered under the Ordinance. Although it was not registered under the Ordinance, information and findings provided by this report are still useful for reference in this project.

6.2 Title of the EIA report : Agreement 26/96 Widening of Tung Chung Road Feasibility Study, Final EIA Report

bare rock outcrop and boulder strewn hillsides
at Pak Kung Au



300m Area

Rev	Issue/Date	Amendment	By	Appd	Date
A	IFIC	Remaining parts and outputs completed			10.7.97

Client

Highways Department
Hong Kong Government

Mouchel Asia Limited
Sub-Consultants
MVA Asia Ltd. Urbis Ltd. Roger Tym & Partners. Pearce and Lee

Project

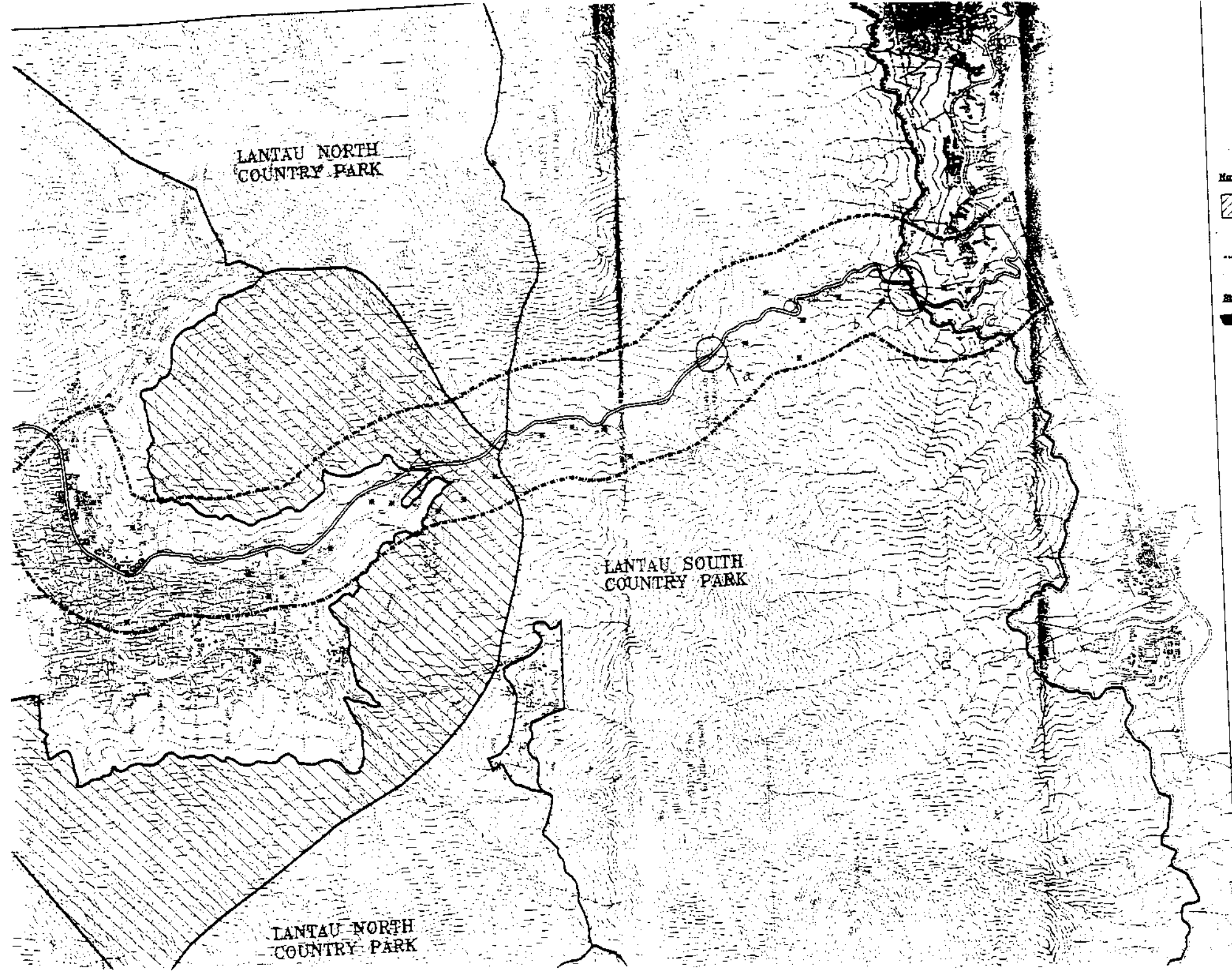
Widening of Tung Chung Road Feasibility Study

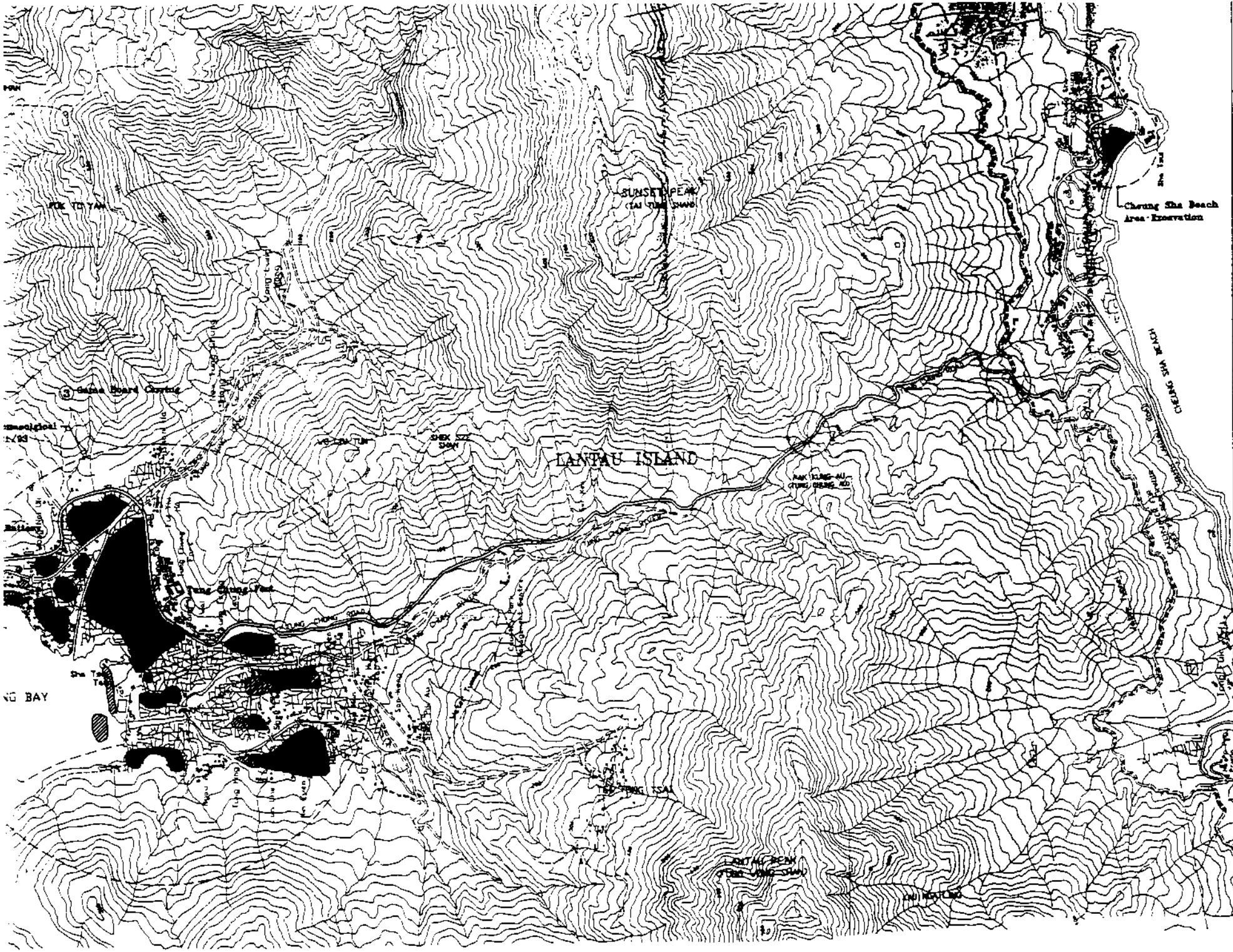
Title

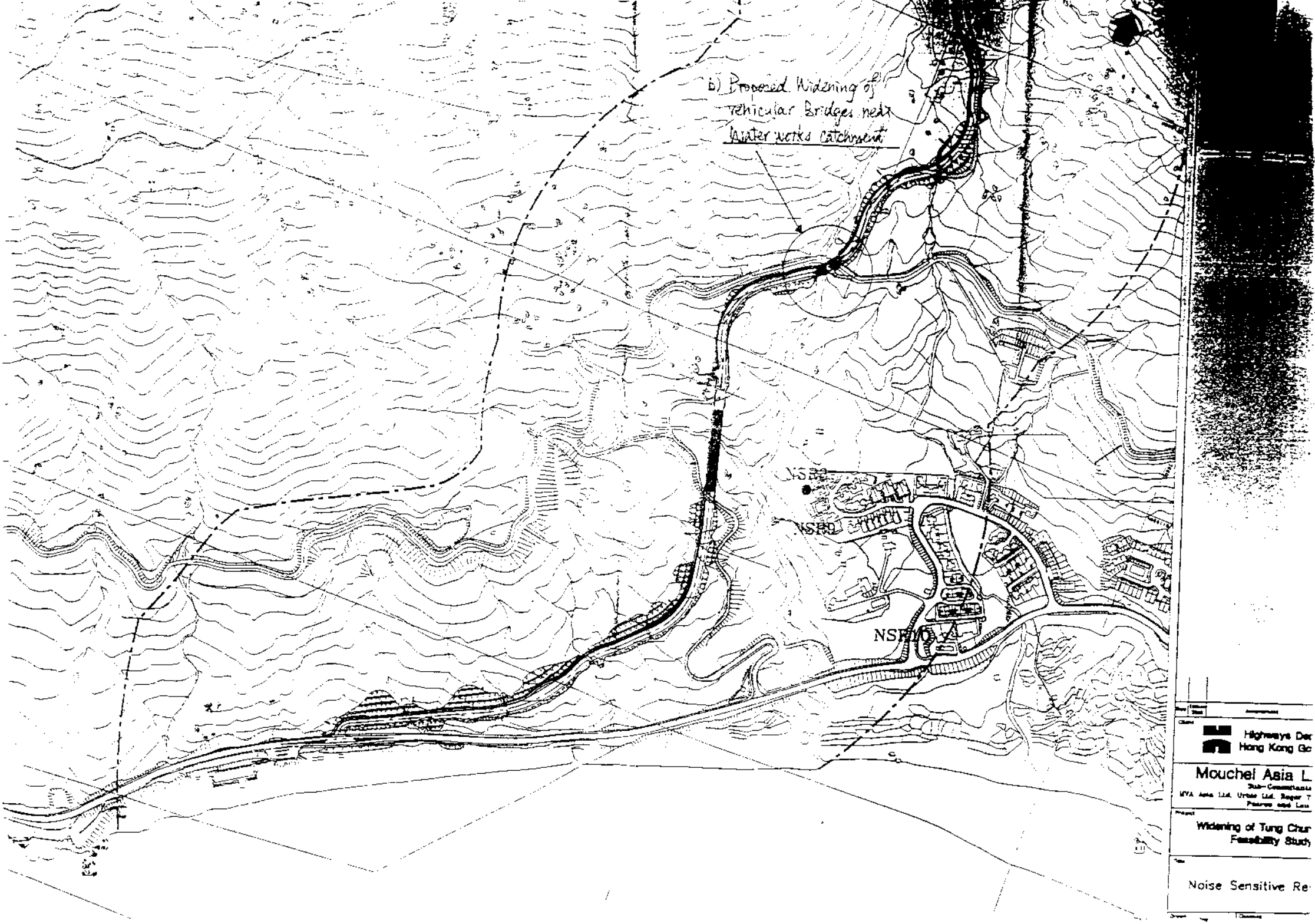
Noise Sensitive Receivers

SHEET 3 OF 4

Drawn	Checked	Approved
DW		
Scale 1:5000	CAD File no. FIG41C-A	Date 8.4.97


LANTAU NORTH
COUNTRY PARK
LANTAU SOUTH
COUNTRY PARK
LANTAU NORTH
COUNTRY PARK
Non-Statutory Constraints
Proposed Extension to the
Lantau Country Park Bound
Location of Key Habitats a
Species of Ecological Impor
within the Study Area
Study Area Boundary
Statutory Constraints
Highways Depa
Hong Kong Gov
Mouchel Asia Li
Widening of Tung Chur
Feasibility Study
Ecology Sensitive F


LANTAU ISLAND
SUNSET PEAK
(TAI TUNG SHAN)
Cheung Sha Beach
Area - Excavation
CHEUNG SHA BEACH
Tung Chung Fort
Tung Chung Road
Tung Chung Battery
Game Board Carving
Area of Archaeologic
Area of Archaeologic
Legend:
Highways Depar
Hong Kong Gover
Mouchel Asia Lim
Widening of Tung Chung
Feasibility Study
Heritage Sensitive Re
1 : 40000
18.3.97
4



Highways Dep
Hong Kong Go

Mouchel Asia L

Widening of Tung Chur
Feasibility Study

Noise Sensitive Re