

Appendix G  
Geotechnical Planning Review Report

Section 16 Application –  
Layout Plan Submission and Proposed Minor  
Relaxation of Building Height Restriction for  
Permitted Flat Use  
in  
131 Pok Fu Lam Road, Hong Kong

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Geotechnical Planning Review Report

February 2026

Report no: PFL131/G/R01



## Contents

|     |                                                         |    |
|-----|---------------------------------------------------------|----|
| 1   | Introduction .....                                      | 1  |
| 2   | The Site .....                                          | 2  |
| 2.1 | Site Description.....                                   | 2  |
| 2.2 | Site Geology .....                                      | 2  |
| 2.3 | Groundwater Condition .....                             | 4  |
| 2.4 | Existing Geotechnical Features .....                    | 4  |
| 3   | Geotechnical Review on Proposed Works.....              | 7  |
| 3.1 | Proposed Ground Investigation Works.....                | 8  |
| 3.2 | Soil Parameters .....                                   | 8  |
| 3.3 | Design Groundwater Level .....                          | 9  |
| 3.4 | Proposed Excavation and Lateral Support Work (ELS)..... | 9  |
| 3.5 | Proposed Foundation.....                                | 10 |
| 3.6 | Effect on Existing GEO Registered Features.....         | 11 |
| 3.7 | Effect on Existing Structures and Utilities.....        | 13 |
| 4   | Monitoring Programme .....                              | 14 |
| 4.1 | General Monitoring .....                                | 14 |
| 4.2 | Monitoring Criteria.....                                | 14 |
| 5   | Conclusion.....                                         | 15 |

## Table

| Table   | Subject                                                              |
|---------|----------------------------------------------------------------------|
| Table 1 | Summary of Soil Strata                                               |
| Table 2 | Status of Registered Features within and in the Vicinity of the Site |
| Table 3 | Effect on Geotechnical Features within the Site                      |
| Table 4 | Effect on Geotechnical Features in the Vicinity of the Site          |
| Table 5 | Summary of Soil Parameters                                           |
| Table 6 | Summary of Allowable Bearing Pressure                                |

## Figures

| Figure   | Subject                                      |
|----------|----------------------------------------------|
| Figure 1 | Site Location Plan                           |
| Figure 2 | Existing Ground Investigations Plan          |
| Figure 3 | Solid and Superficial Geology Map            |
| Figure 4 | Location Plan of Existing Registered Feature |

## Appendices

| Appendix   | Subject                                                |
|------------|--------------------------------------------------------|
| Appendix A | Records of Existing Ground Investigation Works         |
| Appendix B | SIS Data Sheets, SIS Plans and SIMAR Reports           |
| Appendix C | Architectural Drawing of Indicative Development Scheme |
| Appendix D | Preliminary section showing ELS and Foundation works   |

# 1 Introduction

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According to "GEO Advice Note for Planning Applications", a geotechnical planning review report will be required if any of the following criteria apply: -

- (i) where the maximum gradient across a site from boundary to boundary, or for a large site across any 50m long strip, is greater than 15°,
- (ii) where a slope steeper than 30°, or retaining wall, or combination of the two with a height greater than 6m exists on the site or within 6m of the site, or
- (iii) where there is ground outside the site but in the same catchment that is at an angular elevation of more than 20° from the site and there is ground sloping at more than 15° within 50m upslope of the site.

We are instructed by the Applicant, Ebenezer School and Home for the Visually Impaired Limited (subsequently referred to as Ebenezer) to prepare this **Geotechnical Planning Review Report (GPRR)** in support of a Section 16 application under the Town Planning Ordinance for a site located at 131 Pok Fu Lam Road.

The geotechnical feasibility of the Indicative Development Scheme in relation to the stability of man-made slopes/retaining walls and to address any potential natural terrain landslide hazards that may affect or be affected by the Site is assessed in the report. Please refer to **Appendix C** of supplementary planning statement for the architectural plans.

The Section 16 application comprises a proposed residential development. The application site is zoned "Residential (Group C)7" ("R(C)7") on the Approved Pok Fu Lam Outline Zoning Plan No. S/H10/21. In accordance with the Notes of the "R(C)7" zone, the proposed residential Flat use is under Column 1 and is always permitted. However, submission of a layout plan is required for any new development or redevelopment of the existing building. As such, this application is for the submission of a layout plan for the proposed residential development in addition to the submission of a layout plan, a minor relaxation of the building height restriction ("BHR") from +151mPD to +164mPD is also requested under this S16 application.

## 2 The Site

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### 2.1 Site Description

The Site is located at the eastern of Pok Fu Lam Country Park. It is bounded by Pok Fu Lam Road to the north, Ebenezer New Hope School Podium to the southeast, and downslope and the Victoria Road to the southwest.

The site is irregular in shape. It is surrounded by natural vegetated slopes and positioned at the crest of slope. The total site area of the Site is 6460 m<sup>2</sup>. It lies approximately between Hong Kong Grid Co-ordinates N831400, N814000, E831800 and E831400. The subject site is at level ground from +128.5mPD to +131.0mPD. The proposed development scheme contains 4 nos. of blocks with a maximum building height to be +164mPD.

The location of the Site is presented in **Figure 1**.

### 2.2 Site Geology

According to the Hong Kong Geological Map, Series HGM20, Sheet No. 11 (Scale 1: 20,000), Solid and Superficial Geology of Hong Kong & Kowloon published by the Geotechnical Control Office (GCO 2012), the area of the Site is underlain by fine-grained granite from Jurassic-Cretaceous Period of the Mesozoic Era.

According to the existing Ground Investigation (GI) reports retrieved from the Geotechnical Engineering Office (GEO), the previous GI works were carried out in the vicinity between 2011 and 2012. 4 boreholes (DH7 to DH9, P513(SP)-P1) are located in the vicinity of the site.

Based on GI information from GIU, the Site generally comprises Fill, Colluvium/Top Soil, Colluvium, Saprolitic Soil and Weathered Rock and Bedrock. The bedrock is likely feldsparphyric Rhyolite and fine-grained Granite. The geological profile of the site is tabulated in the table below:

| Material or Stratification         | General Range of Thickness (m) | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
|------------------------------------|--------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Fill                               | 1.8-5.09                       | Firm, brown and light brown, sandy SILT with some angular to subangular fine gravel sized highly decomposed rock fragments; slightly clayey/silty fine to coarse SAND with angular fine to coarse gravel sized highly decomposed and moderately decomposed rock fragments; occasional angular COBBLE and BOULDER sized highly decomposed to slightly decomposed Granite and Tuff with some angular to subangular fine to coarse gravel sized highly decomposed and moderately decomposed rock fragments and occasional brick fragments. |
| Colluvium/Top Soil                 | 0.5-0.7                        | Firm, brown and dark brown, sandy SILT with occasional subangular fine gravel sized highly decomposed rock fragments sand some rootlets and silty fine to coarse SAND with some angular to subangular fine to coarse gravel sized highly decomposed to slightly decomposed rock fragments.                                                                                                                                                                                                                                              |
| Colluvium                          | 0.69                           | Firm, pinkish grey, spotted black, angular BOULDER of slightly decomposed fine grained Granite.                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| Saprolitic Soil and Weathered Rock | 0.45-2.53                      | Moderately strong, pinkish grey, dappled brown and dark brown, sandy angular to subangular COBBLES with some angular fine to coarse gravel (Saprolitic Soil). Moderately strong, grey, dappled dark grey, slightly decomposed and moderately decomposed fine grained Granite and moderately decomposed and slightly decomposed feldsparphyric Rhyolite (Weathered Rock).                                                                                                                                                                |
| Bedrock                            | -                              | Strong, dark grey and mottled light grey and pink.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |

**Table 1 Summary of Soil Strata**

The rockhead level is around +83.10mPD to 130.41mPD.

The location of existing and proposed GI is presented in **Figure 2**. The solid and superficial geology map is presented in **Figure 3**. The records of existing GI are attached in **Appendix A**.

## 2.3 Groundwater Condition

Groundwater monitoring has been carried out during the ground investigation works in September 2012. Based on the available groundwater monitoring record for previous ground investigation works, the measured groundwater level is all dry.

Piezometers and/or standpipes may be installed as part of the future ground investigation works so as to measure and confirm the groundwater table regularly in the vicinity of the proposed development.

## 2.4 Existing Geotechnical Features

There are 9 numbers of GEO registered features within and in the vicinity of the proposed development site. The locations of these features are shown in **Figure 4**.

Desk study on previous stability assessment on these 9 registered features has been carried out. SIS report and SIMAR report indicating the location of these features and their maintenance responsibility are attached in **Appendix B** for ease reference. A summary of the status of the registered features is presented below:

| Feature No.     | Location                                                      | Maintenance Responsibility party                                      | Pervious Study                                                                     | DH Order | Status of DH Order |
|-----------------|---------------------------------------------------------------|-----------------------------------------------------------------------|------------------------------------------------------------------------------------|----------|--------------------|
| 11SW-C/C<br>87  | Located at the northeast of the site and part within the site | RBL136RP (sub-division 1),<br>Highways Department<br>(sub-division 2) | GEO Stage 3 Study carried out in 1995; Maintenance works are completed on 11/1999. | Nil      | Nil                |
| 11SW-C/R<br>19  | Located at the northwest of the site and outside the site     | Highways Department                                                   | No previous study.                                                                 | Nil      | Nil                |
| 11SW-C/F<br>443 | Located at the northwest of the site and outside the site     | Highways Department                                                   | GEO Stage 3 Study carried out in 2014; Maintenance works are completed on 01/2016. | Nil      | Nil                |

|               |                                                               |                     |                                                                                                                                                                                        |                |                                                                        |
|---------------|---------------------------------------------------------------|---------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------|------------------------------------------------------------------------|
| 11SW-C/FR 319 | Located at the southwest of the site and part within the site | RBL136RP            | GEO Stage 2 Study carried out in 1997. Feature formed up to standard / previously upgraded or catchment not meeting react-to-known-hazard principle by previous study accepted by GEO. | DH0091/HK/14/C | Recommendation to BD on 10 April 2014 and served by BD on 20 June 2014 |
| 11SW-C/R 474  | Located at the south of the site and wholly within the site   | RBL136RP            | GEO Stage 2 Study carried out in 1997; Advisory letter was issued in 2000.                                                                                                             | Nil            | Nil                                                                    |
| 11SW-C/R 495  | Located at the east of the site and outside the site          | Highways Department | No previous study                                                                                                                                                                      | Nil            | Nil                                                                    |
| 11SW-C/R 649  | Located at the east of the site and outside the site          | RBL422&EXT          | No previous study                                                                                                                                                                      | Nil            | Nil                                                                    |
| 11SW-C/C 922  | Located at the west of the site and outside the site          | Highways Department | No previous study                                                                                                                                                                      | Nil            | Nil                                                                    |
| 11SW-C/C 923  | Located at the west of the site and outside the site          | Highways Department | No previous study                                                                                                                                                                      | Nil            | Nil                                                                    |

**Table 2 Status of Registered Features within and in the Vicinity of the Site**

| Feature No. | Existing Conditions                                                  | Presence of Soil Nail | Anticipated Affected Extent of Features                                                                                                                                                                                                                                                                                                                                                            |
|-------------|----------------------------------------------------------------------|-----------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 11SW-C/C 87 | Slope: 9m height & 130m long with 55° angle of slope. 100% shotcrete | Yes                   | The feature part within the site will be removed and proposed development is planned at the toe of this feature. The level difference between the existing ground and proposed ground will be retained by retaining structure. The stability of the feature and effect from the proposed work will be checked against the current standard in the detailed design stage and modified if necessary. |

| Feature No.   | Existing Conditions                                                                                                           | Presence of Soil Nail | Anticipated Affected Extent of Features                                                                                                                                                                                                                                                                                                                               |
|---------------|-------------------------------------------------------------------------------------------------------------------------------|-----------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 11SW-C/R 474  | Wall: 5m Height & 38m long with 85° angle of Wall                                                                             | No information        | The feature is located at the southern side of the site, which is supporting the existing access road connecting Pok Fu Lam Road. This slope feature is far away from the proposed construction area, and no adverse impact is likely to be induced to the feature. Therefore, this feature will not be removed.                                                      |
| 11SW-C/FR 319 | Slope: 12m height & 155m long with 40° angle of slope. 100% shotcrete.<br>Wall: 12m Height & 150m long with 80° angle of Wall | Yes                   | The feature part within the site will be removed and proposed development is planned at the crest of this feature. The stability of this feature and the impact of the proposed construction will be assessed in accordance with current standards during detailed design stage, with adjustments made as necessary, thus the effect on the features will be minimal. |

**Table 3 Effect on Geotechnical Features within the Site**

| Feature No.  | Existing Conditions                                                    | Outside Lot Boundary                               | Anticipated Affected Extent of Features                                                                                                                                                                           |
|--------------|------------------------------------------------------------------------|----------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 11SW-C/F 443 | Slope: 36m height & 107m long with 28° angle of slope. 100% vegetated. | Outside Lot Boundary Away with approximately ~5 m  | The feature is to be maintained. No proposed modification work for the slope and no adverse effect will be induced.                                                                                               |
| 11SW-C/R 19  | Wall: 6m Height & 148m long with 90° angle of Concrete Wall            | Outside Lot Boundary Away with approximately ~5 m  | The feature is to be maintained. No proposed modification work for the wall and no adverse effect will be induced.<br>If necessary, the wall may need to upgrade and review the stability to up to CEDD standard. |
| 11SW-C/R 495 | Wall: 5.2m Height & 69m long with 90° angle of Concrete Wall           | Outside Lot Boundary Away with approximately ~16 m | The feature is to be maintained. No proposed modification work for the wall and no adverse effect will be induced.<br>If necessary, the wall may need to upgrade and review the stability to up to CEDD standard. |



| Feature No.  | Existing Conditions                                                                                       | Outside Lot Boundary                               | Anticipated Affected Extent of Features                                                                                                                                                                              |
|--------------|-----------------------------------------------------------------------------------------------------------|----------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 11SW-C/R 649 | Wall: 4m Height & 3m long with 90° angle of Concrete Wall                                                 | Outside Lot Boundary Away with approximately ~17 m | The feature is to be maintained.<br>No proposed modification work for the wall and no adverse effect will be induced.<br>If necessary, the wall may need to upgrade and review the stability to up to CEDD standard. |
| 11SW-C/C 922 | Slope: 15.1m height & 64m long with 63° angle of slope. 45% vegetated, 10% shotcrete and 45% other cover. | Outside Lot Boundary Away with approximately ~45 m | The feature is to be maintained.<br>No proposed modification work for the slope and no adverse effect will be induced.                                                                                               |
| 11SW-C/C 923 | Slope: 12m Height & 79m long with 63° angle of slope. 60% shotcrete and 40% other cover.                  | Outside Lot Boundary Away with approximately ~80 m | The feature is to be maintained.<br>No proposed modification work for the slope and no adverse effect will be induced.                                                                                               |

**Table 4 Effect on Geotechnical Features in the Vicinity of the Site**

Stability of the existing geotechnical features will affect or be affected by the proposed works will be further investigated in the detailed design stage. If necessary, upgrading works will be carried out first for the features which cannot meet the current safety standard. All the man-made features are proposed to be maintained as far as possible.

### 3 Geotechnical Review on Proposed Works

The Indicative Development Scheme comprises of 3 10-storeys towers over a 1-storey lobby and a 9-storeys tower over a 1-storey lobby. Layout and cross-sections of the Indicative Development Scheme are attached at **Appendix C**.

The geotechnical aspects of the proposed works are presented below.

### 3.1 Proposed Ground Investigation Works

Site-specific ground investigation works will be proposed at the Site in order to obtain information on the subsurface profile and material characteristics, groundwater regimes and foundations of the existing building. The proposed ground investigation works will comprise the following:-

- Vertical/inclined drillholes (with piezometer/standpipe);
- Trial pits;
- Slope stripping;
- Horizontal/inclined coreholes;
- Field tests;
- Laboratory tests.

The proposed ground investigation works will be carried out in compliance with the current geotechnical standards and the site supervision requirements as stipulated in the “Code of Practice for Site Supervision 2009” published by the Buildings Department (BD).

### 3.2 Soil Parameters

According to the Table 8 of the GEOGUIDE I [GEO, 1993], The recommended soil strength parameters for preliminary design and analysis are summarized below:

| Recommended Soil Parameters for Drained Design |                                               |                                  |                                              |
|------------------------------------------------|-----------------------------------------------|----------------------------------|----------------------------------------------|
| Soil Type                                      | Bulk Density<br>$\gamma$ (kN/m <sup>3</sup> ) | Effective cohesion<br>$c'$ (kPa) | Effective friction angle<br>$\phi'$ (degree) |
| Fill / Top soil                                | 19                                            | 0                                | 35                                           |
| Colluvium                                      | 19                                            | 3                                | 35                                           |
| Rock                                           | 26                                            | 10                               | 40                                           |

**Table 5 Summary of Soil Parameters**

The geotechnical parameters will be reviewed upon the completion of future ground investigation and laboratory tests.

### 3.3 Design Groundwater Level

The design ground water table shall be 1 m above the highest observed ground water table or one-third of the retained height / slope height, whichever is higher.

### 3.4 Proposed Excavation and Lateral Support Work (ELS)

The existing ground level of the site varies from +128.5mPD to +131.0mPD.

If there is no level difference between the Site and adjacent ground, open cut excavation is considered feasible, given there is enough area within the site.

As considered the requirement to facilitate the basement construction below the existing ground level or other site constraints, sheet pile/pipe pile, with strutting or soil nail, if necessary, is considered feasible. The excavated soil/rock volume will be approximate 42000 m<sup>3</sup> to facilitate the construction of the development based on the master layout plan.

For the level difference of nearly 10m between the existing ground level and the final excavation level, pipe pile wall or the like with struts would be adopted to retain the level difference, and preboring technique will be undertaken for the underground obstruction if necessary.

During excavation, close monitoring on the adjacent properties and groundwater level will be implemented. Detailed design with assessment will be carried out and submitted for approval in order to ensure no adverse impact induced on the adjacent properties, etc.

All existing features affecting or being affected by the development will be investigated and, if necessary, upgrading works will be proposed and carried out. Relevant details will be designed and submitted to the Buildings Department for approval.

### 3.5 Proposed Foundation

The foundation systems for structures will be designed to resist the dead and live vertical loads from the superstructure, lateral wind loads, uplift forces from groundwater, etc.

According to the GEO Technical Guidance Note No.53 (TGN53), the allowable bearing pressure shall be as follows:

| Category | Description of rock or soil                                                                                                                                                                                                                                                                                           | Presumed allowable bearing pressure (kPa, without wind) |
|----------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------|
| 1(c)     | Slightly to moderately decomposed moderately strong granite or volcanic rock of material weathering grade III or better, and with not less than 85% TCR of the designated grade, which has a minimum UCS of rock material not less than 25 MPa (or an equivalent point load index strength PLI50 not less than 1 MPa) | 5000                                                    |
| 1(d)     | Moderately decomposed, moderately strong to moderately weak granite or volcanic rock of material weathering grade III or better, and with not less than 50% TCR of the designated grade.                                                                                                                              | 3000                                                    |
| 2        | Meta-Sedimentary rock: Moderately decomposed, moderately strong to moderately weak meta-sedimentary rock of material weathering grade III or better, and with not less than 85% TCR of the designated grade.                                                                                                          | 3000                                                    |
| 3        | Intermediate soil (decomposed granite and decomposed volcanic): Highly to completely decomposed, moderately weak to weak rock of material weathering grade V or better, with SPT N-value $\geq 200$ .                                                                                                                 | 1000                                                    |

**Table 6 Summary of Allowable Bearing Pressure**

Raft foundation is considered feasible option for supporting the proposed development which will be founded on rock with high bearing capacity, comparing with the pile foundation. With the raft foundation, settlements will be designed to a tolerable and allowable limit taking the benefit of the high rock contact pressure.

Pile foundation is also considered feasible when rockhead level is relatively deep for construction raft footing. Bored piles and socketed H-piles socketed into bedrock are considered to be feasible for supporting low-rise and basement structure. Based on the currently available ground investigation records, the rockhead level is located varies from +83.10mPD to +130.41mPD.

In view of 3 nos. of 11-storeys and 1 no. of 10-storeys reinforced concrete buildings, loadings such as dead load, wind load and live load from the proposed superstructure are expected to be not substantial. Therefore, bored piles or socket H-piles should be appropriate and the effect on the adjacent properties should be minimal.

In accordance with available ground investigation works, the bedrock is about 1.8m to 5.1m below existing ground. In order to take lateral loads due to soils and wind on the proposed building, piles are required to be designed socketed into rock to provide a better friction capacity for vertical as well as lateral loadings. Inclined foundation piles may also be feasible to dissipate the lateral loadings to ground.

Detailed design calculation with assessment should be carried out and submitted for approval in order to ensure no adverse impact induced on the adjacent slopes, foundation, etc.

## 3.6 Effect on Existing GEO Registered Features

No dangerous hillside to be found at the horizontal upslope of the site boundary.

Three registered features, namely Feature Nos. 11SW-C/C 87, 11SW-C/R 474, 11SW-C/FR 319 are located within the boundary of the Site.

Six other registered features, namely Feature Nos. 11SW-C/F 443, 11SW-C/R 19, 11SW-C/R 495, 11SW-C/R 649, 11SW-C/C 922 and 11SW-C/C 923 are located outside the boundary of the Site.

Nos. 11SW-C/F 443 and 11SW-C/R 19 are located at the northwestern side of the site along the lot boundary, proposed works area to be away from this feature, and the features are to be maintained.

Nos. 11SW-C/R 495 and 11SW-C/R 649 are also located outside the site boundary, situated to the east of the site and separated from the site by a road. The features will be maintained due to the considerable distance from the construction area.

The part within the site of No. 11SW-C/C 87 will be removed during excavation works to facilitate the construction of the proposed building. Development and construction are planned at the toe of this feature. The level difference between the existing ground level and the proposed ground level will be maintained through retaining structures. A proposal for modifying or upgrading the features will be presented in the ELS plan or site formation plan to be submitted separately to the BD for approval.

Nos. 11SW-C/C 922 and 11SW-C/C 923 are situated outside of the lot boundary, located on the southwestern side and at a considerable distance from the construction area. The design and construction plan for the proposed project has been carefully considered to ensure its impact on the features is minimal, and vice versa. The features are to be maintained.

Although Feature No. 11SW-C/R 474 is located at the southern side of the site, which is supporting the existing access road connecting Pok Fu Lam Road, this slope feature is far away from the proposed construction area, and no adverse impact is likely to be induced to the feature. Therefore, this feature will not be removed. A thorough review will be conducted, and if necessary, further upgrading works will be proposed to mitigate any identified impacts.

And No. 11SW-C/FR 319 is partly within the site and will be partially removed. Future development is proposed at the crest of this feature. The stability of this feature and the impact of the proposed construction will be assessed in accordance with current standards during detailed design stage, with adjustments made as necessary.

Design amendments to the remedial work proposals, which will incorporate an assessment of the impact on the features due to the development, shall be submitted to the BD for approval.

## 3.7 Effect on Existing Structures and Utilities

### Foundation

In the event that pile foundations are proposed to support the building, it is essential to ensure that all foundations are designed to be socketed into the underlying rock or founded directly on solid rock. This design approach allows for all structural loads to be effectively transferred to the rock stratum, thereby minimizing the impact on the adjacent ground during the foundation work.

While the installation of pile foundations may generate negligible vibrations in the surrounding environment, it is anticipated that these vibrations will not adversely affect any existing utilities or structures in proximity. Comprehensive assessments and monitoring measures will be implemented to confirm that the foundation works maintain minimal disturbance to the surrounding area, thereby ensuring structural integrity and safety for both the new development and existing infrastructure.

### Excavation and Lateral Support Work (ELS)

The potential impact of ELS works on adjacent structures and facilities will be thoroughly assessed during the detailed design stage. It is crucial that all ELS works are meticulously planned to minimize any negative effects on the surrounding environment.

When pile walls are proposed for ELS works, it is important to note that ground movement resulting from pile wall deflection and groundwater drawdown could potentially adversely affect nearby utilities. To mitigate these risks, the ELS designs will incorporate strategies aimed at minimizing ground displacement and ensuring that any potential negative impacts on adjacent structures are negligible.

In conclusion, both foundation works and ELS works should prioritize the safety and stability of the surrounding environment during construction. No adverse effects will occur.

## 4 Monitoring Programme

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### 4.1 General Monitoring

In order to limit and control ground movement for the proposed excavation, an intensive monitoring program will be proposed to control the ground movement induced by the construction of ELS and foundation works in the range of allowable limits.

Instrumentation and monitoring programme comprising the following are proposed to monitor the performance of the proposed system and the effects of construction to the nearby sensitive receivers:

- Ground settlement markers – to monitor the ground surface movement.
- Building settlement markers and tilting markers – to monitor the movement tilting of the existing buildings affected by the works.
- Inclinator – to monitor the lateral movement of subsurface strata.
- Standpipes / Piezometers – to monitor groundwater levels.
- Utility settlement markers – to monitor the movement of sensitive utilities affected by the works.
- Vibration monitoring – to monitor the vibration of structures due to the construction works.
- Strain gauges – installed on selected soil nails to monitor bond stresses mobilized.

### 4.2 Monitoring Criteria

Should any of the following criteria occur, the siteworks that caused the adverse effects will be suspended and the Project Manager will be informed immediately:



- Total movement exceeding 25mm or undue movement at any ground settlement point;
- Differential movement between tilt and settlement markers representing a rotation exceeding 1 in 500 rotation;
- Drawdown in ground water in a standpipe / piezometer exceeds 1000mm below the lowest groundwater level obtained; and
- Any undue damage to property or utility is observed.

## 5 Conclusion

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The purpose of this report is to present a Geotechnical Planning Review on the application site which zoned "Residential (Group C)7" on Approved Pok Fu Lam Outline Zoning Plan No. S/H10/21 at 131 Pok Fu Lam Road to illustrate how the proposed works may affect or be affected by the existing features within and in the vicinity of the Site.

As the proposed works may have impacts on some of the slopes and retaining walls, the overall stability will be examined during the detailed design stage, and if necessary, be modified to comply with the current geotechnical standards. A proposal for modifying and upgrading the features within the Site will be presented in the ELS plan or site formation plan (including Pipe Pile Work) to be submitted separately.

Additional ground investigation works will be carried out at within the Site area to obtain adequate geotechnical & geological for carrying out design of site formation, ELS and foundation works of the Indicative Development Scheme.

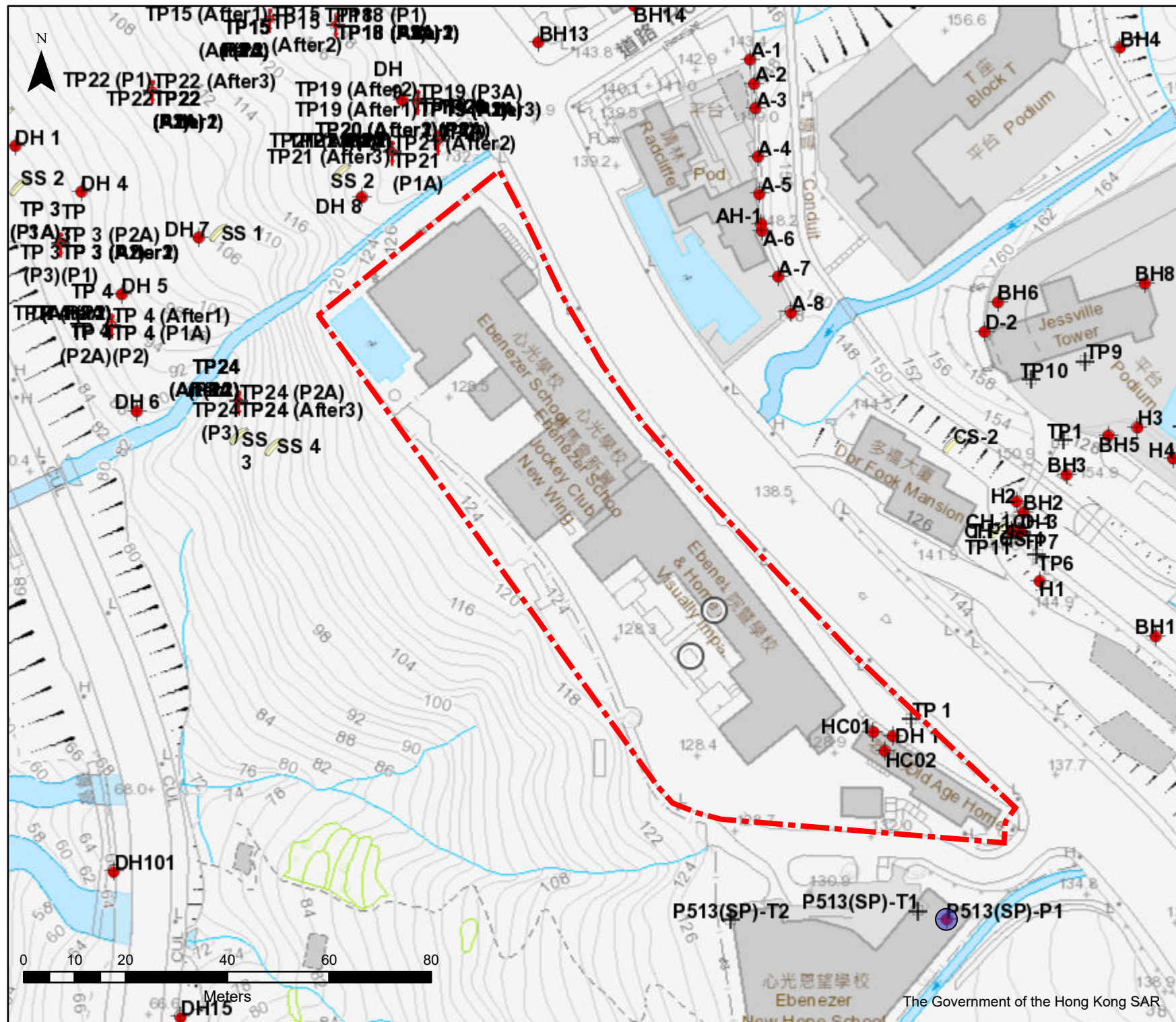
In conclusion, the Indicative Development Scheme is geotechnically feasible to be implemented within the Site.

# Figures

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## GI Location

- <all other values>
- Slope striping
- Cone Penetration Test
- GCO Probe
- Grab Samples
- Impression Packer Test
- Trial pit
- PR
- Rock joint survey
- Trial trench
- GI

Figure 2: Existing Ground Investigations Plan

Division

Scale 1:1000

Date 19/12/2025



# HONG KONG GEOLOGICAL SURVEY HONG KONG & KOWLOON

## Sheet 11

### SOLID AND SUPERFICIAL GEOLOGY

Series HGM20

Scale 1:20 000

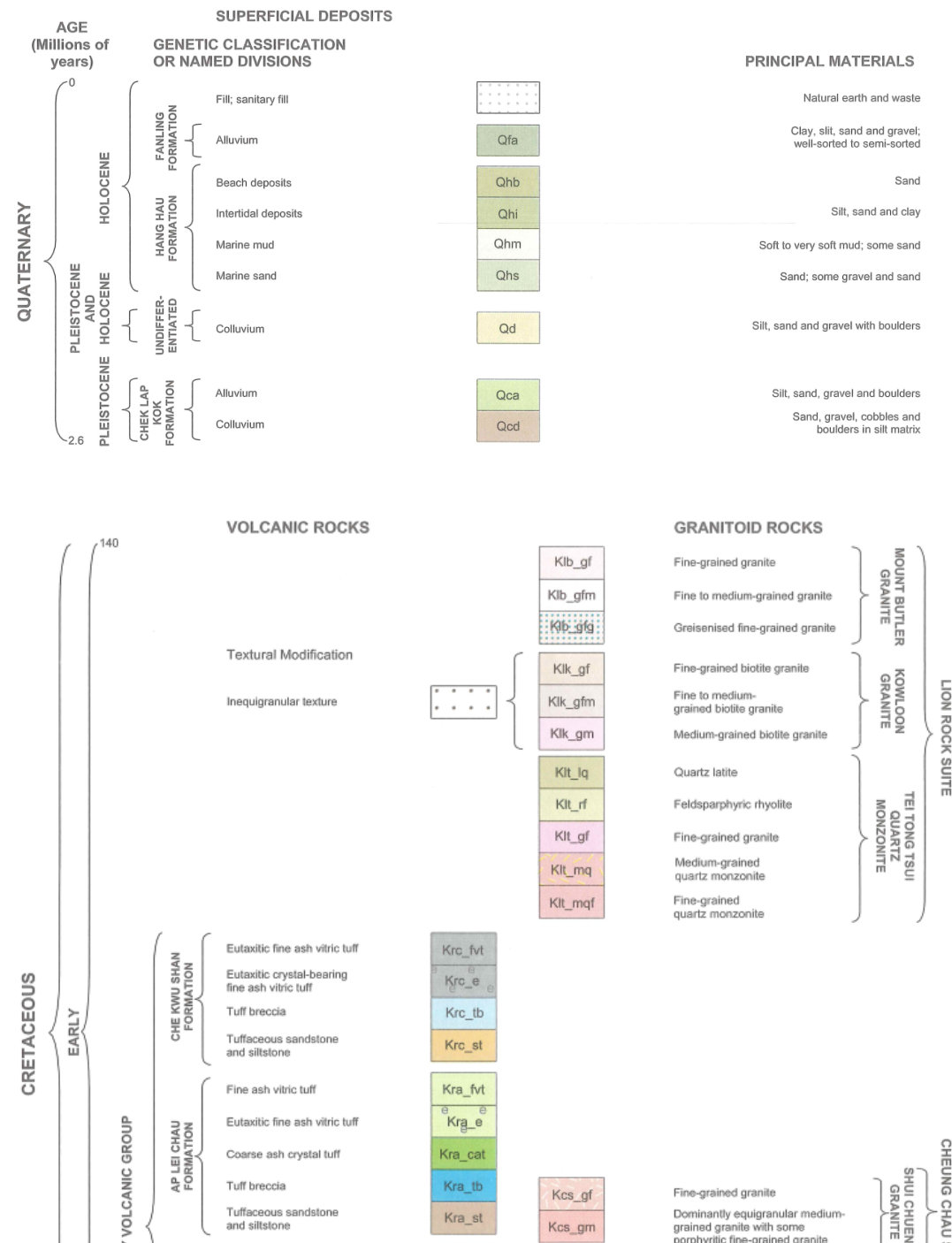
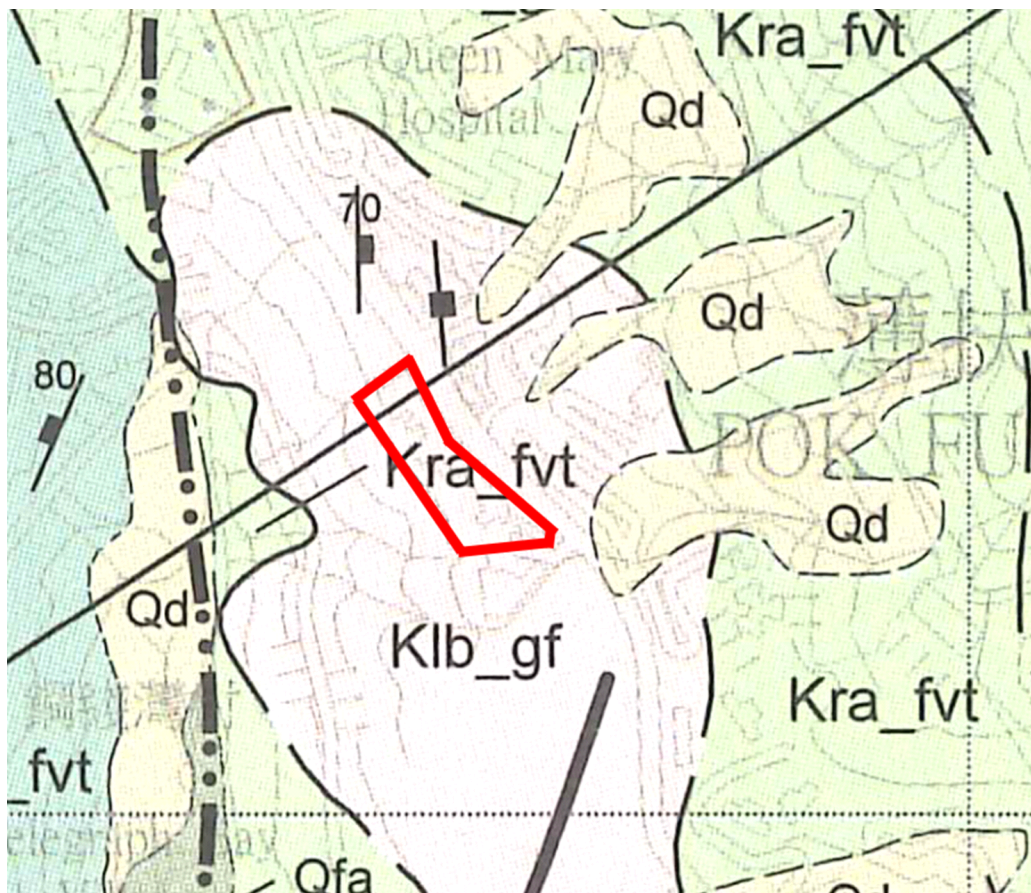
## Sheet 11

### Series HGM20

#### Edition II - 2012

### GEOTECHNICAL ENGINEERING OFFICE

Geological explanatory notes, base map  
reference and geological cross-sections  
printed on reverse side







# Appendix A

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## Records of Existing Ground Investigation Works



VIBRO (H.K.) LIMITED

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**CIVIL ENGINEERING AND DEVELOPMENT DEPARTMENT**

**GEOTECHNICAL ENGINEERING OFFICE**

**CONTRACT NO. GE/2011/06**

**GROUND INVESTIGATION – URBAN**

**(TERM CONTRACT)**

**Works Order No. GE/2011/06.264**

**Agreement No. CE 27/2011 (GE)**

**LPMit Programme, 2011, Package I**

**Landslip Prevention and Mitigation Works,**

**Investigation, Design and Construction,**

**Hillside Catchments Nos. 11SW-C/DF13, 11SW-C/DF13a, 11SW-C/DF13b –**

**Above Victoria Road**

**Ground Investigation**

**Final Fieldwork Report**

**CONTENTS**

|                                    |    |
|------------------------------------|----|
| 1. INTRODUCTION.....               | 1  |
| 2. THE SITE .....                  | 2  |
| 3. GEOLOGY .....                   | 2  |
| 4. FIELDWORK.....                  | 2  |
| 5. SOIL AND ROCK DESCRIPTIONS..... | 7  |
| 6. GROUND CONDITIONS.....          | 8  |
| 7. DIGITAL DATA.....               | 10 |
| 8. REFERENCES.....                 | 11 |

Cont.



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|                  |                                                                                                        |
|------------------|--------------------------------------------------------------------------------------------------------|
| FIGURE 1 .....   | GROUND INVESTIGATION PLAN                                                                              |
| TABLE 1 .....    | SUMMARY TABLE OF SURVEY DATA                                                                           |
| TABLE 2 .....    | SUMMARY TABLE OF DRILLHOLE RESULTS                                                                     |
| TABLE 3 .....    | SUMMARY TABLE OF IN-SITU DENSITY TEST RESULTS                                                          |
| TABLE 4 .....    | SUMMARY TABLE OF INSPECTION PIT RESULTS                                                                |
|                  |                                                                                                        |
| APPENDIX A ..... | CHECKLISTS FOR SOIL & ROCK DESCRIPTIONS                                                                |
| APPENDIX B ..... | LEGENDS FOR USE IN EXPLORATORY STATION RECORDS                                                         |
| APPENDIX C ..... | DRILLHOLE RECORDS                                                                                      |
| APPENDIX D ..... | DRILLHOLE COREBOX PHOTOGRAPHS                                                                          |
| APPENDIX E ..... | TRIAL PIT RECORDS                                                                                      |
| APPENDIX F ..... | TRIAL PIT PHOTOGRAPHS                                                                                  |
| APPENDIX G ..... | SLOPE STRIPPING RECORDS                                                                                |
| APPENDIX H ..... | ACOUSTIC TELEVIEWER SURVEY RECORDS                                                                     |
| APPENDIX I ..... | IN-SITU DENSITY TEST RECORDS                                                                           |
| APPENDIX J ..... | DYNAMIC PROBING TEST RECORDS                                                                           |
| APPENDIX K ..... | INSTRUMENT INSTALLATION DETAIL AND RESPONSE TEST RECORDS                                               |
| APPENDIX L ..... | GROUNDWATER MONITORING RECORDS                                                                         |
| APPENDIX M ..... | AGS DIGITAL DATA & DIGITAL IMAGE OF FINAL FIELDWORK REPORT,<br>INDIVIDUAL STATION RECORD & PHOTOGRAPHS |

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**CIVIL ENGINEERING AND DEVELOPMENT DEPARTMENT****GEOTECHNICAL ENGINEERING OFFICE****CONTRACT NO. GE/2011/06****GROUND INVESTIGATION – URBAN****(TERM CONTRACT)****Works Order No. GE/2011/06.264****Agreement No. CE 27/2011 (GE)****LPMit Programme, 2011, Package I****Landslip Prevention and Mitigation Works,****Investigation, Design and Construction,****Hillside Catchments Nos. 11SW-C/DF13, 11SW-C/DF13a, 11SW-C/DF13b –****Above Victoria Road****Ground Investigation****Final Fieldwork Report****1. INTRODUCTION**

The Civil Engineering and Development Department (CEDD) awarded Contract No. GE/2011/06 – Urban (Term Contract), to Vibro (H. K.) Limited in March 2011. This contract lasts for two years.

This report presents the results of the ground investigation works for Agreement No. CE 27/2011 (GE), LPMit Programme, 2011, Package I, Landslip Prevention and Mitigation Works, Investigation, Design and Construction, Hillside Catchments Nos. 11SW-C/DF13, 11SW-C/DF13a, 11SW-C/DF13b – Above Victoria Road. The fieldworks were carried out under Works Order No. GE/2011/06.264.

The fieldworks comprise drillings, manual excavation of trial pits, slope strippings and inspection pits, logging of ground materials, sampling, field testing, instrument installation, groundwater monitoring, vegetation clearances and surveying, were carried out in the period between 19<sup>th</sup> September 2012 and 23<sup>rd</sup> November 2012 under the supervision of CM Wong & Associates Limited.

## **2. THE SITE**

Investigation works were carried out at Hillside Catchments Nos. 11SW-C/DF13, 11SW-C/DF13a, 11SW-C/DF13b – Above Victoria Road, Hong Kong. The exploratory stations can be located with the following co-ordinates at Hong Kong Metric Grid (1980).

|     | Easting(m) | Northing(m) |
|-----|------------|-------------|
| (1) | 831460     | 814260      |
| (2) | 831460     | 814445      |
| (3) | 831605     | 814260      |
| (4) | 831605     | 814445      |

All exploratory stations are indicated on the Ground Investigation Plan as shown in Figure 1. Co-ordinates and ground levels of all exploratory stations are presented in Table 1.

## **3. GEOLOGY**

The 1:20 000 Solid and Superficial Geology Map 'Hong Kong & Kowloon' published by the GCO (HGM20 Sheet 11 Edition 1, 1986) indicates that the site is expected to be underlain by fine grained Granite from Jurassic - Cretaceous Period of the Mesozoic Era.

## **4. FIELDWORK**

The fieldworks comprised nine (9) vertical drillholes (Nos. DH1 to DH9), twenty five (25) trial pits (Nos. TP1 to TP22 and TP24 to TP26), four (4) slope stripping (Nos. SS1 to SS4), three (3) inspection pits (Nos. IP1 to IP3) and two (2) vegetation clearances (Nos. VC2 to VC3). The works at these investigation stations were carried out to depths and at locations



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as specified in the Works Order or as instructed by the Engineer.

#### **4.1 Drilling**

An inspection pit was hand excavated at each drillhole location to the maximum depth of 1.00m, prior to the commencement of drilling works. Small disturbed samples were progressively collected during excavation at 0.5m intervals.

Nine (9) vertical drillholes (Nos. DH1 to DH9) were terminated at depths between 8.08m (at DH3) and 18.22m (at DH5). Rotary drilling techniques, using two sets of portable drilling equipments, were adopted for this Works Order. PW (140mmØ) and HW (115mmØ) casings, equipped with tungsten carbide cutting shoes, were used to advance the drillholes and prevent holes collapses. Arisings from the drilling process were removed from the drillholes using water as the flushing medium.

##### **4.1.1 Mazier (Triple Tube Retractable Core Barrel) Samples**

Undisturbed Retractable Triple Tube Core (Mazier) samples were taken at drillhole Nos. DH1, DH7 and DH9, using a triple tube retractable core barrel fitted with a removable 74mm diameter, 1000mm long transparent rigid ABS plastic liner. A retractable cutting shoe projecting from the tungsten carbide drill bit of the "Mazier" sampler was used to penetrate the material being sampled and thus isolate it from the detrimental effects of the flushing medium.

Small disturbed samples were taken in drillholes from the cutting shoe of the undisturbed sampler.

##### **4.1.2 Double Tube Rock Coring**

Double Tube, T2-101 swivel-type rotary core barrel with diamond impregnated core bit was used to recover concrete core with nominal size of 84mm at all drillholes.

After completion, drillhole Nos. DH1, DH7 to DH9 were backfilled in accordance with the instrumentation detail. For other drillholes, they were backfilled with cement bentonite grout in accordance with CI.7.50 of the General Specification for Civil Engineering Works, 2006 Edition, the Government of the Hong Kong Special Administrative Region.

Photographs were taken for all materials recovered from the drillholes. The jar lids were removed prior to photography in order to display their contents. The drillhole records and the relevant corebox photographs are presented in Appendix C and D respectively.

#### **4.2 Trial Pitting**

Twenty five (25) trial pits (Nos. TP1 to TP22 and TP24 to TP26) were excavated by hand tools at locations as specified by the Engineer to examine superficial deposits. The dimension of all excavated trial pits were 1.5m x 1.5m on plan at ground level. When the trial pits were excavated beyond 1.2m depths, shoring was installed over the full height of the trial pits. Each of the trial pit faces was logged and photographic records were taken. The trial pit records and photographs are presented in Appendix E and F respectively.

Block samples, undisturbed horizontal U100 samples, large disturbed samples and small disturbed samples were taken at locations as instructed by the Engineer on site.

Upon completion of sampling, logging, photography and approval from the Engineer, the trial pits were backfilled and compacted by a vibrating hammer in 150mm layers and the surfaces of the trial pits were reinstated to the original ground conditions.

#### **4.3 Slope Stripping**

Four (4) slope strippings (Nos. SS1 to SS4) were excavated through the slope surface to expose the underlying natural materials. The slope strippings were excavated to 0.50m wide and 0.30m deep to expose the underlying materials. The



axis of each slope stripping was parallel to the dip of the slope. The exposed natural material was logged starting from the top of the slope proceeding downwards. Small disturbed samples were taken from the surface of the finished slope strip at 0.5m intervals. Upon completion of sampling, logging and approval from the Engineer, the slope strippings were appropriately reinstated to its original conditions.

The slope stripping records are presented in Appendix G.

#### **4.4 Inspection Pit**

Three (3) inspection pits (Nos. IP1 to IP3) were hand excavated from 0.50m to 1.00m deep, at locations from the datum of slope stripping nos. SS3 and SS4, as instructed by the Engineer. Small disturbed samples were progressively collected during excavation at 0.5m intervals.

A summary of the inspection pit record is presented in Table 4. The daily site records and photographs were submitted separately.

#### **4.5 Vegetation Clearance**

Two (2) strips of vegetation clearance (Nos. VC2 to VC3) were carried out for Engineer's inspection with length, wide and area of coverage as determined by the Engineer on site. The site measurement records and photographs have been submitted separately.

#### **4.6 Field Testing**

##### **4.6.1 Acoustic Televiwer Survey**

Acoustic Televiwer Survey was carried out at drillhole Nos. DH1 to DH6 at depth as instructed by the Engineer.

A Robertson Geologging High Resolution Acoustic Televiwer (HiRAT) fitted with two centralisers, was lowered to the borehole until to the bottom of testing depths as specified by the Engineer. The survey parameters were entered into the data acquisition system computer. The sonde was then raised to the surface and logging

commenced from the bottom at an optimum rate of about 1.5 to 1.6m/minute. A depth encoder provides continuous depth monitoring automatically. The logging stopped once the sonde passed the top of the testing depths and the data was stored for offsite processing and analysis.

The acoustic televiewer survey records are presented in Appendix H.

#### **4.6.2 In-situ Density Test**

In-situ density tests were carried out in accordance with GEOSPEC 3 (November 2001) test method 11.1 at trial pit Nos. TP2, TP4, TP8 to TP11, TP13 to TP16, TP18 to TP20, TP22, TP25 and TP26 as specified by the Engineer, by the sand replacement method. The bulk density of sand used for the test was determined in the laboratory before the commencement of the test. The results of the tests are presented in Appendix I and the summary of the results is presented in Table 3.

#### **4.6.3 Dynamic Probing Test**

Dynamic probing tests were carried out prior to the excavation of each trial pit to estimate the sub-surface soil strength as instructed by the Engineer.

The probes undertaken prior to the excavation of each trial pit were set out in a triangular pattern around the center of the pit not more than 800mm apart and advanced from ground level down to the proposed depth of the trial pits. If, however, hard strata were encountered before attaining the proposed depth and probing was terminated at a shallow depth due to refusal, a second attempt would be preformed.

The dynamic probing tests were carried out in accordance with Geoguide 2 using a 10kg hammer, dropping in free fall over a distance of 300mm.

The results of the tests carried out prior to excavation of the trial pits are presented in Appendix J and have been included in the AGS digital data presented in Appendix M.

### **4.7 Installation**

A standpipe was installed at drillhole Nos. (DH1 and DH7 to DH9).

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The standpipe comprises a 25mm I.D. uPVC riser pipe capped at the lower end, and perforated over the entire length, except for upper 2.00m, with 3mm holes covering approximately 5% of the surface area. The perforated section was surrounded with a granular response zone.

The response zones of the instruments, were sealed with bentonite pellets and backfilling of the drillholes above the bentonite pellets with cement/bentonite grout to the dimension shown in Geoguide 2, Figure 21. Details of the installation and the results of the response tests are presented in Appendix K.

The top of the uPVC tube of each instrument was fitted with a uPVC cap with a vent hole. A concrete surface box fitted with a cast iron hinged cover was constructed at the top of each drillhole to prevent damage to the instruments.

All instruments were monitored daily for a period of seven (7) working days upon completion of response tests. The groundwater monitoring records are presented in Appendix L.

#### **4.8 Surveying Investigation Location**

Following the completion of the fieldworks, the as-built co-ordinates and reduced levels were taken for each Investigation Station with reference to the nearest Government Benchmark. The as-built co-ordinates are presented in Hong Kong Metric Grid (1980) and reduced levels are related to the Hong Kong Principal Datum (PD). The co-ordinates and levels of each investigation station are summarized in the Summary Table of Survey Data, Table 1.

### **5. SOIL AND ROCK DESCRIPTIONS**

The soils and rocks encountered in the investigation have generally been described according to Geoguide 3, Guide to Rock and Soil Descriptions. The classification and definitions of the descriptive terms are presented in Appendix A.

The delineation of various strata was primarily based on the examination of the samples

recovered from the drillholes and from the examination of the strata exposed on the faces of the trial pits and on the slope strippings. The results given in the form of drillhole, trial pit and slope stripping records are presented in Appendix C, E and G respectively. The legends used in the records are summarized in Appendix B.

## **6. GROUND CONDITIONS**

### **6.1 Introduction**

The vertical drillholes encountered a combination of the following strata:

FILL  
COLLUVIUM/TOP SOIL  
COLLUVIUM  
SAPROLITIC SOIL AND WEATHERED ROCK  
ROCK

A summary of the strata encountered is presented in Table 2.

A brief description of the materials encountered is given in the following sections. In summary, the strata have been grouped together under the headings of Fill, Colluvium / Top Soil, Colluvium, Saprolitic Soil and Weathered Rock, and Rock.

Full descriptions of the strata encountered can be found in the Drillhole Records presented in Appendix C of this report.

### **6.2 Fill**

Fill was encountered at the ground surfaces of drillhole Nos. DH1, DH3 and DH7 to DH9. Fill comprises sandy SILT with some angular to subangular fine to coarse gravel sized highly decomposed and moderately decomposed rock fragments and occasional angular cobble sized moderately decomposed Granite, clayey / silty fine to coarse SAND with angular to subangular fine to coarse gravel sized highly decomposed and moderately decomposed rock fragments and occasional angular to



subangular cobble sized moderately decomposed Granite, sandy angular to subangular fine to coarse GRAVEL, COBBLE and BOULDER sized highly decomposed to slightly decomposed Granite and Tuff with some angular to subangular fine to coarse gravel sized highly decomposed and moderately decomposed rock fragments and occasional brick fragments.

The encountered thickness of the stratum ranged from 1.00m (at DH3) to 5.09m (at DH8) with the base elevations of the stratum vary between +83.28mPD and +130.86mPD at drillhole No. DH3 and DH9 respectively.

### **6.3 Colluvium / Top Soil**

Colluvium / Top Soil was encountered at the ground surfaces of drillhole Nos. DH2 and DH4 to DH6. Colluvium / Top Soil comprises sandy SILT with occasional subangular fine gravel sized highly decomposed rock fragments and some rootlets and silty fine to coarse SAND with some angular to subangular fine to coarse gravel sized highly decomposed to slightly decomposed rock fragments.

The encountered thickness of the stratum ranged from 0.50m (at DH4 to DH6 ) to 0.70m (at DH2) with the base elevations of the stratum vary between +86.65mPD and +94.29mPD at drillhole No. DH6 and DH5 respectively.

### **6.4 Colluvium**

Colluvium was encountered beneath Colluvium / Top Soil at drillhole Nos. DH6. Colluvium comprises angular BOULDER of slightly decomposed fine grained Granite.

The encountered thickness of the stratum was 0.69m with its base elevations at +85.96mPD.

### **6.5 Saprolitic Soil and Weathered Rock**

Saprolitic Soils and Weathered Rock derived from the in-situ weathering of fine grained Granite were encountered beneath Colluvium at drillhole No. DH6 and beneath Fill at drillhole No. DH9. The Saprolitic Soil generally comprises sandy



angular to subangular COBBLES with some angular fine to coarse gravel.

Weathered rock comprises slightly decomposed and moderately decomposed fine grained Granite was encountered at drillhole No. DH6 and moderately decomposed and slightly decomposed feldsparphyric Rhyolite was encountered at DH1.

The encountered thickness of the stratum ranged from 0.45m (at DH9) to 2.53m (at DH6) with the base elevations of the stratum vary between +83.43mPD and +130.41mPD at drillhole No. DH6 and DH9 respectively.

## **6.6 Bedrock**

Bedrock of feldsparphyric Rhyolite and fine grained Granite was encountered at drillhole No. DH1 and fine grained Granite was encountered at all other drillholes with the bedrock levels vary between at +83.28mPD and +130.41mPD at drillhole Nos. DH3 and DH9 respectively.

## **7. DIGITAL DATA**

The investigation log of each exploratory station was produced from gINT<sup>®</sup> which is a geotechnical and geoenvironmental software product. Details of the drillhole, trial pit and slope stripping records are stored in ASCII digital format.

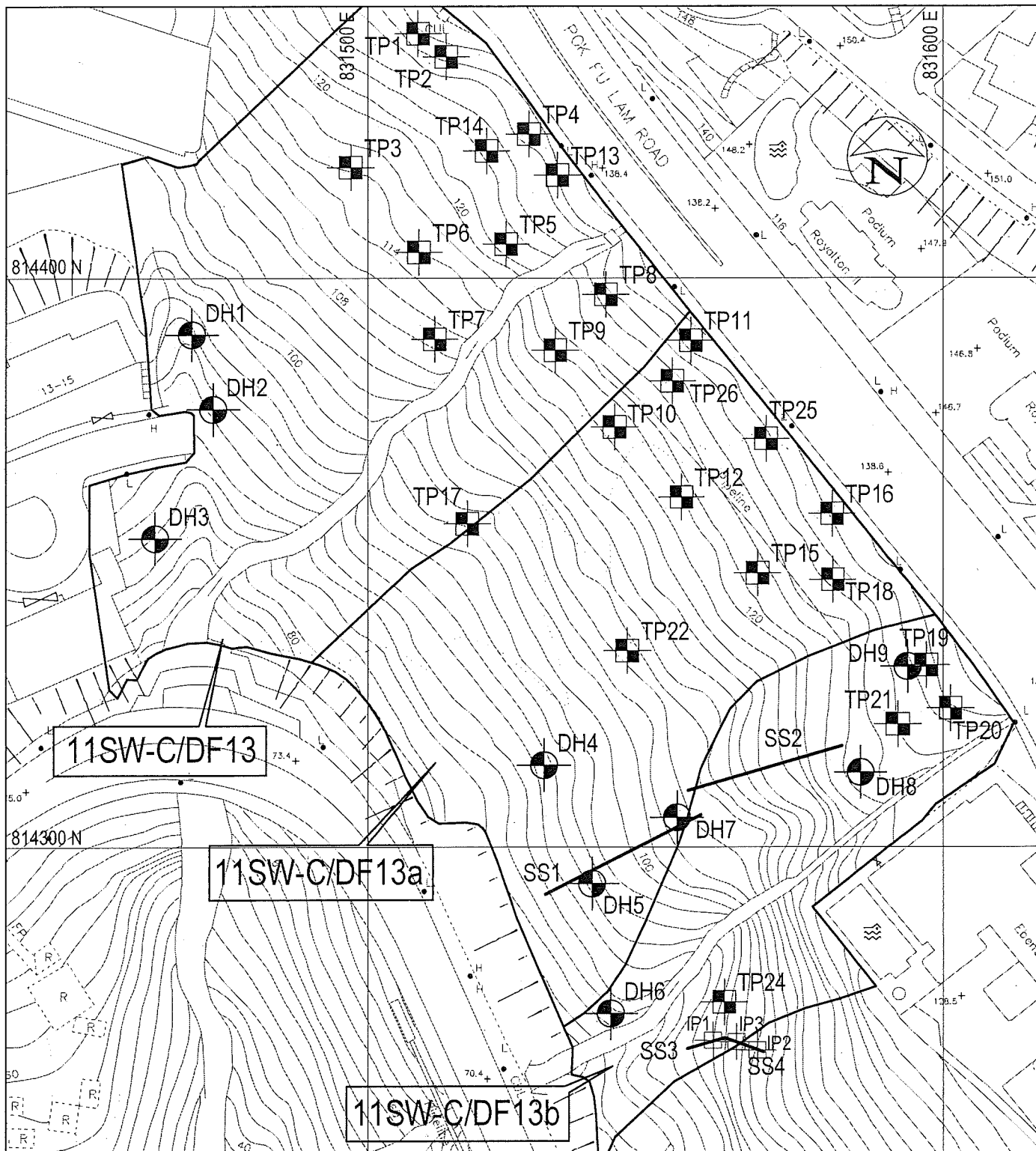
The data have been prepared in accordance with Appendix 1 of the third edition of the Association of Geotechnical and Geoenvironmental Specialists (AGS) publication "Electronic Transfer of Geotechnical and Geoenvironmental Data (AGS 1999)". The data dictionary used for the data field headings is in accordance with that recommended by the AGS with local variations as instructed by the Geotechnical Engineering Office.

All photographs presented in this report were taken with a digital camera, which conform to the JPEG Exchangeable Image File (EXIF) Version 2.2 standard.

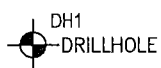
The AGS digital data and the digital image of this final fieldwork report, individual station record and photographs are stored on a CD-ROM as attached in Appendix M.

## 8. REFERENCES

1. GCO HGM20 Sheet 11, Hong Kong & Kowloon, (Edition 1, 1986): Solid and Superficial Geology Edition (1:20 000 map).
2. GEO (1987), Guide to Site Investigation (Geoguide 2), Geotechnical Engineering Office, Hong Kong.
3. GEO (1988), Guide to Rock and Soil Descriptions (Geoguide 3), Geotechnical Engineering Office, Hong Kong.
4. General Specification for Civil Engineering Works, 2006 Edition, the Government of the Hong Kong Special Administrative Region.
5. Macbeth (1994), Munsell Soil Colour Charts. 1994 Revised Edition published by GretagMacbeth.
6. GEO (2001), Model Specification for Soil Testing (Geospec 3), Geotechnical Engineering Office, Hong Kong.
7. AGS (1999), Transfer of Geotechnical and Geoenvironmental Data, Association of Geotechnical and Geoenvironmental Specialists.



**LEGEND:**



DH1

DRILLHOLE



TP1

TRIAL PIT



SS1

SLOPE STRIPPING



IP1

INSPECTION PIT  
(APPROX. LOCATION)

DRAWN:

PWN

CHECKED:

E LEUNG

CEDD CONTRACT NO. GE/2011/06  
GROUND INVESTIGATION  
- URBAN (TERM CONTRACT)

FEATURE NO.:

11SW-C/DF13  
11SW-C/DF13a & 11SW-C/DF13b

SCALE:

1 : 1000

DATE:

27-11-2012

LOCATION:

Above Victoria Road, Hong Kong

DRAWING NO.:

J201115e/GIP/264

WORKS ORDER NO.:

GE/2011/06.264

**VIBRO**  
VIBRO (H.K.) LIMITED

**CEDD** CIVIL ENGINEERING AND  
DEVELOPMENT DEPARTMENT  
HONG KONG

DRAWING TITLE:

GROUND INVESTIGATION  
LAYOUT PLAN

|  |                                                                                                                                                                                                                                                                                                 | VIBRO (H.K.) LTD.             |                       | CONTRACT NO.    |
|----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------|-----------------------|-----------------|
|                                                                                  |                                                                                                                                                                                                                                                                                                 | SITE INVESTIGATION DEPARTMENT |                       | GE/2011/06      |
|                                                                                  |                                                                                                                                                                                                                                                                                                 | TABLE 1 - SURVEY RECORD       |                       |                 |
| PROJECT                                                                          | Ground Investigation - Urban (Term Contract)<br>Agreement No. CE 27/2011 (GE), LPMit Programme, 2011, Package I, Landslip<br>Prevention and Mitigation Works, Investigation, Design and Construction, Hillside<br>Catchments Nos. 11SW-C/DF13, 11SW-C/DF13a, 11SW-C/DF13b - Above Victoria Road |                               |                       | WORKS ORDER NO. |
|                                                                                  |                                                                                                                                                                                                                                                                                                 |                               |                       | GE/2011/06.264  |
|                                                                                  |                                                                                                                                                                                                                                                                                                 |                               |                       | SHEET 1 OF 2    |
| EXPLORATORY STATION                                                              | EASTING                                                                                                                                                                                                                                                                                         | NORTHING                      | GROUND LEVEL<br>(mPD) |                 |
| DH 1                                                                             | 831469.49                                                                                                                                                                                                                                                                                       | 814390.07                     | +94.28                |                 |
| DH 2                                                                             | 831473.21                                                                                                                                                                                                                                                                                       | 814376.93                     | +90.49                |                 |
| DH 3                                                                             | 831463.06                                                                                                                                                                                                                                                                                       | 814354.21                     | +84.28                |                 |
| DH 4                                                                             | 831530.61                                                                                                                                                                                                                                                                                       | 814314.39                     | +92.04                |                 |
| DH 5                                                                             | 831538.97                                                                                                                                                                                                                                                                                       | 814293.58                     | +94.79                |                 |
| DH 6                                                                             | 831542.20                                                                                                                                                                                                                                                                                       | 814270.71                     | +87.15                |                 |
| DH 7                                                                             | 831553.68                                                                                                                                                                                                                                                                                       | 814305.21                     | +104.61               |                 |
| DH 8                                                                             | 831585.74                                                                                                                                                                                                                                                                                       | 814313.13                     | +126.78               |                 |
| DH 9                                                                             | 831593.88                                                                                                                                                                                                                                                                                       | 814331.69                     | +133.56               |                 |
| SS 1 Crest                                                                       | 831557.91                                                                                                                                                                                                                                                                                       | 814305.68                     | +106.72               |                 |
| SS 1 Toe                                                                         | 831530.83                                                                                                                                                                                                                                                                                       | 814291.70                     | +89.51                |                 |
| SS 2 Crest                                                                       | 831582.43                                                                                                                                                                                                                                                                                       | 814317.76                     | +126.61               |                 |
| SS 2 Toe                                                                         | 831555.64                                                                                                                                                                                                                                                                                       | 814309.92                     | +106.71               |                 |
| SS 3 Crest                                                                       | 831562.10                                                                                                                                                                                                                                                                                       | 814266.42                     | +97.78                |                 |
| SS 3 Toe                                                                         | 831555.53                                                                                                                                                                                                                                                                                       | 814264.53                     | +93.58                |                 |
| SS 4 Crest                                                                       | 831568.71                                                                                                                                                                                                                                                                                       | 814263.96                     | +103.48               |                 |
| SS 4 Toe                                                                         | 831562.08                                                                                                                                                                                                                                                                                       | 814266.42                     | +97.77                |                 |
| TP 1                                                                             | 831508.69                                                                                                                                                                                                                                                                                       | 814443.13                     | +132.13               |                 |
| TP 2                                                                             | 831513.57                                                                                                                                                                                                                                                                                       | 814439.02                     | +132.07               |                 |
| TP 3                                                                             | 831497.01                                                                                                                                                                                                                                                                                       | 814419.54                     | +116.73               |                 |
| TP 4                                                                             | 831528.02                                                                                                                                                                                                                                                                                       | 814425.42                     | +132.98               |                 |
| TP 5                                                                             | 831524.04                                                                                                                                                                                                                                                                                       | 814406.02                     | +123.44               |                 |
| TP 6                                                                             | 831508.84                                                                                                                                                                                                                                                                                       | 814404.57                     | +115.63               |                 |
| TP 7                                                                             | 831511.58                                                                                                                                                                                                                                                                                       | 814389.26                     | +110.36               |                 |
| TP 8                                                                             | 831541.39                                                                                                                                                                                                                                                                                       | 814397.14                     | +128.08               |                 |
| TP 9                                                                             | 831532.60                                                                                                                                                                                                                                                                                       | 814387.30                     | +119.28               |                 |
| TP10                                                                             | 831542.92                                                                                                                                                                                                                                                                                       | 814373.82                     | +119.24               |                 |
| TP11                                                                             | 831556.14                                                                                                                                                                                                                                                                                       | 814389.06                     | +132.23               |                 |
| TP12                                                                             | 831554.49                                                                                                                                                                                                                                                                                       | 814361.47                     | +120.53               |                 |
| TP13                                                                             | 831532.96                                                                                                                                                                                                                                                                                       | 814418.16                     | +132.58               |                 |
| TP14                                                                             | 831520.62                                                                                                                                                                                                                                                                                       | 814422.43                     | +127.60               |                 |





**VIBRO (H.K.) LTD.**  
SITE INVESTIGATION DEPARTMENT  
**TABLE 1 - SURVEY RECORD**

CONTRACT NO.

GE/2011/06

WORKS ORDER NO.

GE/2011/06.264

SHEET 2 OF 2

PROJECT

Ground Investigation - Urban (Term Contract)  
Agreement No. CE 27/2011 (GE), LPMit Programme, 2011, Package I, Landslip  
Prevention and Mitigation Works, Investigation, Design and Construction, Hillside  
Catchments Nos. 11SW-C/DF13, 11SW-C/DF13a, 11SW-C/DF13b - Above Victoria Road

EXPLORATORY STATION

EASTING

NORTHING

GROUND LEVEL  
(mPD)

TP15

831567.75

814348.13

+123.67

TP16

831580.77

814358.55

+135.06

TP17

831517.24

814356.78

+100.42

TP18

831580.89

814346.95

+130.10

TP19

831597.08

814331.94

+135.49

TP20

831601.29

814324.36

+134.74

TP21

831592.20

814321.56

+131.16

TP22

831545.07

814334.48

+107.58

TP24

831561.94

814272.74

+95.55

TP25

831569.24

814371.75

+133.13

TP26

831552.89

814381.90

+127.01



**VIBRO (H.K.) LIMITED**  
SITE INVESTIGATION DEPARTMENT

**CONTRACT NO. GE/2011/06**  
**WORKS ORDER NO. GE/2011/06.264**

**PROJECT :** Ground Investigation - Urban (Term Contract)  
**LOCATION :** Agreement No. CE 27/2011 (GE), LPMit Programme, 2011, Package I, Landslip Prevention and Mitigation Works, Investigation, Design and Construction, Hillside Catchments Nos. 11SW-C/DF13, 11SW-C/DF13a, 11SW-C/DF13b - Above Victoria Road

**Table 2 - Summary of Drillhole Result**

Sheet 1 of 1

| Stratum                                  | HOLE NO.           |         |         |         |         |         |         |         |         |
|------------------------------------------|--------------------|---------|---------|---------|---------|---------|---------|---------|---------|
|                                          | DH 1               | DH 2    | DH 3    | DH 4    | DH 5    | DH 6    | DH 7    | DH 8    | DH 9    |
| Ground Level (mPD)                       | +94.28             | +90.49  | +84.28  | +92.04  | +94.79  | +87.15  | +104.61 | +126.78 | +133.56 |
| Fill                                     |                    |         |         |         |         |         |         |         |         |
| Bottom Level (mPD)                       | +90.38             | -       | +83.28  | -       | -       | -       | +100.61 | +121.69 | +130.86 |
| Bottom Depth (m below Ground Level)      | 3.90               | -       | 1.00    | -       | -       | -       | 4.00    | 5.09    | 2.70    |
| Thickness (m)                            | 3.90               | -       | 1.00    | -       | -       | -       | 4.00    | 5.09    | 2.70    |
| Colluvium/Top Soil                       |                    |         |         |         |         |         |         |         |         |
| Bottom Level (mPD)                       | -                  | +89.79  | -       | +91.54  | +94.29  | +86.65  | -       | -       | -       |
| Bottom Depth (m below Ground Level)      | -                  | 0.70    | -       | 0.50    | 0.50    | 0.50    | -       | -       | -       |
| Thickness (m)                            | -                  | 0.70    | -       | 0.50    | 0.50    | 0.50    | -       | -       | -       |
| Colluvium                                |                    |         |         |         |         |         |         |         |         |
| Bottom Level (mPD)                       | -                  | -       | -       | -       | -       | +85.96  | -       | -       | -       |
| Bottom Depth (m below Ground Level)      | -                  | -       | -       | -       | -       | 1.19    | -       | -       | -       |
| Thickness (m)                            | -                  | -       | -       | -       | -       | 0.69    | -       | -       | -       |
| Saprolitic Soil and Weathered Rock       |                    |         |         |         |         |         |         |         |         |
| Bottom Level (mPD)                       | +89.19             | -       | -       | -       | -       | +83.43  | +99.51  | -       | +130.41 |
| Bottom Depth (m below Ground Level)      | 5.09               | -       | -       | -       | -       | 3.72    | 5.10    | -       | 3.15    |
| Thickness (m)                            | 1.19               | -       | -       | -       | -       | 2.53    | 1.10    | -       | 0.45    |
| Rock                                     |                    |         |         |         |         |         |         |         |         |
| Bottom Level (mPD)                       | +83.02             | +82.33  | +76.20  | +73.87  | +76.57  | +68.99  | +89.51  | +115.46 | +124.38 |
| Bottom Depth (m below Ground Level)      | 11.26              | 8.16    | 8.08    | 18.17   | 18.22   | 18.16   | 15.10   | 11.32   | 9.18    |
| Thickness (m)                            | 6.17               | 7.46    | 7.08    | 17.67   | 17.72   | 14.44   | 10.00   | 6.23    | 6.03    |
| End of Hole Level (mPD)                  | +83.02             | +82.33  | +76.20  | +73.87  | +76.57  | +68.99  | +89.51  | +115.46 | +124.38 |
| End of Hole Depth (m below Ground Level) | 11.26              | 8.16    | 8.08    | 18.17   | 18.22   | 18.16   | 15.10   | 11.32   | 9.18    |
| Rock Type                                | Rhyolite / Granite | Granite | Granite | Granite | Granite | Granite | Granite | Granite | Granite |
| Bedrock Level (mPD)                      | +89.19             | +89.79  | +83.28  | +91.54  | +94.29  | +83.43  | +99.51  | +121.69 | +130.41 |

Note : - : Not encountered in the investigation



## DRILLHOLE RECORD

HOLE NO. DH 1

CONTRACT NO. : GE/2011/06

SHEET 1 OF 2

PROJECT Ground Investigation - Urban (Term Contract)  
Agreement No. CE 27/2011 (GE), LPMit Programme, 2011, Package I, Landslip Prevention and Mitigation Works, Investigation, Design and Construction, Hillside Catchments Nos. 11SW-C/DF13, 11SW-C/DF13a, 11SW-C/DF13b - Above Victoria Road

|                 |        |                         |                                 |
|-----------------|--------|-------------------------|---------------------------------|
| METHOD          | Rotary | CO-ORDINATES            | W.O.NO.                         |
| MACHINE & NO.   | VBM56  | E 831469.49 N 814390.07 | GE/2011/06.264                  |
| FLUSHING MEDIUM | Water  | ORIENTATION Vertical    | DATE : 25/09/2012 to 28/09/2012 |
|                 |        |                         | GROUND LEVEL + 94.28 mPD        |

| Drilling Progress | Casing Depth/Size | Water Level (m) Shift start / end | Flush Returns % | TCR % | SCR % | RQD % | FI   | Tests | Samples          | Reduced Level | Depth (m) | Legend | Grade | Description                                                                                                                                                                                                      |
|-------------------|-------------------|-----------------------------------|-----------------|-------|-------|-------|------|-------|------------------|---------------|-----------|--------|-------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                   |                   |                                   |                 |       |       |       |      |       | No. Type Depth   |               |           |        |       |                                                                                                                                                                                                                  |
| 25/09/2012        | HW                |                                   |                 |       |       |       |      |       | A INSPECTION PIT | +94.28        | 0.00      |        |       | Firm, brown (7.5YR 5/4), sandy SILT with some angular to subangular fine to coarse gravel sized moderately decomposed rock fragments and occasional angular cobble sized moderately decomposed Granite. (FILL)   |
|                   |                   |                                   |                 |       |       |       |      |       | B                |               | 1.00      |        |       |                                                                                                                                                                                                                  |
| 25/09/2012        |                   |                                   | 0               | 80    |       |       |      |       | T21OI            | +93.28        | 1.00      |        |       | Brown (7.5YR 5/4), dappled pinkish brown, angular fine to coarse GRAVEL and COBBLE sized moderately decomposed Granite. (FILL)                                                                                   |
| 26/09/2012        |                   | 1.30m at 08:00                    | 0               | 84    |       |       |      |       | T21OI            |               | 1.50      |        |       |                                                                                                                                                                                                                  |
|                   |                   |                                   | 0               | 86    |       |       |      |       | T21OI            |               | 2.00      |        |       |                                                                                                                                                                                                                  |
|                   |                   |                                   | 0               | 78    |       |       |      |       | T21OI            |               | 2.50      |        |       |                                                                                                                                                                                                                  |
|                   |                   |                                   | 0               | 80    |       |       |      |       | T21OI            |               | 3.00      |        |       |                                                                                                                                                                                                                  |
|                   |                   |                                   | 0               | 0     |       |       |      |       | T21OI            |               | 3.50      |        |       |                                                                                                                                                                                                                  |
|                   |                   |                                   | 0               | 86    | 0     | 0     | >20  |       | T21OI            | +90.38        | 3.90      |        | III   | Moderately strong, grey, dappled dark grey, moderately decomposed feldsparphyric RHYOLITE.                                                                                                                       |
|                   |                   |                                   | 0               | 88    | 14    | 0     | 9.4  |       | T21OI            | +89.85        | 4.43      |        | II    | Joints are very closely spaced, locally closely spaced, extremely narrow to very narrow, rough planar, clean and occasional iron stained, dipping 20° to 30°, 70° to 80° and subvertically.                      |
|                   | HW 4.96           |                                   | 0               | 88    |       |       | NI   |       | T21OI            | +89.53        | 4.75      |        | III   | From 4.43m to 4.75m : Strong, slightly decomposed feldsparphyric RHYOLITE.                                                                                                                                       |
|                   |                   |                                   |                 |       |       |       | >20  |       | T21OI            | +89.19        | 5.09      |        |       |                                                                                                                                                                                                                  |
|                   |                   | 5.30m at 18:00                    | 60              | 100   | 100   | 87    | 2.3  |       | T21OI            |               |           |        | II    | Strong, dark grey, spotted and mottled light grey and pink, slightly decomposed feldsparphyric RHYOLITE.                                                                                                         |
| 26/09/2012        |                   | Dry at 08:00                      | 60              | 100   | 53    | 26    | 7.0  |       | T21OI            |               | 6.47      |        |       | Joints are closely spaced, locally very closely and medium spaced, tight to extremely narrow, rough and slickensided planar, clean and calcite coated, dipping 10° to 20°, 20° to 30° and 70° to 80°.            |
| 27/09/2012        |                   |                                   |                 |       |       |       | >20  |       | T21OI            |               |           |        |       | From 6.80m to 8.17m : Subvertical joint.                                                                                                                                                                         |
|                   |                   | Dry at 18:00                      |                 |       |       |       | 7.7  |       | T21OI            |               | 7.80      |        |       |                                                                                                                                                                                                                  |
| 28/09/2012        |                   | Dry at 08:00                      | 60              | 100   | 80    | 46    | 14.7 |       | T21OI            |               |           |        |       |                                                                                                                                                                                                                  |
|                   |                   |                                   |                 |       |       |       | >20  |       | T21OI            | +85.48        | 8.80      |        | II    | Strong, greyish pink, slightly decomposed fine grained GRANITE.                                                                                                                                                  |
|                   |                   |                                   | 60              | 100   | 61    | 50    | 8.5  |       | T21OI            |               | 9.18      |        |       | Joints are closely to medium spaced, locally very closely spaced, rough planar and rough stepped, tight to extremely narrow, clean and occasional chlorite coated, dipping 0° to 10°, 30° to 40° and 50° to 60°. |
|                   |                   |                                   |                 |       |       |       |      |       | T21OI            |               |           |        |       | From 8.90m to 9.18m : Subvertical joint.                                                                                                                                                                         |

- Disturbed sample
  - Piston sample
  - Split spoon sample
  - U76 undisturbed sample
  - U100 undisturbed sample
  - Mazier sample
  - SPT liner sample
  - Water sample
  - Environmental Sample
- Standard penetration test  
In-situ vane shear test  
Permeability test  
Pressuremeter test  
Packer Test  
Acoustic or optical televiwer survey  
Piezometer tip  
Standpipe  
Inclinometer access tube  
Vibrating wire piezometer  
Impression packer test

LOGGED T. C. Yip  
DATE 03/10/2012  
CHECKED E. Leung  
DATE 04/10/2012

REMARKS  
1. An inspection pit was excavated to 1.00m.  
2. A standpipe was installed to 4.50m.  
3. An acoustic televiwer survey was carried out from 4.96m to 11.02m.

|                                                                                                                                                                                                                                                                                                          |                      |                                               |                                             |       |       |                                                          |            |       |                                          |                                           |                                      |        |       |             |                                                                                                                 |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------|-----------------------------------------------|---------------------------------------------|-------|-------|----------------------------------------------------------|------------|-------|------------------------------------------|-------------------------------------------|--------------------------------------|--------|-------|-------------|-----------------------------------------------------------------------------------------------------------------|
|                                                                                                                                                                                                                                                                                                          |                      | DRILLHOLE RECORD                              |                                             |       |       | HOLE NO.     DH 1                                        |            |       |                                          |                                           |                                      |        |       |             |                                                                                                                 |
|                                                                                                                                                                                                                                                                                                          |                      | CONTRACT NO. :     GE/2011/06                 |                                             |       |       | SHEET    2    OF    2                                    |            |       |                                          |                                           |                                      |        |       |             |                                                                                                                 |
| <b>PROJECT</b> Ground Investigation - Urban (Term Contract)<br>Agreement No. CE 27/2011 (GE), LPMit Programme, 2011, Package I, Landslip Prevention and Mitigation Works, Investigation, Design and Construction, Hillside Catchments Nos. 11SW-C/DF13, 11SW-C/DF13a, 11SW-C/DF13b - Above Victoria Road |                      |                                               |                                             |       |       |                                                          |            |       |                                          |                                           |                                      |        |       |             |                                                                                                                 |
| METHOD                     Rotary                                                                                                                                                                                                                                                                        |                      |                                               | CO-ORDINATES                                |       |       | W.O.NO.                     GE/2011/06.264               |            |       |                                          |                                           |                                      |        |       |             |                                                                                                                 |
| MACHINE & NO.             VBM56                                                                                                                                                                                                                                                                          |                      |                                               | E 831469.49                     N 814390.07 |       |       | DATE :     25/09/2012    to    28/09/2012                |            |       |                                          |                                           |                                      |        |       |             |                                                                                                                 |
| FLUSHING MEDIUM         Water                                                                                                                                                                                                                                                                            |                      |                                               | ORIENTATION               Vertical          |       |       | GROUND LEVEL             + 94.28                     mPD |            |       |                                          |                                           |                                      |        |       |             |                                                                                                                 |
| Drilling<br>Progress                                                                                                                                                                                                                                                                                     | Casing<br>Depth/Size | Water<br>Level<br>(m)<br>Shift<br>start / end | Flush<br>Returns %                          | TCR % | SCR % | RQD %                                                    | FI         | Tests | Samples<br><small>No. Type Depth</small> | Reduced<br>Level<br><small>+84.28</small> | Depth<br>(m)<br><small>10.00</small> | Legend | Grade | Description |                                                                                                                 |
|                                                                                                                                                                                                                                                                                                          |                      |                                               |                                             |       |       |                                                          |            |       |                                          |                                           |                                      |        |       |             |                                                                                                                 |
| 11                                                                                                                                                                                                                                                                                                       |                      | 8.30m<br>at<br>18:00                          | 60                                          | 100   | 61    | 50                                                       | 8.5        |       | T2IOI<br>10.57<br>T2IOI                  |                                           |                                      | +      | +     | II          | See sheet 1 of 2                                                                                                |
| 28/09/2012                                                                                                                                                                                                                                                                                               |                      |                                               | 60                                          | 100   | 86    | 73                                                       | >20<br>2.2 | ↓     |                                          |                                           |                                      |        | +     | +           | From 10.60m to 10.85m : With slickensided planar chlorite infilled joints up to 10mm thick, dipping 60° to 70°. |
| 12                                                                                                                                                                                                                                                                                                       |                      |                                               |                                             |       |       |                                                          |            |       |                                          |                                           |                                      |        |       |             | End of Investigation Hole at 11.26m.                                                                            |
| 13                                                                                                                                                                                                                                                                                                       |                      |                                               |                                             |       |       |                                                          |            |       |                                          |                                           |                                      |        |       |             |                                                                                                                 |
| 14                                                                                                                                                                                                                                                                                                       |                      |                                               |                                             |       |       |                                                          |            |       |                                          |                                           |                                      |        |       |             |                                                                                                                 |
| 15                                                                                                                                                                                                                                                                                                       |                      |                                               |                                             |       |       |                                                          |            |       |                                          |                                           |                                      |        |       |             |                                                                                                                 |
| 16                                                                                                                                                                                                                                                                                                       |                      |                                               |                                             |       |       |                                                          |            |       |                                          |                                           |                                      |        |       |             |                                                                                                                 |
| 17                                                                                                                                                                                                                                                                                                       |                      |                                               |                                             |       |       |                                                          |            |       |                                          |                                           |                                      |        |       |             |                                                                                                                 |
| 18                                                                                                                                                                                                                                                                                                       |                      |                                               |                                             |       |       |                                                          |            |       |                                          |                                           |                                      |        |       |             |                                                                                                                 |
| 19                                                                                                                                                                                                                                                                                                       |                      |                                               |                                             |       |       |                                                          |            |       |                                          |                                           |                                      |        |       |             |                                                                                                                 |
| 20                                                                                                                                                                                                                                                                                                       |                      |                                               |                                             |       |       |                                                          |            |       |                                          |                                           |                                      |        |       |             |                                                                                                                 |

- Disturbed sample
- Piston sample
- ▨ Split spoon sample
- ▨ U76 undisturbed sample
- ▨ U100 undisturbed sample
- ▨ Mazier sample
- SPT liner sample
- ▲ Water sample
- En Environmental Sample

- ↓ Standard penetration test
- ↘ In-situ vane shear test
- Permeability test
- Pressuremeter test
- Packer Test
- Acoustic or optical
- Piezometer tip
- Standpipe
- Inclinator access tube
- Vibrating wire piezometer
- Impression packer test

LOGGED     T. C. Yip

DATE         03/10/2012

CHECKED     E. Leung

DATE         04/10/2012

REMARKS



## DRILLHOLE RECORD

HOLE NO. DH 2

CONTRACT NO. : GE/2011/06

SHEET 1 OF 1

## PROJECT

### Ground Investigation - Urban (Term Contract)

Agreement No. CE 27/2011 (GE), LPMIT Programme, 2011, Package I, Landslip Prevention and Mitigation Works, Investigation, Design and Construction, Hillside Catchments Nos. 11SW-C/DF13, 11SW-C/DF13a, 11SW-C/DF13b - Above Victoria Road

| METHOD | Rotary |
|--------|--------|
|--------|--------|

### CO-ORDINATES

W.O.NO. GE/2011/06.264

MACHINE &amp; NO. VBM56

E 831473.21

N 814376.93

DATE : 19/09/2012 to 20/09/2012

FLUSHING MEDIUM      Water

ORIENTATION      Vertical

GROUND LEVEL + 90.49 mPD

|   | Drilling Progress        | Casing Depth/Size | Water Level (m) Shift start / end | Flush Returns % | TCR % | SCR % | RQD % | FI   | Tests | Samples                     | Reduced Level | Depth (m) | Legend | Grade | Description                                                                                                                                                                                                                                                                                                                                                  |
|---|--------------------------|-------------------|-----------------------------------|-----------------|-------|-------|-------|------|-------|-----------------------------|---------------|-----------|--------|-------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|   |                          |                   |                                   |                 |       |       |       |      |       | No. Type Depth              |               |           |        |       |                                                                                                                                                                                                                                                                                                                                                              |
|   | 19/09/2012               | HW                |                                   |                 |       |       |       |      |       | INSPECTION PT<br>A ●<br>B ● | +90.49        | 0.00      |        |       | Firm, dark brown (7.5YR 3/4), sandy SILT with occasional subangular fine gravel sized highly decomposed rock fragments and some rootlets. (COLLUVIUM / TOP SOIL.)                                                                                                                                                                                            |
| 1 |                          |                   |                                   | 60              | 100   | 0     | 0     | Ni   |       | T2 OI                       | +89.79        | 0.70      |        | III   | Moderately strong, pinkish grey, dappled brown and dark brown, moderately decomposed fine grained GRANITE, fractured.                                                                                                                                                                                                                                        |
|   |                          | HW 1.48           |                                   | 60              | 100   | 45    | 19    | 12.5 |       | T2 OI                       |               | 1.00      |        | II    | Strong, locally moderately strong, pinkish grey, dappled light brown and brown, slightly decomposed fine grained GRANITE. Joints are closely to medium spaced, locally very closely spaced, rough planar and rough stepped, extremely narrow, iron and manganese stained, locally chlorite coated, dipping 0° to 10°, 10° to 20°, 50° to 60° and 60° to 70°. |
| 2 |                          |                   |                                   | 60              | 100   | 29    | 23    | >20  |       | T2 OI                       | +88.68        | 1.81      |        | III   | From 1.81m to 2.30m : Moderately strong, moderately decomposed GRANITE with closely spaced joints, dipping subvertically.                                                                                                                                                                                                                                    |
|   |                          |                   |                                   | 60              | 100   | 89    | 54    | 7.1  |       | T2 OI                       | +88.19        | 2.30      |        | II    |                                                                                                                                                                                                                                                                                                                                                              |
| 3 |                          |                   |                                   | 60              | 100   |       |       | 17.5 |       |                             |               |           |        |       |                                                                                                                                                                                                                                                                                                                                                              |
|   |                          |                   |                                   | 60              | 100   | 60    | 48    | 8.0  |       | T2 OI                       |               |           |        |       |                                                                                                                                                                                                                                                                                                                                                              |
| 4 |                          |                   |                                   | 60              | 100   | 67    | 25    | >20  |       |                             |               |           |        |       |                                                                                                                                                                                                                                                                                                                                                              |
|   |                          | 2.30m at 18:00    |                                   | 60              | 100   | 67    | 49    | 4.3  |       | T2 OI                       |               |           |        |       |                                                                                                                                                                                                                                                                                                                                                              |
|   | 19/09/2012<br>20/09/2012 | 3.30m at 08:00    |                                   | 60              | 100   | 75    | 15    | 14.9 |       | T2 OI                       | +85.14        | 5.35      |        | III   | At 4.90m : With some voids (<10mm) noted along joint.                                                                                                                                                                                                                                                                                                        |
| 5 |                          |                   |                                   | 60              | 100   | 60    | 60    | 6.1  |       | T2 OI                       | +84.89        | 5.60      |        | II    | From 5.35m to 5.60m : Moderately strong, moderately decomposed GRANITE. With kaolin coated joints, dipping 60°. From 5.60m to 5.75m : With very closely to closely spaced microfractures, dipping 70° to 80° and subvertically. From 5.98m to 6.95m : With very closely to closely spaced microfractures, dipping 50° to 60°.                                |
|   |                          |                   |                                   | 60              | 100   | 72    | 54    | 6.9  |       | T2 OI                       |               |           |        |       |                                                                                                                                                                                                                                                                                                                                                              |
| 7 |                          |                   |                                   | 60              | 100   | 93    | 76    | 5.9  |       | T2 OI                       |               |           |        |       |                                                                                                                                                                                                                                                                                                                                                              |
| 8 | 20/09/2012               | 3.10m at 18:00    |                                   |                 |       |       |       |      |       |                             | 8.16          | +82.33    | 8.16   |       | End of Investigation Hole at 8.16m.                                                                                                                                                                                                                                                                                                                          |

- |    |                         |   |                           |
|----|-------------------------|---|---------------------------|
| ●  | Disturbed sample        | ↓ | Standard penetration test |
| ▢  | Piston sample           | ↓ | In-situ vane shear test   |
| ▨  | Split spoon sample      | ↓ | Permeability test         |
| ▩  | U76 undisturbed sample  | ↓ | Pressuremeter test        |
| ■  | U100 undisturbed sample | ↓ | Packer Test               |
| ▤  | Mazier sample           | ↓ | Acoustic or optical       |
| ▥  | SPT liner sample        | ↓ | televiwer survey          |
| ▲  | Water sample            | ↓ | Piezometer tip            |
| En | Environmental Sample    | ↓ | Standpipe                 |
|    |                         | ↓ | Inclinometer access tube  |
|    |                         | ↓ | Vibrating wire piezometer |
|    |                         | ↓ | Impression packer test    |

LOGGED T. C. Yip

T. C. Yip

DATE 21/09/2012

21/09/2012

CHECKED E. Leung

E. Leung

DATE 25/09/2012

25/09/2012

## REMARKS

- REMARKS
1. An inspection pit was excavated to 0.70m.
  2. An acoustic televiewer survey was carried out from 1.48m to 7.97m.



# DRILLHOLE RECORD

HOLE NO. DH 3

CONTRACT NO. : GE/2011/06

SHEET 1 OF 1

## PROJECT

Ground Investigation - Urban (Term Contract)

Agreement No. GE 27/2011 (GE), LPMit Programme, 2011, Package I, Landslip Prevention and Mitigation Works, Investigation, Design and Construction, Hillside Catchments Nos. 11SW-C/DF13, 11SW-C/DF13a, 11SW-C/DF13b - Above Victoria Road

## METHOD

Rotary

## CO-ORDINATES

W.O.NO.

GE/2011/06.264

## MACHINE &amp; NO.

VBM56

E 831463.06

N 814354.21

DATE : 22/09/2012 to 24/09/2012

## FLUSHING MEDIUM

Water

## ORIENTATION

Vertical

GROUND LEVEL

+ 84.28

mPD

| Drilling Progress        | Casing Depth/Size | Water Level (m) Shift start / end | Flush Returns % | TCR % | SCR % | RQD % | FI   | Tests | Samples        | Reduced Level | Depth (m) | Legend | Grade | Description                                                                                                                                                                                                                                                      |
|--------------------------|-------------------|-----------------------------------|-----------------|-------|-------|-------|------|-------|----------------|---------------|-----------|--------|-------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 22/09/2012               | HW                |                                   |                 |       |       |       |      |       | No. Type Depth | +84.28        | 0.00      |        |       |                                                                                                                                                                                                                                                                  |
|                          |                   |                                   |                 |       |       |       |      |       | INSPECTION PIT |               |           |        |       |                                                                                                                                                                                                                                                                  |
|                          |                   |                                   |                 |       |       |       |      |       | A 0.50         | +83.68        | 0.60      |        |       | Dark brown (7.5YR 3/4), silty fine to coarse SAND with some angular to subangular fine to coarse gravel sized highly decomposed and moderately decomposed rock fragments and occasional angular to subangular cobble sized moderately decomposed Granite. (FILL) |
|                          |                   |                                   |                 |       |       |       |      |       | B 0.60         |               |           |        |       |                                                                                                                                                                                                                                                                  |
|                          |                   |                                   | 60              | 88    | 0     | 0     | 13.3 |       | T2 IOI         | +83.28        | 1.00      |        | III   | Greyish brown (2.5Y 5/2), dappled brown, angular to subangular COBBLE sized moderately decomposed and slightly decomposed Granite with some angular medium to coarse gravel sized moderately decomposed rock fragments. (FILL)                                   |
|                          | HW 1.37           |                                   | 60              | 100   | 40    | 0     |      |       | T2 IOI         | +82.98        | 1.30      |        | II    | (FILL)                                                                                                                                                                                                                                                           |
|                          |                   |                                   | 60              | 100   | 67    | 67    | 4.5  |       | T2 IOI         |               |           |        |       | Strong, greyish pink, locally dappled light brown, slightly decomposed fine grained GRANITE.                                                                                                                                                                     |
|                          |                   |                                   | 60              | 100   | 88    | 77    |      |       | T2 IOI         |               |           |        |       | Joints are medium spaced, locally closely and widely spaced, rough planar and rough stepped, extremely narrow, iron and manganese stained, occasional clean, dipping 10° to 20°, 50° to 60°, 60° to 70° and occasional 70° to 80°.                               |
|                          |                   |                                   | 60              | 100   | 66    | 66    |      |       | T2 IOI         |               |           |        |       | From 1.00m to 1.30m : Moderately strong, moderately decomposed.                                                                                                                                                                                                  |
|                          |                   |                                   | 60              | 100   | 89    | 74    | 2.9  |       | T2 IOI         |               |           |        |       | From 1.00m to 1.50m : Subvertical joint.                                                                                                                                                                                                                         |
|                          |                   |                                   | 60              | 100   | 100   | 100   |      |       | T2 IOI         |               |           |        |       | From 2.00m to 2.40m : Subvertical joint.                                                                                                                                                                                                                         |
|                          |                   |                                   | 60              | 100   | 95    | 95    | 1.4  |       | T2 IOI         |               |           |        |       |                                                                                                                                                                                                                                                                  |
|                          |                   |                                   | 60              | 100   | 100   | 100   | 14.3 |       | T2 IOI         |               |           |        |       |                                                                                                                                                                                                                                                                  |
|                          |                   |                                   | 60              | 100   | 68    | 40    | 11.1 |       | T2 IOI         |               |           |        |       |                                                                                                                                                                                                                                                                  |
|                          |                   |                                   | 60              | 100   | 100   | 93    | 5.6  |       | T2 IOI         |               |           |        |       |                                                                                                                                                                                                                                                                  |
| 22/09/2012<br>24/09/2012 |                   | 1.39m at 18:00<br>1.50m at 08:00  | 60              | 100   | 100   | 100   | 1.3  |       | T2 IOI         |               |           |        |       |                                                                                                                                                                                                                                                                  |
|                          |                   | 1.51m at 13:00                    | 60              | 100   | 100   | 100   |      |       | T2 IOI         |               |           |        |       |                                                                                                                                                                                                                                                                  |
| 24/09/2012               |                   |                                   |                 |       |       |       |      |       | T2 IOI         | +76.20        | 8.08      |        |       | End of Investigation Hole at 8.08m.                                                                                                                                                                                                                              |

- Disturbed sample
  - Piston sample
  - Split spoon sample
  - U76 undisturbed sample
  - U100 undisturbed sample
  - Mazier sample
  - SPT liner sample
  - Water sample
  - Environmental Sample
- Standard penetration test
  - In-situ vane shear test
  - Permeability test
  - Pressuremeter test
  - Packer Test
  - Acoustic or optical televiwer survey
  - Piezometer tip
  - Standpipe
  - Inclinometer access tube
  - Vibrating wire piezometer
  - Impression packer test

LOGGED

T. C. Yip

DATE

25/09/2012

CHECKED

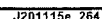
E. Leung

DATE

26/09/2012

## REMARKS

1. An inspection pit was excavated to 0.60m.
2. An acoustic televiwer survey was carried out from 1.37m to 7.87m.





# DRILLHOLE RECORD

HOLE NO. DH 4

CONTRACT NO. : GE/2011/06

SHEET 2 OF 2

## PROJECT

Ground Investigation - Urban (Term Contract)

Agreement No. CE 27/2011 (GE), LPMit Programme, 2011, Package I, Landslip Prevention and Mitigation Works, Investigation, Design and Construction, Hillside Catchments Nos. 11SW-C/DF13, 11SW-C/DF13a, 11SW-C/DF13b - Above Victoria Road

|                 |        |                         |                |
|-----------------|--------|-------------------------|----------------|
| METHOD          | Rotary | CO-ORDINATES            | W.O.NO.        |
| MACHINE & NO.   | VBM56  | E 831530.61 N 814314.39 | GE/2011/06.264 |
| FLUSHING MEDIUM | Water  | ORIENTATION             | Vertical       |
|                 |        | GROUND LEVEL            | + 92.04 mPD    |

| Drilling Progress | Casing Depth/Size | Water Level (m) Shift start / end | Flush Returns % | TCR % | SCR % | RQD % | FI   | Tests | Samples        | Reduced Level | Depth (m) | Legend | Grade | Description                                |
|-------------------|-------------------|-----------------------------------|-----------------|-------|-------|-------|------|-------|----------------|---------------|-----------|--------|-------|--------------------------------------------|
|                   |                   |                                   |                 |       |       |       |      |       | No. Type Depth | +82.04        | 10.00     |        |       |                                            |
|                   |                   |                                   | 60              | 100   | 100   | 98    | 4.6  |       | T21OI          |               |           |        |       | See sheet 1 of 2                           |
|                   |                   |                                   |                 |       |       |       | 13.2 |       |                | 10.74         |           |        |       |                                            |
|                   |                   |                                   | 60              | 100   | 93    | 70    |      |       | T21OI          |               |           |        |       |                                            |
|                   |                   | 7.50m at 18:00                    |                 |       |       |       | 3.8  |       |                | 12.07         |           |        |       |                                            |
|                   |                   | Dry at 08:00                      |                 |       |       |       |      |       |                |               |           |        |       |                                            |
|                   |                   |                                   | 60              | 100   | 98    | 55    |      |       | T21OI          |               |           |        |       |                                            |
|                   |                   |                                   |                 |       |       |       | 14.1 |       |                | 13.43         |           |        |       |                                            |
|                   |                   |                                   | 60              | 100   | 73    | 56    |      |       | T21OI          |               |           |        |       | From 13.89m to 14.34m : Subvertical joint. |
|                   |                   |                                   |                 |       |       |       | 4.3  |       |                | 14.34         |           |        |       |                                            |
|                   |                   |                                   | 60              | 100   | 96    | 89    |      |       | T21OI          |               |           |        |       | From 14.60m to 14.81m : Subvertical joint. |
|                   |                   |                                   |                 |       |       |       | 3.6  |       |                | 14.81         |           |        |       |                                            |
|                   |                   |                                   | 60              | 100   | 94    | 85    |      |       | T21OI          |               |           |        |       |                                            |
|                   |                   |                                   |                 |       |       |       | 9.7  |       |                | 15.15         |           |        |       |                                            |
|                   |                   |                                   | 60              | 100   | 100   | 94    |      |       | T21OI          |               |           |        |       |                                            |
|                   |                   |                                   |                 |       |       |       | 3.3  |       |                | 16.04         |           |        |       |                                            |
|                   |                   |                                   | 60              | 100   | 100   | 100   |      |       | T21OI          |               |           |        |       |                                            |
|                   |                   |                                   |                 |       |       |       |      |       |                | 16.57         |           |        |       |                                            |
|                   |                   |                                   | 60              | 100   | 66    | 66    | 10.3 |       | T21OI          |               |           |        |       | From 16.57m to 17.25m : Subvertical joint. |
|                   |                   |                                   |                 |       |       |       |      |       |                | 17.25         |           |        |       |                                            |
|                   |                   |                                   | 60              | 100   | 100   | 100   | 2.2  |       | T21OI          |               |           |        |       |                                            |
|                   |                   | 14.20m at 18:00                   |                 |       |       |       |      |       |                | 18.17         | +73.87    | 18.17  |       | From 17.97m to 18.17m : Subvertical joint. |
|                   |                   |                                   |                 |       |       |       |      |       |                |               |           |        |       | End of Investigation Hole at 18.17m.       |

- Disturbed sample
  - Piston sample
  - Split spoon sample
  - U76 undisturbed sample
  - U100 undisturbed sample
  - Mazier sample
  - SPT liner sample
  - Water sample
  - Environmental Sample
- Standard penetration test  
In-situ vane shear test  
Permeability test  
Pressuremeter test  
Packer Test  
Acoustic or optical televiwer survey  
Piezometer tip  
Standpipe  
Inclinometer access tube  
Vibrating wire piezometer  
Impression packer test

LOGGED T. C. Yip  
DATE 17/10/2012  
CHECKED E. Leung  
DATE 18/10/2012

## REMARKS





# DRILLHOLE RECORD

HOLE NO. DH 5

CONTRACT NO. : GE/2011/06

SHEET 1 OF 2

PROJECT Ground Investigation - Urban (Term Contract)  
Agreement No. CE 27/2011 (GE), LPMit Programme, 2011, Package I, Landslip Prevention and Mitigation Works, Investigation, Design and Construction, Hillside Catchments Nos. 11SW-C/DF13, 11SW-C/DF13a, 11SW-C/DF13b - Above Victoria Road

METHOD Rotary

CO-ORDINATES

W.O.NO.

GE/2011/06.264

MACHINE &amp; NO. VBM56

E 831538.97

N 814293.58

DATE : 19/10/2012 to 22/10/2012

FLUSHING MEDIUM Water

ORIENTATION

Vertical

GROUND LEVEL + 94.79 mPD

| Drilling Progress | Casing Depth/Size | Water Level (m) Shift start / end | Flush Returns % | TCR % | SCR % | RQD % | FI   | Tests | Samples        | Reduced Level | Depth (m) | Legend | Grade | Description                                                                                                                                                                                                                                                                                                          |
|-------------------|-------------------|-----------------------------------|-----------------|-------|-------|-------|------|-------|----------------|---------------|-----------|--------|-------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 19/10/2012        | HW                |                                   |                 |       |       |       |      |       | No. Type Depth | +94.79        | 0.00      |        |       | Firm, moist, dark brown (7.5YR 3/4), sandy SILT with occasional angular to subangular fine gravel sized highly decomposed rock fragments. (TOP SOIL / COLLUVIUM)                                                                                                                                                     |
|                   | HW 0.50           |                                   |                 |       |       |       |      |       | A              | +94.29        | 0.50      |        | III   |                                                                                                                                                                                                                                                                                                                      |
|                   |                   |                                   | 60              | 100   | 93    | 69    | 9.4  |       | T2 IOI         |               |           |        |       | Moderately strong, pinkish grey, dappled light brown, spotted dark green, moderately decomposed fine grained GRANITE. Joints are closely to medium spaced, locally very closely spaced, rough planar and rough stepped, extremely narrow, iron and manganese stained, dipping 10° to 20°, 20° to 30° and 30° to 40°. |
|                   |                   |                                   |                 |       |       |       | 4.7  |       |                |               |           |        |       |                                                                                                                                                                                                                                                                                                                      |
|                   |                   |                                   |                 |       |       |       | 16.1 |       |                |               |           |        |       |                                                                                                                                                                                                                                                                                                                      |
|                   |                   |                                   | 60              | 100   | 100   | 79    | 6.3  |       | T2 IOI         | 1.93          |           |        | II    | Strong to very strong, pinkish grey, spotted dark green, slightly decomposed fine grained GRANITE. Joints are widely spaced, rough planar and rough stepped, extremely narrow, iron and manganese stained, dipping 0° to 10° and occasional 60° to 70°.                                                              |
|                   |                   |                                   | 60              | 100   | 100   | 100   | 9.3  |       | T2 IOI         | 2.58          |           |        |       | From 1.77m to 2.68m : Joints are closely to medium spaced, rough planar, extremely narrow, iron and manganese oxide stained, dipping 10° to 20°, 20° to 30° and 30° to 40°.                                                                                                                                          |
|                   |                   |                                   | 60              | 100   | 100   | 100   |      |       | T2 IOI         | 3.03          |           |        |       |                                                                                                                                                                                                                                                                                                                      |
|                   |                   |                                   | 60              | 100   | 100   | 100   |      |       | T2 IOI         | 3.56          |           |        |       |                                                                                                                                                                                                                                                                                                                      |
|                   |                   |                                   | 60              | 100   | 100   | 100   |      |       | T2 IOI         | 4.01          |           |        |       |                                                                                                                                                                                                                                                                                                                      |
|                   |                   |                                   | 60              | 100   | 100   | 100   |      |       | T2 IOI         | 4.48          |           |        |       |                                                                                                                                                                                                                                                                                                                      |
| 19/10/2012        |                   | 3.50m at 18:00 Dry at 08:00       | 60              | 100   | 100   | 100   |      |       | T2 IOI         | 4.78          |           |        |       |                                                                                                                                                                                                                                                                                                                      |
| 20/10/2012        |                   |                                   | 60              | 100   | 100   | 100   | 0.8  |       | T2 IOI         | 5.34          |           |        |       |                                                                                                                                                                                                                                                                                                                      |
|                   |                   |                                   | 0               | 100   | 100   | 100   |      |       | T2 IOI         | 6.04          |           |        |       |                                                                                                                                                                                                                                                                                                                      |
|                   |                   |                                   | 0               | 100   | 100   | 100   |      |       | T2 IOI         | 7.25          |           |        |       |                                                                                                                                                                                                                                                                                                                      |
|                   |                   |                                   | 0               | 100   | 95    | 95    | 4.0  |       | T2 IOI         | 8.12          |           |        |       |                                                                                                                                                                                                                                                                                                                      |
|                   |                   |                                   | 0               | 100   | 100   | 100   |      |       | T2 IOI         | 8.60          |           |        |       |                                                                                                                                                                                                                                                                                                                      |
|                   |                   |                                   | 0               | 100   | 100   | 100   | 0.9  |       | T2 IOI         |               |           |        |       |                                                                                                                                                                                                                                                                                                                      |

- Disturbed sample
  - Piston sample
  - ▨ Split spoon sample
  - U76 undisturbed sample
  - U100 undisturbed sample
  - ▨ Mazier sample
  - SPT liner sample
  - ▲ Water sample
  - En Environmental Sample
- Standard penetration test
  - In-situ vane shear test
  - Permeability test
  - Pressuremeter test
  - Packer Test
  - Acoustic or optical televiwer survey
  - Piezometer tip
  - Standpipe
  - Inclinometer access tube
  - Vibrating wire piezometer
  - Impression packer test

LOGGED

T. C. Yip

DATE

26/10/2012

CHECKED

E. Leung

DATE

27/10/2012

## REMARKS

1. An inspection pit was excavated to 0.50m.
2. An acoustic televiwer survey was carried out from 0.92m to 17.02m.





# DRILLHOLE RECORD

HOLE NO. DH 6

CONTRACT NO. : GE/2011/06

SHEET 1 OF 2

**PROJECT** Ground Investigation - Urban (Term Contract)  
Agreement No. CE 27/2011 (GE), LPMit Programme, 2011, Package I, Landslip Prevention and Mitigation Works, Investigation, Design and Construction, Hillside Catchments Nos. 11SW-C/DF13, 11SW-C/DF13a, 11SW-C/DF13b - Above Victoria Road

**METHOD** Rotary**CO-ORDINATES****W.O.NO.** GE/2011/06.264**MACHINE & NO.** VBM54

E 831542.20

N 814270.71

**DATE :** 27/10/2012 to 29/10/2012**FLUSHING MEDIUM** Water**ORIENTATION** Vertical**GROUND LEVEL** + 87.15 mPD

| Drilling Progress | Casing Depth/Size | Water Level (m) Shift start / end | Flush Returns % | TCR % | SCR % | RQD % | FI   | Tests | Samples<br>No. Type Depth | Reduced Level | Depth (m) | Legend | Grade | Description                                                                                                                                                                                                                                                                                                                                                                                       |
|-------------------|-------------------|-----------------------------------|-----------------|-------|-------|-------|------|-------|---------------------------|---------------|-----------|--------|-------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 27/10/2012        | HW                |                                   |                 |       |       |       |      |       |                           | +87.15        | 0.00      |        |       | Brown (7.5YR 5/4), silty fine to coarse SAND with some angular fine to medium gravel sized moderately decomposed and slightly decomposed rock fragments. (COLLUVIUM / TOP SOIL)                                                                                                                                                                                                                   |
|                   |                   |                                   | 60              | 100   |       |       |      |       | T21OI 0.40                | +86.65        | 0.50      |        |       | Pinkish grey, spotted black, angular BOULDER of slightly decomposed fine grained Granite. (COLLUVIUM)                                                                                                                                                                                                                                                                                             |
|                   | HW 1.19           |                                   | 60              | 33    |       |       |      |       | T21OI 0.80                |               |           |        |       |                                                                                                                                                                                                                                                                                                                                                                                                   |
|                   |                   |                                   | 60              | 100   | 99    | 92    | 2.9  |       | T21OI 1.19                | +85.96        | 1.19      |        | II    | Strong, greyish pink, locally dappled light brown, slightly decomposed fine grained GRANITE. Joints are medium spaced, locally closely spaced, rough planar and rough stepped, extremely narrow to very narrow, iron and manganese stained, occasional kaolin coated, dipping 0° to 10°, 20° to 30° and 50° to 60°.                                                                               |
|                   |                   |                                   | 60              | 100   | 98    | 98    | 8.1  |       | T21OI 2.56                |               |           |        |       |                                                                                                                                                                                                                                                                                                                                                                                                   |
|                   |                   |                                   | 60              | 100   | 98    | 98    | 2.6  |       | T21OI 3.06                |               |           |        |       |                                                                                                                                                                                                                                                                                                                                                                                                   |
|                   |                   |                                   | 60              | 73    | 73    | 73    | NR   |       | T21OI +83.70 3.45         |               |           |        | V     | From 3.45m to 3.72m : No recovery, inferred to be completely decomposed GRANITE.                                                                                                                                                                                                                                                                                                                  |
|                   |                   |                                   | 60              | 100   | 100   | 100   | 3.3  |       | T21OI +83.43 3.72         |               |           |        | II    | Strong, locally moderately strong, pinkish grey, dappled light brown, slightly decomposed fine grained GRANITE. Joints are closely to medium spaced, rough planar and rough stepped, extremely narrow to very narrow, iron and manganese stained, kaolin coated, dipping 20° to 30°, 30° to 40° and 40° to 50°. From 4.00m to 4.25m : Subvertical joint. From 4.43m to 4.70m : Subvertical joint. |
|                   |                   |                                   | 60              | 100   | 100   | 81    | 12.0 |       | T21OI +81.80 5.35         |               |           |        | III   | From 5.35m to 5.50m : Moderately strong, moderately decomposed GRANITE.                                                                                                                                                                                                                                                                                                                           |
|                   |                   |                                   | 60              | 100   | 100   | 100   | 3.0  |       | T21OI +81.65 5.50         |               |           |        | II    | Strong, pinkish grey, locally dappled light brown, slightly decomposed fine grained GRANITE. Joints are medium to widely spaced, locally closely spaced, rough planar and rough stepped, extremely narrow to very narrow, iron and manganese stained, locally kaoline coated (<1mm), dipping 10° to 20°, 50° to 60° and 60° to 70°.                                                               |
|                   |                   |                                   | 60              | 100   | 100   | 100   | 10.0 |       | T21OI 6.15                |               |           |        |       |                                                                                                                                                                                                                                                                                                                                                                                                   |
|                   |                   |                                   | 60              | 100   | 100   | 100   |      |       | T21OI 7.13                |               |           |        |       |                                                                                                                                                                                                                                                                                                                                                                                                   |
|                   |                   | 5.80m at 18:00 Dry at 08:00       | 60              | 100   | 100   | 100   |      |       | T21OI 7.82                | +79.33 7.82   |           |        | III   | From 7.82m to 7.92m : Moderately strong, moderately decomposed GRANITE.                                                                                                                                                                                                                                                                                                                           |
| 27/10/2012        |                   |                                   | 40              | 100   | 92    | 92    | 0.9  |       | T21OI 7.88                | +79.23 7.92   |           |        | II    | From 8.20m to 9.42m : Subvertical joint.                                                                                                                                                                                                                                                                                                                                                          |
| 29/10/2012        |                   |                                   | 40              | 100   | 79    | 75    |      |       | T21OI 8.39                |               |           |        |       |                                                                                                                                                                                                                                                                                                                                                                                                   |
|                   |                   |                                   | 40              | 97    | 92    | 79    | 15.4 |       | T21OI 9.42                | +77.39 9.76   |           |        | II    | Strong, greyish pink, spotted dark grey, slightly decomposed                                                                                                                                                                                                                                                                                                                                      |

- Disturbed sample
  - Piston sample
  - Split spoon sample
  - U76 undisturbed sample
  - U100 undisturbed sample
  - Mazier sample
  - SPT liner sample
  - Water sample
  - Environmental Sample
- Standard penetration test  
In-situ vane shear test  
Permeability test  
Pressuremeter test  
Packer Test  
Acoustic or optical televiwer survey  
Piezometer tip  
Standpipe  
Inclinometer access tube  
Vibrating wire piezometer  
Impression packer test

LOGGED

T. C. Yip

DATE

02/11/2012

CHECKED

E. Leung

DATE

03/11/2012

**REMARKS**

1. An inspection pit was excavated to 0.40m.
2. An acoustic televiwer survey was carried out from 1.30m to 17.80m.



# DRILLHOLE RECORD

HOLE NO. DH 6

CONTRACT NO. : GE/2011/06

SHEET 2 OF 2

PROJECT Ground Investigation - Urban (Term Contract)  
Agreement No. CE 27/2011 (GE), LPMit Programme, 2011, Package I, Landslip Prevention and Mitigation Works, Investigation, Design and Construction, Hillside Catchments Nos. 11SW-C/DF13, 11SW-C/DF13a, 11SW-C/DF13b - Above Victoria Road

METHOD Rotary

CO-ORDINATES

W.O.NO. GE/2011/06.264

MACHINE &amp; NO. VBM54

E 831542.20

N 814270.71

DATE : 27/10/2012 to 29/10/2012

FLUSHING MEDIUM Water

ORIENTATION

Vertical

GROUND LEVEL + 87.15 mPD

| Drilling Progress | Casing Depth/Size | Water Level (m) Shift start / end | Flush Returns % | TCR % | SCR % | RQD % | FI   | Tests | Samples<br>No. Type Depth | Reduced Level<br>+77.15 | Depth (m)<br>10.00 | Legend | Grade | Description                                                                                                                                                                                                                                                                                                    |
|-------------------|-------------------|-----------------------------------|-----------------|-------|-------|-------|------|-------|---------------------------|-------------------------|--------------------|--------|-------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                   |                   |                                   | 40              | 97    | 92    | 79    | 14.3 |       | T21OI                     |                         |                    | +      | II    | fine grained GRANITE.<br>Joints are closely to medium spaced, locally very closely spaced, rough planar and rough stepped, extremely narrow to very narrow, iron and manganese stained, occasional clean and chlorite coated, dipping 50° to 60°, 60° to 70°, 70° to 80°, occasional 0° to 10° and 10° to 20°. |
|                   |                   |                                   | 40              | 100   | 100   | 85    | 2.9  |       | T21OI                     |                         |                    | +      |       | From 11.70m to 13.20m : Subvertical fault infilled with iron and manganese oxide and occasional angular gravel sized rock fragments (<10mm thick).                                                                                                                                                             |
|                   |                   |                                   | 40              | 100   | 90    | 72    | 7.1  |       | T21OI                     |                         |                    | +      |       |                                                                                                                                                                                                                                                                                                                |
|                   |                   |                                   | 40              | 100   |       |       | 20.0 |       | T21OI                     |                         |                    | +      |       |                                                                                                                                                                                                                                                                                                                |
|                   |                   |                                   | 40              | 100   | 87    | 73    | 2.8  |       | T21OI                     |                         |                    | +      |       | From 14.70m to 15.34m : Subvertical fault infilled with iron and manganese oxide and occasional angular gravel sized rock fragments (<10mm thick).                                                                                                                                                             |
|                   |                   |                                   | 40              | 100   | 100   | 90    | 2.6  |       | T21OI                     |                         |                    | +      |       |                                                                                                                                                                                                                                                                                                                |
|                   |                   |                                   | 40              | 100   | 86    | 86    | 5.9  |       | T21OI                     |                         |                    | +      |       |                                                                                                                                                                                                                                                                                                                |
|                   |                   |                                   | 40              | 100   |       |       | >20  |       | T21OI                     |                         |                    | +      |       | From 16.80m to 17.10m : Subvertical joint.                                                                                                                                                                                                                                                                     |
|                   |                   |                                   | 40              | 100   | 42    | 32    | 4.2  |       | T21OI                     |                         |                    | +      |       | From 17.25m to 18.16m : Subvertical joint.                                                                                                                                                                                                                                                                     |
|                   |                   | 13.60m at 18:00                   |                 |       |       |       | 10.3 |       |                           |                         |                    | +      |       |                                                                                                                                                                                                                                                                                                                |
| 29/10/2012        |                   |                                   |                 |       |       |       |      |       |                           | 18.16                   | +68.99             | +      |       | End of Investigation Hole at 18.16m.                                                                                                                                                                                                                                                                           |

- Disturbed sample
  - Piston sample
  - Split spoon sample
  - U76 undisturbed sample
  - U100 undisturbed sample
  - Mazier sample
  - SPT liner sample
  - Water sample
  - Environmental Sample
- Standard penetration test
  - In-situ vane shear test
  - Permeability test
  - Pressuremeter test
  - Packer Test
  - Acoustic or optical televiewer survey
  - Piezometer tip
  - Standpipe
  - Inclinometer access tube
  - Vibrating wire piezometer
  - Impression packer test

LOGGED T. C. Yip

DATE 02/11/2012

CHECKED E. Leung

DATE 03/11/2012

REMARKS



# DRILLHOLE RECORD

HOLE NO. DH 7

CONTRACT NO. : GE/2011/06

SHEET 1 OF 2

PROJECT Ground Investigation - Urban (Term Contract)  
Agreement No. CE 27/2011 (GE), LPMit Programme, 2011, Package I, Landslip Prevention and Mitigation Works, Investigation, Design and Construction, Hillside Catchments Nos. 11SW-C/DF13, 11SW-C/DF13a, 11SW-C/DF13b - Above Victoria Road

METHOD Rotary

CO-ORDINATES

W.O.NO. GE/2011/06.264

MACHINE &amp; NO. VBM54

E 831553.68 N 814305.21

DATE : 12/10/2012 to 15/10/2012

FLUSHING MEDIUM Water

ORIENTATION Vertical

GROUND LEVEL + 104.61 mPD

| Drilling Progress | Casing Depth/Size | Water Level (m) Shift start / end | Flush Returns % | TCR % | SCR % | RQD % | FI   | Tests | Samples        | Reduced Level | Depth (m) | Legend  | Grade | Description                                                                                                                                                                                                                                                                                                                                                           |
|-------------------|-------------------|-----------------------------------|-----------------|-------|-------|-------|------|-------|----------------|---------------|-----------|---------|-------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 12/10/2012        | HW                |                                   |                 |       |       |       |      |       | No. Type Depth | +104.61       | 0.00      |         |       |                                                                                                                                                                                                                                                                                                                                                                       |
|                   |                   |                                   |                 |       |       |       |      |       | A              |               | 0.50      | +104.11 | 0.50  | Firm, brown (7.5YR 5/4), sandy SILT with some angular to subangular fine gravel sized highly decomposed rock fragments. (FILL)                                                                                                                                                                                                                                        |
|                   |                   |                                   | 50              | 100   |       |       |      |       | T21OI          |               | 1.13      |         |       | Light brown (7.5YR 6/4), angular COBBLE and BOULDER sized moderately decomposed and slightly decomposed Granite with occasional angular to subangular fine to coarse gravel sized moderately decomposed rock fragments. (FILL)                                                                                                                                        |
|                   |                   |                                   | 10              | 100   |       |       |      |       | T21OI          |               | 1.57      |         |       |                                                                                                                                                                                                                                                                                                                                                                       |
|                   |                   |                                   | 0               | 100   |       |       |      |       | T21OI          |               | 2.00      | +102.61 | 2.00  |                                                                                                                                                                                                                                                                                                                                                                       |
|                   |                   |                                   | 10              | 0     |       |       |      |       | 1              |               | 2.70      |         |       | Greyish brown (2.5Y 5/2), dappled light brown and brown, sandy angular to subangular COBBLE sized highly decomposed and moderately decomposed Granite with some angular to subangular fine to coarse gravel sized highly decomposed and moderately decomposed rock fragments. (FILL)                                                                                  |
|                   |                   |                                   | 30              | 100   |       |       |      |       | T21OI          |               | 2.80      |         |       |                                                                                                                                                                                                                                                                                                                                                                       |
| 12/10/2012        |                   | 1.50m at 18:00                    |                 |       |       |       |      |       | 2              |               | 3.40      |         |       |                                                                                                                                                                                                                                                                                                                                                                       |
| 13/10/2012        |                   | Dry at 08:00                      | 0               | 72    |       |       |      |       | 3              |               | 3.90      |         |       |                                                                                                                                                                                                                                                                                                                                                                       |
|                   | HW                | 4.00                              |                 |       |       |       |      |       |                |               | 4.00      | +100.61 | 4.00  |                                                                                                                                                                                                                                                                                                                                                                       |
|                   |                   |                                   | 30              | 83    | 10    | 10    | 13.3 |       | T21OI          |               | 5.10      |         |       | Moderately strong, light brown, dappled brown and dark brown, moderately decomposed fine grained GRANITE. Joints are very closely to closely spaced, rough planar, extremely narrow to very narrow, iron and manganese stained, occasional kaolin coated, dipping 50° to 60°, 60° to 70° and 70° to 80°.                                                              |
|                   |                   |                                   |                 |       |       |       | >20  |       |                |               |           |         |       | From 4.20m to 4.70m : With slickenside planar kaolin coated joints, dipping subvertically.                                                                                                                                                                                                                                                                            |
|                   |                   |                                   | 30              | 100   | 91    | 73    | 8.3  |       | T21OI          |               | 5.80      | +98.81  | 5.80  | From 4.70m to 5.20m : With closely spaced, kaolin coated joints, dipping 60° to 70°.                                                                                                                                                                                                                                                                                  |
|                   |                   |                                   |                 |       |       |       | 1.8  |       |                |               |           |         |       |                                                                                                                                                                                                                                                                                                                                                                       |
|                   |                   |                                   | 30              | 100   | 59    | 59    | 5.7  |       | T21OI          |               | 6.00      |         |       | Strong, locally moderately strong, pinkish grey, dappled light brown and brown, slightly decomposed fine grained GRANITE. Joints are medium spaced, locally closely spaced, rough planar and rough stepped, extremely narrow to very narrow, iron and manganese stained, locally kaolin coated, dipping 50° to 60°, 60° to 70°, 70° to 80° and occasional 10° to 20°. |
|                   |                   |                                   |                 |       |       |       |      |       |                |               | 6.65      |         |       |                                                                                                                                                                                                                                                                                                                                                                       |
|                   |                   |                                   | 30              | 100   | 71    | 59    | 1.5  |       | T21OI          |               | 8.09      |         |       | From 7.35m to 8.35m : With kaolin coated joints, dipping 80° to subvertically.                                                                                                                                                                                                                                                                                        |
|                   |                   |                                   |                 |       |       |       | 3.5  |       |                |               |           |         |       |                                                                                                                                                                                                                                                                                                                                                                       |
|                   |                   |                                   | 30              | 100   | 85    | 62    | 3.4  |       | T21OI          |               | 9.12      | +95.49  | 9.12  |                                                                                                                                                                                                                                                                                                                                                                       |
|                   |                   |                                   |                 |       |       |       |      |       |                |               |           |         |       |                                                                                                                                                                                                                                                                                                                                                                       |
|                   |                   |                                   | 30              | 100   | 98    | 86    | 6.7  |       | T21OI          |               |           |         |       | Strong, pinkish grey, spotted dark green, slightly decomposed fine grained GRANITE. Joints are closely to medium spaced, rough planar and rough stepped, light to extremely narrow, clean, locally iron and manganese stained, chlorite coated, dipping 0° to 10°, 30° to                                                                                             |
|                   |                   |                                   |                 |       |       |       | 3.0  |       |                |               |           |         |       |                                                                                                                                                                                                                                                                                                                                                                       |

- Disturbed sample
- Piston sample
- Split spoon sample
- U76 undisturbed sample
- U100 undisturbed sample
- Mazier sample
- SPT liner sample
- Water sample
- Environmental Sample
- Standard penetration test
- In-situ vane shear test
- Permeability test
- Pressuremeter test
- Packer Test
- Acoustic or optical televiwer survey
- Piezometer tip
- Standpipe
- Inclinometer access tube
- Vibrating wire piezometer
- Impression packer test

LOGGED T. C. Yip

DATE 17/10/2012

CHECKED E. Leung

DATE 18/10/2012

## REMARKS

1. An inspection pit was excavated to 0.50m.
2. A standpipe was installed to 4.00m.





# DRILLHOLE RECORD

HOLE NO. DH 7

CONTRACT NO. : GE/2011/06

SHEET 2 OF 2

## PROJECT

Ground Investigation - Urban (Term Contract)

Agreement No. CE 27/2011 (GE), LPMit Programme, 2011, Package I, Landslip Prevention and Mitigation Works, Investigation, Design and Construction, Hillside Catchments Nos. 11SW-C/DF13, 11SW-C/DF13a, 11SW-C/DF13b - Above Victoria Road

METHOD Rotary

CO-ORDINATES

W.O.NO. GE/2011/06.264

MACHINE &amp; NO. VBM54

E 831553.68

N 814305.21

DATE : 12/10/2012 to 15/10/2012

FLUSHING MEDIUM Water

ORIENTATION Vertical

GROUND LEVEL + 104.61 mPD

| Drilling Progress        | Casing Depth/Size | Water Level (m) Shift start / end | Flush Returns % | TCR % | SCR % | RQD % | FI  | Tests | Samples<br>No. Type Depth | Reduced Level | Depth (m) | Legend | Grade | Description                                                                                              |
|--------------------------|-------------------|-----------------------------------|-----------------|-------|-------|-------|-----|-------|---------------------------|---------------|-----------|--------|-------|----------------------------------------------------------------------------------------------------------|
| 13/10/2012<br>15/10/2012 |                   | 1.50m at 18:00                    | 30              | 100   | 98    | 86    |     |       | T2 IOI 10.32              | +94.61        | 10.00     | +      | II    | 40° and 50° to 60°. From 9.77m to 10.15m : Subvertical joint.                                            |
|                          |                   | 4.40m at 08:00                    | 30              | 100   | 91    | 91    | 3.0 |       | T2 IOI 10.66              |               |           | +      |       |                                                                                                          |
| 11                       |                   |                                   | 20              | 100   | 96    | 82    | 9.7 |       | T2 IOI 12.01              |               |           | +      |       | From 12.00m to 12.50m : Subvertical joint.                                                               |
| 12                       |                   |                                   |                 |       |       |       |     |       | T2 IOI 13.40              |               |           | +      |       |                                                                                                          |
| 13                       |                   |                                   | 20              | 100   | 94    | 91    | 2.8 |       | T2 IOI 14.45              |               |           | +      |       | From 13.90 to 14.23m : An incipient fault (<5mm) infilled with chlorite and rock fragments, dipping 70°. |
| 14                       |                   |                                   | 20              | 100   | 100   | 100   |     |       | T2 IOI 15.10              |               |           | +      |       | From 14.72m to 14.95m : Subvertical joint.                                                               |
| 15                       |                   | 7.00m at 18:00                    | 20              | 100   | 100   | 100   | 4.0 |       |                           | +89.51        | 15.10     | +      |       | End of Investigation Hole at 15.10m.                                                                     |
| 16                       |                   |                                   |                 |       |       |       |     |       |                           |               |           |        |       |                                                                                                          |
| 17                       |                   |                                   |                 |       |       |       |     |       |                           |               |           |        |       |                                                                                                          |
| 18                       |                   |                                   |                 |       |       |       |     |       |                           |               |           |        |       |                                                                                                          |
| 19                       |                   |                                   |                 |       |       |       |     |       |                           |               |           |        |       |                                                                                                          |
| 20                       |                   |                                   |                 |       |       |       |     |       |                           |               |           |        |       |                                                                                                          |

- Disturbed sample
  - Piston sample
  - Split spoon sample
  - U76 undisturbed sample
  - U100 undisturbed sample
  - Mazier sample
  - SPT liner sample
  - Water sample
  - Environmental Sample
- Standard penetration test  
In-situ vane shear test  
Permeability test  
Pressuremeter test  
Packer Test  
Acoustic or optical televiewer survey  
Piezometer tip  
Standpipe  
Inclinometer access tube  
Vibrating wire piezometer  
Impression packer test

LOGGED T. C. Yip

DATE 17/10/2012

CHECKED E. Leung

DATE 18/10/2012

## REMARKS



# DRILLHOLE RECORD

HOLE NO. DH 8

CONTRACT NO. : GE/2011/06

SHEET 1 OF 2

PROJECT Ground Investigation - Urban (Term Contract)  
Agreement No. CE 27/2011 (GE), LPMit Programme, 2011, Package I, Landslip Prevention and Mitigation Works, Investigation, Design and Construction, Hillside Catchments Nos. 11SW-C/DF13, 11SW-C/DF13a, 11SW-C/DF13b - Above Victoria Road

|                 |        |                         |                                 |
|-----------------|--------|-------------------------|---------------------------------|
| METHOD          | Rotary | CO-ORDINATES            | W.O.NO.                         |
| MACHINE & NO.   | VBM56  | E 831585.74 N 814313.13 | GE/2011/06.264                  |
| FLUSHING MEDIUM | Water  | ORIENTATION Vertical    | DATE : 06/10/2012 to 08/10/2012 |
|                 |        |                         | GROUND LEVEL + 126.78 mPD       |

| Drilling Progress | Casing Depth/Size | Water Level (m) Shift start / end | Flush Returns % | TCR % | SCR % | RQD % | FI  | Tests | Samples        | Reduced Level | Depth (m) | Legend | Grade | Description                                                                                                                                                                                                                                                              |
|-------------------|-------------------|-----------------------------------|-----------------|-------|-------|-------|-----|-------|----------------|---------------|-----------|--------|-------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 06/10/2012        | HW                |                                   |                 |       |       |       |     |       | No. Type Depth |               |           |        |       |                                                                                                                                                                                                                                                                          |
|                   |                   |                                   |                 |       |       |       |     |       | A              | +126.78       | 0.00      |        |       | Light brown (7.5YR 6/4), slightly silty fine to coarse SAND with some angular fine to coarse gravel sized highly decomposed and moderately decomposed rock fragments. (FILL)                                                                                             |
|                   |                   |                                   | 0               | 80    |       |       |     |       | T21OI          | +126.28       | 0.50      |        |       | Brown (7.5YR 5/4), dappled greyish brown, slightly clayey / silty fine to coarse SAND with much angular to subangular fine to coarse gravel sized moderately decomposed rock fragments and some angular to subangular cobble sized moderately decomposed Granite. (FILL) |
|                   |                   |                                   | 0               | 76    |       |       |     |       | T21OI          |               | 1.00      |        |       |                                                                                                                                                                                                                                                                          |
|                   |                   |                                   | 0               | 84    |       |       |     |       | T21OI          |               | 1.50      |        |       |                                                                                                                                                                                                                                                                          |
|                   |                   |                                   | 0               | 80    |       |       |     |       | T21OI          |               | 2.00      |        |       |                                                                                                                                                                                                                                                                          |
|                   |                   |                                   | 0               | 82    |       |       |     |       | T21OI          |               | 2.50      |        |       |                                                                                                                                                                                                                                                                          |
|                   |                   |                                   | 0               | 84    |       |       |     |       | T21OI          | +123.78       | 3.00      |        |       | Greyish brown (2.5Y 5/2), dappled light brown and brown, angular to subangular COBBLE sized moderately decomposed Granite and Tuff with some angular to subangular fine to coarse gravel sized moderately decomposed rock fragments. (FILL)                              |
|                   |                   |                                   | 0               | 86    |       |       |     |       | T21OI          |               | 3.50      |        |       |                                                                                                                                                                                                                                                                          |
|                   |                   |                                   | 0               | 86    |       |       |     |       | T21OI          |               | 4.00      |        |       |                                                                                                                                                                                                                                                                          |
|                   |                   |                                   | 0               | 87    |       |       |     |       | T21OI          | +121.69       | 5.09      |        |       | Strong, pinkish grey, dappled light brown, slightly decomposed fine grained GRANITE.                                                                                                                                                                                     |
|                   | HW 5.19           |                                   | 0               | 100   | 50    | 0     | 7.7 |       | T21OI          |               | 5.19      |        | III   | Joints are medium spaced, locally very closely to closely spaced, rough planar and rough stepped, extremely narrow, iron and manganese stained, locally chlorite coated and clean, dipping 40° to 50°, 50° to 60°, 60° to 70° and occasional 10° to 20°.                 |
|                   |                   |                                   | 0               | 100   | 62    | 62    |     |       | T21OI          | +121.03       | 5.75      |        | II    | From 5.09m to 5.75m : Moderately strong, moderately decomposed GRANITE with closely spaced microfractures, dipping 50° to 60° and 70° to 80°.                                                                                                                            |
|                   |                   |                                   | 0               | 100   | 97    | 97    | 1.5 |       | T21OI          |               | 6.80      |        |       | From 7.50m to 8.08m : With closely spaced iron and manganese stained microfractures, dipping 70° to 80° and subvertically.                                                                                                                                               |
|                   |                   |                                   | 0               | 100   | 96    | 96    |     |       | T21OI          |               | 8.18      |        |       | From 8.45m to 9.86m : Subvertical joint.                                                                                                                                                                                                                                 |
|                   |                   |                                   | 0               | 100   | 64    | 64    | 3.4 |       | T21OI          |               | 9.06      |        |       |                                                                                                                                                                                                                                                                          |
|                   |                   |                                   | 0               | 100   | 67    | 61    | 4.0 |       | T21OI          |               | 9.76      |        |       |                                                                                                                                                                                                                                                                          |
|                   |                   |                                   | 0               | 100   | 66    | 66    |     |       | T21OI          |               |           |        |       |                                                                                                                                                                                                                                                                          |

- Disturbed sample
  - Piston sample
  - Split spoon sample
  - U76 undisturbed sample
  - U100 undisturbed sample
  - Mazier sample
  - SPT liner sample
  - Water sample
  - Environmental Sample
- Standard penetration test  
In-situ vane shear test  
Permeability test  
Pressuremeter test  
Packer Test  
Acoustic or optical televiwer survey  
Piezometer tip  
Standpipe  
Inclinometer access tube  
Vibrating wire piezometer  
Impression packer test

LOGGED T. C. Yip  
DATE 08/10/2012  
CHECKED E. Leung  
DATE 09/10/2012

REMARKS  
1. An inspection pit was excavated to 0.50m.  
2. A standpipe was installed to 5.00m.





# DRILLHOLE RECORD

HOLE NO. DH 9

CONTRACT NO. : GE/2011/06

SHEET 1 OF 1

PROJECT Ground Investigation - Urban (Term Contract)  
Agreement No. CE 27/2011 (GE), LPMit Programme, 2011, Package I, Landslip Prevention and Mitigation Works, Investigation, Design and Construction, Hillside Catchments Nos. 11SW-C/DF13, 11SW-C/DF13a, 11SW-C/DF13b - Above Victoria Road

|                 |        |                         |                                 |
|-----------------|--------|-------------------------|---------------------------------|
| METHOD          | Rotary | CO-ORDINATES            | W.O.NO.                         |
| MACHINE & NO.   | VBM54  | E 831593.88 N 814331.69 | GE/2011/06.264                  |
| FLUSHING MEDIUM | Water  | ORIENTATION Vertical    | DATE : 08/10/2012 to 09/10/2012 |
|                 |        |                         | GROUND LEVEL + 133.56 mPD       |

| Drilling Progress | Casing Depth/Size | Water Level (m) Shift start / end | Flush Returns % | TCR % | SCR % | RQD % | FI   | Tests | Samples        | Reduced Level | Depth (m) | Legend  | Grade | Description                                                                                                                                                                                                                                              |
|-------------------|-------------------|-----------------------------------|-----------------|-------|-------|-------|------|-------|----------------|---------------|-----------|---------|-------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 08/10/2012        | PW                |                                   |                 |       |       |       |      |       | No. Type Depth | +133.56       | 0.00      |         |       | Greyish brown (2.5Y 5/2), silty fine to coarse SAND with some angular to subangular fine to medium gravel sized moderately decomposed rock fragments. (FILL)                                                                                             |
|                   |                   |                                   |                 |       |       |       |      |       | A              |               | 0.50      |         |       |                                                                                                                                                                                                                                                          |
|                   |                   |                                   |                 |       |       |       |      |       | B              |               | 0.70      | +132.86 | 0.70  |                                                                                                                                                                                                                                                          |
|                   | PW 1.20           |                                   | 0               | 60    |       |       |      |       | T2 IOI         |               | 1.20      | +132.36 | 1.20  | Light brown (7.5YR 6/4), dappled grey, angular COBBLE sized moderately decomposed and slightly decomposed Granite with occasional angular coarse gravel sized moderately decomposed rock fragments. (FILL)                                               |
|                   | HW                |                                   | 0               | 0     |       |       |      |       |                |               | 1.80      |         |       | Greyish brown (2.5Y 5/2), silty fine to coarse SAND with much angular to subangular fine to coarse gravel sized moderately decomposed rock fragments and some angular cobble sized moderately decomposed Granite. (FILL)                                 |
|                   |                   |                                   |                 |       |       |       |      |       | 1              |               | 1.90      | +131.66 | 1.90  |                                                                                                                                                                                                                                                          |
|                   |                   |                                   | 0               | 60    |       |       |      |       | T2 IOI         |               | 2.35      |         |       | Light brown (7.5YR 6/4), slightly sandy angular to subangular COBBLE sized moderately decomposed Granite with some angular to subangular fine to coarse gravel sized moderately decomposed rock fragments and occasional brick fragments. (FILL)         |
|                   |                   |                                   | 0               | 65    |       |       |      |       | T2 IOI         |               | 2.70      | +130.86 | 2.70  |                                                                                                                                                                                                                                                          |
|                   |                   |                                   |                 |       | 0     | 0     | NA   |       |                |               | 2.85      |         |       | Weak to moderately weak, pinkish grey, dappled light brown, highly decomposed fine grained GRANITE. (Sandy angular to subangular COBBLES with some angular fine to coarse gravel)                                                                        |
|                   |                   |                                   | 0               | 89    | 57    | 48    | 2.9  |       | T2 IOI         |               | 3.15      | +130.41 | 3.15  | Strong, pinkish grey, spotted dark green, slightly decomposed fine grained GRANITE.                                                                                                                                                                      |
|                   | HW 3.60           |                                   |                 |       |       |       | 11.1 |       |                |               | 3.60      |         |       | Joints are medium spaced, locally very closely to closely spaced, rough planar and rough stepped, extremely narrow, iron and manganese stained, locally clean and chlorite coated, dipping 20° to 30°, 50° to 60°, 60° to 70° and occasional 70° to 80°. |
|                   |                   |                                   | 0               | 100   | 100   | 83    | 3.1  |       | T2 IOI         |               | 4.40      | +129.16 | 4.40  | From 3.15m to 4.40m : Moderately strong, moderately decomposed GRANITE with kaolin infilled joints up to 2mm thick, dipping subvertically.                                                                                                               |
|                   |                   |                                   |                 |       |       |       |      |       |                |               | 4.52      |         |       |                                                                                                                                                                                                                                                          |
|                   |                   | 4.85m at 18:00                    | 0               | 100   | 100   | 100   |      |       | T2 IOI         |               | 5.33      |         |       |                                                                                                                                                                                                                                                          |
| 08/10/2012        |                   | Dry at 08:00                      |                 |       |       |       | 10.0 |       |                |               | 5.33      |         |       |                                                                                                                                                                                                                                                          |
| 09/10/2012        |                   |                                   | 0               | 100   | 95    | 81    | 2.5  |       | T2 IOI         |               | 6.07      |         |       |                                                                                                                                                                                                                                                          |
|                   |                   |                                   |                 |       |       |       |      |       |                |               | 6.07      |         |       | From 6.27m to 6.93m : Subvertical joint.                                                                                                                                                                                                                 |
|                   |                   |                                   | 0               | 100   | 83    | 57    | 16.7 |       | T2 IOI         |               | 7.03      |         |       |                                                                                                                                                                                                                                                          |
|                   |                   |                                   |                 |       |       |       |      |       |                |               | 7.03      |         |       |                                                                                                                                                                                                                                                          |
|                   |                   |                                   | 0               | 100   | 89    | 89    | 3.5  |       | T2 IOI         |               | 8.11      |         |       |                                                                                                                                                                                                                                                          |
|                   |                   |                                   |                 |       |       |       |      |       |                |               | 8.11      |         |       | From 7.85m to 8.20m : Subvertical joint.                                                                                                                                                                                                                 |
|                   |                   |                                   | 0               | 100   | 88    | 80    | >20  |       | T2 IOI         |               | 8.51      |         |       |                                                                                                                                                                                                                                                          |
|                   |                   |                                   |                 |       |       |       |      |       |                |               | 8.51      |         |       |                                                                                                                                                                                                                                                          |
|                   |                   | 8.65m at 18:00                    | 0               | 100   | 93    | 93    | 5.0  |       | T2 IOI         |               | 9.18      | +124.38 | 9.18  |                                                                                                                                                                                                                                                          |
| 09/10/2012        |                   |                                   |                 |       |       |       |      |       |                |               | 9.18      |         |       | End of Investigation Hole at 9.18m.                                                                                                                                                                                                                      |

- Disturbed sample
  - Piston sample
  - ▨ Split spoon sample
  - U76 undisturbed sample
  - U100 undisturbed sample
  - ▨ Mazier sample
  - SPT liner sample
  - ▲ Water sample
  - En Environmental Sample
- Standard penetration test
  - In-situ vane shear test
  - Permeability test
  - Pressuremeter test
  - Packer Test
  - Acoustic or optical televiwer survey
  - Piezometer tip
  - Standpipe
  - Inclinometer access tube
  - Vibrating wire piezometer
  - Impression packer test

LOGGED

T. C. Yip

DATE

15/10/2012

CHECKED

E. Leung

DATE

16/10/2012

## REMARKS

1. An inspection pit was excavated to 0.70m.
2. A standpipe was installed to 3.10m.



Drillhole No. : DH 1

Date of Installation : 29/09/2012

|                  |        |     |
|------------------|--------|-----|
| Pipe Top Level : | +94.46 | mPD |
|------------------|--------|-----|

**Co-ordinates :**

E 831469.49      N 814390.07

Sheet 1 of 1

**Standpipe Tip Level : + 89.78 mPD**

Checked By : E. Leung

J201115e 264





Drillhole No. : DH 7

**Date of Installation :** 16/10/2012

Pipe Top Level : +104.80 mPD

**Co-ordinates :**

E 831553.68      N 814305.21

Sheet 1 of 1

**Standpipe Tip Level : + 100.61 mPD**

Checked By : E. Leung

J201115e 264



Drillhole No. : DH 8

Date of Installation : 09/10/2012

**Pipe Top Level :            +126.98  mPD**

**Co-ordinates :**

E 831585.74      N 814313.13

Sheet 1 of 1

**Standpipe Tip Level : + 121.78 mPD**

Checked By : E. Leung

J201115a 264



J201115e 264



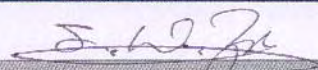
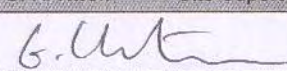
**VIBRO (H.K.) LIMITED**  
SITE INVESTIGATION DEPARTMENT

GEOTECHNICAL INFORMATION  
UNIT  
- 4 NOV 2002  
RECEIVED

|                                                                  |  |
|------------------------------------------------------------------|--|
| CIVIL ENGINEERING DEPARTMENT<br>GEOTECHNICAL<br>INFORMATION UNIT |  |
| Report No. 35811                                                 |  |
| AREA                                                             |  |
| Ref.                                                             |  |

**FINAL FIELDWORK REPORT  
SCHOOL NO. P513(sp)**

|                 |                                                                                                       |
|-----------------|-------------------------------------------------------------------------------------------------------|
| CONTRACT No.    | TC J304                                                                                               |
| WORKS ORDER No. | ASD007188 (Vol. 3 of 6)                                                                               |
| PROJECT         | School Improvement Programme Final Phase, Package 2<br>(Group 2) - P513(sp) Ebenezer Training Centre. |
| CLIENT          | Architectural Services Department                                                                     |
| DATE            | 29 October 2002                                                                                       |

|                      |                                                                                                                          |                  |
|----------------------|--------------------------------------------------------------------------------------------------------------------------|------------------|
| COMPETENT<br>PERSONS | <br>S. W. Yu Geologist               | 29/10/02<br>Date |
|                      | <br>Dr. S. K. Kwok Site Supervision   | 21/10/02<br>Date |
| CERTIFIED BY         | <br>G. Whatmore Geotechnical Engineer | 31/10/02<br>Date |
|                      |                                                                                                                          |                  |

**CONTRACTOR**

Head Office: G/F Shop 11 & 1st Floor, 2 Landale Street, Wanchai, Hong Kong.

Tel: 2815 9263

Fax: 2342 3589

**CLIENT**

Architectural Services Department, Queensway Government Offices, 66 Queensway, Hong Kong



# MEMO

|        |        |
|--------|--------|
| CA/CEL | CA/GIU |
| CA/GEN | File:  |
| c.c.   | b.u.   |

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# VIBRO (H.K.) LIMITED

## SITE INVESTIGATION DEPARTMENT

### CONTRACT DATA SUMMARY

|                    |                                                                                                    |                       |                                      |           |                      |
|--------------------|----------------------------------------------------------------------------------------------------|-----------------------|--------------------------------------|-----------|----------------------|
| Field work         | Contractor                                                                                         | Vibro (H. K.) Limited | Date Work                            | Started   | 28/01/2002           |
|                    | Works Order No.                                                                                    | ASD007188             |                                      | Completed | 24/02/2002           |
| Laboratory testing | Contractor                                                                                         |                       | Date tests                           | Started   |                      |
|                    | Works Order No.                                                                                    |                       |                                      | Completed |                      |
| Site               | School Improvement Programme Final Phase, Package 2 (Group 2) - P513(sp) Ebenezer Training Centre. |                       | ASD File No.<br>92/91250/GCA/GI/7188 |           | Prepared by<br>Vibro |

### Fieldwork Summary

|                            |                    |            |                                     |                                     |                        |          |
|----------------------------|--------------------|------------|-------------------------------------|-------------------------------------|------------------------|----------|
| Inspect pit                | Total No.          | 1          | Total length (m)                    | 1.60                                |                        |          |
| Trial pit total<br>No. = 2 | Length of soil (m) | 3.10       | Volume of rock (m <sup>3</sup> )    | -                                   | Others (GCOP)          | -        |
|                            | No of tests        | -          | Density                             | -                                   | Block Sample           | -        |
| Drillhole total<br>No. = 1 | Length of rock (m) | Total 5.64 | Small disturbed                     | -                                   | Large disturbed sample | -        |
|                            | Length of soil (m) | Total -    | N-size                              | -                                   | H-size 5.64            | P-size - |
| Sampling                   | No of samples      | 3          | N-size                              | -                                   | H-size -               | P-size - |
|                            |                    |            | U76/100                             | -                                   | M101 -                 | Liner -  |
| Testing                    | No of tests        | -          | SPT                                 | -                                   | Pressuremeter          | -        |
| Installation               | No of piezometer   | -          | No of standpipe                     | 1                                   | Constant Head          | -        |
| Core holes                 | Total no.          | -          | Percolation test                    | -                                   | Falling Head           | -        |
| Slope strip                | Total no.          | -          | Conc length : N-size - m H-size - m | Soil length : N-size - m H-size - m |                        |          |
|                            | Length of soil (m) | -          | No/Type of sampling                 | -                                   | No/Type of tests       | -        |

### Laboratory Testing Summary (No. of each type of test)

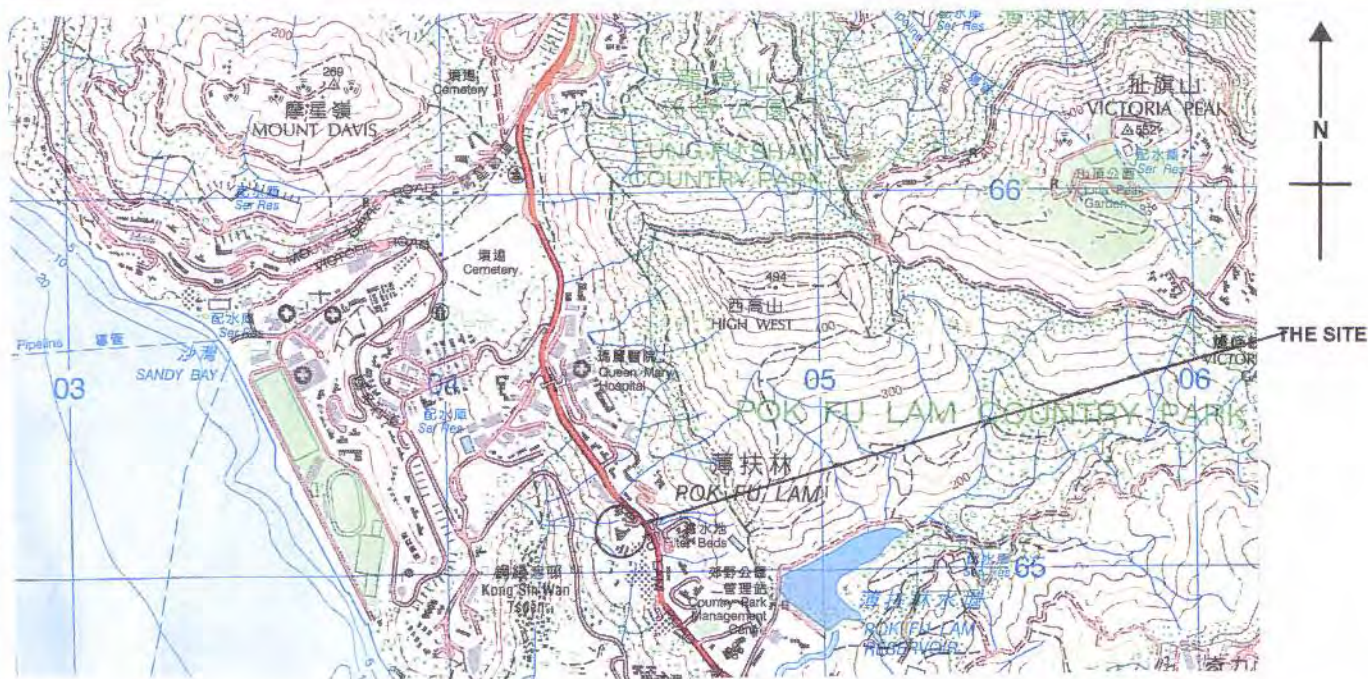
|      |                |                 |           |                 |     |     |
|------|----------------|-----------------|-----------|-----------------|-----|-----|
| Soil | Classification | Y <sub>b</sub>  | LL        | PSD :           | SG  |     |
|      |                | m.c.            | PL        | Comp            |     |     |
|      |                |                 |           | Sieve           |     |     |
|      | Triaxial       | UU <sub>s</sub> | UUM       | CD <sub>s</sub> | CDM | CUS |
|      | Compaction     | 2.5Kg           | 4.5Kg     | CBR             |     |     |
| Rock | Other          | Oed             | Shear box | Vane            |     |     |
|      | UC             | E, v            | Pt        | Shear box       |     |     |

Location Plan : SCALE 1 : 20,000

Derived from : 1 : 20,000 Sheet 11

Series HM20C

Edition 8



**ASD CONTRACT NO. TC J304**  
**TERM CONTRACT FOR GROUND INVESTIGATION AND**  
**LABORATORY TESTING FOR WHICH THE ARCHITECTURAL**  
**SERVICES DEPARTMENT IS RESPONSIBLE**  
**IN HONG KONG, KOWLOON,**  
**NEW TERRITORIES AND THE OUTLYING ISLANDS**

**Works Order No. ASD007188**  
**Volume 3 of 6**  
**School Improvement Programme Final Phase, Package 5 (Group 2)**  
**P513(sp) Ebenezer Training Centre**

| <u>Volume No.</u> | <u>School Name</u>                                                  |
|-------------------|---------------------------------------------------------------------|
| 1                 | P332 – Canossa School                                               |
| 2                 | P427 – Salesian School                                              |
| 3                 | <b>P513(sp) – Ebenezer Training Centre</b>                          |
| 4                 | P524 (sp) – HK Juvenile Care Centre Chan Nam Cheong Memorial School |
| 5                 | P529(sp) – Marycove School                                          |
| 6                 | P537(sp) – The John F. Kenedy Centre                                |



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**Works Order No. ASD007188**

**Volume 3 of 6**

**School Improvement Programme Final Phase, Package 5 (Group 2)**

**P513(sp) Ebenezer Training Centre**

|                                    |                                                               |
|------------------------------------|---------------------------------------------------------------|
| 1. INTRODUCTION.....               | 1                                                             |
| 2. THE SITE.....                   | 1                                                             |
| 3. GEOLOGY.....                    | 2                                                             |
| 4. FIELDWORK.....                  | 2                                                             |
| 4.1 DRILLING.....                  | 2                                                             |
| 4.2 TRIAL PITTING.....             | 3                                                             |
| 4.3 GCO PROBING.....               | 3                                                             |
| 4.4 FIELD INSTALLATION.....        | 3                                                             |
| 5. SOIL AND ROCK DESCRIPTIONS..... | 3                                                             |
| APPENDIX A.....                    | SOIL & ROCK DESCRIPTIONS                                      |
| APPENDIX B.....                    | LEGENDS FOR USE IN EXPLORATORY HOLE RECORDS                   |
| APPENDIX C.....                    | SUPPLEMENTARY TABLE FOR THE CLASSIFICATION OF WEATHERED SOILS |
| APPENDIX D.....                    | DRILLHOLE RECORD                                              |
| APPENDIX E.....                    | DRILLHOLE CORE PHOTOGRAPHS                                    |
| APPENDIX F.....                    | INSTRUMENT INSTALLATION DETAIL AND MONITORING RECORD          |
| APPENDIX G.....                    | RESPONSE TEST RECORD                                          |
| APPENDIX H.....                    | TRIAL PIT RECORDS                                             |
| APPENDIX I.....                    | TRIAL PIT PHOTOGRAPHS                                         |
| APPENDIX J.....                    | GCO PROBING TEST RECORD                                       |
| APPENDIX K.....                    | PNAP 132 DOCUMENTATION                                        |
| TABLE 1.....                       | SUMMARY TABLE OF SURVEY DATA                                  |
| TABLE 2.....                       | SUMMARY TABLE OF DRILLHOLE RESULTS                            |
| GROUND INVESTIGATION PLAN .....    |                                                               |

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**ASD CONTRACT NO. TC J304**

**TERM CONTRACT FOR GROUND INVESTIGATION AND**

**LABORATORY TESTING FOR WHICH THE ARCHITECTURAL**

**SERVICES DEPARTMENT IS RESPONSIBLE**

**IN HONG KONG, KOWLOON,**

**NEW TERRITORIES AND THE OUTLYING ISLANDS**

**Works Order No. ASD007188**

**Volume 3 of 6**

**School Improvement Programme Final Phase, Package 5 (Group 2)**

**P513(sp) Ebenezer Training Centre**

**1. INTRODUCTION**

Vibro (H.K.) Limited was awarded a 2 year Term Contract, TC J304, for Ground Investigation and Laboratory Testing for which the Architectural Services Department is Responsible in Hong Kong, Kowloon, New Territories and the Outlying Islands for the Government of the Hong Kong Special Administrative Region.

This report presents the results of the ground investigation, carried out under Works Order No. ASD008, for School Improvement Programme Final Phase, Package 5 (Group 2) – P513(sp) Ebenezer Training Centre. The fieldwork was carried out between 28<sup>th</sup> January 2002 and 4<sup>th</sup> March 2002.

**2. THE SITE**

The site, Ebenezer Training Centre, is located on Pok Fu Lam Road opposite to Alberose, Pok Fu Lam. The site can be located between Hong Kong 1980 Grid co-ordinates E 831655 and E 831700, and N 814170 and N 814175.

All exploratory hole locations are indicated on the Ground Investigation Plan, presented with this report. Co-ordinates and ground levels of the centre point of the exploratory hole locations are presented in Table 1 (Survey Record). Where slope stripping was undertaken, the survey data for the crest and toe centre points are presented.

### 3. GEOLOGY

According to the 1:20,000 scale, HGM20 Series Solid and Superficial Geology Map published by the Geotechnical Engineering Office Sheet 11 (Edition 1 – 1986), the site is underlain by the fine ash vitric tuff of the Repulse Bay Volcanic Group of Upper Jurassic Period from the Mesozoic Era.

The geological sequence encountered during the investigation can be summarised as follows:

Fill was encountered at ground level at the location of drillhole P513(sp)-P1 with a thickness of 1.80m. This stratum generally comprised gravel or sandy silt with occasional gravel.

Bedrock defined as Grade III or better rock with not less than 90% total core recovery was encountered at the location of drillhole P513(sp)-P1. Bedrock was encountered at 1.80m (+129.16mPD) and the drillhole was terminated 5m into bedrock, as instructed by the works order, at 7.24m (+123.72mPD).

### 4. FIELDWORK

The fieldworks comprised drilling at one drillhole location (P513(sp)-P1) and the excavation of two trial pits (P513(sp)-T1 and P513(sp)-T2). The works at these investigation stations were carried out to depths and at locations specified in the works order, or amended where necessary by the Engineer's Representative.

#### 4.1 Drilling

Rotary drilling techniques, using a hydraulic-feed type drilling rig, were adopted for this contract. H (115mmØ) casing, equipped with tungsten carbide cutting shoes, was used to advance the borehole and prevent collapses from occurring. Arisings from the drilling process were removed from the drillhole using water flush.

In superficial deposits and soils derived from the in situ weathering of rock, a wash boring technique was used.

Where hard strata in common ground or rock materials were encountered, a T2101 double tube core barrel was used to recover core samples.

Photographs were taken of all rotary cored material in the core boxes. Where jars and core samples are present in the same box the jar lids have been removed prior to photography to display the disturbed samples. The drillhole records and relevant photographs are presented in Appendices D and E respectively.



### 4.2 Trial Pitting

The trial pits were excavated by hand at positions specified by a representative of the Architectural Services Department (See ground investigation plan). Each trial pit face was logged and a photographic record was taken. The trial pit records and relevant photographs are presented in Appendices H and I respectively.

Upon completion the trial pits were backfilled with suitable material compacted in 150mm layers and the surfaces were reinstated to match the original condition.

### 4.3 GCO Probing

A GCO probe test was carried out at a location as instructed by the Engineer's Representative on site. The GCO probe test record is presented in Appendix J.

### 4.4 Field Installation

A single standpipe was installed at the location of drillhole P513(sp)-P1 with the standpipe tip at 6.76m (+123.93mPD). The standpipe comprised a perforated 19mm PVC pipe in a gravel response zone. The response zone was sealed with bentonite pellets.

After installation, a response test was undertaken to ensure the operation of the instrument. The instrument installation details and monitoring record and the instrument response test record are presented in Appendices F and G respectively.

## 5. SOIL AND ROCK DESCRIPTIONS

The rocks encountered in the investigation have generally been described according to Geoguide 3, Guide to Rock and Soils Descriptions. The classification and definitions of the descriptive terms are presented in Appendix A.

The delineation of various strata was primarily based on the examination of core samples recovered from the drillhole and from the examination of the exposed surfaces in the trial pits. The results in the form of Drillhole and Trial Pit records are presented in Appendices D and H respectively.

The legends used in the records are summarized in Appendix B.

The density and consistency terms were determined using the supplementary table for the classification of weathered soil issued by the Geotechnical Unit of the Architectural Services Department. The table is presented in Appendix C.

APPENDIX A

SOIL & ROCK DESCRIPTIONS



# CHECKLIST FOR SOIL DESCRIPTION

GEOTECHNICAL ENGINEERING OFFICE, HONG KONG

## 1. STRENGTH (Compactness & Consistency)

| Soil Type                                       | Term               | Identification                                                                                                                            |
|-------------------------------------------------|--------------------|-------------------------------------------------------------------------------------------------------------------------------------------|
| Very Coarse<br>(COBBLES & BOULDERS)             | Loose              | By inspection of voids and particle packing in the field.                                                                                 |
|                                                 | Dense              |                                                                                                                                           |
|                                                 | Very loose         |                                                                                                                                           |
| Coarse<br>(SANDS & GRAVELS)                     | Loose              | SPT 'N' value 0-4.<br>SPT 4-10; can be excavated with spade; 50mm peg easily driven.<br>SPT 10-30.                                        |
|                                                 | Medium dense       |                                                                                                                                           |
|                                                 | Dense              | SPT 30-50; requires pick for excavation; 50mm peg hard to drive.<br>SPT >50.                                                              |
| Fine<br>(CLAYS & SILTS)                         | Very dense         | Undrained shear strength (USS) <20 kPa; exudes between fingers when squeezed in hand.<br>USS 20-40 kPa; moulded by light finger pressure. |
|                                                 | Very soft          | USS 40-75 kPa; can be moulded by strong finger pressure.                                                                                  |
|                                                 | Soft               | USS 75-150 kPa; cannot be moulded by fingers; can be indented by thumb.                                                                   |
| Organic<br>(ORGANIC CLAYS, SILTS SANDS & PEATS) | Firm               | USS >150 kPa; can be indented by thumbnail.                                                                                               |
|                                                 | Stiff              | Fibres already compressed together. Very compressible and open structure.                                                                 |
|                                                 | Very stiff or hard | Can be moulded in hand and smears fingers.                                                                                                |
|                                                 | Compact            |                                                                                                                                           |
|                                                 | Spongy             |                                                                                                                                           |
|                                                 | Plastic            |                                                                                                                                           |

Terms applicable only to transported soils. For soils derived from insitu rock weathering, record actual values of quantitative tests (e.g. SPT 'N' value) as part of the description, where appropriate.

## 2. COLOUR

| Parameter | Terms                                                                                |
|-----------|--------------------------------------------------------------------------------------|
| Value     | Light, Dark                                                                          |
| Chroma    | Pinkish, Reddish, Yellowish, Orangish, Brownish, Greenish, Bluish, Purplish, Greyish |
| Hue       | Pink, Red, Yellow, Orange, Brown, Green, Blue, Purple, White, Grey, Black            |

For uniform colour distribution, choose a hue, supplemented by a value and/or chroma if necessary.

For non-uniform distribution, repeat this procedure using one of the following descriptors: spotted, mottled, dappled, streaked, striped (e.g. light yellowish brown mottled with red). State whether sample was wet or dry when described.

## 3. PARTICLE SHAPE & COMPOSITION

| Characteristic  | Terms                                                |
|-----------------|------------------------------------------------------|
| Form            | Equidimensional, Flat, Elongate, Flat, & Elongate    |
| Angularity      | Angular, Subangular, Subrounded, Rounded             |
| Surface Texture | Smooth, Rough, Glassy, Honeycombed, Pitted, Striated |

Describe composition of coarse particles where appropriate. Gravel and larger particles are usually rock fragments (e.g. granite, tuff); and particles are usually individual minerals (e.g. quartz, feldspar).

## 4. STRUCTURE

| Soil Type     | Term                                            | Identification                                                                  |
|---------------|-------------------------------------------------|---------------------------------------------------------------------------------|
| Coarse & Fine | Homogenous                                      | Deposit consists essentially of one type.                                       |
|               | Interstratified (Interbedded or Interlaminated) | Alternating layers of varying types or with bands or lenses of other materials. |
| Coarse        | Heterogenous                                    | A mixture of types.                                                             |
|               | Fissured                                        | Breaks into polyhedral fragments along fissures.                                |
| Fine          | Intact                                          | No fissures.                                                                    |
|               | Fibrous                                         | Plant remains recognizable & retain some strength.                              |
| Organic       | Amorphous                                       | No recognizable plant remains.                                                  |

Describe spacing of bedding planes, fissures, shell bands, etc using the spacing terms given in items 6 & 7 for rock description (see next page).

Above terms applicable only to transported soils. For soils derived from insitu rock weathering, describe relict structures in accordance with item 6 of rock description (see next page).

## 5. WEATHERING

### Soils Derived from Insitu Weathering of Rocks

There are two main types: saprolites (rock texture/structure retained) and residual soils (rock texture/structure completely destroyed). Describe state of weathering in accordance with items 4 & 8 for rock description (see next page).

### Sedimentary (Transported) Soils

Coarse soils: Describe overall discolouration of soil and degree of decomposition of gravel and larger particles (see item 4, next page). Also note any signs of disintegration of large particles where apparent.

Fine Soils: Describe overall discolouration of soil where apparent.

## 6. SOIL NAME

### A. Basic Soil Types

| Soil Type                     | Particle Sizes (mm) |        | Identification                                                                                                                                                                                                                                                         |                                                                                                                                                                                                                                                                                                                              |
|-------------------------------|---------------------|--------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| BOULDERS                      | --                  | >200   | Only seen complete in pits or exposures. Often difficult to recover from boreholes.                                                                                                                                                                                    |                                                                                                                                                                                                                                                                                                                              |
| COBBLES                       | --                  | 60-200 | Easily visible to naked eye; particle shape and grading can be described.                                                                                                                                                                                              |                                                                                                                                                                                                                                                                                                                              |
| GRAVELS                       | {                   | Coarse | 20-60                                                                                                                                                                                                                                                                  | { Well-graded: wide range of grain sizes.<br>Poorly-graded: not well-graded (split further into uniform or gap-graded).                                                                                                                                                                                                      |
|                               |                     | Medium | 6-20                                                                                                                                                                                                                                                                   |                                                                                                                                                                                                                                                                                                                              |
|                               |                     | Fine   | 2-6                                                                                                                                                                                                                                                                    |                                                                                                                                                                                                                                                                                                                              |
| SANDS                         | {                   | Coarse | 0.6-2                                                                                                                                                                                                                                                                  | { Visible to naked eye; very little or no cohesion; grading can be described.<br>May be well-graded or poorly-graded (uniform or gap-graded) as for gravel.                                                                                                                                                                  |
|                               |                     | Medium | 0.2-0.6                                                                                                                                                                                                                                                                |                                                                                                                                                                                                                                                                                                                              |
|                               |                     | Fine   | 0.06-0.2                                                                                                                                                                                                                                                               |                                                                                                                                                                                                                                                                                                                              |
| SILTS                         | {                   | Coarse | 0.02-0.06                                                                                                                                                                                                                                                              | { Only coarse silt barely visible to naked eye; exhibits little plasticity and marked dilatancy; slightly granular or silky to the touch. Disintegrates in water; lumps dry quickly; possesses cohesion but can be powdered easily between fingers.<br>Dry lumps can be broken by hand but not powdered between the fingers. |
|                               |                     | Medium | 0.006-0.02                                                                                                                                                                                                                                                             |                                                                                                                                                                                                                                                                                                                              |
|                               |                     | Fine   | 0.002-0.006                                                                                                                                                                                                                                                            |                                                                                                                                                                                                                                                                                                                              |
| CLAYS                         | --                  | <0.002 | { Disintegrates in water more slowly than silt; smooth to the touch; exhibits plasticity but no dilatancy; sticks to the fingers and dries slowly; shrinks appreciably on drying, usually showing cracks. These properties more noticeable with increasing plasticity. |                                                                                                                                                                                                                                                                                                                              |
| ORGANIC CLAYS, SILTS OR SANDS | --                  | varies | { Contains much organic vegetable matter; often has a noticeable smell and changes colour on oxidation.                                                                                                                                                                |                                                                                                                                                                                                                                                                                                                              |
| PEATS                         | --                  | varies | { Predominantly plant remains; usually dark brown or black in colour, often with distinctive smell; low bulk density.                                                                                                                                                  |                                                                                                                                                                                                                                                                                                                              |

### B. Composite Soil Types (Mixtures of Basic Types)

| Principal Soil Type                                         | Terminology Sequence                                                    | Term for Secondary Constituent             | % of Secondary Constituent |
|-------------------------------------------------------------|-------------------------------------------------------------------------|--------------------------------------------|----------------------------|
| Very coarse<br>(BOULDERS & COBBLES)<br>(>50% of soil >60mm) | Secondary constituents (finer material) after principal                 | With a little                              | < 5                        |
|                                                             |                                                                         | With some                                  | 5 - 20                     |
|                                                             |                                                                         | With much                                  | 20 - 50                    |
| Coarse<br>(GRAVELS & SANDS)<br>(>65% gravel & sand sizes)   | Secondary constituents before principal (excluding cobbles & boulders)+ | Slightly (silty, clayey or silty/clayey) * | < 5                        |
|                                                             |                                                                         | Very (silty, clayey or silty/clayey) *     | 5 - 15                     |
|                                                             |                                                                         | AND/OR                                     | 15 - 35                    |
| Fine<br>(SILTS & CLAYS)<br>(>35% silt & clay sizes)         | Secondary constituents before principal (excluding cobbles & boulders)+ | Slightly (gravelly or sandy) *             | < 5                        |
|                                                             |                                                                         | Very (gravelly or sandy) *                 | 5 - 15                     |
|                                                             |                                                                         | AND/OR                                     | 20 - 50                    |
|                                                             |                                                                         | Slightly (gravelly or sandy or both) *     | < 35                       |
|                                                             |                                                                         | Very (gravelly or sandy) *                 | 35 - 65                    |
|                                                             |                                                                         | AND/OR                                     |                            |

\* Full name of finer material should be given (see examples below).  
\* Secondary soil type as appropriate; use 'silty/clayey' when a distinction cannot be made between the two.

If cobbles or boulders are also present in a coarse or fine soil, this can be indicated by using one of the following terms relating to the very coarse fraction after the principal: 'with occasional' (<5), 'with some' (5-20), 'with many' (20-50), where figures in brackets are % very coarse material expressed as a fraction of the whole soil (see examples below).

Examples: Slightly silty/clayey, sandy GRAVEL. Slightly gravelly, sandy SILT. Very gravelly SAND. Sandy GRAVEL with occasional boulders. BOULDERS with much finer material (silty/clayey, very sandy gravel).

For fine soil, plasticity terms should also be described where possible, viz: 'non-plastic' (generally silts), 'intermediate plasticity' (lean clays), 'high plasticity' (fat clays).

## 7. DISCONTINUITIES

Full description of discontinuities, where necessary, should be made using the methods and terms given in item 7 for rock description (see next page).

## 8. ADDITIONAL GEOLOGICAL INFORMATION

Record geological name which indicates geological origin or soil type (e.g. Alluvium, Coluvium, Marine sand etc.). Refer to HKGS maps & memoirs for further information.

### NOTES:

- Mass characteristics of soils (i.e. structure, weathering, discontinuities) can only be described satisfactorily in undisturbed field exposures or large undisturbed samples.
- For full descriptions of soils derived from insitu rock weathering:
  - saprolites - describe as rocks, supplemented by soil strength and soil name terms in brackets,
  - residual soils - describe as soils, supplemented by name of parent rock where apparent from field evidence.

# CHECKLIST FOR ROCK DESCRIPTION

# GEOTECHNICAL ENGINEERING OFFICE, HONG KONG

## 1. STRENGTH

| Term              | Identification                                                                                                                                                                                                                                         |
|-------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Extremely weak    | Easily crumbled by hand; indented deeply by thumbnail.                                                                                                                                                                                                 |
| Very weak         | Crumbled with difficulty; scratched easily by thumbnail; peeled easily by pocket knife.                                                                                                                                                                |
| Weak              | Broken into pieces by hand; scratched by thumbnail; peeled by pocket knife; deep indentations (to 5mm) by point of geological pick; hand-held specimen easily broken by single light hammer blow.                                                      |
| Moderately weak   | Broken with difficulty in two hands; scratched with difficulty by thumbnail; difficult to peel but easily scratched by pocket knife; shallow indentations easily made by point of pick; hand-held specimen usually broken by single light hammer blow. |
| Moderately strong | Scratched by pocket knife; shallow indentations made by firm blow with point of pick; hand held specimen usually broken by single firm hammer blow. Point load strength (PLS) 0.5 – 2 MPa.                                                             |
| Strong            | Firm blows with point of pick cause only superficial surface damage; hand-held specimen requires more than one firm hammer blow to break, PLS 2 – 4 MPa.                                                                                               |
| Very strong       | Many hammer blows required to break specimen. PLS 4 – 8 MPa.                                                                                                                                                                                           |
| Extremely strong  | Specimen only chipped by hammer blows. PLS > 8 MPa.                                                                                                                                                                                                    |

## 2. COLOUR

| Parameter | Terms                                                                                |
|-----------|--------------------------------------------------------------------------------------|
| Value     | Light, Dark                                                                          |
| Chroma    | Pinkish, Reddish, Yellowish, Orangish, Brownish, Greenish, Bluish, Purplish, Greyish |
| Hue       | Pink, Red, Yellow, Orange, Brown, Green, Blue, Purple, White, Grey, Black            |

For uniform colour distribution, choose a hue, supplemented by a value and/or chroma if necessary.

For non-uniform distribution, repeat this procedure using one of the following descriptors: spotted, mottled, dappled, streaked, striped (e.g. light pinkish grey spotted with black). State whether sample was wet or dry described.

## 3. TEXTURE / FABRIC

Texture Terms (Applicable Mainly to Igneous Rocks)

Equigranular, Inequigranular, Megacrystic, Porphyritic, Crystalline, Cryptocrystalline, Aphanitic

Fabric

Describe preferred orientation of grains/crystals where apparent. Describe intensity, spacing, continuity and any preferred orientation of microfractures where apparent.

## 4. MATERIAL WEATHERING / ALTERATION

| Decomposition Term    | Grade Symbol | Typical Characteristics                                                                                                                                                                                              |
|-----------------------|--------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Residual Soil         | VI           | Original rock texture completely destroyed; can be crumbled by hand and finger pressure into constituent grains.                                                                                                     |
| Completely Decomposed | V            | Original rock texture preserved; can be crumbled by hand and finger pressure into constituent grains; easily indented by point of geological pick; slakes in water; completely discoloured compared with fresh rock. |
| Highly Decomposed     | IV           | Can be broken by hand into smaller pieces; makes a dull sound when struck by hammer; not easily indented by point of pick; does not slake in water; completely discoloured compared with fresh rock.                 |
| Moderately Decomposed | III          | Cannot usually be broken by hand; easily broken by hammer; makes a dull or slight ringing sound when struck by hammer; completely stained throughout.                                                                |
| Slightly Decomposed   | II           | Not broken easily by hammer; makes a ringing sound when struck by hammer; fresh rock colours generally retained but stained near joint surfaces.                                                                     |
| Fresh Rock            | I            | Not broken easily by hammer; makes a ringing sound when struck by hammer; no visible signs of decomposition (i.e. no discolouration).                                                                                |

This classification is applicable to igneous and volcanic rocks and other rocks of equivalent strength in fresh state.

Disintegration

Describe small-scale cracking and fracturing caused by mechanical weathering, where apparent.

Alteration

Describe state of alteration (e.g. mineralised, kaolinised) where apparent.

## 5. ROCK NAME (Including Grain Size)

|             |                                                                                                                                                                                                   |
|-------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Igneous     | : Coarse- (6-20mm), Medium- (2-6mm) & Fine- (0.06-2mm) grained GRANITE; GRANODIORITE. Very Fine-grained (<0.06mm) RHYOLITE; BASALT. (Common types only, see Geoguide 3 for others).               |
| Pyroclastic | : PYROCLASTIC BRECCIA (>60mm), Lapilli TUFF (2-60mm), Coarse ash TUFF (0.06-2mm), Fine ash TUFF (<0.06mm).                                                                                        |
| Melamorphic | : Foliated - SCHIST (>0.06mm), PHYLLITE (<0.06mm).                                                                                                                                                |
| Sedimentary | : Non-foliated - MARBLE, QUARTZITE, FAULT BRECCIA, CONGLOMERATE, BRECCIA (>2mm), SANDSTONE (0.06-2mm), MUDSTONE (<0.06mm) = SILTSTONE (0.002-0.06mm) + CLAYSTONE (<0.002mm). (Common types only). |

If rock name cannot be identified, describe grain size quantitatively, including textural term where appropriate.

## 6. STRUCTURE

Structural Term

Bedded, Laminated, Massive  
Massive, Flow-banded  
Foliated, Banded, Cleaved

Rock Type

Sedimentary  
Igneous, Pyroclastic  
Metamorphic

Spacing of Planar Structures

Very thick (>2m), Thick (0.6-2m), Medium (200-600mm), Thin (60-200mm), Very thin (20-60mm), Thickly-laminated (Sedimentary) (6-20mm) or Narrow (Igneous, Metamorphic) (6-20mm), Thinly-laminated (Sedimentary) (<6mm) or Very narrow (Igneous, Metamorphic) (<6mm).

Examples: Thickly-bedded SANDSTONE. Narrowly flow-banded RHYOLITE.

## 7. DISCONTINUITIES

Nature (Type of Discontinuity)

| Fault zone | Cleavage    | Flisure       | Bedding |
|------------|-------------|---------------|---------|
| Fault      | Schistosity | Tension crack |         |
| Joint      | Shear plane | Foliation     |         |

Location and Orientation

Record location as co-ordinates or relative position along datum line, preferably on map or plan.

Record orientation as dip direction/dip in degrees (e.g. 032/55).

Spacing

Extremely widely-spaced (>6m), Very widely-spaced (2-6m), Widely-spaced (0.6-2m), Medium-spaced (200-600mm), Closely-spaced (60-200mm), Very closely-spaced (20-60mm), Extremely closely-spaced (<20mm).

In exposures, supplement spacing with description of rock block shape where possible. Descriptors: Blocky, Tabular, Columnar, Polyhedral.

Roughness

Waviness (large-scale): Estimate/measure wavelength and amplitude in metres.

Unevenness (small-scale): use one term from the following:

|                  |                   |                         |
|------------------|-------------------|-------------------------|
| Rough stepped    | Smooth stepped    | Slickensided stepped    |
| Rough undulating | Smooth undulating | Slickensided undulating |
| Rough planar     | Smooth planar     | Slickensided planar     |

Aperture Size

Wide (>200mm), Moderately wide (60-200mm), Moderately narrow (20-60mm), Narrow (6-20mm), Very narrow (2-6mm), Extremely narrow (>0-2mm), Tight (zero).

Infilling (Nature)

|                   |                  |                                |
|-------------------|------------------|--------------------------------|
| Clean             | Surface staining | Decomposed/ disintegrated rock |
| Non-cohesive soil | Cohesive soil    | Quartz                         |
| Caliche           | Manganese        | Kaolin                         |
| Other (Specify)   |                  |                                |

Give full description of infill materials/minerals where appropriate.

Seepage

Dry Damp/wet Seepage present (estimate quantity in l/sec or l/min)

Fracture State

In borehole cores, measure the following: Total Core Recovery (TCR), Solid Core Recovery (SCR), Rock Quality Designation (RQD), Fracture Index (FI). See Geoguide 3 for definitions.

## 8. MASS WEATHERING

| Term                     | Zone Symbol | Typical Characteristics                                                                                                  |
|--------------------------|-------------|--------------------------------------------------------------------------------------------------------------------------|
| Residual Soil            | RS          | Residual soil derived from insitu weathering; mass structure and material texture/fabric completely destroyed: 100% soil |
| Partially Weathered Rock | PW 0/30     | Less than 30% rock                                                                                                       |
|                          |             | Soil retains original mass structure and material texture/fabric (i.e. saprolite)                                        |
|                          |             | Rock content does not affect shear behaviour of mass, but relict discontinuities in soil may do so.                      |
|                          |             | Rock content may be significant for investigation and construction.                                                      |
|                          | PW 30/50    | 30% to 50% rock                                                                                                          |
| Unweathered Rock         | PW 50/90    | Both rock content and relict discontinuities may affect shear behaviour of mass.                                         |
|                          | PW 90/100   | 50% to 90% rock                                                                                                          |
|                          |             | Interlocked structure.                                                                                                   |
|                          |             | Greater than 90% rock                                                                                                    |
|                          |             | Small amount of the material converted to soil along discontinuities.                                                    |
|                          | UW          | 100% rock                                                                                                                |
|                          |             | May show slight discolouration along discontinuities.                                                                    |

## 9. ADDITIONAL GEOLOGICAL INFORMATION

Record geological formation name if known. Avoid conjecture. Refer to HKGS maps & memoirs for further information.

NOTES:

- Rock material description normally includes: strength, colour, texture/fabric, material weathering/alteration and ROCK NAME.
- Rock mass description normally includes: strength, colour, structure, mass weathering, ROCK NAME, discontinuities and additional geological information. Can be supplemented with more detailed information on texture/fabric and material weathering / alteration of different materials within the mass where necessary.



APPENDIX B

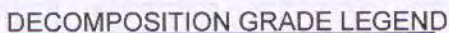
LEGENDS FOR USE IN EXPLORATORY HOLE  
RECORDS



## LEGENDS FOR USE ON EXPLORATORY HOLE RECORDS

|             |              |              |              |             |              |             |              |              |
|-------------|--------------|--------------|--------------|-------------|--------------|-------------|--------------|--------------|
| AGGLOM<br>  | ASPHALT<br>  | BASALT<br>   | BIOCLAST<br> | BLANK<br>   | BLDR<br>     | BLDRC<br>   | BLDRCBBL<br> | BLDRCG<br>   |
| BLDRCGK<br> | BLDRCK<br>   | BLDRG<br>    | BLDRGK<br>   | BLDRK<br>   | BLDRS<br>    | BLDRSG<br>  | BLDRSGK<br>  | BLDRSK<br>   |
| BLDRZG<br>  | BLDRZK<br>   | BLDRZSG<br>  | BLDRZSGK<br> | BLDRZSK<br> | BRECCIA<br>  | CBBL<br>    | CBBLC<br>    | CBBLCG<br>   |
| CBBLCO<br>  | CBBLCS<br>   | CBBLCSG<br>  | CBBLCSGO<br> | CBBLCZ<br>  | CBBLCZG<br>  | CBBLCZS<br> | CBBLG<br>    | CBBLS<br>    |
| CBBLSG<br>  | CBBLSGO<br>  | CBBLZ<br>    | CBBLZG<br>   | CBBLZS<br>  | CBBLZSG<br>  | CBBLZSO<br> | CLAY<br>     | CLAYB<br>    |
| CLAYG<br>   | CLAYGB<br>   | CLAYGK<br>   | CLAYGKB<br>  | CLAYGKO<br> | CLAYGO<br>   | CLAYK<br>   | CLAYKB<br>   | CLAYO<br>    |
| CLAYOB<br>  | CLAYS<br>    | CLAYSB<br>   | CLAYSG<br>   | CLAYSGB<br> | CLAYSGK<br>  | CLAYSK<br>  | CLAYSO<br>   | CLAYSTON<br> |
| CLAYZ<br>   | CLAYZB<br>   | CLAYZG<br>   | CLAYZGB<br>  | CLAYZGK<br> | CLAYZK<br>   | CLAYO<br>   | CLAYZS<br>   | CLAYZSB<br>  |
| CLAYZSG<br> | CLAYZSGB<br> | CLAYZSGK<br> | CLAYZSK<br>  | CLAYZSO<br> | CONCRETE<br> | CONGLOM<br> | DOLOMITE<br> | FILL<br>     |
| FISSIN<br>  | GABBRO<br>   | GNEISS<br>   | GRANITE<br>  | GRAV<br>    | GRAVB<br>    | GRAVC<br>   | GRAVCB<br>   | GRAVCBBL<br> |
| GRAVCK<br>  | GRAVCO<br>   | GRAVCS<br>   | GRAVCSB<br>  | GRAVCSK<br> | GRAVCSO<br>  | GRAVCZ<br>  | GRAVCZB<br>  | GRAVCZK<br>  |







## List of Material Codes for the Log Legend

| <u>Material Code</u> | <u>Description</u>                       |
|----------------------|------------------------------------------|
| AGGLOM               | Agglomerate                              |
| ASPHALT              | Asphalt                                  |
| BASALT               | Basalt                                   |
| BIOCLAST             | Shells                                   |
| BLANK                | Material not recovered                   |
| BLDR                 | Boulders                                 |
| BLDRCBBL             | Boulders and Cobbles                     |
| BRECCIA              | Sedimentary Breccia                      |
| CBBL                 | Cobbles                                  |
| CLAY                 | Clay                                     |
| CLAYSTON             | Claystone                                |
| CONCRETE             | Concrete                                 |
| CONGLOM              | Conglomerate                             |
| DOLOMITE             | Dolomitic Limestone                      |
| FILL                 | Artificial Fill                          |
| FISSIN               | Fissure Infill                           |
| GABBRO               | Gabbro, Lamprophyre                      |
| GNEISS               | Gneiss                                   |
| GRANITE              | Granite                                  |
| GRAV                 | Gravel                                   |
| GRAVCBBL             | Gravel and Cobbles                       |
| LST                  | Limestone                                |
| LSTSLT               | Interbedded Limestone and Siltstone      |
| MARBLE               | Marble                                   |
| METACON              | Metamorphic Rock - contact               |
| METAREG              | Metamorphic Rock - regional              |
| MUDSTONE             | Mudstone                                 |
| ORGANICS             | Organic, Peat                            |
| PEGMTITE             | Pegmatite                                |
| PHYLLITE             | Phyllite, Mylonite                       |
| QUARTZIT             | Quartzite                                |
| RHYOLITE             | Rhyolites                                |
| SAND                 | Sand                                     |
| SANDSTON             | Sandstone                                |
| SCHIST               | Schist (Medium grained Metamorphic Rock) |
| SHALE                | Shale                                    |
| SILT                 | Silt                                     |
| SILTSTON             | Siltstone                                |
| SYENITE              | Granodiorite, Syenite, Monzonite         |
| TRACHYTE             | Trachyte                                 |
| TUFF                 | Coarse Ash Tuff, Lapilli Tuff            |
| TUFFFINE             | Fine Ash Tuff                            |

### Notes :

In common ground the following codes are added to the main descriptor in the order stated below to denote secondary constituents :

|       |            |       |             |
|-------|------------|-------|-------------|
| (i)   | C - Clay   | (v)   | K - Cobbles |
| (ii)  | Z - Silt   | (vi)  | O - Organic |
| (iii) | S - Sand   | (vii) | B - Shells  |
| (iv)  | G - Gravel |       |             |

e.g. a silty CLAY with occasional shells and organic material is coded as CLAYZOB

APPENDIX C

SUPPLEMENTARY TABLE FOR THE CLASSIFICATION  
OF WEATHERED SOILS

# SUPPLEMENTARY TABLE FOR CLASSIFICATION OF WEATHERED SOILS

Table 2a Classification of Granular Soils based on SPT (after Terzaghi & Peck, 1948)

| Relative density of sand |                        | SPT values  |            |
|--------------------------|------------------------|-------------|------------|
|                          |                        | Uncorrected | Corrected* |
| Very loose               | ( $Dr < 0.15$ )        | $< 4$       | $< 3$      |
| Loose                    | ( $Dr = 0.15 - 0.35$ ) | 4 - 10      | 3 - 8      |
| Medium dense             | ( $Dr = 0.35 - 0.65$ ) | 10 - 30     | 8 - 25     |
| Dense                    | ( $Dr = 0.65 - 0.85$ ) | 30 - 50     | 25 - 42    |
| Very dense               | ( $Dr = 0.85 - 1.00$ ) | $> 50$      | $> 42$     |

\*SPT value corrected as described in Skempton (1986)

Table 2b Classification of Cohesive Soils based on SPT (after Terzaghi & Peck, 1948)

| Clay consistency | SPT values      |                | Undrained cohesion (kPa) |
|------------------|-----------------|----------------|--------------------------|
|                  | Uncorrected (N) | Corrected* (N) |                          |
| Very soft        | $< 2$           | $< 2$          | $< 25$                   |
| Soft             | 2 - 4           | 2 - 3          | 25 - 50                  |
| Medium           | 4 - 8           | 3 - 6          | 50 - 100                 |
| Stiff            | 8 - 15          | 6 - 11         | 100 - 200                |
| Very stiff       | 15 - 30         | 11 - 23        | 200 - 400                |
| Hard             | $> 30$          | $> 23$         | $> 400$                  |

\*SPT value corrected as described in Skempton (1986)

Table 3 Classification of Transported Soils in Hong Kong based on SPT and Dry Density

| State of soil                       | Classification criteria in accordance with $N$ & $\tau_d$ |     |                                                         |  |
|-------------------------------------|-----------------------------------------------------------|-----|---------------------------------------------------------|--|
| Very soft                           | $N \leq 1$                                                | or  | $\tau_d \leq 0.80 \text{ Mg/m}^3$                       |  |
| Soft or very loose                  | $1 < N \leq 3$                                            | or  | $0.80 \text{ Mg/m}^3 < \tau_d \leq 1.15 \text{ Mg/m}^3$ |  |
| Medium firm or loose                | $3 < N \leq 8$                                            | or  | $1.15 \text{ Mg/m}^3 < \tau_d \leq 1.45 \text{ Mg/m}^3$ |  |
| Stiff to very stiff or medium dense | $8 < N \leq 24$                                           | or  | $1.45 \text{ Mg/m}^3 < \tau_d \leq 1.80 \text{ Mg/m}^3$ |  |
| Hard or dense                       | $24 < N \leq 42$                                          | or  | $1.80 \text{ Mg/m}^3 < \tau_d \leq 2.00 \text{ Mg/m}^3$ |  |
| Very dense                          | $42 < N$                                                  | and | $2.00 \text{ Mg/m}^3 < \tau_d$                          |  |

Table 4 Classification of Weathered Soils in Hong Kong based on SPT and Dry Density

| State of soil       | Classification criteria in accordance with $N$ & $\tau_d$ |     |                                                           |  |
|---------------------|-----------------------------------------------------------|-----|-----------------------------------------------------------|--|
| Very loose to loose | $N \leq 20$                                               | or  | $\tau_d \leq 1.400 \text{ Mg/m}^3$                        |  |
| Medium dense        | $20 < N \leq 50$                                          | or  | $1.400 \text{ Mg/m}^3 < \tau_d \leq 1.600 \text{ Mg/m}^3$ |  |
| Dense               | $50 < N \leq 100$                                         | or  | $1.600 \text{ Mg/m}^3 < \tau_d \leq 1.750 \text{ Mg/m}^3$ |  |
| Very dense          | $100 < N$                                                 | and | $1.750 \text{ Mg/m}^3 < \tau_d$                           |  |

Extract from

Wong, H.Y. (1994). Relationship between Standard Penetration Test (SPT) Value and In-situ Density from Soils in Hong Kong. Operation Manual (Technical) No. 9/92000/GEN/G/TOM/8 issued by Geotechnical Unit of Arch.S. D.



APPENDIX D

DRILLHOLE RECORD





**VIBRO (H.K.) LTD.**  
SITE INVESTIGATION DEPARTMENT  
**DRILLHOLE RECORD**

DRILLHOLE No.  
**P513(sp) - P1**  
SHEET 1 OF 1

|                 |                                                                                                    |              |                            |                 |                          |
|-----------------|----------------------------------------------------------------------------------------------------|--------------|----------------------------|-----------------|--------------------------|
| PROJECT         | School Improvement Programme Final Phase, Package 2 (Group 2) - P513(sp) Ebenezer Training Centre. |              |                            |                 |                          |
| METHOD          | Rotary                                                                                             | CO-ORDINATES | E 831700.86<br>N 814171.18 | CONTRACT No.    | TC J304                  |
| MACHINE & No.   | BM33                                                                                               | GROUND LEVEL | + 130.96 mPD               | WORKS ORDER No. | ASD007188 (Vol. 3 of 6)  |
| FLUSHING MEDIUM | Water                                                                                              | ORIENTATION  | Vertical                   | DATE            | 28/01/2002 to 28/01/2002 |

| Drilling<br>Progress | Casing<br>Depth/Size | Water<br>Depth (m) | Water<br>Returns % | T.C.R. % | S.C.R. % | R.Q.D. % | Fracture<br>Index | F.I. / Test<br>Depth | Tests | Samples |                | Reduced<br>Level<br>(mPD) | Depth   | Legend | Grade | Description                                                                                                                                                                                       |
|----------------------|----------------------|--------------------|--------------------|----------|----------|----------|-------------------|----------------------|-------|---------|----------------|---------------------------|---------|--------|-------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                      |                      |                    |                    |          |          |          |                   |                      |       | No.     | Type           |                           |         |        |       |                                                                                                                                                                                                   |
| 28/01/02             |                      |                    |                    |          |          |          |                   |                      |       |         |                | +130.96                   | 0.00    |        |       | Yellowish brown, sandy SILT with occasional angular fine to medium gravel. (FILL)                                                                                                                 |
| 1                    |                      |                    |                    |          |          |          |                   |                      |       | A       | INSPECTION PIT | 0.45                      |         |        |       |                                                                                                                                                                                                   |
|                      |                      |                    |                    |          |          |          |                   |                      |       | B       |                | 0.95                      |         |        |       |                                                                                                                                                                                                   |
|                      |                      |                    |                    |          |          |          |                   |                      |       | C       |                | 1.55                      | +129.36 | 1.60   |       |                                                                                                                                                                                                   |
|                      |                      |                    |                    |          |          |          |                   |                      |       |         | T2101          | 1.60                      | +129.16 | 1.80   |       | Yellowish brown, angular to subangular coarse GRAVEL (FILL)                                                                                                                                       |
| 2                    |                      |                    | 50                 | 100      | 100      | 50       |                   | 1.80                 |       |         |                | 2.00                      | +128.76 | 2.20   | III   | Strong, grey, spotted white and black, slightly decomposed fine ash vitric TUFF.                                                                                                                  |
|                      |                      |                    |                    |          |          |          |                   | 11.7                 |       |         |                |                           |         |        |       | Joints are very closely to medium spaced, rough planar, extremely narrow to very narrow, limonite stained, manganese stained and chlorite coated., dipping 10° to 20°, 30° to 40° and 70° to 80°. |
|                      |                      |                    | 50                 | 100      | 100      | 82       |                   | 2.40                 |       |         | T2101          |                           | +128.36 | 2.60   | II    | From 1.80 to 2.20m : Moderately strong, moderately decomposed fine ash vitric TUFF.                                                                                                               |
|                      |                      |                    |                    |          |          |          |                   | 5.0                  |       |         |                |                           | +128.16 | 2.80   | II    | From 2.60 to 2.80m : Fine grained GRANITE.                                                                                                                                                        |
|                      |                      |                    |                    |          |          |          |                   | 2.60                 |       |         |                |                           | +128.06 | 2.90   | II    | Strong, pinkish grey, spotted white and black, slightly decomposed fine grained GRANITE.                                                                                                          |
| 3                    |                      |                    |                    |          |          |          |                   | 10.0                 |       |         |                |                           |         |        |       | Joints are closely to medium spaced, rough planar, extremely narrow, limonite stained and manganese stained, dipping 20° to 30°, 30° to 40°, 50° to 60° and 60° to 70°.                           |
|                      |                      |                    |                    |          |          |          |                   | 3.10                 |       |         |                |                           |         |        |       |                                                                                                                                                                                                   |
|                      |                      |                    |                    |          |          |          |                   | 1.4                  |       |         | T2101          |                           |         |        |       |                                                                                                                                                                                                   |
| 4                    |                      |                    | 50                 | 100      | 100      | 80       |                   | 3.80                 |       |         |                |                           |         |        |       |                                                                                                                                                                                                   |
|                      |                      |                    |                    |          |          |          |                   | 16.7                 |       |         |                |                           |         |        |       |                                                                                                                                                                                                   |
|                      |                      |                    |                    |          |          |          |                   | 4.10                 |       |         |                |                           |         |        |       |                                                                                                                                                                                                   |
|                      |                      |                    |                    |          |          |          |                   | 3.0                  |       |         |                |                           |         |        |       |                                                                                                                                                                                                   |
|                      |                      |                    |                    |          |          |          |                   | 4.43                 |       |         |                |                           |         |        |       |                                                                                                                                                                                                   |
|                      |                      |                    |                    |          |          |          |                   | 4.57                 |       |         |                |                           |         |        |       |                                                                                                                                                                                                   |
| 5                    |                      |                    | 50                 | 100      | 100      | 100      |                   |                      |       |         | T2101          |                           |         |        |       |                                                                                                                                                                                                   |
|                      |                      |                    |                    |          |          |          |                   |                      |       |         |                |                           |         |        |       |                                                                                                                                                                                                   |
| 6                    |                      |                    |                    |          |          |          |                   | 2.6                  |       |         |                |                           |         |        |       |                                                                                                                                                                                                   |
|                      |                      |                    |                    |          |          |          |                   |                      |       |         | T2101          |                           |         |        |       |                                                                                                                                                                                                   |
|                      |                      |                    |                    |          |          |          |                   |                      |       |         |                |                           |         |        |       |                                                                                                                                                                                                   |
|                      |                      |                    | 50                 | 100      | 100      | 100      |                   |                      |       |         |                |                           |         |        |       |                                                                                                                                                                                                   |
| 7                    |                      | 0.85m at 18:30     |                    |          |          |          |                   |                      |       |         |                |                           |         |        |       |                                                                                                                                                                                                   |
| 28/01/02             |                      |                    |                    |          |          |          |                   |                      |       |         |                | +123.72                   | 7.24    |        |       | End of Investigation Hole at 7.24m.                                                                                                                                                               |
| 8                    |                      |                    |                    |          |          |          |                   |                      |       |         |                |                           |         |        |       |                                                                                                                                                                                                   |
| 9                    |                      |                    |                    |          |          |          |                   |                      |       |         |                |                           |         |        |       |                                                                                                                                                                                                   |
| 10                   |                      |                    |                    |          |          |          |                   |                      |       |         |                |                           |         |        |       |                                                                                                                                                                                                   |

● Small disturbed sample

▲ Large disturbed sample

▨ SPT liner sample

▨ U76 undisturbed sample

▨ U100 undisturbed sample

▨ Mazier sample

▨ Piston sample

▲ Water sample

□ Piezometer / standpipe tip

↓ Standard penetration test

⊥ Pressuremeter test

⊥ Permeability test

⊥ Impression packer test

∇ In-situ vane shear test

LOGGED

DATE

CHECKED

DATE

S. W. Yu

31/01/2002

A. W. Horspool

01/02/2002

REMARKS

1. An inspection pit was excavated by hand to 1.60m.

2. A standpipe was installed to 6.76m.

# Appendix B

---

## SIS Data Sheets, SIS Plans and SIMAR Reports

## BASIC INFORMATION

Location: POK FU LAM ROAD  
Registration Date: 06-11-1997  
Ranking Score (NPRS): 0 (EI)  
Date of Formation: pre-1977  
Date of Construction/ Modification: 27-09-1999  
Data Source: EI(HyD)  
Approximate Coordinates: Easting : 831633    Northing : 814283

## CONSEQUENCE-TO-LIFE CATEGORY

Facility at Crest: Road/footpath with heavy traffic density  
Distance of Facility from Crest (m): 0  
Facility at Toe: School  
Distance of Facility from Toe (m): 2.9  
Consequence-to-life Category: 1  
Remarks: N/A

## SLOPE PART

(1)    Max. Height (m): 9    Length (m): 130    Average Angle (deg): 55

## WALL PART

N/A

## MAINTENANCE RESPONSIBILITY

(1) Sub Div.: 1    Mixed Feature    Party: RBL 136 RP    Agent: N/A    Land Cat.: 1    Reason Code: 1    MR Endorsement Date: 11-11-2021  
(2) Sub Div.: 2    Mixed Feature    Party: HyD    Agent: HyD    Land Cat.: 5b(iii)    Reason Code: 56    MR Endorsement Date: 11-11-2021

## DETAILS OF SLOPE / RETAINING WALL

Date of Inspection: 13-04-2017  
Data Source: EI(HyD)  
Slope Part Drainage: (1)    Position: On slope    Size(mm): 300  
                              (2)    Position: Toe    Size(mm): 300  
Wall Part Drainage: N/A

## SLOPE PART



**Slope Part (1)**

Surface Protection (%): Bare: 0 Vegetated: 0 Chunam: 0 Shotcrete: 100 Other Cover: 0

Material Description: Material type: Rock Geology: N/A

Berm: No. of Berms: N/A Min. Berm Width (m): N/A

Weepholes: Size (mm): 60 Spacing (m): 1.2

**WALL PART**

N/A

**SERVICES**

(1) Utilities Type: Sewer/Drain Size(mm): 750 Location: On crest Remark: N/A

(2) Utilities Type: Water Main Size(mm): 300 Location: On crest Remark: N/A

**CHECKING STATUS INFORMATION**

N/A

**BACKGROUND INFORMATION**

GIU Cell Ref.: 11SW17A1

Map Sheet Reference (1:1000): 11SW-17A

Aerial Photos: 7372-3 (1963),

Nearest Rainuage Station (Station Number): Block 44, Baguio Villa(H03)

Data Collected On: 13-04-2017

Date of Construction, Subsequent Modification: Constructed Before: 1963 After: N/A

Modification and Demolition: Modification: Modified Before: 1994 After: 1994

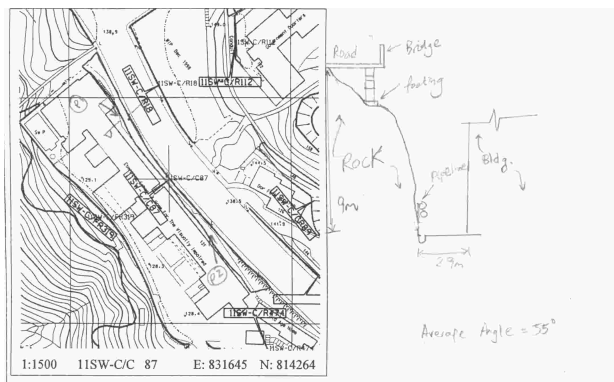
|                                                              |                                          |                                                  |
|--------------------------------------------------------------|------------------------------------------|--------------------------------------------------|
| Related Reports/Files or Documents:                          | File/Report: DLC/BC                      | Ref. No.: GCI 5/3/13C - RBL86                    |
|                                                              | File/Report: DLC/BC                      | Ref. No.: GCI 5/3/13C - RBL86                    |
|                                                              | File/Report: Development                 | Ref. No.: GCI3/4/2084/92                         |
|                                                              | File/Report: Development                 | Ref. No.: GCI3/4/2084/92                         |
|                                                              | File/Report: GCC                         | Ref. No.: GC12/A1/21                             |
|                                                              | File/Report: GCC                         | Ref. No.: GC12/A1/21                             |
|                                                              | File/Report: GEO                         | Ref. No.: S3R 64/99 (26-07-99)                   |
|                                                              | File/Report: GEO                         | Ref. No.: S3R 64/99 (26-07-99)                   |
|                                                              | File/Report: GEO                         | Ref. No.: Stage 1 study in design4 (18-12-91)    |
|                                                              | File/Report: GEO                         | Ref. No.: Stage 1 study in design4 (18-12-91)    |
|                                                              | File/Report: GEO                         | Ref. No.: Stage 2 study with draft (preliminary) |
|                                                              | File/Report: GEO                         | Ref. No.: Stage 2 study with draft (preliminary) |
|                                                              | File/Report: LPM                         | Ref. No.: LPM works completed, as at 10/12/99    |
|                                                              | File/Report: LPM                         | Ref. No.: LPM works completed, as at 10/12/99    |
|                                                              | File/Report: PWDC                        | Ref. No.: GC 4/1/2-5(4) f(29A)                   |
|                                                              | File/Report: PWDC                        | Ref. No.: GC 4/1/2-5(4) f(29A)                   |
|                                                              | File/Report: PWDC                        | Ref. No.: GC4/1B/20-3 f(5) pt5                   |
|                                                              | File/Report: PWDC                        | Ref. No.: GC4/1B/20-3 f(5) pt5                   |
|                                                              | File/Report: Pre-SIRST                   | Ref. No.: Field sheet                            |
|                                                              | File/Report: Pre-SIRST                   | Ref. No.: Field sheet                            |
| Remarks:                                                     | N/A                                      |                                                  |
| Follow Up Actions:                                           | N/A                                      |                                                  |
| DH-Order (To Be Confirmed with Buildings Department):        | None                                     |                                                  |
| Advisory Letter (To Be Confirmed with Buildings Department): | Date of Recommendation to BD: 27/10/1999 | File Reference: DH584/91/HK                      |
|                                                              | Date Served by BD: 16/03/2000            |                                                  |
| LPMIS:                                                       | Agreement No.: In-house Design           | Report No.: S2R 110/97                           |
|                                                              | Agreement No.: In-house Design           | Report No.: S3R 64/99                            |

## ENHANCED MAINTENANCE INFORMATION

From Maintenance Department: (Last Updated Date: 21/11/2025)

## STAGE 1 STUDY REPORT

|               |             |
|---------------|-------------|
| Inspected On: | 28-12-1999  |
| Weather:      | Mainly Fine |
| District:     | I           |



|             |     |
|-------------|-----|
| Section No: | 1-1 |
|-------------|-----|

|                                              |                                                       |
|----------------------------------------------|-------------------------------------------------------|
| Height(m):                                   | H1 : 9 , H2 : 9                                       |
| Type of Toe Facility:                        | School                                                |
| Distance from Toe(m):                        | 2.9                                                   |
| Type of Crest Facility:                      | Road/footpath with heavy traffic density              |
| Distance from Crest(m):                      | 0                                                     |
| Consequence Category:                        | 1                                                     |
| Engineering Judgement:                       | P                                                     |
| Section No:                                  | 2-2                                                   |
| Type of Toe Facility:                        | N/A                                                   |
| Distance from Toe(m):                        | 0                                                     |
| Type of Crest Facility:                      | N/A                                                   |
| Distance from Crest(m):                      | 0                                                     |
| Consequence Category:                        | 1                                                     |
| Engineering Judgement:                       | P                                                     |
| Sign of Seepage:                             | Slope : No signs of seepage<br>Wall : N/A             |
| Criterion A satisfied:                       | N                                                     |
| Sign of Distress:                            | Slope : Reasonable (near crest, at toe)<br>Wall : N/A |
| Criterion D satisfied:                       | N                                                     |
| Non-routine maintenance required:            | N                                                     |
| Note:                                        | N/A                                                   |
| Masonry wall/Masonry facing:                 | N                                                     |
| Note:                                        | N/A                                                   |
| Consequence category (for critical section): | 1                                                     |
| Observations:                                | N/A                                                   |
| Emergency Action Required:                   | N                                                     |
| Action By:                                   | N/A                                                   |

### ACTION TO INITIATE PREVENTIVE WORKS

|                          |       |
|--------------------------|-------|
| Criterion A/Criterion D: | N/A   |
| Action By:               | N/A   |
| Further Study:           | Y     |
| Action By:               | Mixed |

### OTHER EXTERNAL ACTION

|                          |     |
|--------------------------|-----|
| Check / repair Services: | N   |
| Action By:               | N/A |
| Non-routine Maintenance: | N   |
| Action By:               | N/A |

## eLPMIS

### LPM/LPMit Details Report

|                                                          |                                                   |
|----------------------------------------------------------|---------------------------------------------------|
| LPM Study Feature No.:                                   | 11SW-C/C 87                                       |
| Location:                                                | EBENEZER SCHOOL FOR BLIND CHILDREN, POKFULAM ROAD |
| District Council:                                        | Southern                                          |
| Maintenance Responsibility (At the Time of Selection):   | Mixed                                             |
| Responsible Party for Maintenance of Government Portion: | HyD                                               |
| Private Lot No.:                                         | NA                                                |

### LPM/LPMit Study

|                                            |                 |
|--------------------------------------------|-----------------|
| Agreement No.:                             | In-house Design |
| Study Type:                                | Stage 2 Study   |
| Consultant:                                | N/A             |
| GEO Managing Section / Engineer:           | LPM2 / N/A      |
| Study Status:                              | Study completed |
| Design Approach:                           | Otherwise       |
| Option Assessment Accepted:                | N/A             |
| Study Report No.:                          | S2R 110/97      |
| Programme / Actual Commencement:           | N/A             |
| Programme / Actual Completion:             | N/A             |
| Report Recommendation (For Stage 2 Study): | Further study   |
| District Check Status:                     | Checked         |
| Checking Certificate No.:                  | N/A             |
| GEO Engineer's Remarks:                    | N/A             |

### LPM/LPMit Works

|                                                              |           |
|--------------------------------------------------------------|-----------|
| Works Contract No.:                                          | N/A       |
| GEO Managing Section / Engineer:                             | N/A / N/A |
| Contractor:                                                  | N/A       |
| Progress Status:                                             | N/A       |
| Reason of Study Termination / Works Deletion (If Necessary): | N/A       |
| Forecast Commencement Date:                                  | N/A       |
| Forecast Completion Date:                                    | N/A       |
| Completion Cert. Issued:                                     | N/A       |
| Site Handed Over to Maintenance Department on:               | N/A       |
| Estimated Cost for Upgrading (HK\$M):                        | N/A       |
| Maintenance Manual No.:                                      | N/A       |
| Actual Works:                                                | N/A       |
| No. of Tree Felled:                                          | N/A       |
| No. of Tree Planted (Incl. Transplant):                      | N/A       |
| % Bare of Slope Surfacing:                                   | N/A       |
| % Vegetated of Slope Surfacing:                              | N/A       |



|                                        |     |
|----------------------------------------|-----|
| % Shotcrete of Slope Surfacing:        | N/A |
| Other Hard Surface of Slope Surfacing: | N/A |

**LPM/LPMit Details Report**

|                                                          |                                                   |
|----------------------------------------------------------|---------------------------------------------------|
| LPM Study Feature No.:                                   | 11SW-C/C 87                                       |
| Location:                                                | EBENEZER SCHOOL FOR BLIND CHILDREN, POKFULAM ROAD |
| District Council:                                        | Southern                                          |
| Maintenance Responsibility (At the Time of Selection):   | Mixed                                             |
| Responsible Party for Maintenance of Government Portion: | HyD                                               |
| Private Lot No.:                                         | NA                                                |

**LPM/LPMit Study**

|                                            |                                                                               |
|--------------------------------------------|-------------------------------------------------------------------------------|
| Agreement No.:                             | In-house Design                                                               |
| Study Type:                                | Stage 3 Study Under Schedule of Rates Contract                                |
| Consultant:                                | N/A                                                                           |
| GEO Managing Section / Engineer:           | LPM2 / N/A                                                                    |
| Study Status:                              | Study completed                                                               |
| Design Approach:                           | GI (w/o boreholes) + analysis                                                 |
| Option Assessment Accepted:                | N/A                                                                           |
| Study Report No.:                          | S3R 64/99                                                                     |
| Programme / Actual Commencement:           | 01-10-1995                                                                    |
| Programme / Actual Completion:             | 30-09-1998                                                                    |
| Report Recommendation (For Stage 2 Study): | Upgrading Works                                                               |
| District Check Status:                     | N/A                                                                           |
| Checking Certificate No.:                  | N/A                                                                           |
| GEO Engineer's Remarks:                    | MIXED MAINTENANCE RESPONSIBILITY; STUDY ON PRIVATE PORTION COMPLETED IN 3.97. |

**LPM/LPMit Works**

|                                                              |                                                                                                                      |
|--------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------|
| Works Contract No.:                                          | GE/98/03                                                                                                             |
| GEO Managing Section / Engineer:                             | Works / E/CA5                                                                                                        |
| Contractor:                                                  | Kin Shing Construction Company Limited                                                                               |
| Progress Status:                                             | Maintenance completed                                                                                                |
| Reason of Study Termination / Works Deletion (If Necessary): | N/A                                                                                                                  |
| Forecast Commencement Date:                                  | 10-06-1999                                                                                                           |
| Forecast Completion Date:                                    | 09-10-1999                                                                                                           |
| Completion Cert. Issued:                                     | 03-11-1999                                                                                                           |
| Site Handed Over to Maintenance Department on:               | N/A                                                                                                                  |
| Estimated Cost for Upgrading (HK\$M):                        | 0.8410                                                                                                               |
| Maintenance Manual No.:                                      | MM222/99                                                                                                             |
| Actual Works:                                                | Hard Cover (Sprayed concrete/Stone pitching, etc.), Raking drain, Soil nail, Typical rock slope treatment, Wire mesh |
| No. of Tree Felled:                                          | N/A                                                                                                                  |
| No. of Tree Planted (Incl. Transplant):                      | N/A                                                                                                                  |
| % Bare of Slope Surfacing:                                   | N/A                                                                                                                  |



## SLOPE INFORMATION SYSTEM

GEOTECHNICAL ENGINEERING OFFICE  
CIVIL ENGINEERING AND DEVELOPMENT DEPARTMENT

Feature No. 11SW-C/C 87

|                                        |     |
|----------------------------------------|-----|
| % Vegetated of Slope Surfacing:        | N/A |
| % Shotcrete of Slope Surfacing:        | N/A |
| Other Hard Surface of Slope Surfacing: | N/A |

**PHOTO**









## BASIC INFORMATION

Location: POK FU LAM ROAD  
Registration Date: 27-09-1997  
Ranking Score (NPRS): 1 (EI)  
Date of Formation: pre-1977  
Date of Construction/ Modification:  
Data Source: LPM  
Approximate Coordinates: Easting : 831574    Northing : 814371

## CONSEQUENCE-TO-LIFE CATEGORY

Facility at Crest: Road/footpath with heavy traffic density  
Distance of Facility from Crest (m): 0  
Facility at Toe: Lightly-used open area/facilities  
Distance of Facility from Toe (m): 0  
Consequence-to-life Category: 2  
Remarks: N/A

## SLOPE PART

N/A

## WALL PART

(1)    Max. Height (m): 6    Length (m): 148    Face Angle (deg): 90

## MAINTENANCE RESPONSIBILITY

(1) Sub Div.: 0    Government Feature    Party: HyD    Agent: HyD    Land Cat.: 5b(iii)    Reason Code: 56    MR Endorsement Date: 07-11-2012

## DETAILS OF SLOPE / RETAINING WALL

Date of Inspection: 03-03-2020  
Data Source: LPM  
Slope Part Drainage: N/A  
Wall Part Drainage: (1)    Position: Toe    Size(mm): 300

## SLOPE PART

N/A

## WALL PART

Wall Part (1)

Type of Wall: Wall Material: Concrete Wall Location: Retaining wall with level platform  
Berm: No. of Berms: N/A Min. Berm Width (m): N/A  
Weepholes: Size (mm): 40 Spacing (m): 1.2

## SERVICES

N/A

## CHECKING STATUS INFORMATION

Tagmark: SCS\_20614 Part: 0 Checking Status: Others (See remarks) Checking Certificate No.: N/A

## BACKGROUND INFORMATION

GIU Cell Ref.: 11SW17A1  
Map Sheet Reference (1:1000): 11SW-17A  
Aerial Photos: 27093/4 (1979),  
Nearest Rainguage Station (Station Block 44, Baguio Villa(H03)  
Number):  
Data Collected On: 03-03-2020  
Date of Construction, Subsequent Modification: Constructed Before: 1978 After: N/A  
Modification and Demolition:  
Related Reports/Files or Documents: File/Report: DLC/BC Ref. No.: Code 1790  
File/Report: DLC/BC Ref. No.: Code 1790  
Remarks: N/A  
Follow Up Actions: N/A  
DH-Order (To Be Confirmed with Buildings Department): None  
Advisory Letter (To Be Confirmed with Buildings Department): None  
LPMIS: None

## ENHANCED MAINTENANCE INFORMATION

From Maintenance Department: (Last Updated Date: 21/11/2025)

## STAGE 1 STUDY REPORT

Inspected On:

Weather:

District: I

Section No: 1-1

Height(m):

Type of Toe Facility: Lightly-used open area/facilities

Distance from Toe(m): 0

Type of Crest Facility: Road/footpath with heavy traffic density

Distance from Crest(m): 0

Consequence Category:

Engineering Judgement:

Section No: 2-2

Type of Toe Facility:

Distance from Toe(m):

Type of Crest Facility:

Distance from Crest(m):

Consequence Category:

Engineering Judgement:

Sign of Seepage:

Criterion A satisfied:

Sign of Distress:

Criterion D satisfied:

Non-routine maintenance required:

Note:

Masonry wall/Masonry facing:

Note:

Consequence category (for critical section):

Observations: N/A

Emergency Action Required:

Action By: N/A

## ACTION TO INITIATE PREVENTIVE WORKS

Criterion A/Criterion D: N/A

Action By: N/A

Further Study:

Action By: N/A

## OTHER EXTERNAL ACTION

Check / repair Services:

Action By: N/A



**Non-routine Maintenance:**

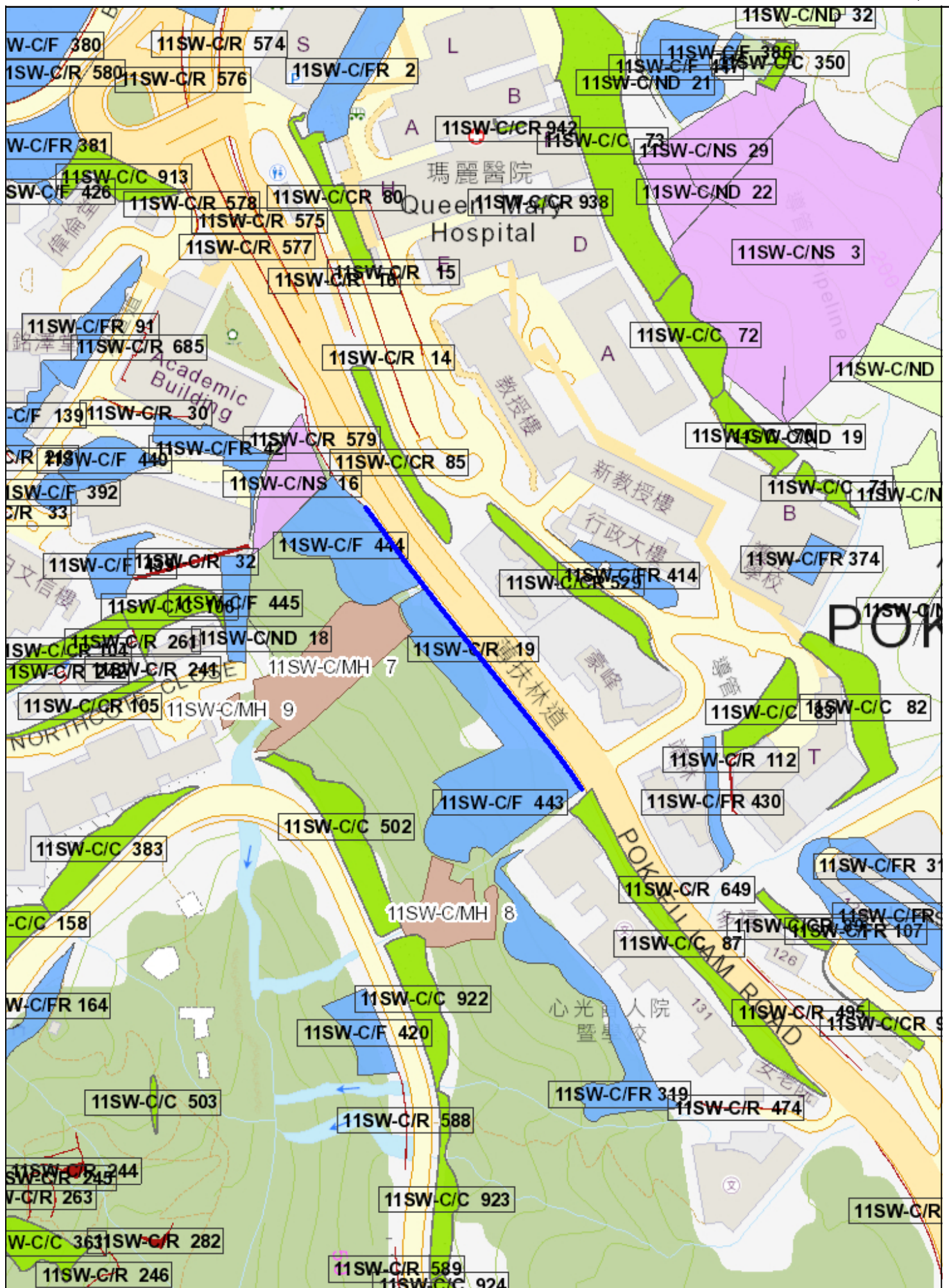
**Action By:** N/A



PHOTO







## BASIC INFORMATION

Location: Pok Fu Lam Road  
Registration Date: 04-10-2013  
Ranking Score (NPRS): 0 (EI)  
Date of Formation: pre-1977  
Date of Construction/ Modification:  
Data Source: LPM  
Approximate Coordinates: Easting : 831587 Northing : 814339

## CONSEQUENCE-TO-LIFE CATEGORY

Facility at Crest: Road/footpath with very heavy traffic density  
Distance of Facility from Crest (m): 0  
Facility at Toe: Road/footpath with moderate traffic density  
Distance of Facility from Toe (m): 40  
Consequence-to-life Category: 1  
Remarks: N/A

## SLOPE PART

(1) Max. Height (m): 36 Length (m): 107 Average Angle (deg): 28

## WALL PART

N/A

## MAINTENANCE RESPONSIBILITY

(1) Sub Div.: 0 Government Feature Party: HyD Agent: HyD Land Cat.: 5b(iii) Reason Code: 56 MR Endorsement Date: 03-12-2014

## DETAILS OF SLOPE / RETAINING WALL

Date of Inspection: 01-08-2016  
Data Source: LPM  
Slope Part Drainage: N/A  
Wall Part Drainage: N/A

## SLOPE PART

Slope Part (1)  
Surface Protection (%): Bare: 0 Vegetated: 100 Chunam: 0 Shotcrete: 0 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

N/A

## CHECKING STATUS INFORMATION

Tagmark: SCS\_20613    Part: 0    Checking Status: Feature to be modified/upgraded to current standard    Checking Certificate No.: N/A

## BACKGROUND INFORMATION

|                                                               |                                                      |
|---------------------------------------------------------------|------------------------------------------------------|
| GIU Cell Ref.:                                                | N/A                                                  |
| Map Sheet Reference (1:1000):                                 | N/A                                                  |
| Aerial Photos:                                                | N/A                                                  |
| Nearest Rainguage Station (Station Number):                   | ()                                                   |
| Data Collected On:                                            | 01-08-2016                                           |
| Date of Construction, Subsequent Modification and Demolition: | N/A                                                  |
| Related Reports/Files or Documents:                           | N/A                                                  |
| Remarks:                                                      | N/A                                                  |
| Follow Up Actions:                                            | N/A                                                  |
| DH-Order (To Be Confirmed with Buildings Department):         | None                                                 |
| Advisory Letter (To Be Confirmed with Buildings Department):  | None                                                 |
| LPMIS:                                                        | Agreement No.: CE27/2011    Report No.: S3R 034/2015 |

## ENHANCED MAINTENANCE INFORMATION

From Maintenance Department: (Last Updated Date: 21/11/2025)



## STAGE 1 STUDY REPORT

Inspected On:

Weather:

District: N/A

Section No: 1-1

Height(m):

Type of Toe Facility: Road/footpath with moderate traffic density

Distance from Toe(m): 40

Type of Crest Facility: Road/footpath with very heavy traffic density

Distance from Crest(m): 0

Consequence Category:

Engineering Judgement:

Section No: 2-2

Type of Toe Facility:

Distance from Toe(m):

Type of Crest Facility:

Distance from Crest(m):

Consequence Category:

Engineering Judgement:

Sign of Seepage:

Criterion A satisfied:

Sign of Distress:

Criterion D satisfied:

Non-routine maintenance required:

Note:

Masonry wall/Masonry facing:

Note:

Consequence category (for critical section):

Observations: N/A

Emergency Action Required:

Action By: N/A

## ACTION TO INITIATE PREVENTIVE WORKS

Criterion A/Criterion D: N/A

Action By: N/A

Further Study:

Action By: N/A

## OTHER EXTERNAL ACTION

Check / repair Services:

Action By: N/A

Non-routine Maintenance:

Action By: N/A

## eLPMIS

### LPM/LPMit Details Report

LPM Study Feature No.: 11SW-C/F 443  
Location: Pok Fu Lam Road  
District Council: Southern  
Maintenance Responsibility (At the Time of Selection): Government  
Responsible Party for Maintenance of Government Portion: HyD  
Private Lot No.: N/A

### LPM/LPMit Study

Agreement No.: CE27/2011  
Study Type: Stage 3 Study Under Schedule of Rates Contract  
Consultant: C M Wong & Associates Ltd.  
GEO Managing Section / Engineer: LPM2 / CM42  
Study Status: Study completed  
Design Approach: Conventional (GI + Analysis)  
Option Assessment Accepted: Y  
Study Report No.: S3R 034/2015  
Programme / Actual Commencement: 15-12-2014  
Programme / Actual Completion: 10-03-2015  
Report Recommendation (For Stage 2 Study): N/A  
District Check Status: N/A  
Checking Certificate No.: GEO/LPM224/2015  
GEO Engineer's Remarks: N/A

### LPM/LPMit Works

Works Contract No.: GE/2013/13  
GEO Managing Section / Engineer: LPM2 / CM42  
Contractor: Tai Kam Construction Engineering Co., Ltd  
Progress Status: Maintenance completed  
Reason of Study Termination / Works Deletion (If Necessary): N/A  
Forecast Commencement Date: 23-03-2015  
Forecast Completion Date: 11-12-2015  
Completion Cert. Issued: 08-01-2016  
Site Handed Over to Maintenance Department on: 04-02-2016  
Estimated Cost for Upgrading (HK\$M): 4.9358  
Maintenance Manual No.: MM 224/2015



|                                         |                                                                                                       |
|-----------------------------------------|-------------------------------------------------------------------------------------------------------|
| Actual Works:                           | Other subsurface drainage measures,Others,Raking drain,With double corrosion protection for soil nail |
| No. of Tree Felled:                     | N/A                                                                                                   |
| No. of Tree Planted (Incl. Transplant): | N/A                                                                                                   |
| % Bare of Slope Surfacing:              | 0                                                                                                     |
| % Vegetated of Slope Surfacing:         | 40                                                                                                    |
| % Shotcrete of Slope Surfacing:         | 60                                                                                                    |
| Other Hard Surface of Slope Surfacing:  | 0                                                                                                     |

**PHOTO**







## BASIC INFORMATION

Location: WEST OF NO.131 POK FU LAM ROAD (EBENEZER SCHOOL FOR BLIND CHILDREN)  
Registration Date: 06-11-1997  
Ranking Score (NPRS): 0 (LPMit)  
Date of Formation: post-1977  
Date of Construction/ Modification:  
Data Source: AP  
Approximate Coordinates: Easting : 831608 Northing : 814246

## CONSEQUENCE-TO-LIFE CATEGORY

Facility at Crest: School  
Distance of Facility from Crest (m): 7  
Facility at Toe: Road/footpath with moderate traffic density  
Distance of Facility from Toe (m): 65  
Consequence-to-life Category: 1  
Remarks: N/A

## SLOPE PART

(1) Max. Height (m): 12 Length (m): 155 Average Angle (deg): 40

## WALL PART

(1) Max. Height (m): 12 Length (m): 150 Face Angle (deg): 80

## MAINTENANCE RESPONSIBILITY

(1) Sub Div.: 0 Private Feature Party: RBL136RP Agent: N/A Land Cat.: 1,5a Reason Code: 1,78 MR Endorsement Date: 25-04-2014

## DETAILS OF SLOPE / RETAINING WALL

Date of Inspection: 16-06-2018  
Data Source: AP  
Slope Part Drainage: (1) Position: Crest Size(mm): 225  
(2) Position: On slope Size(mm): 900  
Wall Part Drainage: (1) Position: Crest Size(mm): 225

## SLOPE PART

Slope Part (1)  
Surface Protection (%): Bare: 0 Vegetated: 0 Chunam: 0 Shotcrete: 100 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

Wall Part (1)

Type of Wall: Wall Material: Others Wall Location: Wall at crest  
Berm: No. of Berms: N/A Min. Berm Width (m): N/A  
Weepholes: Size (mm): 50 Spacing (m): 2

## SERVICES

(1) Utilities Type: Electricity Size(mm): 0 Location: On slope Remark: Size cannot be determined

## CHECKING STATUS INFORMATION

Tagmark: SCS\_17921 Part: 0 Checking Status: Feature modified/upgraded to current standard Checking Certificate No.: N/A

## BACKGROUND INFORMATION

GIU Cell Ref.: 11SW17A1  
Map Sheet Reference (1:1000): 11SW-17A  
Aerial Photos: A35413-4 (1993),  
Nearest Rainguage Station (Station Block 44, Baguio Villa(H03)  
Number):  
Data Collected On: 16-06-2018  
Date of Construction, Subsequent Modification: Constructed Before: 1945 After: N/A  
Modification and Demolition:  
Related Reports/Files or Documents: File/Report: Previous Instability Ref. No.: 16/2/83 HK1/2/83, (No incident file found)  
File/Report: Previous Instability Ref. No.: 16/2/83 HK1/2/83, (No incident file found)  
Remarks: N/A  
Follow Up Actions: Check and repair leaking drainage pipe.  
DH-Order (To Be Confirmed with Date of Recommendation to BD: 10/04/2014 File Reference: DH/0584/91/HK  
Buildings Department): Date Served by BD: 20/06/2014 Notice No.: DH0091/HK/14/C  
Advisory Letter (To Be Confirmed with Date of Recommendation to BD: 17/11/2006 File Reference: DH584/91/HK  
Buildings Department): Date Served by BD: 07/12/2006  
LPMIS: Agreement No.: CE45/94SA2 Report No.: S2R141/98  
Agreement No.: CE45/94SA2 Report No.: N/A

## ENHANCED MAINTENANCE INFORMATION

From Maintenance Department: (Last Updated Date: 21/11/2025)

## STAGE 1 STUDY REPORT

Inspected On:  
Weather:  
District: I  
Section No: 1-1  
Height(m):  
Type of Toe Facility: Road/footpath with moderate traffic density  
Distance from Toe(m): 65  
Type of Crest Facility: School  
Distance from Crest(m): 7  
Consequence Category:  
Engineering Judgement:  
Section No: 2-2  
Type of Toe Facility:  
Distance from Toe(m):  
Type of Crest Facility:  
Distance from Crest(m):  
Consequence Category:  
Engineering Judgement:  
Sign of Seepage:  
Criterion A satisfied:  
Sign of Distress:  
Criterion D satisfied:  
Non-routine maintenance required:  
Note:  
Masonry wall/Masonry facing:  
Note:  
Consequence category (for critical section):  
Observations: N/A  
Emergency Action Required:  
Action By: N/A

## ACTION TO INITIATE PREVENTIVE WORKS

Criterion A/Criterion D: N/A  
Action By: N/A  
Further Study:  
Action By: N/A



## OTHER EXTERNAL ACTION

Check / repair Services:

Action By: N/A

Non-routine Maintenance:

Action By: N/A

## eLPMIS

### LPM/LPMit Details Report

|                                                          |                                              |
|----------------------------------------------------------|----------------------------------------------|
| LPM Study Feature No.:                                   | 11SW-C/FR 319                                |
| Location:                                                | EBENEZER SCH. FOR BLIND, 131 POKFULAM RD; HK |
| District Council:                                        | Southern                                     |
| Maintenance Responsibility (At the Time of Selection):   | Private                                      |
| Responsible Party for Maintenance of Government Portion: | N/A                                          |
| Private Lot No.:                                         | NA                                           |

### LPM/LPMit Study

|                                            |                                    |
|--------------------------------------------|------------------------------------|
| Agreement No.:                             | CE45/94SA2                         |
| Study Type:                                | Stage 2 Study                      |
| Consultant:                                | Ove Arup & Partners Hong Kong Ltd. |
| GEO Managing Section / Engineer:           | LPM3 / CM51                        |
| Study Status:                              | Study completed                    |
| Design Approach:                           | Otherwise                          |
| Option Assessment Accepted:                | N/A                                |
| Study Report No.:                          | S2R141/98                          |
| Programme / Actual Commencement:           | 01-02-1997                         |
| Programme / Actual Completion:             | 31-10-1998                         |
| Report Recommendation (For Stage 2 Study): | N/A                                |
| District Check Status:                     | N/A                                |
| Checking Certificate No.:                  | N/A                                |
| GEO Engineer's Remarks:                    | N/A                                |

### LPM/LPMit Works

|                                                              |           |
|--------------------------------------------------------------|-----------|
| Works Contract No.:                                          | N/A       |
| GEO Managing Section / Engineer:                             | N/A / N/A |
| Contractor:                                                  | N/A       |
| Progress Status:                                             | N/A       |
| Reason of Study Termination / Works Deletion (If Necessary): | N/A       |
| Forecast Commencement Date:                                  | N/A       |
| Forecast Completion Date:                                    | N/A       |

|                                                |     |
|------------------------------------------------|-----|
| Completion Cert. Issued:                       | N/A |
| Site Handed Over to Maintenance Department on: | N/A |
| Estimated Cost for Upgrading (HK\$M):          | N/A |
| Maintenance Manual No.:                        | N/A |
| Actual Works:                                  | N/A |
| No. of Tree Felled:                            | N/A |
| No. of Tree Planted (Incl. Transplant):        | N/A |
| % Bare of Slope Surfacing:                     | N/A |
| % Vegetated of Slope Surfacing:                | N/A |
| % Shotcrete of Slope Surfacing:                | N/A |
| Other Hard Surface of Slope Surfacing:         | N/A |

**LPM/LPMit Details Report**

|                                                          |                                              |
|----------------------------------------------------------|----------------------------------------------|
| LPM Study Feature No.:                                   | 11SW-C/R 20                                  |
| Location:                                                | EBENEZER SCH. FOR BLIND, 131 POKFULAM RD; HK |
| District Council:                                        | Southern                                     |
| Maintenance Responsibility (At the Time of Selection):   | Private                                      |
| Responsible Party for Maintenance of Government Portion: | N/A                                          |
| Private Lot No.:                                         | NA                                           |

**LPM/LPMit Study**

|                                            |                                                                                                                                                                   |
|--------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Agreement No.:                             | CE45/94SA2                                                                                                                                                        |
| Study Type:                                | Stage 2 Study                                                                                                                                                     |
| Consultant:                                | Ove Arup & Partners Hong Kong Ltd.                                                                                                                                |
| GEO Managing Section / Engineer:           | LPM3 / CM51                                                                                                                                                       |
| Study Status:                              | Study terminated - Feature formed up to standard / previously upgraded or catchment not meeting react-to-known-hazard principle by previous study accepted by GEO |
| Design Approach:                           | N/A                                                                                                                                                               |
| Option Assessment Accepted:                | N/A                                                                                                                                                               |
| Study Report No.:                          | N/A                                                                                                                                                               |
| Programme / Actual Commencement:           | N/A                                                                                                                                                               |
| Programme / Actual Completion:             | N/A                                                                                                                                                               |
| Report Recommendation (For Stage 2 Study): | N/A                                                                                                                                                               |
| District Check Status:                     | N/A                                                                                                                                                               |
| Checking Certificate No.:                  | N/A                                                                                                                                                               |
| GEO Engineer's Remarks:                    | N/A                                                                                                                                                               |

**LPM/LPMit Works**

|                                                              |           |
|--------------------------------------------------------------|-----------|
| Works Contract No.:                                          | N/A       |
| GEO Managing Section / Engineer:                             | N/A / N/A |
| Contractor:                                                  | N/A       |
| Progress Status:                                             | N/A       |
| Reason of Study Termination / Works Deletion (If Necessary): | N/A       |
| Forecast Commencement Date:                                  | N/A       |



## SLOPE INFORMATION SYSTEM

GEOTECHNICAL ENGINEERING OFFICE  
CIVIL ENGINEERING AND DEVELOPMENT DEPARTMENT

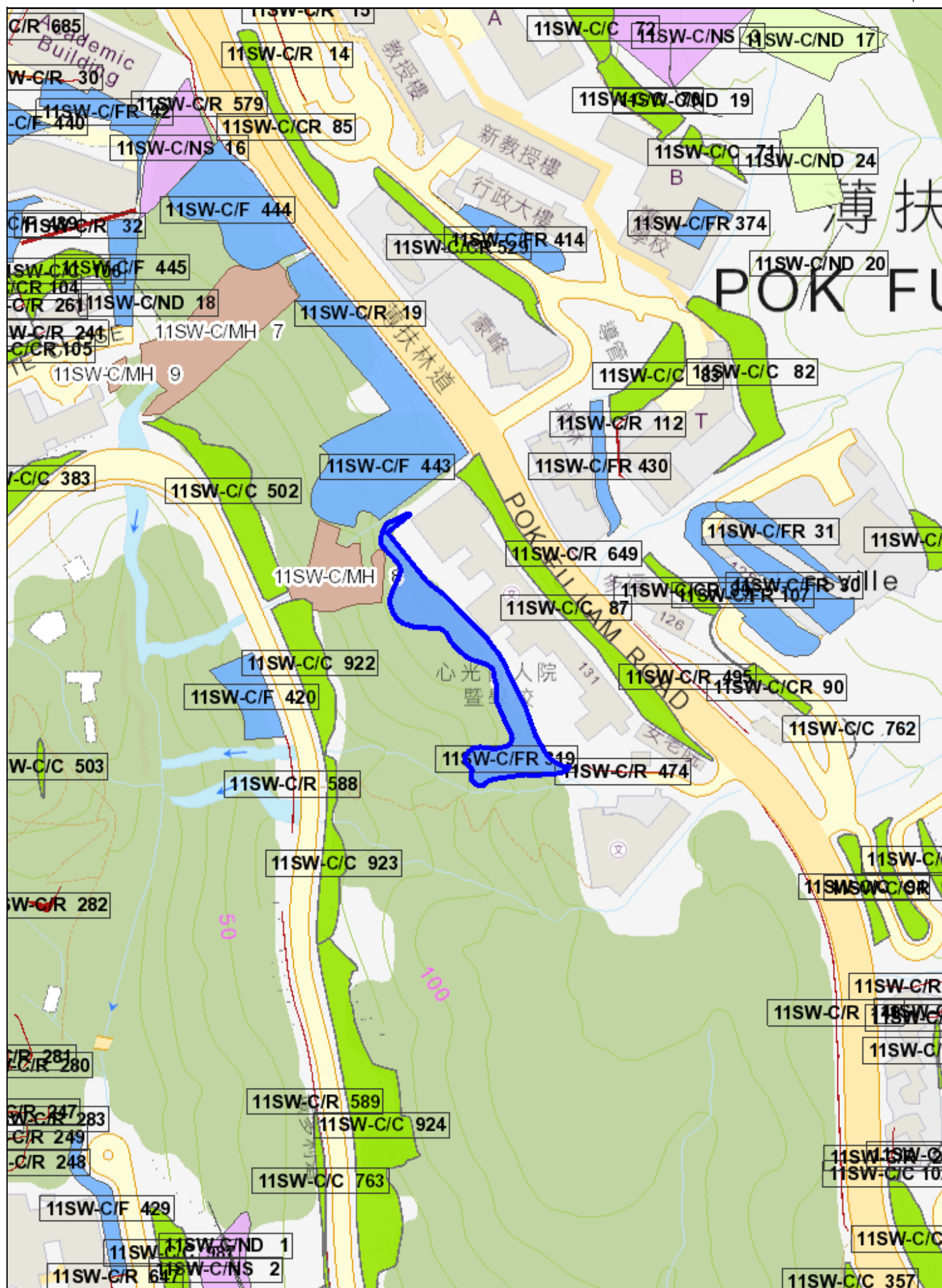
Feature No. 11SW-C/FR 319

|                                                |     |
|------------------------------------------------|-----|
| Forecast Completion Date:                      | N/A |
| Completion Cert. Issued:                       | N/A |
| Site Handed Over to Maintenance Department on: | N/A |
| Estimated Cost for Upgrading (HK\$M):          | N/A |
| Maintenance Manual No.:                        | N/A |
| Actual Works:                                  | N/A |
| No. of Tree Felled:                            | N/A |
| No. of Tree Planted (Incl. Transplant):        | N/A |
| % Bare of Slope Surfacing:                     | N/A |
| % Vegetated of Slope Surfacing:                | N/A |
| % Shotcrete of Slope Surfacing:                | N/A |
| Other Hard Surface of Slope Surfacing:         | N/A |

PHOTO









## BASIC INFORMATION

Location: 131 POFULAM ROAD  
Registration Date: 06-11-1997  
Ranking Score (NPRS): 18 (LPMit)  
Date of Formation: pre-1977  
Date of Construction/ Modification:  
Data Source: SIRST  
Approximate Coordinates: Easting : 831690 Northing : 814189

## CONSEQUENCE-TO-LIFE CATEGORY

Facility at Crest: Road/footpath with low traffic density  
Distance of Facility from Crest (m): 0  
Facility at Toe: Indoor car park  
Distance of Facility from Toe (m): 2  
Consequence-to-life Category: 1  
Remarks: N/A

## SLOPE PART

N/A

## WALL PART

(1) Max. Height (m): 5 Length (m): 38 Face Angle (deg): 85

## MAINTENANCE RESPONSIBILITY

(1) Sub Div.: 0 Private Feature Party: RBL136RP Agent: N/A Land Cat.: 1 Reason Code: 1 MR Endorsement Date: 03-03-1998

## DETAILS OF SLOPE / RETAINING WALL

Date of Inspection: 28-11-1996  
Data Source: SIRST  
Slope Part Drainage: N/A  
Wall Part Drainage: (1) Position: Toe Size(mm): 125

## SLOPE PART

N/A

## WALL PART

Wall Part (1)

|               |                       |                                                   |
|---------------|-----------------------|---------------------------------------------------|
| Type of Wall: | Wall Material: Others | Wall Location: Retaining wall with level platform |
| Berm:         | No. of Berms: N/A     | Min. Berm Width (m): N/A                          |
| Weepholes:    | Size (mm): N/A        | Spacing (m): N/A                                  |

## SERVICES

(1) Utilities Type: Electricity Size(mm): 0 Location: On slope Remark: Size cannot be determined

## CHECKING STATUS INFORMATION

N/A

## BACKGROUND INFORMATION

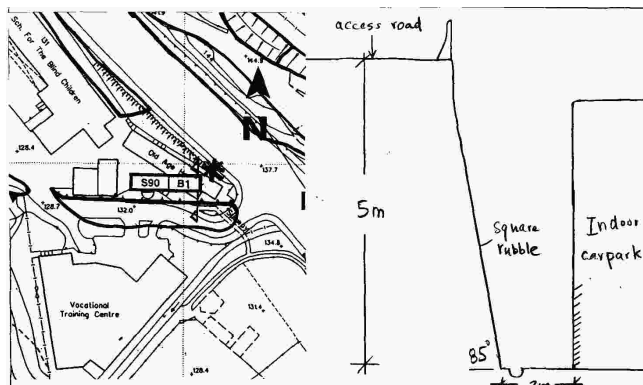
|                                                               |                                                                                                    |
|---------------------------------------------------------------|----------------------------------------------------------------------------------------------------|
| GIU Cell Ref.:                                                | 11SW17A4                                                                                           |
| Map Sheet Reference (1:1000):                                 | 11SW-17A                                                                                           |
| Aerial Photos:                                                | 7371/2 (1963),                                                                                     |
| Nearest Rainguage Station (Station Number):                   | Block 44, Baguio Villa(H03)                                                                        |
| Data Collected On:                                            | 28-11-1996                                                                                         |
| Date of Construction, Subsequent Modification and Demolition: | Modification: Constructed Before: 1963 After: 1963                                                 |
| Related Reports/Files or Documents:                           | File/Report: DLC/BC Ref. No.: GCI 5/3/BC-RBL136<br>File/Report: DLC/BC Ref. No.: GCI 5/3/BC-RBL136 |
| Remarks:                                                      | N/A                                                                                                |
| Follow Up Actions:                                            | N/A                                                                                                |
| DH-Order (To Be Confirmed with Buildings Department):         | None                                                                                               |
| Advisory Letter (To Be Confirmed with Buildings Department):  | Date of Recommendation to BD: N/A File Reference: N/A<br>Date Served by BD: 09/08/2000             |
| LPMIS:                                                        | Agreement No.: CE78/97 Report No.: S2R119/99                                                       |

## ENHANCED MAINTENANCE INFORMATION

From Maintenance Department: (Last Updated Date: 21/11/2025)

## STAGE 1 STUDY REPORT

Inspected On: 28-11-1996  
Weather: Mainly Fine  
District: I



Section No: 1-1  
Height(m): H1 : 5 , H2 : 5  
Type of Toe Facility: Indoor car park  
Distance from Toe(m): 2  
Type of Crest Facility: Road/footpath with low traffic density  
Distance from Crest(m): 0  
Consequence Category: 1  
Engineering Judgement: P  
Section No: 2-2  
Type of Toe Facility:  
Distance from Toe(m):  
Type of Crest Facility:  
Distance from Crest(m):  
Consequence Category: 1  
Engineering Judgement: P  
Sign of Seepage: Slope : N/A  
Wall : No sign of seepage  
Criterion A satisfied: N  
Sign of Distress: Slope : N/A  
Wall : N/A  
Criterion D satisfied: N  
Non-routine maintenance required: N  
Note: N/A  
Masonry wall/Masonry facing: Y  
Note: square rubble with weepholes  
Consequence category (for critical section): 1  
Observations: N/A  
Emergency Action Required: N  
Action By: N/A



## ACTION TO INITIATE PREVENTIVE WORKS

|                          |       |
|--------------------------|-------|
| Criterion A/Criterion D: | N/A   |
| Action By:               | N/A   |
| Further Study:           | Y     |
| Action By:               | Mixed |

## OTHER EXTERNAL ACTION

|                          |     |
|--------------------------|-----|
| Check / repair Services: | N   |
| Action By:               | N/A |
| Non-routine Maintenance: | N   |
| Action By:               | N/A |

## eLPMIS

### LPM/LPMit Details Report

|                                                          |                    |
|----------------------------------------------------------|--------------------|
| LPM Study Feature No.:                                   | 11SW-C/R 474       |
| Location:                                                | 131 POKFULAM ROAD. |
| District Council:                                        | Southern           |
| Maintenance Responsibility (At the Time of Selection):   | Private            |
| Responsible Party for Maintenance of Government Portion: | N/A                |
| Private Lot No.:                                         | RBL136             |

### LPM/LPMit Study

|                                            |                                                                                                                            |
|--------------------------------------------|----------------------------------------------------------------------------------------------------------------------------|
| Agreement No.:                             | CE78/97                                                                                                                    |
| Study Type:                                | Stage 2 Study                                                                                                              |
| Consultant:                                | Maunsell Geotechnical Services Ltd.                                                                                        |
| GEO Managing Section / Engineer:           | SS / SS3                                                                                                                   |
| Study Status:                              | Study completed                                                                                                            |
| Design Approach:                           | Otherwise                                                                                                                  |
| Option Assessment Accepted:                | N/A                                                                                                                        |
| Study Report No.:                          | S2R119/99                                                                                                                  |
| Programme / Actual Commencement:           | 01-04-1999                                                                                                                 |
| Programme / Actual Completion:             | 31-01-2001                                                                                                                 |
| Report Recommendation (For Stage 2 Study): | Advisory Letter                                                                                                            |
| District Check Status:                     | Checked                                                                                                                    |
| Checking Certificate No.:                  | N/A                                                                                                                        |
| GEO Engineer's Remarks:                    | # Type 3 Advisory Letter referred to District on 20 July 2000. Type 3 Advisory Letter issued by District on 9 August 2000. |

### LPM/LPMit Works

|                     |     |
|---------------------|-----|
| Works Contract No.: | N/A |
|---------------------|-----|



# SLOPE INFORMATION SYSTEM

GEOTECHNICAL ENGINEERING OFFICE  
CIVIL ENGINEERING AND DEVELOPMENT DEPARTMENT

Feature No. 11SW-C/R 474

|                                                              |           |
|--------------------------------------------------------------|-----------|
| GEO Managing Section / Engineer:                             | N/A / N/A |
| Contractor:                                                  | N/A       |
| Progress Status:                                             | N/A       |
| Reason of Study Termination / Works Deletion (If Necessary): | N/A       |
| Forecast Commencement Date:                                  | N/A       |
| Forecast Completion Date:                                    | N/A       |
| Completion Cert. Issued:                                     | N/A       |
| Site Handed Over to Maintenance Department on:               | N/A       |
| Estimated Cost for Upgrading (HK\$M):                        | N/A       |
| Maintenance Manual No.:                                      | N/A       |
| Actual Works:                                                | N/A       |
| No. of Tree Felled:                                          | N/A       |
| No. of Tree Planted (Incl. Transplant):                      | N/A       |
| % Bare of Slope Surfacing:                                   | N/A       |
| % Vegetated of Slope Surfacing:                              | N/A       |
| % Shotcrete of Slope Surfacing:                              | N/A       |
| Other Hard Surface of Slope Surfacing:                       | N/A       |

**PHOTO**







## BASIC INFORMATION

Location: Pok Fu Lam Road, Pok Fu Lam  
Registration Date: 06-11-1997  
Ranking Score (NPRS): 0 (EI)  
Date of Formation: pre-1977  
Date of Construction/ Modification: 27-03-2010  
Data Source: LPM  
Approximate Coordinates: Easting : 831707    Northing : 814226

## CONSEQUENCE-TO-LIFE CATEGORY

Facility at Crest: Open car park  
Distance of Facility from Crest (m): 0  
Facility at Toe: Bus shelter  
Distance of Facility from Toe (m): 0  
Consequence-to-life Category: 1  
Remarks: N/A

## SLOPE PART

N/A

## WALL PART

(1)    Max. Height (m): 5.2    Length (m): 69    Face Angle (deg): 90

## MAINTENANCE RESPONSIBILITY

(1) Sub Div.: 0    Government Feature    Party: HyD    Agent: HyD    Land Cat.: 5b(iii)    Reason Code: 56    MR Endorsement Date: 13-03-2018

## DETAILS OF SLOPE / RETAINING WALL

Date of Inspection: 11-11-2016  
Data Source: LPM  
Slope Part Drainage: N/A  
Wall Part Drainage: (1) Position: Crest    Size(mm): 150  
                              (2) Position: Toe    Size(mm): 150

## SLOPE PART

N/A

## WALL PART



**Wall Part (1)**

|               |                         |                                                   |
|---------------|-------------------------|---------------------------------------------------|
| Type of Wall: | Wall Material: Concrete | Wall Location: Retaining wall with level platform |
| Berm:         | No. of Berms: N/A       | Min. Berm Width (m): N/A                          |
| Weepholes:    | Size (mm): 75           | Spacing (m): 1.5                                  |

## SERVICES

N/A

## CHECKING STATUS INFORMATION

Tagmark: SCS\_15357    Part: 0    Checking Status: Feature modified/upgraded to current standard    Checking Certificate No.: GEO/ISL 013/2014

## BACKGROUND INFORMATION

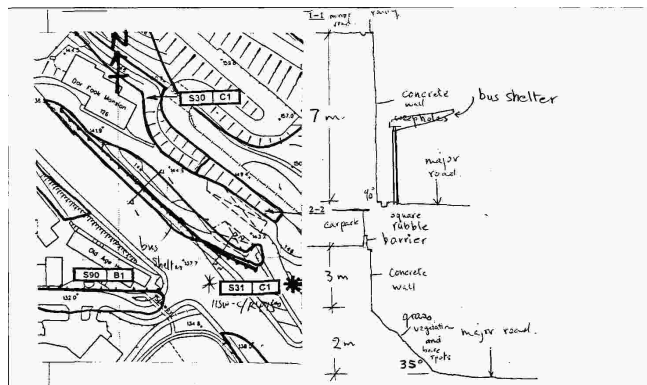
|                                                               |                                                                                                                            |
|---------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------|
| GIU Cell Ref.:                                                | 11SW17A1                                                                                                                   |
| Map Sheet Reference (1:1000):                                 | 11SW-17A                                                                                                                   |
| Aerial Photos:                                                | 7372-3 (1963),                                                                                                             |
| Nearest Rainguage Station (Station Number):                   | Block 44, Baguio Villa(H03)                                                                                                |
| Data Collected On:                                            | 11-11-2016                                                                                                                 |
| Date of Construction, Subsequent Modification and Demolition: | Modification: Constructed    Before: 1963    After: N/A                                                                    |
| Related Reports/Files or Documents:                           | File/Report: Development    Ref. No.: GCN2/B7/92, GCN2/B2/6<br>File/Report: Development    Ref. No.: GCN2/B7/92, GCN2/B2/6 |
| Remarks:                                                      | N/A                                                                                                                        |
| Follow Up Actions:                                            | N/A                                                                                                                        |
| DH-Order (To Be Confirmed with Buildings Department):         | None                                                                                                                       |
| Advisory Letter (To Be Confirmed with Buildings Department):  | None                                                                                                                       |
| LPMIS:                                                        | None                                                                                                                       |

## ENHANCED MAINTENANCE INFORMATION

From Maintenance Department: (Last Updated Date: 21/11/2025)

## STAGE 1 STUDY REPORT

Inspected On: 24-10-1997  
Weather: Mainly Fine  
District: I



Section No: 1-1  
Height(m): H1 : 7 , H2 : 7  
Type of Toe Facility: Bus shelter  
Distance from Toe(m): 0  
Type of Crest Facility: Open car park  
Distance from Crest(m): 0  
Consequence Category: 1  
Engineering Judgement: P  
Section No: 2-2  
Type of Toe Facility:  
Distance from Toe(m):  
Type of Crest Facility:  
Distance from Crest(m):  
Consequence Category: 1  
Engineering Judgement: P  
Sign of Seepage: Slope : N/A  
Wall : Slight to moderate seepage below mid-height  
Criterion A satisfied: N  
Sign of Distress: Slope : N/A  
Wall : Minimal(near crest, mid-portion, at toe)  
Criterion D satisfied: N  
Non-routine maintenance required: N  
Note: N/A  
Masonry wall/Masonry facing: N  
Note: N/A  
Consequence category (for critical section): 1  
Observations: N/A  
Emergency Action Required: N  
Action By: N/A



### ACTION TO INITIATE PREVENTIVE WORKS

|                          |       |
|--------------------------|-------|
| Criterion A/Criterion D: | N/A   |
| Action By:               | N/A   |
| Further Study:           | Y     |
| Action By:               | Mixed |

### OTHER EXTERNAL ACTION

|                          |     |
|--------------------------|-----|
| Check / repair Services: | N   |
| Action By:               | N/A |
| Non-routine Maintenance: | N   |
| Action By:               | N/A |



**PHOTO**







## BASIC INFORMATION

Location: No. 120 Pokfulam Road, Hong Kong  
Registration Date: 18-04-2007  
Ranking Score (NPRS): 0 (Notional)  
Date of Formation: post-1977  
Date of Construction/ Modification: 28-11-2005  
Data Source: AP  
Approximate Coordinates: Easting : 831656    Northing : 814281

## CONSEQUENCE-TO-LIFE CATEGORY

Facility at Crest: Residential building  
Distance of Facility from Crest (m): 0  
Facility at Toe: Road/footpath with heavy traffic density  
Distance of Facility from Toe (m): 2.5  
Consequence-to-life Category: 1  
Remarks: N/A

## SLOPE PART

N/A

## WALL PART

(1)    Max. Height (m): 4    Length (m): 3    Face Angle (deg): 90

## MAINTENANCE RESPONSIBILITY

(1) Sub Div.: 0    Private Feature    Party: RBL422&EXT    Agent: N/A    Land Cat.: 1    Reason Code: 1    MR Endorsement Date: 07-12-2007

## DETAILS OF SLOPE / RETAINING WALL

Date of Inspection: 06-12-2006  
Data Source: AP  
Slope Part Drainage: N/A  
Wall Part Drainage: N/A

## SLOPE PART

N/A

## WALL PART



Wall Part (1)

Type of Wall: Wall Material: Concrete Wall Location: Retaining wall with level platform  
Berm: No. of Berms: N/A Min. Berm Width (m): N/A  
Weepholes: Size (mm): N/A Spacing (m): N/A

## SERVICES

(1) Utilities Type: Water Main Size(mm): 0 Location: On crest Remark: Size cannot be determined

## CHECKING STATUS INFORMATION

N/A

## BACKGROUND INFORMATION

GIU Cell Ref.: N/A  
Map Sheet Reference (1:1000): N/A  
Aerial Photos: N/A  
Nearest Rainguage Station (Station Number): ()  
Data Collected On: 06-12-2006  
Date of Construction, Subsequent Modification and Demolition: N/A  
Related Reports/Files or Documents: N/A  
Remarks: N/A  
Follow Up Actions: N/A  
DH-Order (To Be Confirmed with Buildings Department): None  
Advisory Letter (To Be Confirmed with Buildings Department): None  
LPMIS: None

## ENHANCED MAINTENANCE INFORMATION

From Maintenance Department: (Last Updated Date: 21/11/2025)



## STAGE 1 STUDY REPORT

Inspected On:

Weather:

District: N/A

Section No: 1-1

Height(m):

Type of Toe Facility: Road/footpath with heavy traffic density

Distance from Toe(m): 2.5

Type of Crest Facility: Residential building

Distance from Crest(m): 0

Consequence Category:

Engineering Judgement:

Section No: 2-2

Type of Toe Facility:

Distance from Toe(m):

Type of Crest Facility:

Distance from Crest(m):

Consequence Category:

Engineering Judgement:

Sign of Seepage:

Criterion A satisfied:

Sign of Distress:

Criterion D satisfied:

Non-routine maintenance required:

Note:

Masonry wall/Masonry facing:

Note:

Consequence category (for critical section):

Observations: N/A

Emergency Action Required:

Action By: N/A

## ACTION TO INITIATE PREVENTIVE WORKS

Criterion A/Criterion D: N/A

Action By: N/A

Further Study:

Action By: N/A

## OTHER EXTERNAL ACTION

Check / repair Services:

Action By: N/A

Non-routine Maintenance:



Action By: N/A

**PHOTO**







## BASIC INFORMATION

Location: VICTORIA ROAD, SW  
Registration Date: 25-06-2003  
Ranking Score (NPRS): 0 (EI)  
Date of Formation: post-1977  
Date of Construction/ Modification:  
Data Source: EI(HyD)  
Approximate Coordinates: Easting : 831546    Northing : 814233

## CONSEQUENCE-TO-LIFE CATEGORY

Facility at Crest: Undeveloped green belt  
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): 15.1    Length (m): 64    Average Angle (deg): 63

## WALL PART

N/A

## MAINTENANCE RESPONSIBILITY

(1) Sub Div.: 0    Government Feature    Party: HyD    Agent: HyD    Land Cat.: 5b(iii)    Reason Code: 56    MR Endorsement Date: 31-03-2005

## DETAILS OF SLOPE / RETAINING WALL

Date of Inspection: 09-02-2010  
Data Source: EI(HyD)  
Slope Part Drainage: (1) Position: Berm    Size(mm): 225  
                                  (2) Position: Crest    Size(mm): 225  
                                  (3) Position: On slope    Size(mm): 225  
                                  (4) Position: Toe    Size(mm): 225  
Wall Part Drainage: N/A

## SLOPE PART



**Slope Part (1)**

Surface Protection (%): Bare: 0 Vegetated: 45 Chunam: 0 Shotcrete: 10 Other Cover: 45  
Material Description: Material type: Soil Geology: N/A  
Berm: No. of Berms: 1 Min. Berm Width (m): 1.5  
Weepholes: Size (mm): N/A Spacing (m): N/A

**WALL PART**

N/A

**SERVICES**

N/A

**CHECKING STATUS INFORMATION**

N/A

**BACKGROUND INFORMATION**

GIU Cell Ref.: N/A  
Map Sheet Reference (1:1000): 11SW-17A  
Aerial Photos: N/A  
Nearest Rainuage Station (Station Number): ()  
Data Collected On: 09-02-2010  
Date of Construction, Subsequent Modification and Demolition: N/A  
Related Reports/Files or Documents: N/A  
Remarks: N/A  
Follow Up Actions: N/A  
DH-Order (To Be Confirmed with Buildings Department): None  
Advisory Letter (To Be Confirmed with Buildings Department): None  
LPMIS: None

**ENHANCED MAINTENANCE INFORMATION**

From Maintenance Department: (Last Updated Date: 21/11/2025)

## STAGE 1 STUDY REPORT

Inspected On:  
Weather:  
District: N/A  
Section No: 1-1  
Height(m):  
Type of Toe Facility: Road/footpath with moderate traffic density  
Distance from Toe(m): 0  
Type of Crest Facility: Undeveloped green belt  
Distance from Crest(m): 0  
Consequence Category:  
Engineering Judgement:  
Section No: 2-2  
Type of Toe Facility:  
Distance from Toe(m):  
Type of Crest Facility:  
Distance from Crest(m):  
Consequence Category:  
Engineering Judgement:  
Sign of Seepage:  
Criterion A satisfied:  
Sign of Distress:  
Criterion D satisfied:  
Non-routine maintenance required:  
Note:  
Masonry wall/Masonry facing:  
Note:  
Consequence category (for critical section):  
Observations: N/A  
Emergency Action Required:  
Action By: N/A

## ACTION TO INITIATE PREVENTIVE WORKS

Criterion A/Criterion D: N/A  
Action By: N/A  
Further Study:  
Action By: N/A



## **OTHER EXTERNAL ACTION**

---

Check / repair Services:

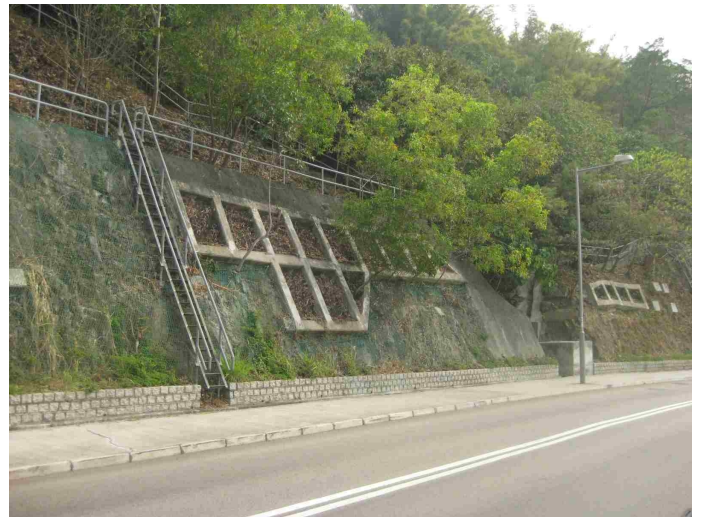
Action By: N/A

Non-routine Maintenance:

Action By: N/A



**PHOTO**







## BASIC INFORMATION

Location: VICTORIA ROAD, SW  
Registration Date: 25-06-2003  
Ranking Score (NPRS): 0 (EI)  
Date of Formation: post-1977  
Date of Construction/ Modification:  
Data Source: EI(HyD)  
Approximate Coordinates: Easting : 831554    Northing : 814149

## CONSEQUENCE-TO-LIFE CATEGORY

Facility at Crest: Undeveloped green belt  
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): 12    Length (m): 79    Average Angle (deg): 63

## WALL PART

N/A

## MAINTENANCE RESPONSIBILITY

(1) Sub Div.: 0    Government Feature    Party: HyD    Agent: HyD    Land Cat.: 5b(iii)    Reason Code: 56    MR Endorsement Date: 31-03-2005

## DETAILS OF SLOPE / RETAINING WALL

Date of Inspection: 09-02-2010  
Data Source: EI(HyD)  
Slope Part Drainage: (1) Position: Crest    Size(mm): 300  
(2) Position: On slope    Size(mm): 300  
(3) Position: On slope    Size(mm): 300  
(4) Position: Toe    Size(mm): 300  
Wall Part Drainage: N/A

## SLOPE PART



**Slope Part (1)**

Surface Protection (%): Bare: 0 Vegetated: 0 Chunam: 0 Shotcrete: 60 Other Cover: 40  
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**

N/A

**CHECKING STATUS INFORMATION**

N/A

**BACKGROUND INFORMATION**

GIU Cell Ref.: N/A  
Map Sheet Reference (1:1000): 11SW-17A  
Aerial Photos: N/A  
Nearest Rainuage Station (Station Number): ()  
Data Collected On: 09-02-2010  
Date of Construction, Subsequent Modification and Demolition: N/A  
Related Reports/Files or Documents: N/A  
Remarks: N/A  
Follow Up Actions: N/A  
DH-Order (To Be Confirmed with Buildings Department): None  
Advisory Letter (To Be Confirmed with Buildings Department): None  
LPMIS: None

**ENHANCED MAINTENANCE INFORMATION**

From Maintenance Department: (Last Updated Date: 21/11/2025)



## STAGE 1 STUDY REPORT

Inspected On:

Weather:

District: N/A

Section No: 1-1

Height(m):

Type of Toe Facility: Road/footpath with moderate traffic density

Distance from Toe(m): 0

Type of Crest Facility: Undeveloped green belt

Distance from Crest(m): 0

Consequence Category:

Engineering Judgement:

Section No: 2-2

Type of Toe Facility:

Distance from Toe(m):

Type of Crest Facility:

Distance from Crest(m):

Consequence Category:

Engineering Judgement:

Sign of Seepage:

Criterion A satisfied:

Sign of Distress:

Criterion D satisfied:

Non-routine maintenance required:

Note:

Masonry wall/Masonry facing:

Note:

Consequence category (for critical section):

Observations: N/A

Emergency Action Required:

Action By: N/A

## ACTION TO INITIATE PREVENTIVE WORKS

Criterion A/Criterion D: N/A

Action By: N/A

Further Study:

Action By: N/A



## **OTHER EXTERNAL ACTION**

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Check / repair Services:

Action By: N/A

Non-routine Maintenance:

Action By: N/A

**PHOTO**





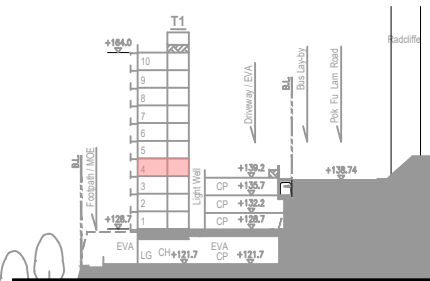
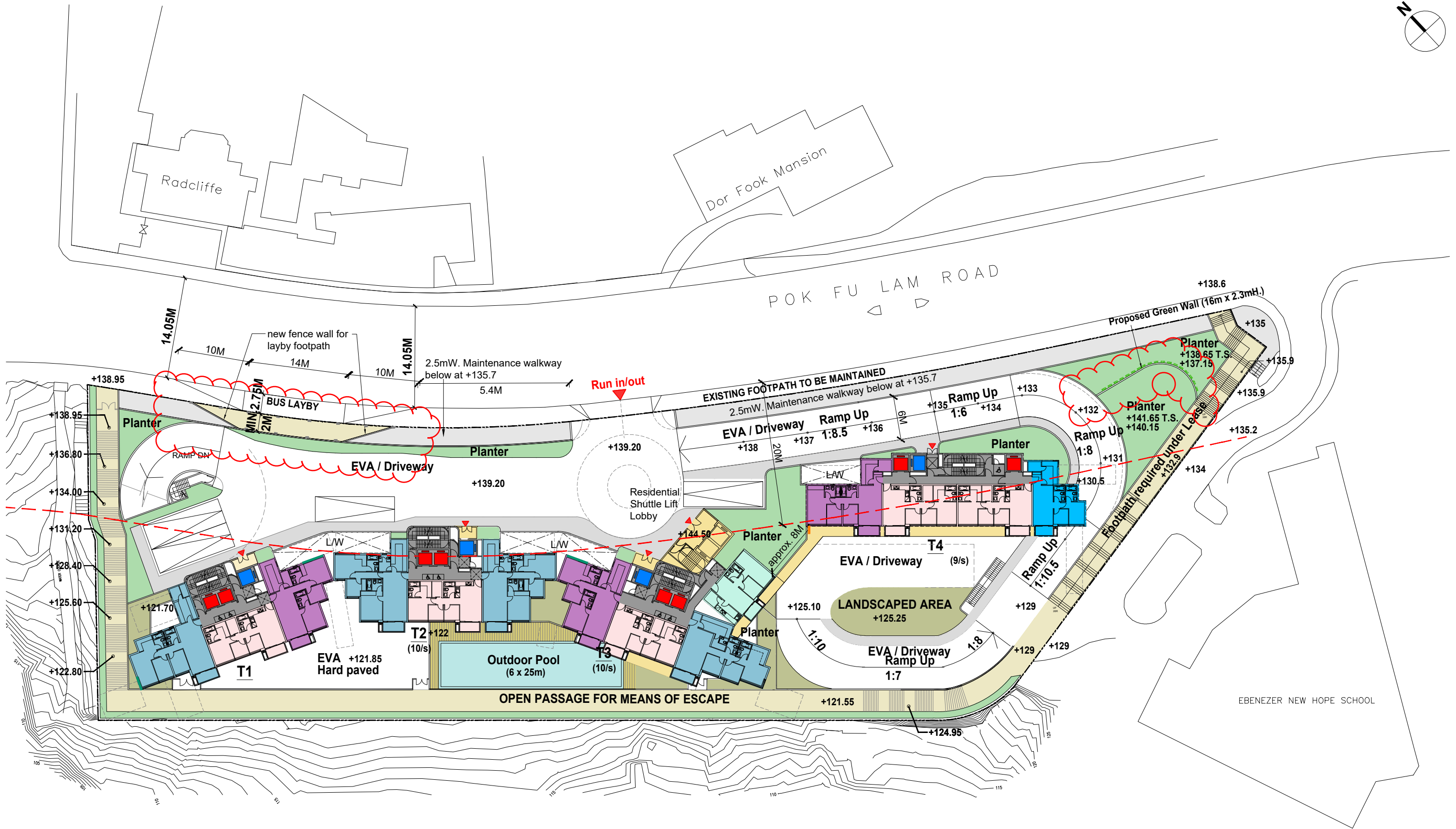




# Appendix C

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## Architectural Plans of Indicative Development Scheme



| LEGEND                                |                        |
|---------------------------------------|------------------------|
| <span style="color: green;">—</span>  | FIXED GLAZING (1-10/F) |
| <span style="color: orange;">—</span> | ACOUSTIC FIN (2-10/F)  |

| Floor | Nos. of Carpark |
|-------|-----------------|
| 3/F   | 25              |
| 2/F   | 34              |
| 1/F   | 38              |
| G/F   | 15              |
| Total | 112             |

**Handi Architects Limited**

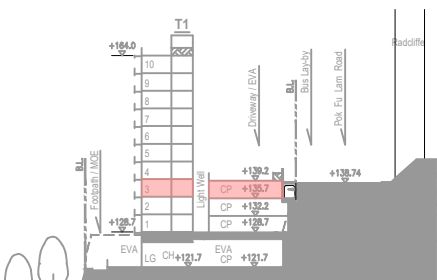
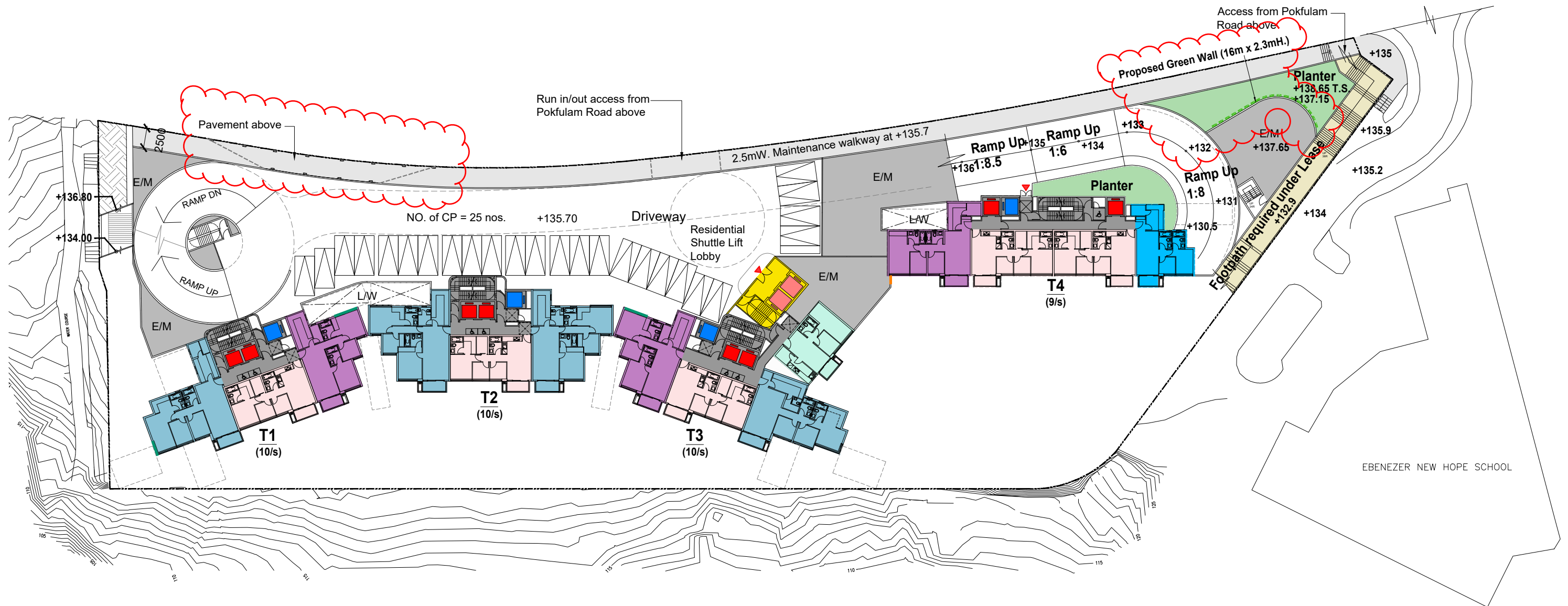
UNIT 2010, 20/F, TOWER 1, GRAND CENTURY PLACE,  
193 PRINCE EDWARD ROAD WEST, KOWLOON

T: 2547 1267  
F: 2875 1467

PROJECT TITLE  
Application for Permission under Section 16 of the Town Planning Ordinance (Cap. 131) for Submission of Layout Plan and Proposed Minor Relaxation of Building Height Restriction for Permitted Flat at "Residential (Group C)" zone at the Ebenezer School and Home for the Visually Impaired, 131 Pok Fu Lam Road, Pok Fu Lam, Hong Kong

DRAWING TITLE  
LAYOUT PLAN - 4/F  
SECTION 16 SUBMISSION (2ND) - SCHEME 24

| DRAWING NO. | SCALE | REV. NO. | DATE / REVISION NO. | APPROVAL BY      |
|-------------|-------|----------|---------------------|------------------|
| A-01        | 1:500 | -        | FEB 2026            | DATE OF APPROVAL |



| LEGEND                                |                        |
|---------------------------------------|------------------------|
| <span style="color: green;">—</span>  | FIXED GLAZING (1-10/F) |
| <span style="color: orange;">—</span> | ACOUSTIC FIN (2-10/F)  |

| Floor | Nos. of Carpark |
|-------|-----------------|
| 3/F   | 25              |
| 2/F   | 34              |
| 1/F   | 38              |
| G/F   | 15              |
| Total | 112             |

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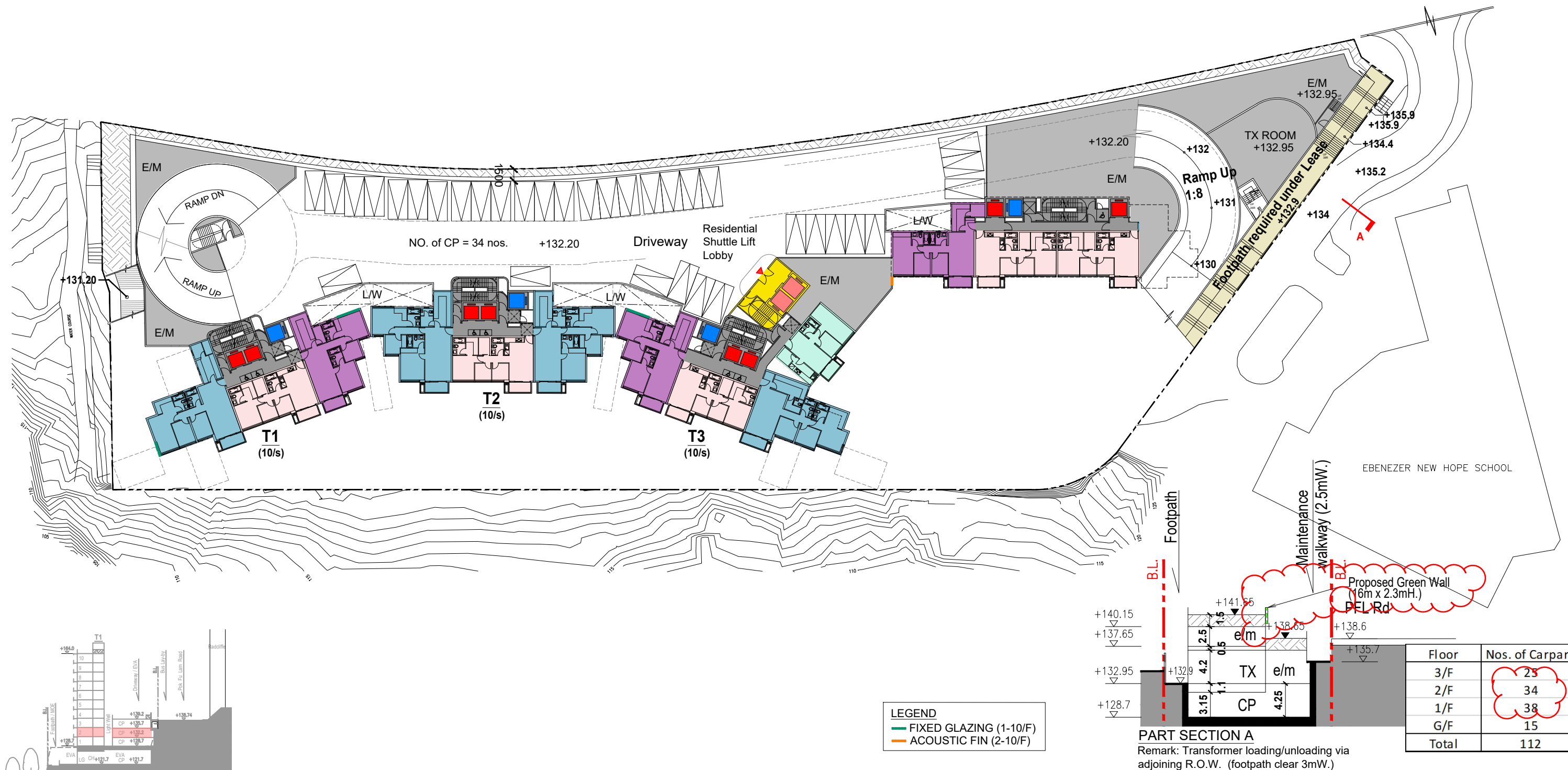
UNIT 2010, 20/F, TOWER 1, GRAND CENTURY PLACE,  
193 PRINCE EDWARD ROAD WEST, KOWLOON

T: 2547 1267  
F: 2875 1467

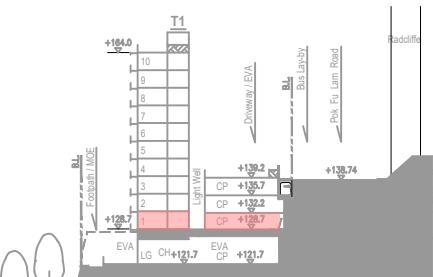
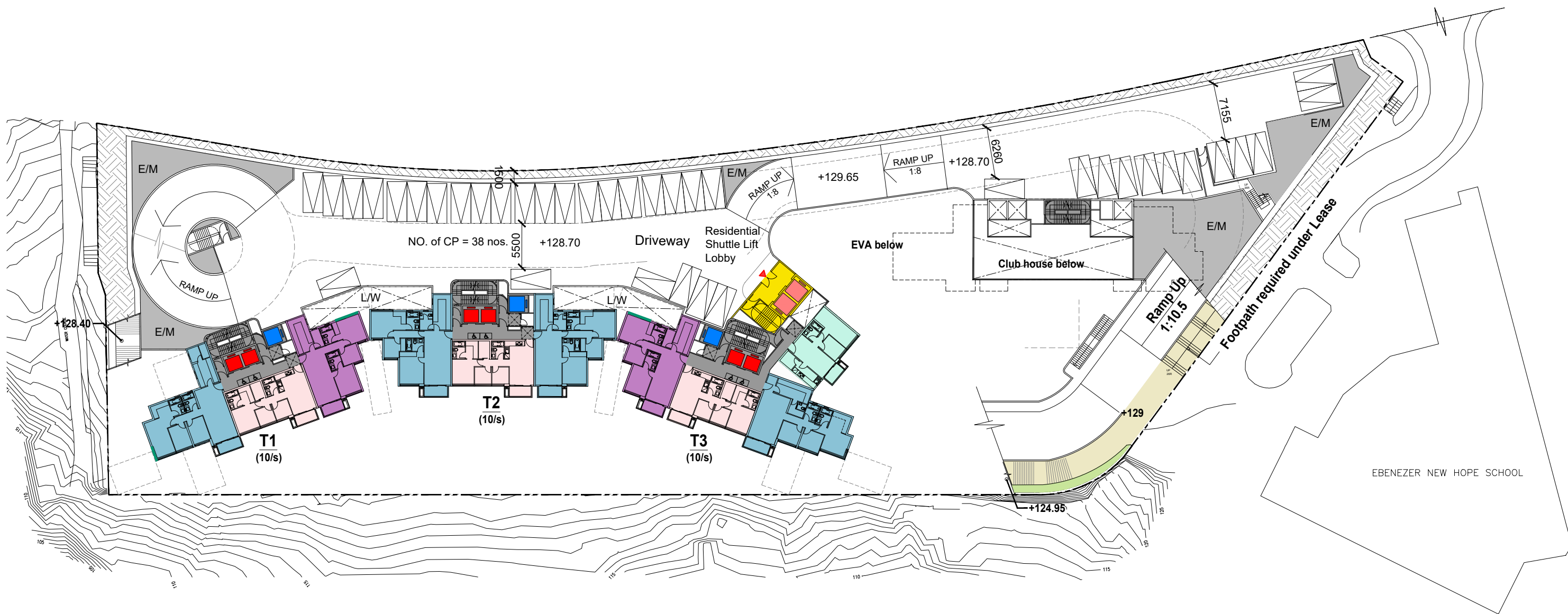
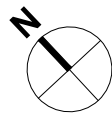
PROJECT TITLE  
Application for Permission under Section 16 of the Town Planning Ordinance (Cap. 131) for Submission of Layout Plan and Proposed Minor Relaxation of Building Height Restriction for Permitted Flat at "Residential (Group C)7" zone at the Ebenezer School and Home for the Visually Impaired, 131 Pok Fu Lam Road, Pok Fu Lam, Hong Kong

DRAWING TITLE  
LAYOUT PLAN - 3/F  
SECTION 16 SUBMISSION (2ND) - SCHEME 24

| DRAWING NO. | SCALE | REV. NO. | DATE / REVISION NO. | APPROVAL BY      |
|-------------|-------|----------|---------------------|------------------|
| A-02        | 1:500 | -        | FEB 2026            | DATE OF APPROVAL |







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T: 2547 1267  
F: 2875 1467

PROJECT TITLE

Application for Permission under Section 16 of the Town Planning Ordinance (Cap. 131) for Submission of Layout Plan and Proposed Minor Relaxation of Building Height Restriction for Permitted Flat at "Residential (Group C)7" zone at the Ebenezer School and Home for the Visually Impaired, 131 Pok Fu Lam Road, Pok Fu Lam, Hong Kong

DRAWING TITLE

LAYOUT PLAN - 1/F  
SECTION 16 SUBMISSION (2ND) - SCHEME 24

LEGEND  
FIXED GLAZING (1-10/F)  
ACOUSTIC FIN (2-10/F)

| Floor | Nos. of Carpark |
|-------|-----------------|
| 3/F   | 25              |
| 2/F   | 34              |
| 1/F   | 38              |
| G/F   | 15              |
| Total | 112             |

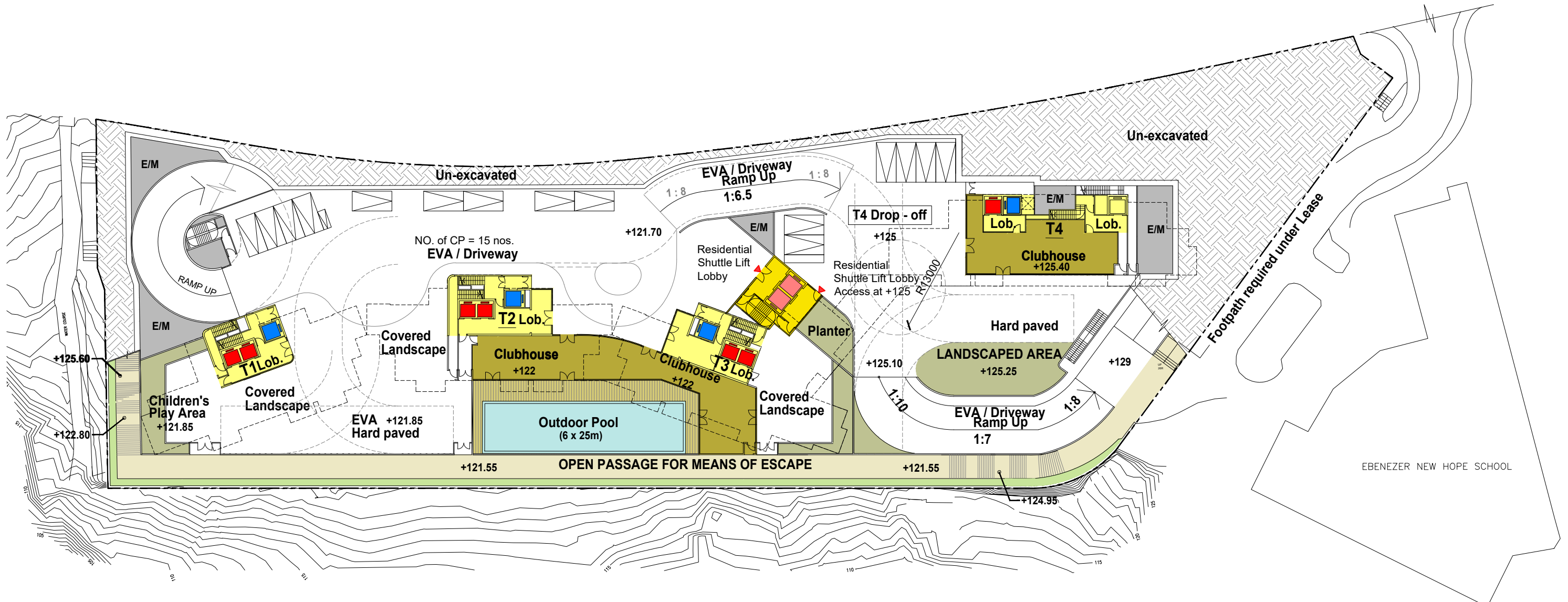
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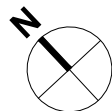
SCALE  
1:500

REV. NO.  
-

DATE / REVISION NO.  
FEB 2026

APPROVAL BY  
DATE OF APPROVAL

[illegible]



- LEGEND
- FIXED GLAZING (1-10/F)
  - ACOUSTIC FIN (2-10/F)

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UNIT 2010, 20/F, TOWER 1, GRAND CENTURY PLACE,  
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T: 2547 1267  
F: 2875 1467

PROJECT TITLE  
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DRAWING TITLE  
LAYOUT PLAN - TYPICAL FLOOR  
SECTION 16 SUBMISSION (2ND) - SCHEME 24

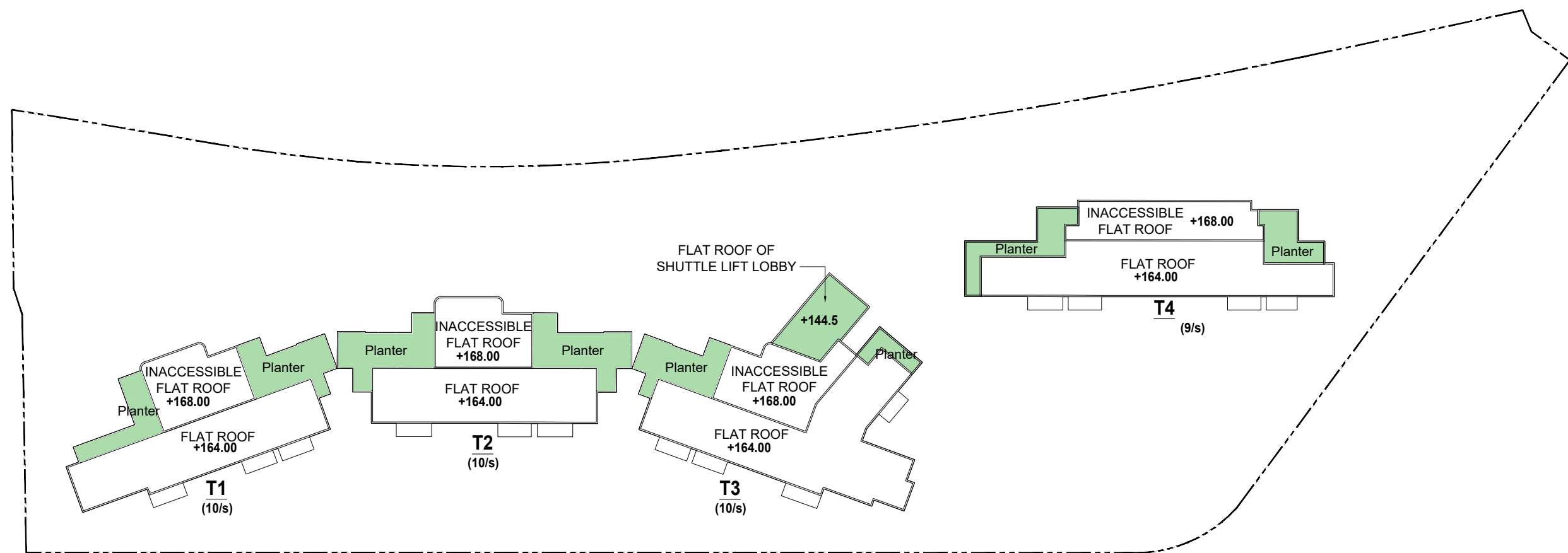
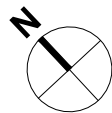
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A-06

SCALE  
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REV. NO.  
-

DATE / REVISION NO.  
FEB 2026

APPROVAL BY  
DATE OF APPROVAL



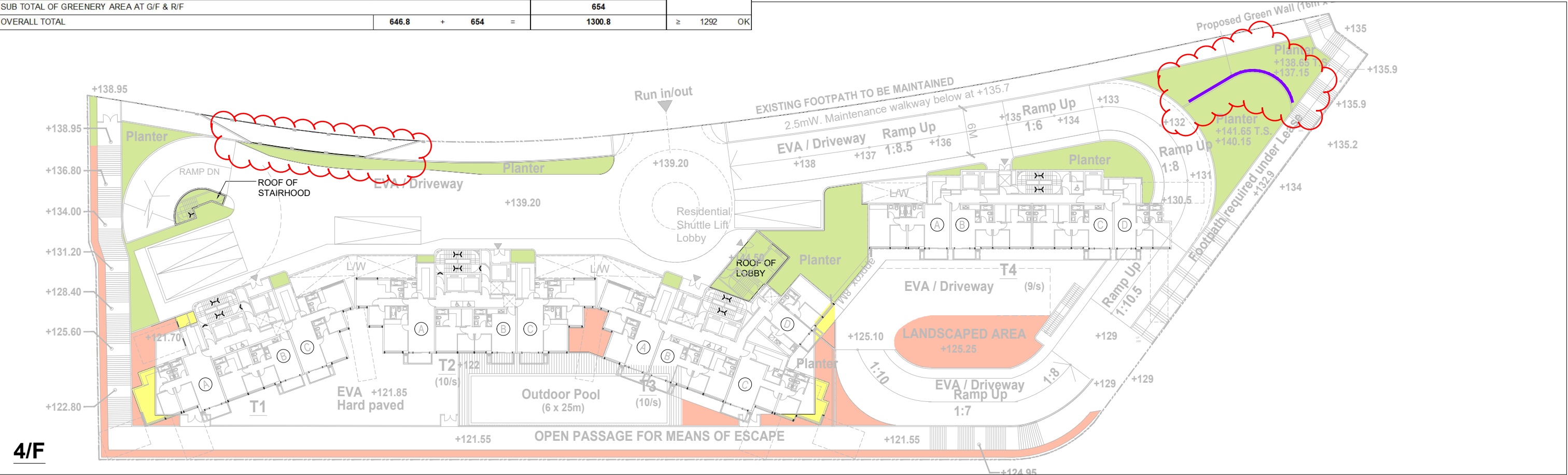


SITE COVERAGE OF GREENERY

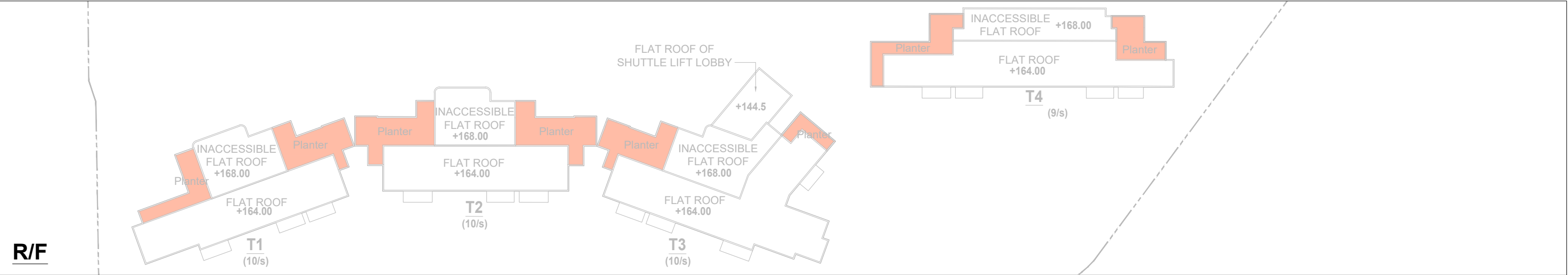
|                                                                           |      |   |     |      |       |    |       |    |   |       |    |
|---------------------------------------------------------------------------|------|---|-----|------|-------|----|-------|----|---|-------|----|
| SITE AREA                                                                 |      |   | =   | 6460 | SM    | >  | 1,000 | SM | < | 20000 | SM |
| MIN. GREENERY AREAS (OVERALL) (20% OF SITE AREA)                          | 6460 | x | 20% | =    | 1292  | SM |       |    |   |       |    |
| MIN. GREENERY AREAS (PRIMARY ZONE) (10% OF SITE AREA)                     | 6460 | x | 10% | =    | 646   | SM |       |    |   |       |    |
| ACCEPTABLE GREENING FEATURES AREAS (30% OF TOTAL REQUIRED GREENERY AREAS) | 1292 | x | 30% | =    | 387.6 | SM |       |    |   |       |    |

GREENERY AREA SCHEDULE

| LOCATION                                   |                                                      | GREENERY AREA PROVIDED ON PLAN (SM) | REDUCTION FACTOR IN COMPUTING THE GREENERY AREAS (SM) | ACCOUNTABLE GREENERY AREA PROVIDED (SM) | GREENERY AREA REQUIRED (SM) |
|--------------------------------------------|------------------------------------------------------|-------------------------------------|-------------------------------------------------------|-----------------------------------------|-----------------------------|
| 4/F(PRIMARY ZONE)                          | SUB TOTAL OF GREENERY AREA AT 4/F (PRIMARY ZONE)     |                                     |                                                       | 610                                     |                             |
| 4/F (PRIMARY ZONE GREENING FEATURES AREAS) | VERTICAL GREENERY                                    |                                     |                                                       |                                         |                             |
|                                            |                                                      | 16x2.3                              | NIL                                                   | 36.8                                    |                             |
|                                            | SUB TOTAL OF GREENING FEATURES AT 4/F (PRIMARY ZONE) |                                     |                                                       | 36.8 ≤ 387.6                            |                             |
| PRIMARY ZONE TOTAL                         |                                                      |                                     | 610 + 36.8 =                                          | 646.8                                   | > 646 OK                    |
| G/F                                        |                                                      |                                     | NIL                                                   | 373                                     |                             |
| R/F                                        |                                                      |                                     |                                                       | 262                                     |                             |
| G/F                                        | COVERED GREENERY AREA                                |                                     | 50%                                                   | 19                                      |                             |
| SUB TOTAL OF GREENERY AREA AT G/F & R/F    |                                                      |                                     |                                                       | 654                                     |                             |
| OVERALL TOTAL                              |                                                      |                                     | 646.8 + 654 =                                         | 1300.8                                  | ≥ 1292 OK                   |



4/F



R/F

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DRAWING TITLE  
LAYOUT PLAN - 4/F  
SECTION 16 SUBMISSION (2ND) - SCHEME 24 (SITE COVERAGE OF GREENERY)

| DRAWING NO. | SCALE | REV. NO. | DATE / REVISION NO. | APPROVAL BY      |
|-------------|-------|----------|---------------------|------------------|
| SBD-01      | 1:500 | -        | FEB 2026            | DATE OF APPROVAL |

# Appendix D

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Preliminary section showing ELS and Foundation works

