Proposed Development
at various Lots in D.D.41
Sha Tau Kok, New Territories

GEOTECHNICAL PLANNING REVIEW REPORT

November 2025

CONTENTS

FIGURES

APPENDIX

1. INTRODUCTION

Philip So & Associates Ltd. was appointed to carry out Geotechnical Planning Review Report (GPRR) for the premises at various lots in D.D.41 at Sha Tau Kok, New Territories.

This GPPR is made based on desk study and review of available documentary information and proposed development plan. The geology and site conditions are described. Potential geotechnical constraints are identified in the assessment.

2. THE SITE AND THE FEATURES

The site is at a relatively flat ground at Sha Tau Kok, New Territories. Site photos taken in November 2018 are presented in Appendix A (see Photo A to D). According to the available SIS records obtained from Geotechnical Engineering Office (GEO), there is a registered geotechnical feature no. 3NE-C/C45 which lies in the vicinity of the site (see Photo E and F). Based on the SIMAR report, the Highways Department is responsible for the maintenance of the said feature. A copy of the SIMAR report and slope records are enclosed in Appendix Band C, respectively. The location of the said feature is also presented in Figure 2.

3. DESK STUDY

Desk study has been carried out to search and review the existing building records, previous ground investigation data and geotechnical study reports kept by the Geotechnical Information Unit (GIU) of Geotechnical Engineering Office (GEO) and the Buildings Department (BD).

Ground investigation was carried out at distance about 45m at the northwestern end of the site under the project, namely "RPIS Minor Rural Improvement", prepared by Enpack (Hong Kong) Limited in August 1996. The borehole and trial pit records indicated that the site comprises alluvium overlying completely decomposed tuff (COT) (see Appendix D).

3.1 Geological Maps

The geology of the Study Area is shown on the Hong Kong Geological Survey (HKGS) Map Sheet 3 (Sheung Shui), 1:20,000-scale HGM20 series. The local geology of the Study Area is presented in Figure 3 and described below.

3.1.1 Solid Geology

The 1:20,000 scale geological maps indicated that regional area around the Site is underlain by undivided fine ash to coarse ash tuffs, tuff-breccia and tuffite (JSM) of the Shing Mun Formation.

3.1.2 Superficial Geology

Entire Site are surrounded by Quaternary debris flow deposits/colluvium (Qpd).

3.1.3 Structural Geology

No fault or photolineament has been recorded within or in the vicinity of the Site.

3.2 Enhanced Natural Terrain Landslide Inventory

In 1995, the GEO compiled the Natural Terrain Landslide Inventory (NTLI) from an interpretation of high-altitude (8,000ft and above) aerial photographs dated from 1945 to 1994 (King, 1999). In 2007, the GEO produced an Enhanced Natural Terrain Landslide Inventory (ENTLI) using low-altitude (8,000ft and below) aerial photographs to update the NTLI.

In accordance with GEO Report No. 138 (GEO, 2016), landslides are classed as either "Relict" or "Recent", depending on their appearance in aerial photographs. "Relict" landslides are defined as those where the main scarp is well-defined but vegetation has re-established on the scar on the earliest set of available aerial photographs. "Recent" landslides are defined as having occurred within the timespan of the aerial photograph coverage. These are typically identified as having a light tone on the aerial photographs and are bare of vegetation.

The ENTLI has recorded none relict/recent landslides within and in the vicinity of the Site.

3.3 Historical Landslide Catchment (HLC) Inventory

Historical Landslide Catchments (HLCs) have been defined by GEO based on the results of the ENTLI. According to the inventory, there is no HLC within the Site.

3.4 Large Landslide Study

The Large Landslide database was prepared by Scott Wilson (1999) for the GEO. Interpretation of landslide details with Map Sheet Ref No. 3-NE-C was conducted using the low altitude (3,900 ft.) 1963 aerial photographs to identify features thought to be landslides with source area greater than 20 m wide. The database has no record of large landslides within or close to the Site.

3.5 Reported Landslide Incidents

The GEO landslide incidents database has no record of reported landslide incident within the Site.

4. IMPACTS OF PROPOSED WORKS ON EXISTING SLOPES AND RETAINING WALLS

A registered slope feature no. 3NE-C/C45 is located immediately at the southern end of the site. According to the SIS record, the maximum height of the feature is about 3m with 80m long measured along its toe. The average slope gradient is about 30 degrees to the horizontal. As the feature has stood from some time without evidence of major distress or instability, it is expected that this feature will continue under the present condition. However, the stability has to be checked with respect to the proposed development and based on the subsurface conditions and shear strength parameters of soil/rock obtained from site specific ground investigation.

5. PORTION OF SLOPE FEATURE NO. 3NE-C/C45 AFFECTED BY PROPOSED PEDESTRIAN WALKWAY

5.1 General

A portion of slope Feature No. 3NE-C/C45 is to be affected due to the proposed pedestrian walkway.

In order to fulfill the above-mentioned objectives, a comprehensive investigation programme will be implemented comprising the following:-

a) Detailed ground investigation including in-situ and laboratory soil testing to identify the soil parameters together with the monitoring of groundwater table, by sinking vertical drillholes and trial pits on site;

b) Establishment of geological and hydrogeological model based on the findings from topographic survey and the ground investigation works.

5.2 Feature No. 3NE-C/C45

The Feature is a cut slope situated due south east of the site. The full slope is about 80m long. The maximum height of the slope is 3m with an average slope angle of 30°. An existing road with moderate traffic density is situated in the slope toe. An existing footpath with low traffic density is situated on slope crest with reference to the SMRIS as retrieved from Lands Department (see Appendix B), the lot owners or parties listed below are responsible for maintenance for this Feature:

- Highways Department

According to the details of proposed pedestrian walkway (see Figure 4), portion of the slopes shall be cut for the construction of the proposed pedestrian walkway. Overall stability assessment for the Feature shall be checked to ensure the Feature will not affect the proposed works, or vice versa. Adequate upgrading measures (e.g. installation of soil nails or replacement of existing soil with cement soil / no-fines concrete and / or mass concrete) shall be provided if the feature cannot fulfill the current engineering standard.

Portion of the slope Feature 3NE-C/C45 to be affected by the proposed pedestrian walkway is presented in Figure 4.

6. CONCLUSION

Based on the above discussion, it can be concluded that the proposed development is considered to be feasible from geotechnical point of view. The construction would be straight forward unlikely posting particular problems to the surrounding area under careful planning, proper execution and vigilant supervision.

It is essential to search and review the background information of existing building, geotechnical feature and underground services within and in the vicinity of the site. Site investigation is proposed to reveal/confirm the subsoils and the ground regime within and in the vicinity of the site as well as to determine the engineering properties of subsoils and rock. The ground investigation field works should be preceded under supervision of suitably qualified engineers and technically competent persons conforming the requirements specified in the "Code of Practice for Site Supervision 2009" published by the BD.

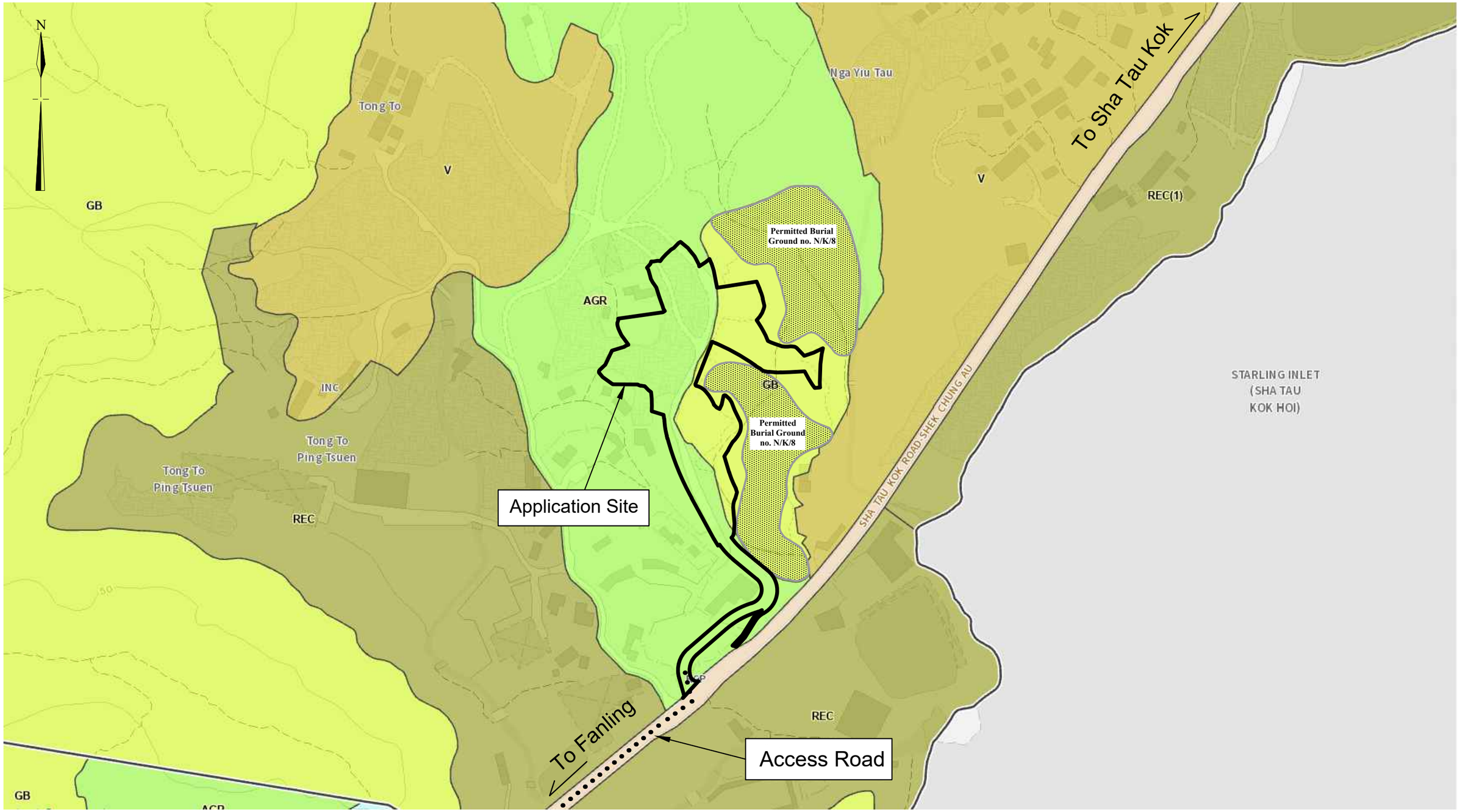
For safety and cost effective, the foundation design and retaining wall stability assessment and excavation planning as well as the design of geotechnical structure should be based on geological horizons inferred from the ground investigation results, groundwater table interpreted from the piezometer/standpipe monitoring records and geotechnical parameters determined and adopted by field and laboratory testing.

A comprehensive precautionary monitoring program including settlement markers, tiling, vibration check points as well as groundwater observation wells shall be implemented to ensure demolition of foundation of existing buildings and substructure construction being carried out safety and soundly.

FIGURES

Figure 1

Site Location Plan



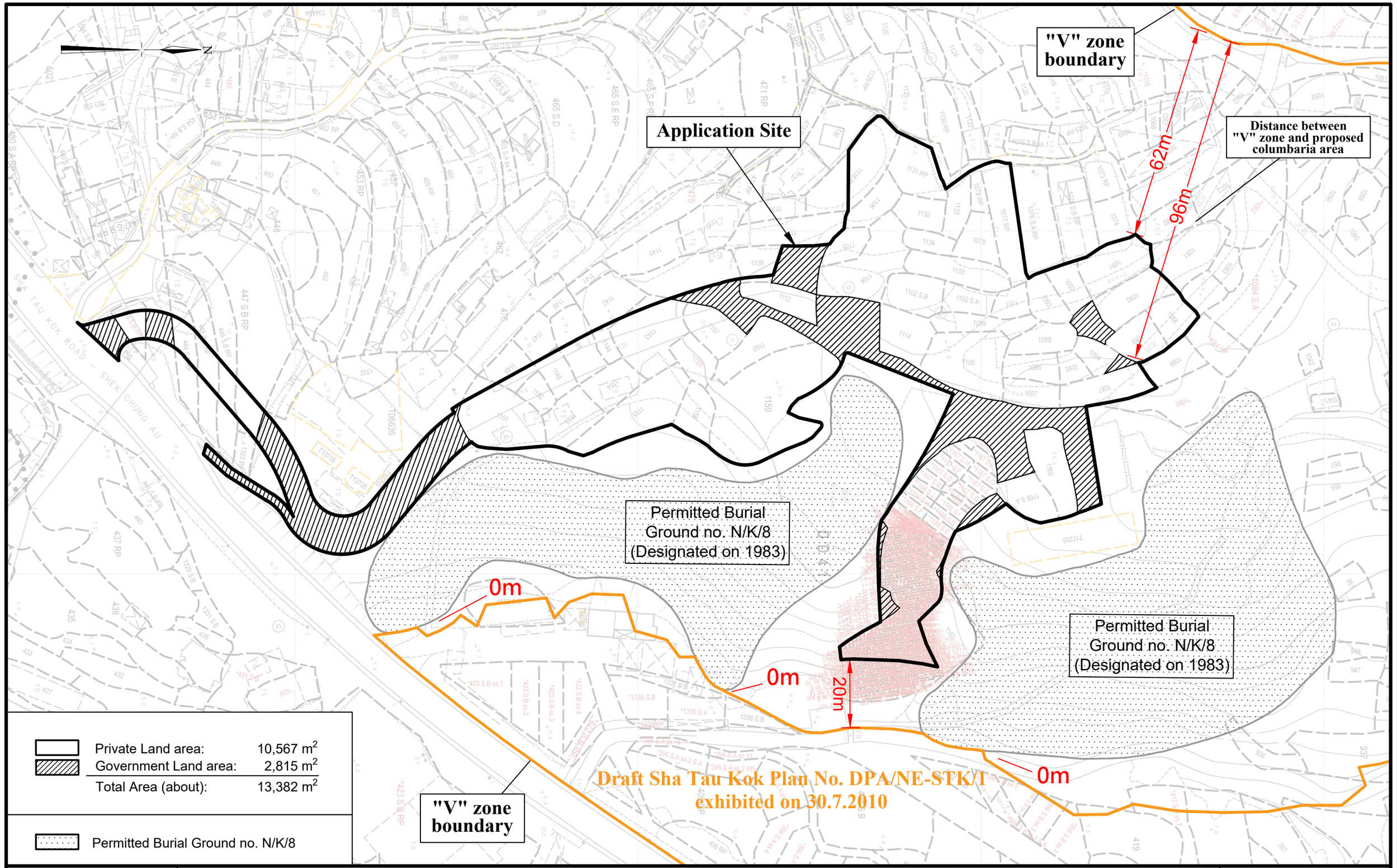
"Agriculture" zone:	8,618 m^2
"Green Belt" zone:	4,764 m^2
Total Area (about):	13,382 m^2

Extracted from the approved Sha Tau Kok Outline Zoning Plan no. S/NE-STK/2

Not to Scale	Location Plan Rezoning Application from "AGR" and "GB" to "OU (Columbarium)" on various Lots in D. D. 41 and Adjoining Government Land, Tong To, Sha Tau Kok, N.T.	**Goldrich Planners & Surveyors Ltd.**
October 2025		**Plan 1 (P 17106)**

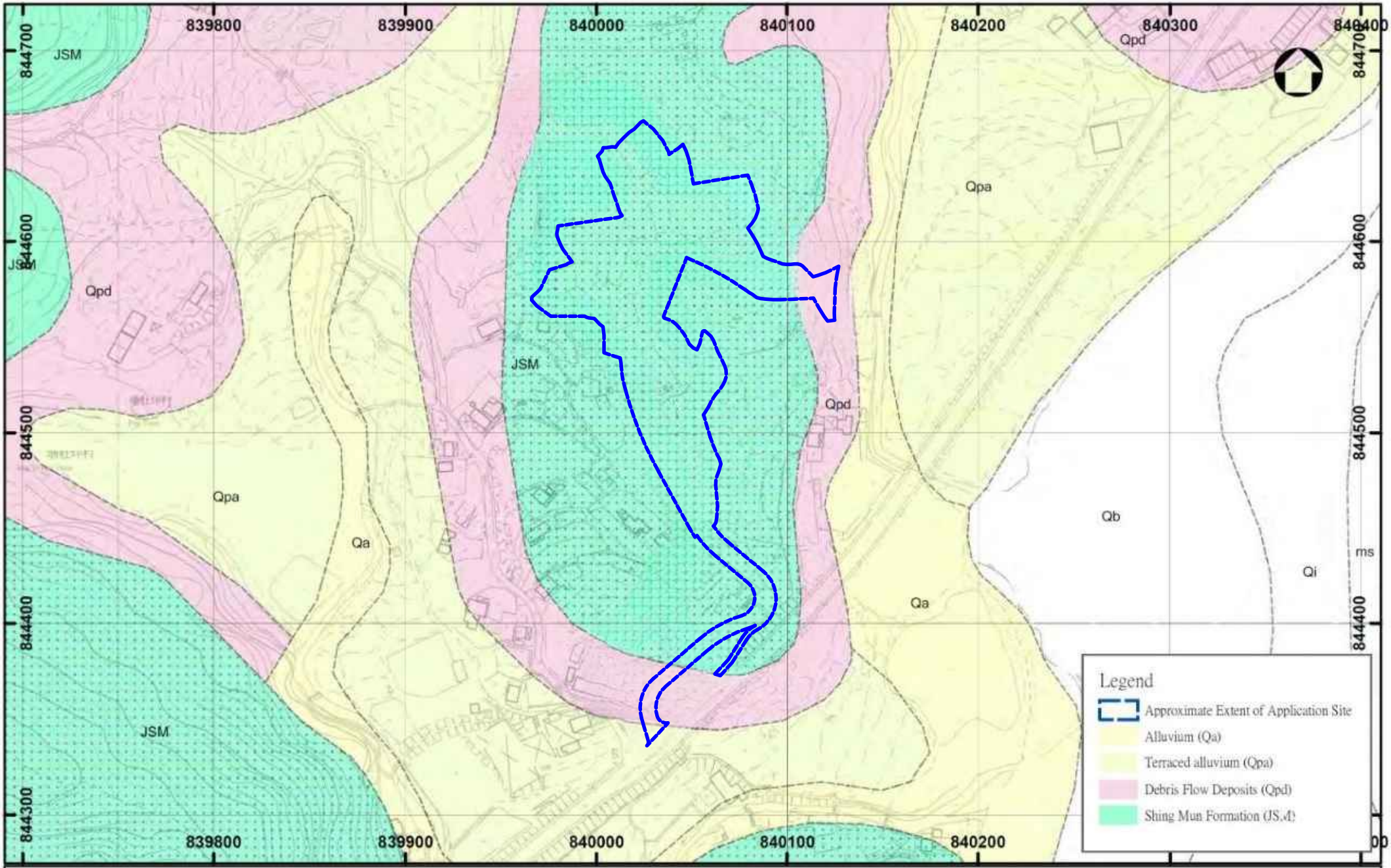
Figure 2

Lot Index Plan and Feature Location



1 : 1000	Lot Index Plan	Goldrich Planners & Surveyors Ltd.
October 2025	Rezoning Application from "AGR" and "GB" to "OU (Columbarium)" on various Lots in D. D. 41 and Adjoining Government Land, Tong To, Sha Tau Kok, N.T.	Plan 2 (P 17106)

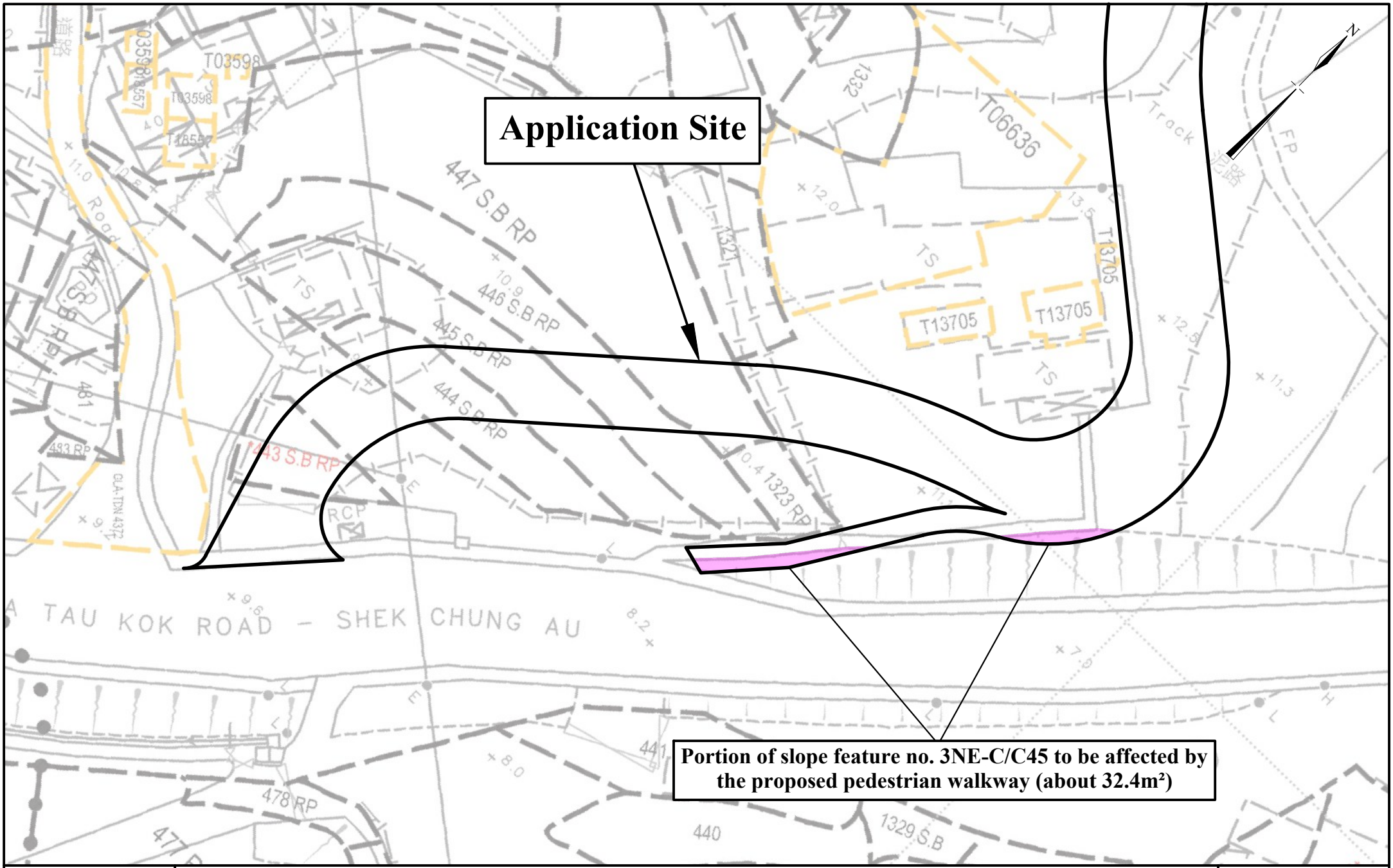
Figure 3
Geological Map



PROJECT: Proposed Development at 701 Lots (74 Various Lots & 627 Various Sub-sections of Lots) in D.D. 41, and Adjoining Government Land, Sha Tau Kok, N.T.			
TITLE: Geological Map	**SCALE:** 1 : 3000	Philip So & Associates Ltd.	**FIGURE NO :** FIGURE 3

Figure 4

Portion of Slope Feature No. 3NE-C/C45 affected by the Proposed Pedestrian Walkway



1 : 500	Slope Affected by the Proposed Pedestrian Walkway Rezoning Application from "AGR" and "GB" to "OU (Columbarium)" on various Lots in D. D. 41 and Adjoining Government Land, Tong To, Sha Tau Kok, N.T.	Goldrich Planners & Surveyors Ltd.
November 2025		GPRR Plan 1 (P 17106)

APPENDIX

Appendix A

Photographs

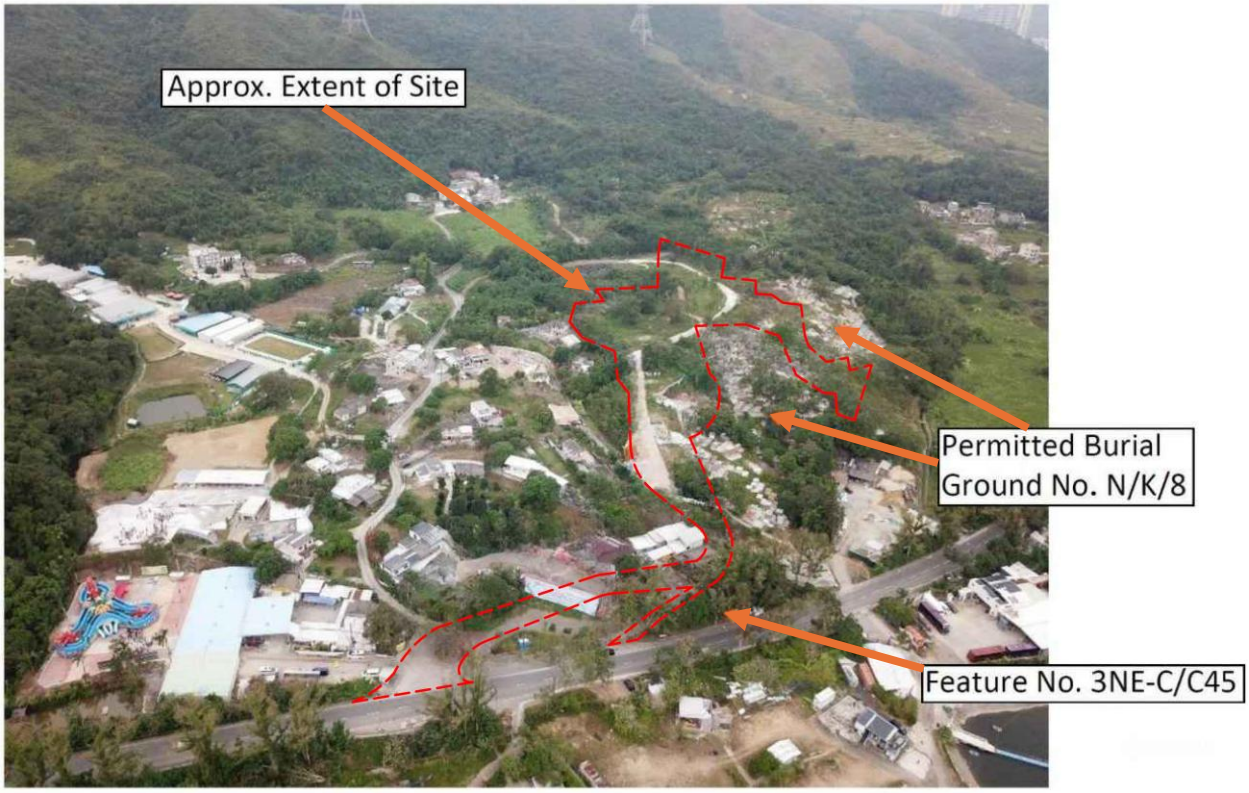


Photo A

General View of the Site, Looking Northwest

Photo B

General View of the Site, Looking Southeast

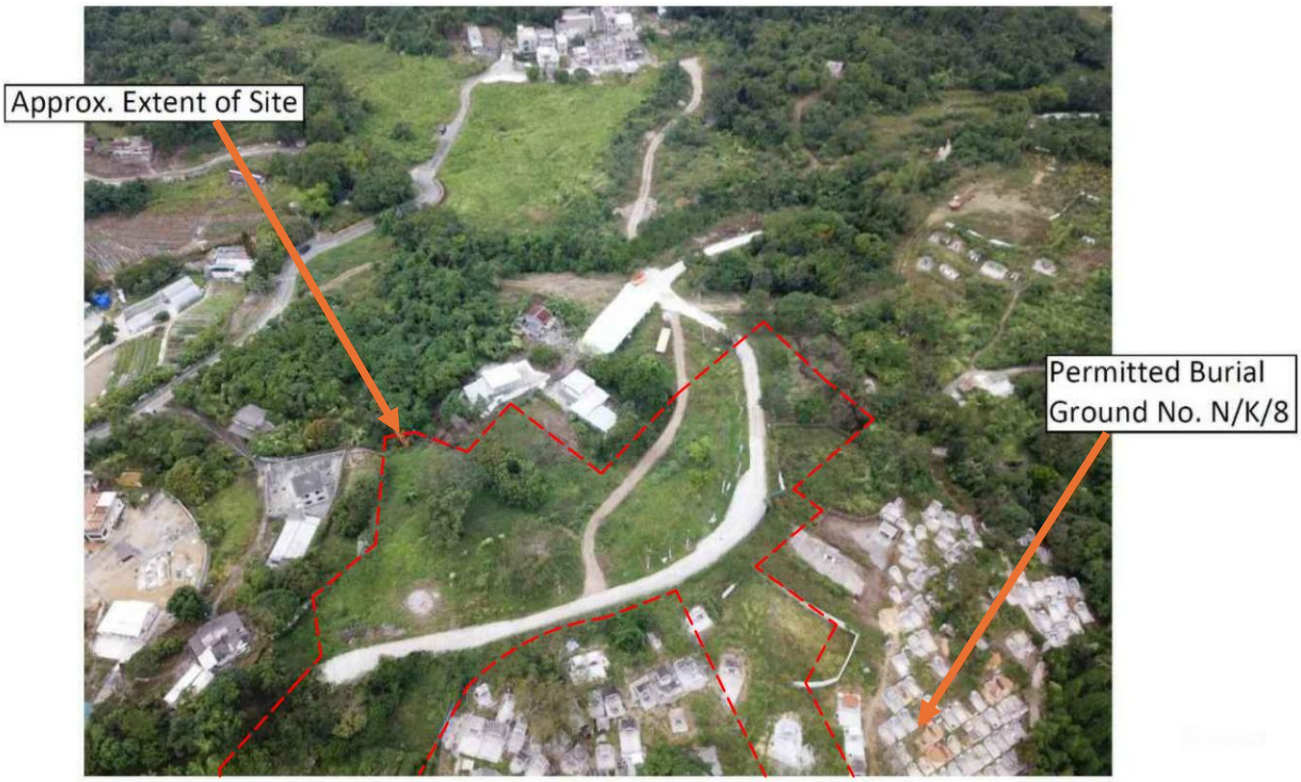


Photo C

Close View of the Northern End of the Site, Looking North

Photo D

Close View of the Southern End of the Site, Looking South

Photo E

General View of the Southern Portion of Feature No. 3NE-C/C45, Looking North

Photo F

General View of the Northern Portion of Feature No. 3NE-C/C45, Looking West

Appendix B

SIMAR Record – Feature No. 3NE-C/C45

Slope Maintenance Responsibility Report (3NE-C/C45)	ESTATE MANAGEMENT SECTION LANDS DEPARTMENT

List of Slope Maintenance Responsibility Area(s)

1	**3NE-C/C45**		**Sub-Division**	Not Applicable
	Location	ADJOINING SHA TAU KOK RD - SHEK CHUNG AU NEAR SPOT LEVEL 7.8		
	Responsible Lot/Party	HyD	**Maintenance Agent**	HyD
	Remarks	For enquiries about the maintenance of this slope / sub-division of the slope, please contact the Maintenance Agent direct.		

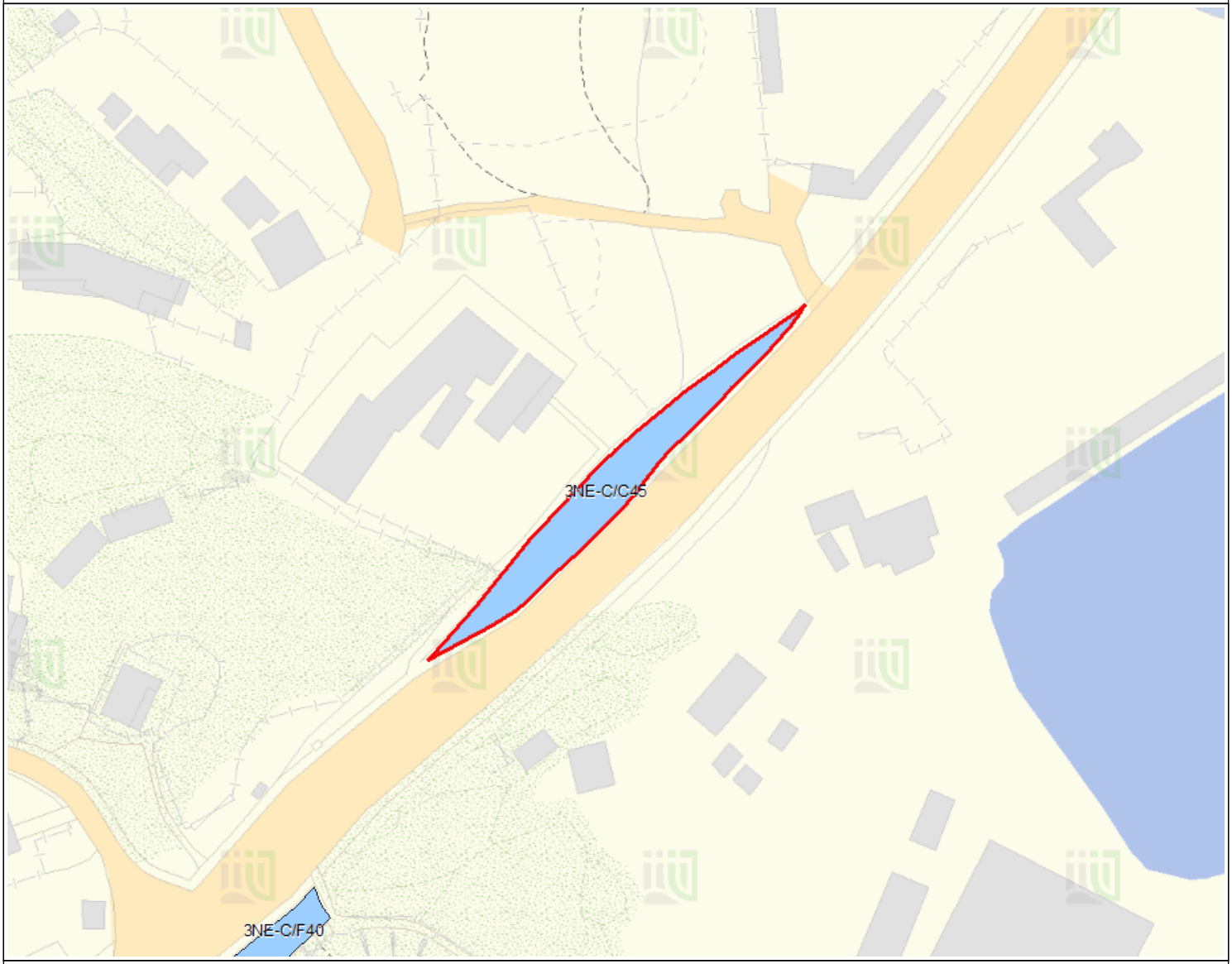
- End of Report -

Notes:

(i) The location plan in Annex is for identification purposes of slope(s) only.

(ii) The slope(s) as listed in the Slope Maintenance Responsibility Report may not be shown on the location plan in Annex.

Location Plan



Legend

- Slope Area(s)
- Search Location
- Slope(s) Maintained by Government
- Slope(s) Maintained by Private Party/Parties
- Slope(s) Maintained by Government and Private Party/Parties

ESTATE MANAGEMENT SECTION
LANDS DEPARTMENT

This Plan is **NOT TO SCALE** and intended for **IDENTIFICATION** only. All information shown on this plan **MUST** be verified by field survey.

Printed on: 28/11/2018

Appendix C

Slope Records Retrieved from CEDD – Feature No. 3NE-C/C45

BASIC INFORMATION

Location: SHA TAU KOK ROAD - SHEK CHUNG AU, N

SIFT Ref.: 3NE-12D/S 5
First Registration Date: 12-Feb-1997
SIFT Class: C2
Data Source: EI(HyD)
Approximate Coordinates: Easting: 840102 Northing: 844410

CONSEQUENCE-TO-LIFE CATEGORY

Facility at Crest: Road/footpath with low traffic density

Distance of Facility from Crest (m): 0
Facility at Toe: Road/footpath with moderate traffic density

Distance of Facility from Toe (m): 0
Consequence-to-life Category: 2
Remarks: N/A

SLOPE PART

(1) Max. Height (m): 3 Length (m): 80 Average Angle (deg): 30

WALL PART

N/A

MAINTENANCE RESPONSIBILITY

(1) Government Feature Maintenance Party: HyD MR Endorsement Date: 07-Oct-1998

DETAILS OF SLOPE / RETAINING WALL

Date of Inspection: 01-Feb-2011

Data Source: EI(HyD)

Slope Part Drainage:
(1) Position: Toe Size(mm): 225
(2) Position: Crest Size(mm): 300
(3) Position: Crest Size(mm): 225

Wall Part Drainage: N/A

SLOPE PART

Slope Part (1)
Surface Protection (%): Bare: 0 Vegetated: 90 Chunam: 0 Shotcrete: 10 Other Cover: 0
Material Description: Material type: Soil Geology: N/A
Berm: No. of Berms: N/A Min. Berm Width (m): N/A
Weepholes: Size (mm): N/A Spacing (m): N/A

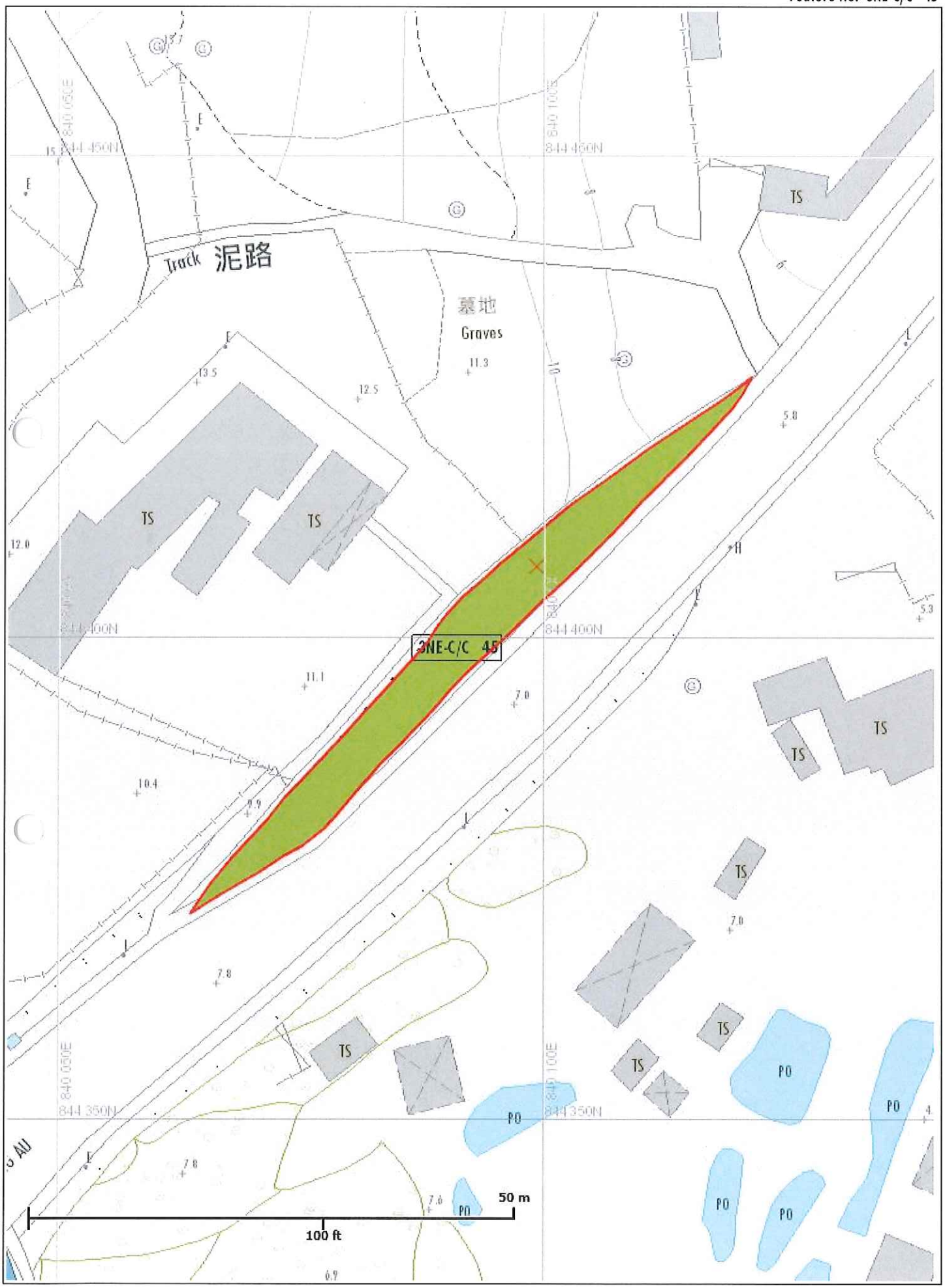
WALL PART

N/A

SERVICES

(1) Utilities Type: Cable Size(mm): 0 Location: Toe Remark: Size cannot be determined
(2) Utilities Type: Sewer/Drain Size(mm): 525 Location: Toe Remark: N/A
(3) Utilities Type: Sewer/Drain Size(mm): 450 Location: Toe Remark: N/A
(4) Utilities Type: Water Main Size(mm): 300 Location: Toe Remark: N/A
(5) Utilities Type: Electricity Size(mm): 0 Location: Toe Remark: Size cannot be determined
(6) Utilities Type: Sewer/Drain Size(mm): 0 Location: Toe Remark: Size cannot be determined
(7) Utilities Type: Water Main Size(mm): 150 Location: Toe Remark: N/A

PHOTO


Track 泥路
墓地
Graves
3NE-C/C 45
TS
PO
840 050E
840 100E
844 450N
844 400N
844 350N
50 m
100 ft

Appendix D

Extraction of Previous GI Records Prepared by Enpack (Hong Kong) Limited in August 1996

ENPACK (HONG KONG) LIMITED
Civil Engineers & Contractors
Astoria Building, 5th floor, 34 Ashley Road
Kowloon, Hong Kong
Tel: 2378 1121 Fax: 2376 0252

DRILLHOLE RECORD

HOLE NO. BH 1

CONTRACT NO. GE/95/10

SHEET 1 of 3

PROJECT RPIS Item No. ND-146, Construction of Vehicular Bridge at Tong To, Sha Tau Kok.

METHOD WB + RC	CO-ORDINATES E 839876.25 N 844629.35	W.O. No GE/95/10.16
MACHINE & No. DR 32		DATE: 07/05/96 to 09/05/96
FLUSHING MEDIUM WATER	ORIENTATION VERTICAL	GROUND LEVEL 18.82 mPD

Drilling Progress	Casing size	Water level (m) Shift start/ end	T.C.R.(%)	S.C.R.(%)	R.Q.D.(%)	F.I.	Tests	Samples	Reduced Level	Depth (m)	Legend	Grade	Description
7/5	PX							1 0.50	18.32	0.50			Brown, (10YR/5/3), clayey silty fine SAND with much subangular to angular fine to medium gravel sized quartz and tuff fragments and occasional organic material. (ALLUVIUM)
								I.P. 2 1.00	17.82	1.00			Pale brown (10YR/6/3) speckled grey, slightly silty sandy CLAY, with much rounded to subangular fine to coarse gravel sized quartz and tuff fragments. (ALLUVIUM)
		0.86m at 18:00	65					3 1.48	17.32	1.50			
								T2-101 1.50 2.12					Very pale brown (10YR/7/4), clayey silty fine to coarse SAND, with much rounded to subangular fine to coarse gravel and occasional cobble sized quartz and strong tuff fragments. (ALLUVIUM)
8/5		0.98m at 8:00	69						16.12	2.70			Subrounded to angular, fine to coarse GRAVEL, COBBLE and occasional boulder sized quartz and strong tuff fragments. (ALLUVIUM)
	HX							4 3.00					Bluish grey (5B 5/1) to light yellowish brown (2.5Y 6/4), slightly silty clayey fine to medium SAND with much subrounded to subangular fine gravel sized quartz and tuff fragments. (ALLUVIUM)
			64					5 3.73	15.08	3.74			
								T2-101 3.74					Subangular coarse GRAVEL and COBBLE sized quartz and strong tuff fragments. (ALLUVIUM)
			81						14.64	4.18			
								6 4.50			V		Extremely weak, yellowish brown to reddish brown speckled greyish white and black, completely decomposed coarse ash TUFF. (Slightly sandy clayey SILT with occasional to some fine quartz gravel)
			90					7 5.59					
							(2,2,4, 5,7,8) N=24	8 5.60					
								9 6.05					
								10 6.50					
			95					11 7.59					
								12 7.60					
							(3,5,7, 9,11,18) N=44	13 8.05					
								14 8.50					
			100					15 9.59					
							(6,10,12, 13,14,15)	16 9.60	8.82	10.00			

Small Disturbed Sample
Piston Sample
U76 Undisturbed Sample
U100 Undisturbed Sample
Mazier Sample
SPT Liner Sample
Water Sample

Standard Penetration Test
In-situ Vane Shear Test
Permeability Test
Impression Packer Test
Packer Test
Piezometer Tip
Observation Well Tip

LOGGED Bob Hide
DATE 10/5/96
CHECKED P.Barry
DATE 3/8/96

REMARKS

ENPACK (HONG KONG) LIMITED
Civil Engineers & Contractors
Astoria Building, 6th floor, 34 Ashley Road
Kowloon, Hong Kong
Tel: 2378 2121 Fax: 2378 0252

DRILLHOLE RECORD

HOLE NO. BH 1

CONTRACT NO. GE/95/10

SHEET 2 of 3

PROJECT RPIS Item No. ND-146, Construction of Vehicular Bridge at Tong To, Sha Tau Kok.

METHOD WB + RC	CO-ORDINATES E 839876.25 N 844629.35	W.O. No GE/95/10.16
MACHINE & No. DR 32		DATE: 07/05/96 to 09/05/96
FLUSHING MEDIUM WATER	ORIENTATION VERTICAL	GROUND LEVEL 18.82 mPD

Drilling Progress	Casing size	Water level (m) Shift start/ end	T.C.R.(%)	S.C.R.(%)	R.Q.D.(%)	F.I.	Tests	Samples	Reduced Level	Depth (m)	Legend	Grade	Description
11	HX		100				N=54	17 10.05 18 10.50				V	As sheet 1 of 3.
12							(5,5,5, 6,8,14) N=33	19 11.59 20 11.60 21 12.05					
13		0.82m at 18:00	94					22 12.50	6.32	12.50		V/IV	Extremely weak to very weak, reddish brown to yellowish brown, speckled black, completely to highly decomposed coarse ash TUFF. (Silty fine to coarse SAND with much fine to coarse gravel sized tuff fragments)
14							48, 100/25mm	23 13.60 24 13.70 13.96	4.86	13.96			
9/5		0.98m at 8:00	95	64	35	N.I.		T2-101				III	Moderately weak to moderately strong, yellowish brown to reddish brown, locally black, moderately decomposed coarse ash TUFF, highly fractured. Joints are closely to medium spaced, rough undulating, very narrow, iron stained (< 2mm), dipping at 50° and 65°.
15			98	91	85	14.0		14.96	3.76	15.06		II	Strong to very strong, dark grey, slightly decomposed coarse ash TUFF. Joints are very closely to medium spaced, rough, planar and stepped, iron stained (< 1mm), dipping at 55°, 70° and 80°-85°.
16			100	98	96	5.6		16.10					
17			100	92	76	15.9		17.10					
18			100	99	99	3.1		18.16					
19			100	98	92	9.9		19.50 19.58 T2-101	-1.18	20.00			
20													

Small Disturbed Sample
Piston Sample
U76 Undisturbed Sample
U100 Undisturbed Sample
Mazier Sample
SPT Liner Sample
Water Sample

Standard Penetration Test
In-situ Vane Shear Test
Permeability Test
Impression Packer Test
Packer Test
Piezometer Tip
Observation Well Tip

LOGGED Bob Hide
DATE 10/5/96
CHECKED P.Barry
DATE 3/8/96

REMARKS

ENPACK (HONG KONG) LIMITED
Civil Engineers & Contractors
Astons Building, 9th floor, 3A Ashley Road
Kowloon, Hong Kong
Tel: 2376 2121 Fax: 2376 0252

DRILLHOLE RECORD

HOLE NO. BH 1

CONTRACT NO. GE/95/10

SHEET 3 of 3

PROJECT RPIS Item No. ND-146, Construction of Vehicular Bridge at Tong To, Sha Tau Kok.

METHOD WB + RC	CO-ORDINATES E 839876.25 N 844629.35	W.O. No GE/95/10.16
MACHINE & No. DR 32		DATE: 07/05/96 to 09/05/96
FLUSHING MEDIUM WATER	ORIENTATION VERTICAL	GROUND LEVEL 18.82 mPD

Drilling Progress	Casing size	Water level (m) Shift start/ end	T.C.R.(%)	S.C.R.(%)	R.Q.D.(%)	F.I.	Tests	Samples	Reduced Level	Depth (m)	Legend	Grade	Description
		1.10m at 18:00							-1.54	20.36		II	As sheet 2 of 3. End of investigation hole at 20.36m.

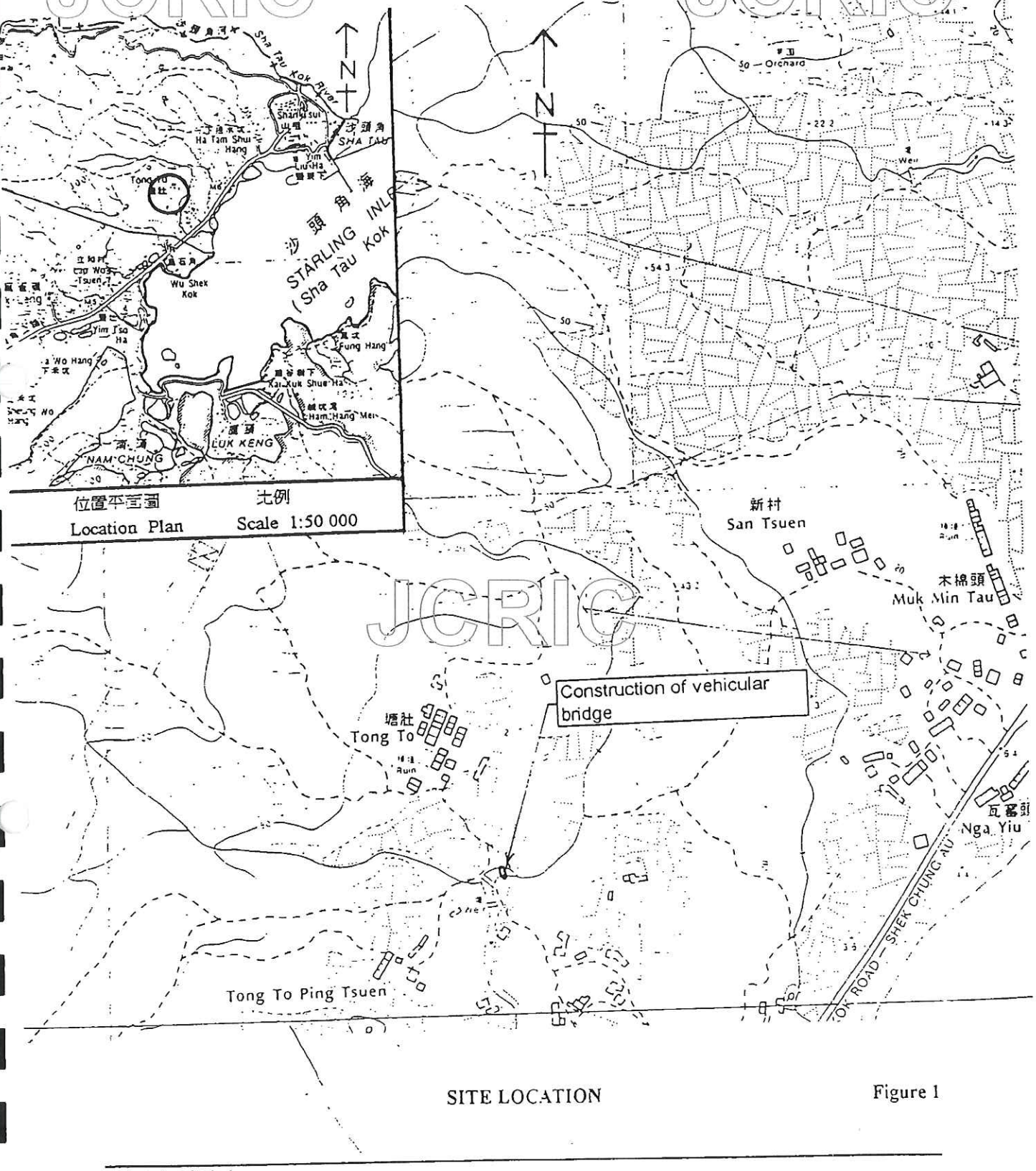
21 22 23 24 25 26 27 28 29 30

Small Disturbed Sample
Piston Sample
U76 Undisturbed Sample
U100 Undisturbed Sample
Mazier Sample
SPT Liner Sample
Water Sample

Standard Penetration Test
In-situ Vane Shear Test
Permeability Test
Impression Packer Test
Packer Test
Piezometer Tip
Observation Well Tip

LOGGED Bob Hide
DATE 10/5/96
CHECKED P.Barry pb
DATE 3/8/96

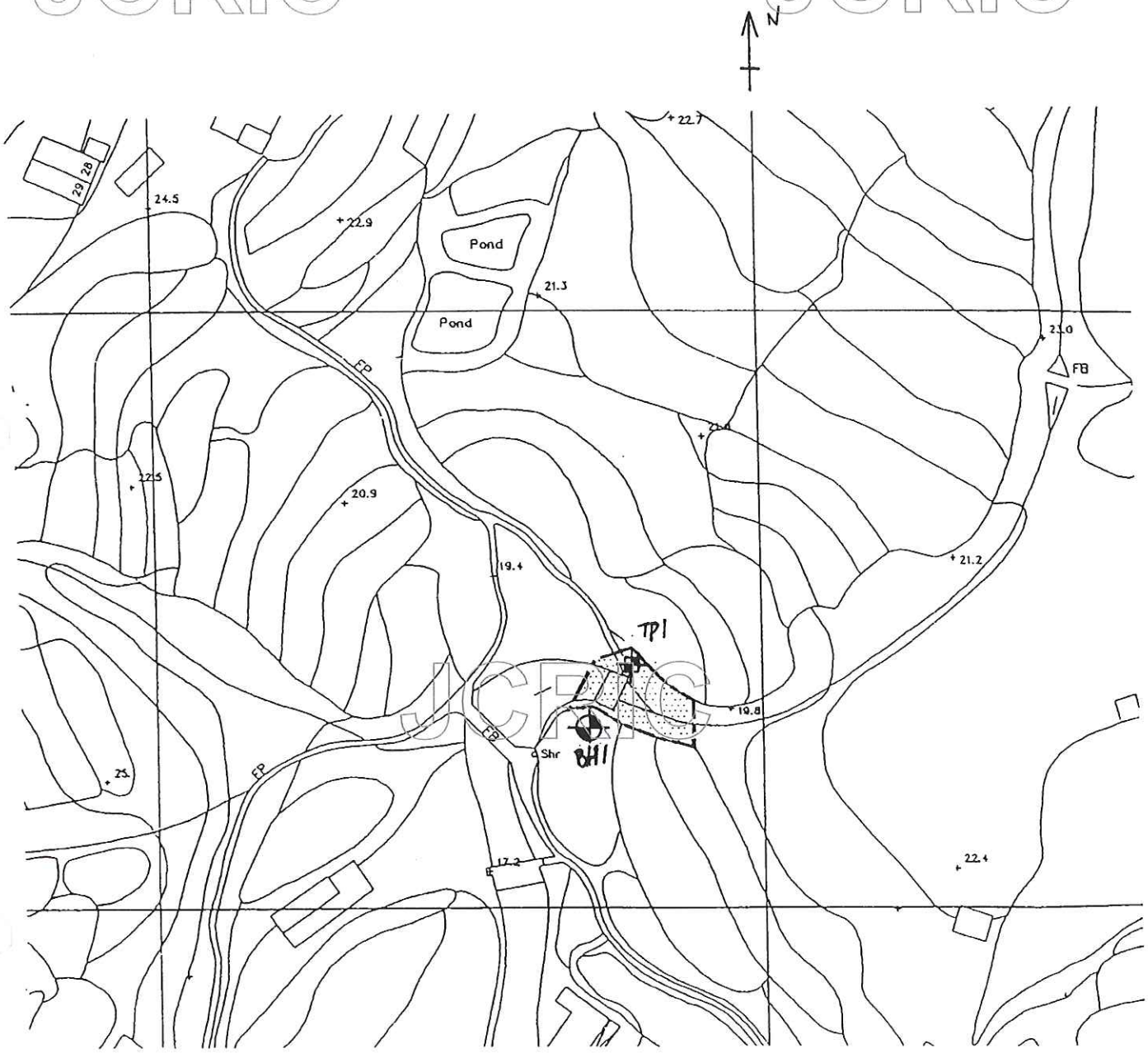
REMARKS



SITE LOCATION

Figure 1

Schedule of Works
DJB/MJH/AK/90506 OCT/1995



DRILLHOLE & TRIAL PIT LOCATIONS Figure 2