



Floral Protection Plan

Contract No. DPW 01/2020 Environmental Team for Drainage Improvement Works at Ngong Ping

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Formal Submission

Drainage Services Department

Document Control

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Abbreviations

AFCD	Agriculture, Fisheries and Conservation Department
DSD	Drainage Services Department
EIA	Environmental Impact Assessment
EIAO	Environmental Impact Assessment Ordinance
EM&A	Environmental Monitoring and Audit
EP	Environmental Permit
EPD	Environmental Protection Department
ET	Environmental Team
IEC	Independent Environmental Checker
ind.	Individuals
WA	Works Area
WS	Works Section

1. Introduction

1.1 Background

- 1.1.1 To enhance the capacity of the trunk drainage system and reduce the flood risk in Ngong Ping, long term drainage improvement works are proposed to be implemented under “PWP Item No. 4163CD – Drainage Improvement Works at Ngong Ping” (hereafter referred to as “the Project”).
- 1.1.2 The Project is a designated project under Schedule 2 of the Environmental Impact Assessment Ordinance (EIAO) (Cap.499). An Environmental Impact Assessment (EIA) Report together with an Environmental Monitoring and Audit (EM&A) Manual (hereafter referred to as the “approved EM&A Manual”) (Register No. AEIAR-169/2013) was prepared for the Project and approved by Environmental Protection Department (EPD) on 21 April 2013. An Environmental Permit (EP) was first issued on 7 August 2013 and its current version (EP No. EP-456/2013/A) as issued on 29 March 2019. These documents are available through the EIAO Register.
- 1.1.3 Fugro Technical Services Limited (FTS) has been appointed as the Environmental Team (ET) by Drainage Services Department (DSD) to implement the EM&A programme in accordance with the EP No. EP-456/2013/A and the approved EM&A Manual. As the ET, part of the scope of FTS, is to prepare and submit a Floral Protection Plan (hereafter referred to as the “Plan”)

1.2 Purpose of the Plan

- 1.2.1 As required in the **EP Condition 2.8, Section 6.12.2.8 of the EIA report**, and **Section 5.5.2.4 of the approved EM&A Manual**, an “Updated Baseline Vegetation Survey” was conducted to reconfirm the presence of the plant species of conservation interest as described in **Table 5.1 of the approved EM&A Manual** and **Table 6.26 of the EIA report** and as shown in **Figure 6.5b of the EIA Report** as well as to determine additional plant species of conservation interest that will be directly and indirectly affected by the construction works in Works Section (WS) 6.
- 1.2.2 The EIA has recommended ecological mitigation measures to avoid and minimise direct and indirect impacts on floral species of conservation interest. Based upon the findings of the “Updated Baseline Vegetation Survey” (hereinafter referred to as the “Survey”, a Floral Protection Plan (hereinafter referred to as the “Plan”) shall be prepared for individual species that can be preserved *in-situ* as also stipulated in the **EP Condition 2.8, EIA report Section 6.12.2.11** and **Section 5.5.2.8 of the approved EM&A Manual**.

1.2.3 This Plan was prepared and submitted by the qualified ecologist of the ET to describe the species of conservation interest and the number of individuals that will be preserved *in-situ*, specifically define the protection measure for each case, the methodology of the preservation, and the programme.

1.3 Relevant Legislations, Standards, Guidelines and Criteria

This Plan was prepared and shall be undertaken in accordance with the guidelines, standards, documents, government ordinances and regulations as described below:

- *Country Parks Ordinance (Cap. 208)*. Provides for the designation and management of country parks and special areas. Country parks are designated for the purpose of nature conservation, countryside recreation and outdoor education. Special Areas are created mainly for the purpose of nature conservation;
- *Environmental Impact Assessment Ordinance (EIAO) (Cap. 499)*. An ordinance for assessing the impact on the environment of certain projects and proposals, for protecting the environment and for incidental matters;
- *EIAO Technical Memorandum Annexes 8 and 16*. Ecological assessment specific annexes which provide the criteria for evaluating ecological impact and guidelines for ecological assessment, respectively;
- *EIAO Guidance Notes No.7/2010 and 10/2010*. Guidance notes on the general guidelines for conducting an ecological baseline survey for ecological assessment and on some methodologies in conducting terrestrial and freshwater ecological baseline surveys, respectively;
- *Forests and Countryside Ordinance (Cap. 96) and its subsidiary legislation, the Forestry Regulations*. An ordinance that prohibits felling, cutting, burning, or destroying of trees and growing plants in forests and plantations on Government land. The Forestry Regulations protects the listed restricted and protected plant species from selling, offering for sale, or possession illegally;
- *Hong Kong Planning Standards and Guidelines (HKPSG) Chapter 10 "Conservation"*. Provides landscape and conservation guidelines to achieve a balance between the need for development and the need to minimise disruption of the landscape and natural resources;
- *Protection of Endangered Species of Animals and Plants Ordinance (Cap. 586) and its subsidiary legislation*. Ordinance to regulate the import, introduction from the sea, export, reexport, and possession of specimens of a scheduled species, including live, dead, parts

or derivatives. The Ordinance applies to all activities involving endangered species which include the parties of traders, tourists and individuals;

- *Site of Special Scientific Interest (SSSI) Register*. Lists the designated sites under the Town Planning Ordinance with special faunal, floral, ecological or geographical features;
- *The IUCN Red List of Threatened Species*. Widely recognised as the most comprehensive, objective global approach for evaluating the conservation status of plant and animal species. The goal of the IUCN Red List is to provide information and analyses on the status, trends and threats to species in order to inform and catalyse action for biodiversity conservation.
- *Town Planning Ordinance (Cap. 131)*. Ordinance which designates country parks, conservation area, green belts, sites of special scientific interest, coastal protection area and other specified uses to promote conservation, protection and education of the valuable environment.
- *United Nations Convention on Biodiversity (1992)*. An international legally binding treaty which aims to develop national strategies for the conservation and sustainable use of biological diversity.

1.4 Structure of the Plan

1.4.1 Succeeding Section 1 Introduction, the remainder of this Plan is presented as follows:

- Section 2 details the methodology of the floral protection measures;
- Section 3 describes the audit of the floral protection measures; and
- Section 4 details the floral protection and audit works programme.

2. Methodology

This section presents the methodology and approach of the *in-situ* preservation of floral species of conservation interest during the pre-construction and construction phases of the Project. As mentioned in **Section 6.12.2.9 of the EIA report**, priority is given to *in-situ* preservation over off-site transplantation.

2.1 Works Description

The Plan is specifically designed to mitigate the impacts of construction works in WS6 where the flood relief drain will be constructed. The components of WS6 (**Figure 2.9g and Table 2.7 of the EIA report**) includes the construction of DN 1800mm drain pipe (198m) by trenchless method, associated pits, manholes, Intake C and Outfall B; Jacking Pit (JP2) of about 5 m deep; Receiving Pit (RP3) about 5 m deep; Receiving Pit (RP4) about 2 m deep; Temporary Works Areas (WA3 of about 180 m², and WA4 of about 100 m²) around the two receiving pits; a temporary Stockpiling Area (SA4) of about 300 m² at JP2; Intake C at existing gabion channel; and Outfall B at existing natural stream.

With the adoption of an underground drainage system, the permanent ecological impacts of the construction works on ground surface shall be reduced. As described in **Section 2.5.3.1 of the EIA Report**, a trenchless construction method will minimise surface works and impacts and will only affect a small bank-side area for construction of Outfall B. Consequently, more individuals of floral of conservation interest shall be retained and preserved *in-situ* rather than transplanted.

2.2 Existing Locations of Floral Species with Conservation Interest to be Preserved *in-situ*

A total of 99 individuals or clusters of the floral species of conservation interest were identified during the updated baseline vegetation survey. Specific locations of identified species are presented in **Appendix A.1**. All of these individuals were tagged with neon green ribbons on site. These ribbons shall be removed after the construction works in the WS6 is completed.

Seven individuals of *Camellia euryoides* and five individuals of *Rhododendron farrerae* will be directly affected by the construction works in Outfall B and therefore will be transplanted. The rest of the identified clusters or individuals of floral species of conservation interest shall be preserved *in-situ*.

2.3 Floral Protection Measures

The implementation of good construction site practices is of equal importance to minimise and control impacts of construction activities on floral species of conservation interest. It is essential that adequate protection of each individual plant is provided. **Sections 6.12.2.11 of the EIA report and 5.5.2.8 of the approved EM&A Manual** provide mitigations measures for *in-situ* preservation. This includes:

- Restricting access to the floral species of conservation interest by mean of fencing, railing or temporary barriers. Enclosing or bunding the species shall be considered as the last resort;
- Restricting the works activities to within designated works area by mean of fencing, railing or temporary barrier; and
- Controlling site-runoff if the species is located downstream of works area.

Measures for habitat protection provided in **Section 5.5.2.19 in the approved EM&A Manual**, should also be considered to additionally avoid damage and disturbance on plant individuals.

- ensure fencing around Works and Stockpiling Areas and hoarding around the Site Office before commencement of works to prevent vehicle movements and encroachment of personnel into adjacent areas;
- ensure that work site boundaries are not breached and that damage does not occur to surrounding areas;
- provide and schedule environmental briefing/training sessions for site staff to raise their awareness on environmental protection;
- ensure placement of equipment is within designated areas within the existing disturbed land;
- ensure construction activities are restricted to within the proposed works boundary; and
- ensure spoil heaps are to be covered at all times.

Wherever applicable and necessary, these mitigation measures shall be strictly implemented to control and minimise impacts on the floral species of conservation interest. However, the protection measures shall not only be limited to the floral species of conservation interest but as well as surrounding trees adjacent or within the work areas such as some cherry trees planted by CEDD within the vicinity of SA4 and JP2. Thus, it is recommended that temporary construction barrier and/or rigid and strong fences shall be installed enclosing work and stockpiling areas (e.g. WA3, WA4 and SA4) to ensure that floral species of conservation interest and other surrounding vegetation within the site boundary will be excluded from the construction works and shall also be protected. These work boundaries shall not be breached and construction works shall be limited to within these boundaries only to ascertain that damage will not occur to the surrounding areas. Additionally, no construction works shall be carried out on the stream adjoining WA4 and Country Park area to the west of the stream.

The appropriate measures that should be undertaken for each species of conservation interest located in WS6 is presented in **Appendix A.2** while location of the protection measures is shown **Appendix A.3**. Sample photos of these protection measures are presented in **Appendix**

A.4. Protection measures for each floral species of conservation interest are detailed in the following subsections.

2.3.1 *Geodorum densiflorum*

Five individuals of the Walking-stick Orchid *Geodorum densiflorum* were recorded during the Survey. Three individuals (G1, G2, and G3) are located approximately 30 m west of the SA4 while the other two individuals (G4 and G5) are located southeast of the Project area along the riparian vegetation of the channelised stream.

G1, G2, and G3 are close to the proposed drainage alignment. As the construction works are limited at 2 m underground with the adoption of underground drainage system, ground surface impacts especially on these orchid individuals will be minimised. Nevertheless, it is recommended that warning signs or labels shall be established denoting the presence of these orchids as the height of these individuals ranges from 0.07 m to 0.4 m with crown spread of 0.15 m to 0.45 m and may be subject to being stepped on as these are along the roadside of the Private Road to columbarium.

The nearest construction component to G4 and G5 is the WA3 for the construction of Intake C. Given the distance and the adoption of underground drainage system, these orchids will not be directly affected. Nevertheless, as protection measures, construction activities should be limited within the proposed works boundary only and to prevent personnel from encroaching the location of these individuals, it is recommended that solid fencing be erected around the individuals before the commencement of works as per **Section 5.5.2.9 of the approved EM&A Manual**.

2.3.2 *Enkianthus quinqueflorus*

Approximately 40 m northeast of the Project area are two individuals (F1 and F2) of the Chinese New Year Flower *Enkianthus quinqueflorus*. As these individuals are outside the Project area and relatively distant from any construction works, no direct impacts are anticipated. Hence, protection measure for these individuals is not necessary. However, construction activities should be limited to the works boundary only to avoid potential indirect impacts of the construction activities to *E. quinqueflorus*.

2.3.3 *Camellia sinensis*

A total of six individuals of Tea *Camellia sinensis* (C1, C2, C3, C4, C5, and C6) were recorded in WS6 outside of the Project area. As these individuals are outside the Project area and relatively far from any construction works, no direct impact is expected provided that the construction activities are limited to the works boundary only. No protection measures is recommended for these species.

2.3.4 *Ehretia acuminata*

Eight individuals of Heliotrope Ehretia *Ehretia acuminata* (E1, E2, E3, E4, E5, E6, E7, and E8) are located inside the Project area adjacent to SA4. All these tree individuals are also close to the

proposed drainage alignment along the Private Road to columbarium but will not be directly affected by the construction activities. These trees are relatively taller with estimated height ranging from 4 m to 7 m with crown spread of 2 m to 4 m. Although adjacent to the drainage alignment, ground surface impacts on *E. acuminata* will be minimised as the construction works are limited at 2 m underground with the adoption of underground drainage system. Nevertheless, construction activities should be limited within the proposed works boundary only. As aforementioned, fencing around works and stockpiling areas shall be carried out before commencement of works to prevent vehicle movements and encroachment of personnel into adjacent areas. Meanwhile, as a protection measure, warning signs or labels should also be installed denoting the presence of these individuals of conservation interest to prohibit any activity that may pose damages on these trees.

2.3.5 *Gleditsia australis*

Four individuals of Small-fruited Honeylocust *Gleditsia australis* (H1, H2, H3, and H4) are located approximately 50 m east of the columbarium particularly by the roadside along the drainage alignment. Estimated height of these individuals ranges from 1.6 m to 6 m with crown spread of 2 m to 5 m. As no ground surface works along this area will be undertaken, these individuals will not be directly affected by the proposed drainage works. However, proper protection measure will be established where necessary such as limiting the construction activities within the boundary of the works areas to avoid damages on these trees. Warning signposts prohibiting the access of these individuals should also be erected.

2.3.6 *Rhododendron farrerae*

One of the most abundant plant species of conservation interest is Mrs. Farrer's Rhododendron *Rhododendron farrerae* where a total of 32 saplings were recorded during the survey. These shrubs occur in three clusters where one is approximately located 20 m west of the columbarium (I1, I2, I3, I4, I5, I6, I7, I8, I9, I10 and I11); another located approximately 10 m northeast of the columbarium (I15, I16, I17, I18, I19, I20, I21, I22, I23 and I24); and the last one is located adjacent to Outfall B (I12, I13, I14, I25, I26, I27, I28, I29, I30, I31, and I32).

The group of *R. farrerae* located west of the columbarium is outside of the Project area boundary and located south of the proposed drainage alignment. These individuals will not be directly affected by the construction works; thus, will be preserved *in-situ*. As a protection measure, no construction works shall be undertaken outside of the works boundaries and prohibition of access shall also be recommended to this cluster.

The cluster of *R. farrerae* located northeast of the columbarium are immediately above the proposed drainage alignment. However, these individuals will not be directly impacted as no surface ground works shall be undertaken in this area. It has already been established that there will be no vegetation clearing that will be carried out for the access of the mini-excavator towards Outfall B. As per **Section 5.5.2.9 of the approved EM&A Manual**, it is recommended that solid fencing be erected at the access entrance to these species before the

commencement of works to prevent encroachment of personnel and equipment into adjacent areas where these species are located.

The cluster adjacent to Outfall B are anticipated to be directly affected by the construction works. As the construction works will be concentrated in this area, five individuals shall be transplanted (I12, I13, I14, I29, and I31). The transplantation works are detailed in the Floral Transplantation Plan. For I32, potential minimal impacts are expected. Thus, it is recommended to institute protection fence around this individual with sufficient buffer zones sturdy enough to withstand the impacts from the construction activities. The fence should be rigid and its foundation should avoid contact with the structural roots. The buffer zones should be maintained clean from any construction material, waste and excess soil that may cause damages on the sapling. No digging, trenching, compaction, or other soil disturbance should be allowed within the buffer zone.

Dust suppression measures as described in **Section 2.3.1.2 of the approved EM&A Manual** shall be strictly implemented to minimize the potential adverse dust impacts to *R. farrerae*, particularly to those individuals located adjacent to WA4. In the event of visible construction dust accumulation on this species occur, it is recommended that spraying be conducted to remove the accumulated dust.

2.3.7 *Coelogyne fimbriata* and *Bulbophyllum ambrosia*

Five locations of the Brown Rock-orchid *Coelogyne fimbriata* (D1, D2, D3, D4 and D5) and three locations of Ambrosia Orchid *Bulbophyllum ambrosia* (A1, A2 and A3) were recorded inside the Project area northeast of WA4 for the construction of Outfall B. The individuals of these species will not be directly affected by the construction works at Outfall B, thus will be preserved *in-situ*. However, it is necessary to establish protection measures to avoid indirect impacts to these species. Construction works should be limited to the works boundary and as per **Section 5.5.2.9 of the approved EM&A Manual**, it is recommended that solid fencing be erected at the access entrance to these species before the commencement of works to prevent encroachment of personnel into adjacent areas where these species are located. Furthermore, as these orchids are adjacent to WA4, dust from construction activities may accumulate on their leaves and other parts. Dust suppression measures as described in **Section 2.3.1.2 of the approved EM&A Manual** shall be strictly implemented to minimize the potential adverse dust impacts to these species. In the event of visible construction dust accumulation occur, it is recommended that misting of the individuals should be conducted to remove the accumulated dust.

2.3.8 *Camellia euryoides*

The survey recorded 34 individuals of Eurya-leaved Camellia *Camellia euryoides* distributed in the western side of the columbarium along the riparian area of the Ngong Ping stream.

Among these recorded shrub individuals, seven are to be transplanted (B28, B29, B30, B31, B32, B33 and B34) and the rest shall be preserved *in-situ*. No direct impacts to the rest of these shrub individuals are anticipated during construction works. However, protection measures are

recommended to avoid damage, particularly to individuals B1 to B27, which are located across WA4 and Outfall B. As aforementioned, it is recommended that temporary barrier and/or solid and rigid fencing be erected around works and stockpiling areas to prevent vehicle movements and encroachment of personnel into adjacent areas. Likewise, no works shall be undertaken in the stream immediately adjacent to WA4 and the adjoining Country Park area to the west of the stream. As a necessary protection measure, all construction activities should be limited to the boundary of works areas only. It should be ascertained that these boundaries shall not be breached to prevent damage on surrounding trees and nearby species of conservation interest. Post indicating prohibition of access shall also be installed adjacent to WA4 to deter access to the Country Park area and west bank of the stream where several *C. euryoides* individuals are located.

Additionally, construction dust may also be anticipated. Dust suppression measures as described in **Section 2.3.1.2 of the approved EM&A Manual** shall be strictly implemented to minimize the potential adverse dust impacts to these individuals. During periods of drought, spraying of water on trunks, limbs and foliage to remove any accumulated construction dust is recommended.

3. Audit of Protection Measures

As required by **EP Condition 2.9, EIA Report Section 6.12.2.12 and Section 5.5.2.9 of the EM&A Manual**, monthly audit of protection measures shall be conducted by the ET during construction phase until construction works are completed and the site is reinstated to ensure that damage does not occur to the flora being protected and to the surrounding environment. The checklist that shall be followed during the audit is attached in **Appendix B**. Details of the monthly audit shall be as follows:

3.1 Implementation of Protection Measures

Regular monthly inspection shall be conducted to ensure that the recommended protection measures detailed in **Section 2.3 of the Plan** are strictly implemented by the Contractor during construction works.

3.2 Condition of the Protection Measures

The condition of the Protection measures shall be checked every monthly audit. Further actions shall be recommended (e.g. repair or replacement) should damage in the installed protection measures are observed.

3.3 Photographic Record

Photo-documentation of the protection measures shall be done every monitoring period.

4. Implementation Programme

4.1 Preparation and Deposit of Floral Protection Plan

As per **EP Condition 2.8** *The Permit Holder shall, at least one month before commencement of construction works, deposit with the Director three hard copies and one electronic copy of the "Floral Protection Plan".*

4.2 Installation of Protection Measures

As per **Section 5.5.2.9 of the approved EM&A Manual**, the recommend protection measures shall be erected before the commencement of works to prevent vehicle movements and encroachment of personnel into adjacent areas where these species are located.

4.3 Environmental Briefing of Site Staff

As per **Section 5.5.2.9 of the approved EM&A Manual and Section 6.12.2.12 of the EIA Report**, environmental briefing/training sessions shall be provided and scheduled for site staff to raise their awareness on environmental protection. Prior to the implementation of the approved Floral Protection Plan, ET shall conduct the aforementioned briefing to ensure successful implementation of the Plan and protection of species of conservation interest.

4.4 Implementation and Maintenance of Protection Measures

The implementation and maintenance of the protection measures recommended in the Plan shall be carried out by the Contractor throughout the construction phase until completion of construction works and reinstatement of site.

4.5 Audit of Protection Measures

As per **EP Condition 2.9** *All the proposed in-situ preservation measures in the approved "Floral Protection Plan" shall be audited by the ET on a monthly basis to ensure that damage does not occur to the flora being protected and to the surrounding environment.* Furthermore, as per **Table 5.3 of the approved EM&A Manual**, monthly audit of the implementation of Floral Protection Plan shall be undertaken until construction works are completed and the site is reinstated.

5. References

Guidance Notes on Tree Preservation and Removal Proposals for Building Development in Private Projects Compliance of Tree Preservation Clause under Lease

Guidelines on Tree Preservation during Development. Greening, Landscape and Tree Management Section Development Bureau

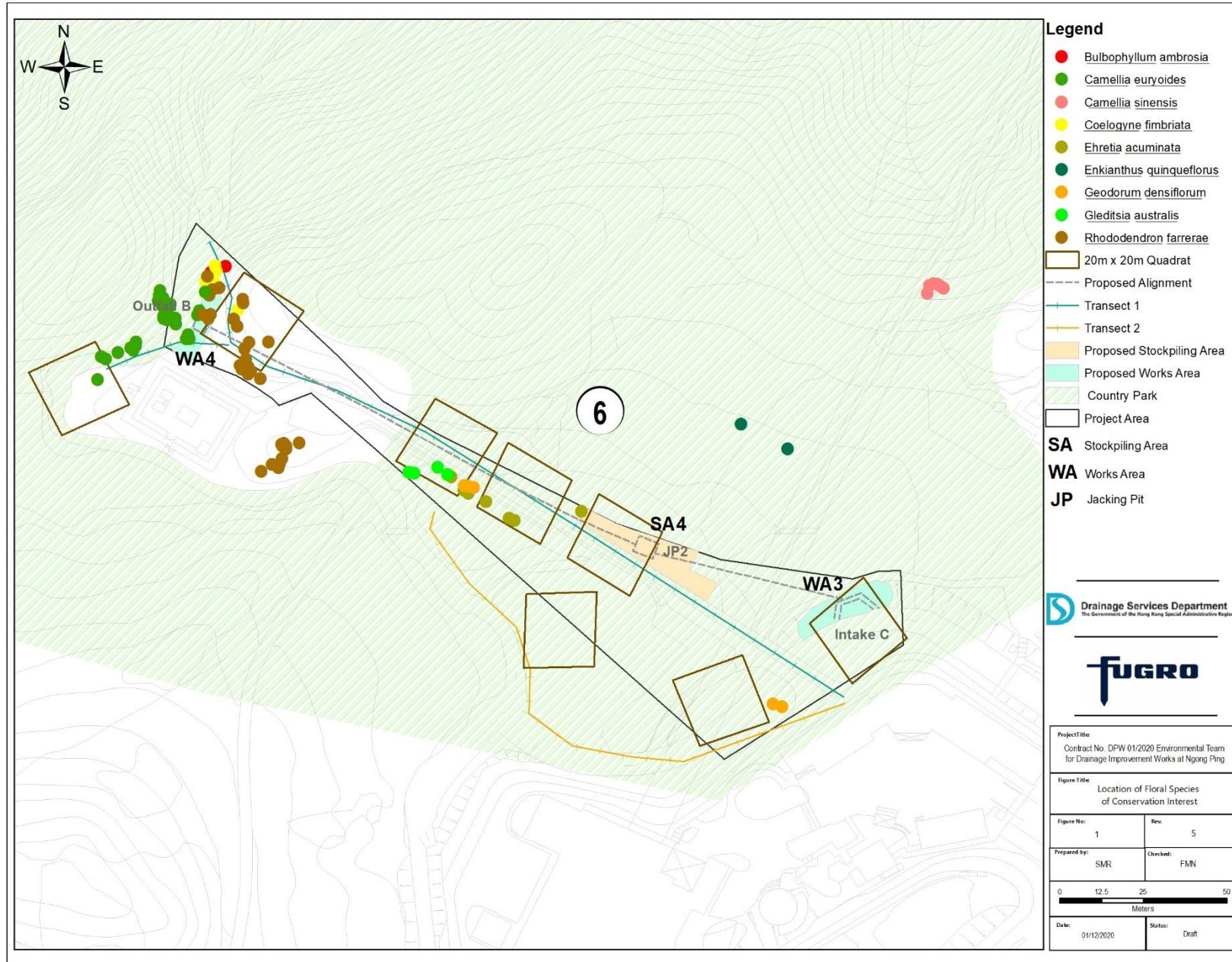
Meinhardt Environment Limited. 2012. Agreement No. DP 06/2011 Environmental Impact Assessment for Drainage Improvement Works at Ngong Ping. Final Environmental Impact Assessment Report. [html]: Drainage Services Department. Available at https://www.epd.gov.hk/eia/register/report/eiareport/eia_2062012/index.html

Shatin to Central Link Tai Wai to Hung Hom Section Transplantation Proposal for Plan Species of Conservation Importance

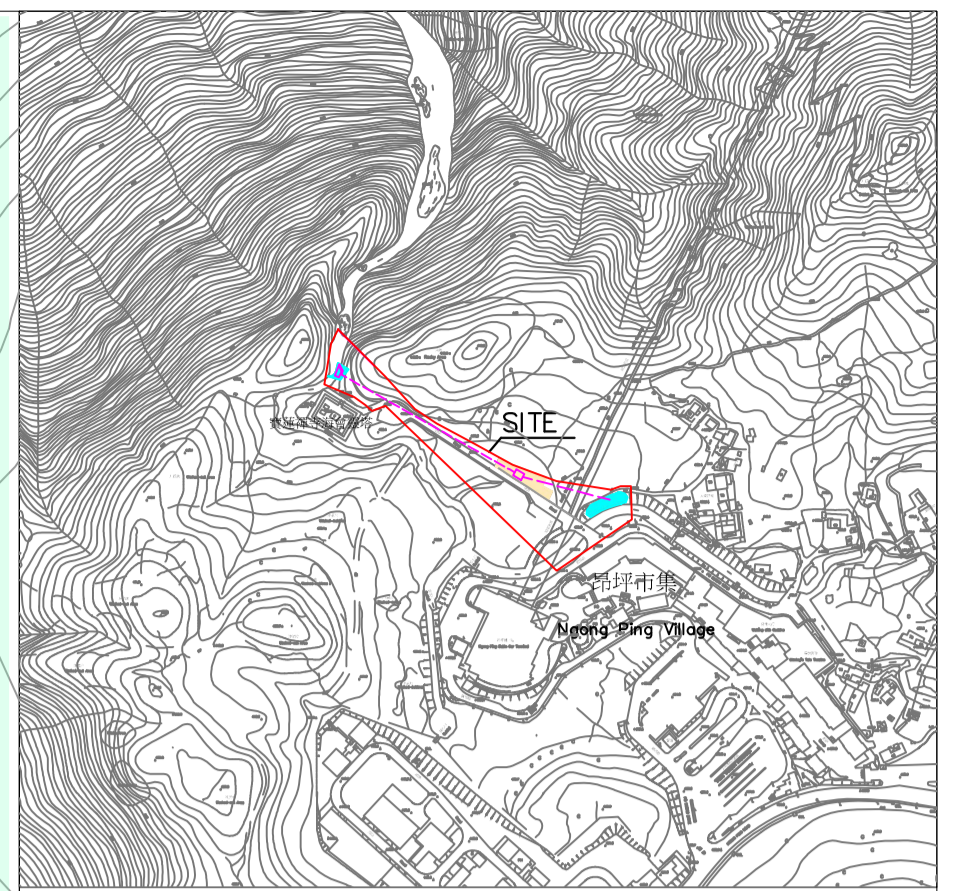
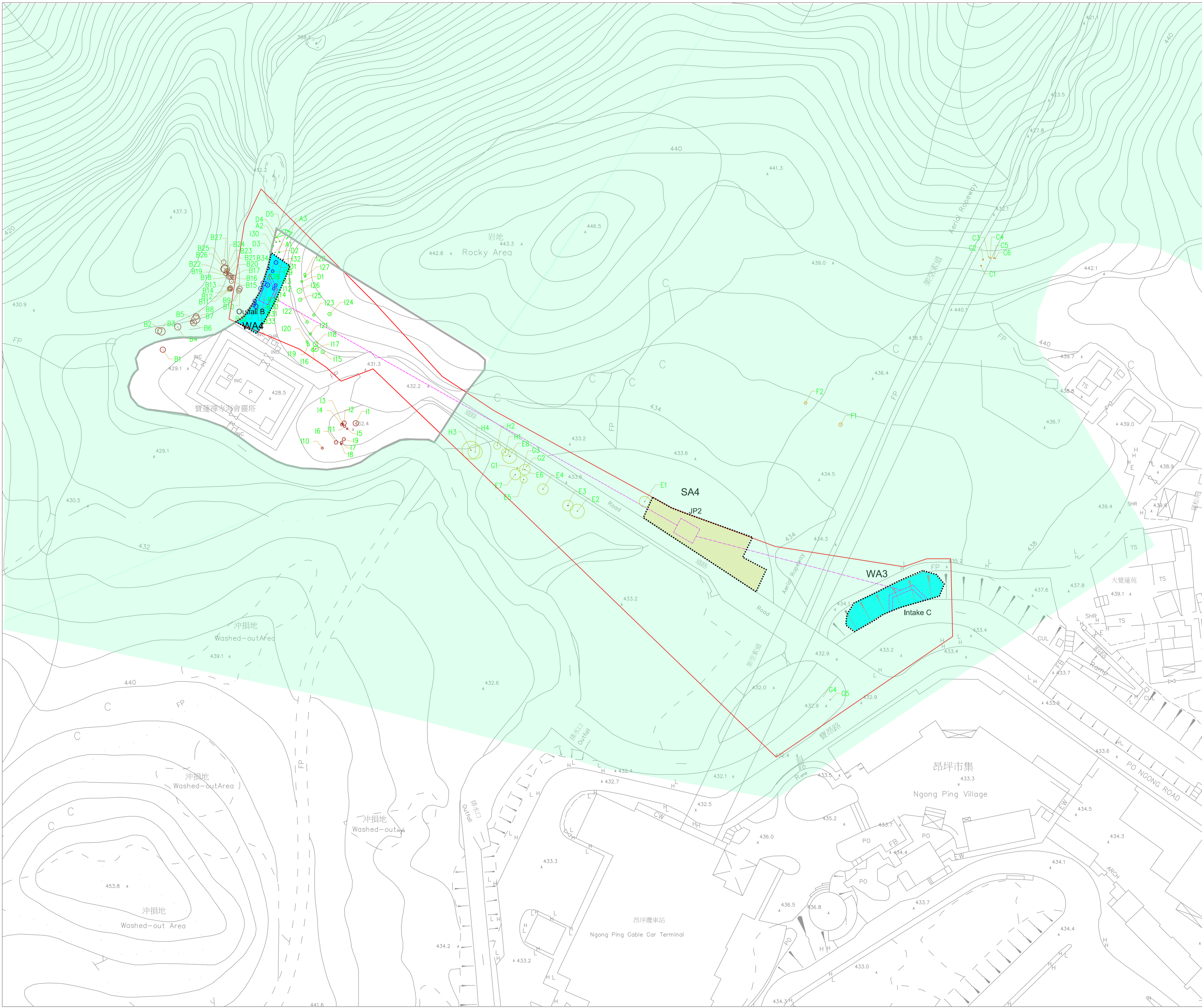
Appendix A

Location and Protection Method
of Species of Conservation
Interest

A.1 Location of Species of Conservation Interest



A.2 Protection Method for each Floral Species of Conservation Interest



KEY PLAN 1:5,000

- NOTES :**
- MEASUREMENTS ARE BASED ON HONG KONG 1980 METRIC GRID.
 - ALL UNITS ARE IN METRES OR OTHERWISE STATED.
 - BASE MAP SHOWN HEREIN WAS EXTRACTED FROM TOPOGRAPHIC MAP NOS. 9-SE-16C AND 9-SE-21A, LANDS DEPARTMENT.
- LEGEND:**
- Project Area
 - - - - Proposed Alignment
 - Proposed Works Area
 - Proposed Stockpiling Area
 - Country Park
 - Rigid Fence Enclosing Works and Stockpiling Areas
 - A1 Species & Species No.
 - A Bulbophyllum ambrosia
 - B Camellia euryoides
 - C Camellia sinensis
 - D Coelogyne fimbriata
 - E Ehretia acuminata
 - F Enkianthus quinqueflorus
 - G Geodorum densiflorum
 - H Gleditsia australis
 - I Rhododendron farrerae
 - Erection of Warning Signs/Labels
 - Prohibition of Access
 - Solid Fencing Around Individuals
 - Solid Fencing at Access Entrance
 - For Transplantation
 - No Protection Measures Necessary

FIGURE TITLE:

Floral Protection Plan

DATE OF SURVEY 20 October 2020	SCALE AT A1 1:500
FIGURE NUMBER 1	REVISION 2

Drainage Services Department
The Government of the Hong Kong Special Administrative Region

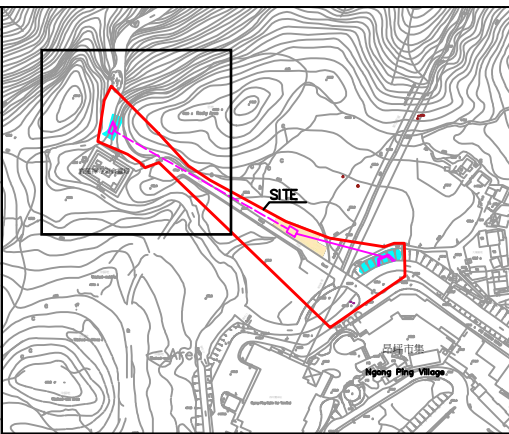
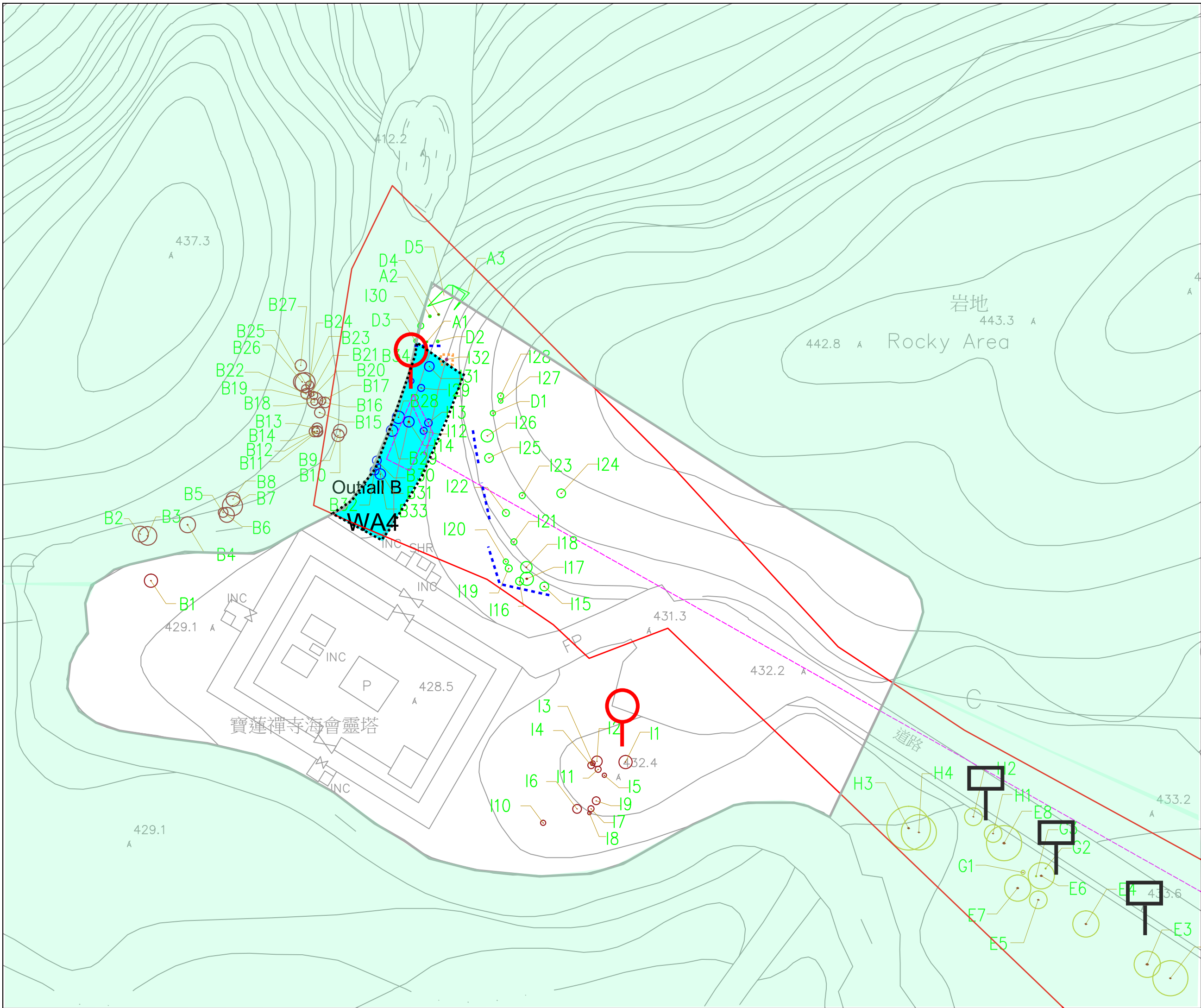
Table A.2.1: Protection measures for each individual floral species of conservation interest.

Botanical Name	Species No.	Protection Measure
<i>Geodorum densiflorum</i>	G1	Erection of warning signs or labels
	G2	Erection of warning signs or labels
	G3	Erection of warning signs or labels
	G4	Erection of solid fencing around individual
	G5	Erection of solid fencing around individual
<i>Enkianthus quinqueflorus</i>	F1	No protection measure necessary
	F2	No protection measure necessary
<i>Camellia sinensis</i>	C1	No protection measure necessary
	C2	No protection measure necessary
	C3	No protection measure necessary
	C4	No protection measure necessary
	C5	No protection measure necessary
	C6	No protection measure necessary
<i>Ehretia acuminata</i>	E1	Erection of warning signs or labels
	E2	Erection of warning signs or labels
	E3	Erection of warning signs or labels
	E4	Erection of warning signs or labels
	E5	Erection of warning signs or labels
	E6	Erection of warning signs or labels
	E7	Erection of warning signs or labels
	E8	Erection of warning signs or labels
<i>Gleditsia australis</i>	H1	Erection of warning signs or labels
	H2	Erection of warning signs or labels
	H3	Erection of warning signs or labels
	H4	Erection of warning signs or labels
<i>Rhododendron farrerae</i>	I1	Prohibition of access
	I2	Prohibition of access
	I3	Prohibition of access
	I4	Prohibition of access
	I5	Prohibition of access
	I6	Prohibition of access
	I7	Prohibition of access
	I8	Prohibition of access
	I9	Prohibition of access
	I10	Prohibition of access
	I11	Prohibition of access

Botanical Name	Species No.	Protection Measure
<i>Rhododendron farrerae</i>	I12	For Transplantation
	I13	For Transplantation
	I14	For Transplantation
	I15	Erection of solid fencing at access entrance
	I16	Erection of solid fencing at access entrance
	I17	Erection of solid fencing at access entrance
	I18	Erection of solid fencing at access entrance
	I19	Erection of solid fencing at access entrance
	I20	Erection of solid fencing at access entrance
	I21	Erection of solid fencing at access entrance
	I22	Erection of solid fencing at access entrance
	I23	Erection of solid fencing at access entrance
	I24	Erection of solid fencing at access entrance
	I25	Erection of solid fencing at access entrance
	I26	Erection of solid fencing at access entrance
	I27	Erection of solid fencing at access entrance
	I28	Erection of solid fencing at access entrance
	I29	For Transplantation
	I30	Erection of solid fencing at access entrance
	I31	For Transplantation
I32	Erection of solid fencing around individual	
<i>Coelogyne fimbriata</i>	D1	Erection of solid fencing at access entrance
	D2	Erection of solid fencing at access entrance
	D3	Erection of solid fencing at access entrance
	D4	Erection of solid fencing at access entrance
	D5	Erection of solid fencing at access entrance
<i>Bulbophyllum ambrosia</i>	A1	Erection of solid fencing at access entrance
	A2	Erection of solid fencing at access entrance
	A3	Erection of solid fencing at access entrance
<i>Camellia euryoides</i>	B1	Prohibition of access
	B2	Prohibition of access
	B3	Prohibition of access
	B4	Prohibition of access
	B5	Prohibition of access
	B6	Prohibition of access
	B7	Prohibition of access
	B8	Prohibition of access

Botanical Name	Species No.	Protection Measure
<i>Camellia euryoides</i>	B9	Prohibition of access
	B10	Prohibition of access
	B11	Prohibition of access
	B12	Prohibition of access
	B13	Prohibition of access
	B14	Prohibition of access
	B15	Prohibition of access
	B16	Prohibition of access
	B17	Prohibition of access
	B18	Prohibition of access
	B19	Prohibition of access
	B20	Prohibition of access
	B21	Prohibition of access
	B22	Prohibition of access
	B23	Prohibition of access
	B24	Prohibition of access
	B25	Prohibition of access
	B26	Prohibition of access
	B27	Prohibition of access
	B28	For Transplantation
	B29	For Transplantation
	B30	For Transplantation
	B31	For Transplantation
	B32	For Transplantation
	B33	For Transplantation
	B34	For Transplantation

A.3 Location of each Protection Measure



KEY PLAN 1:5,000

NOTES :

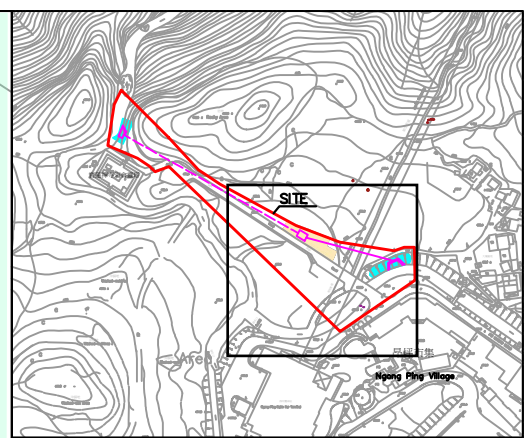
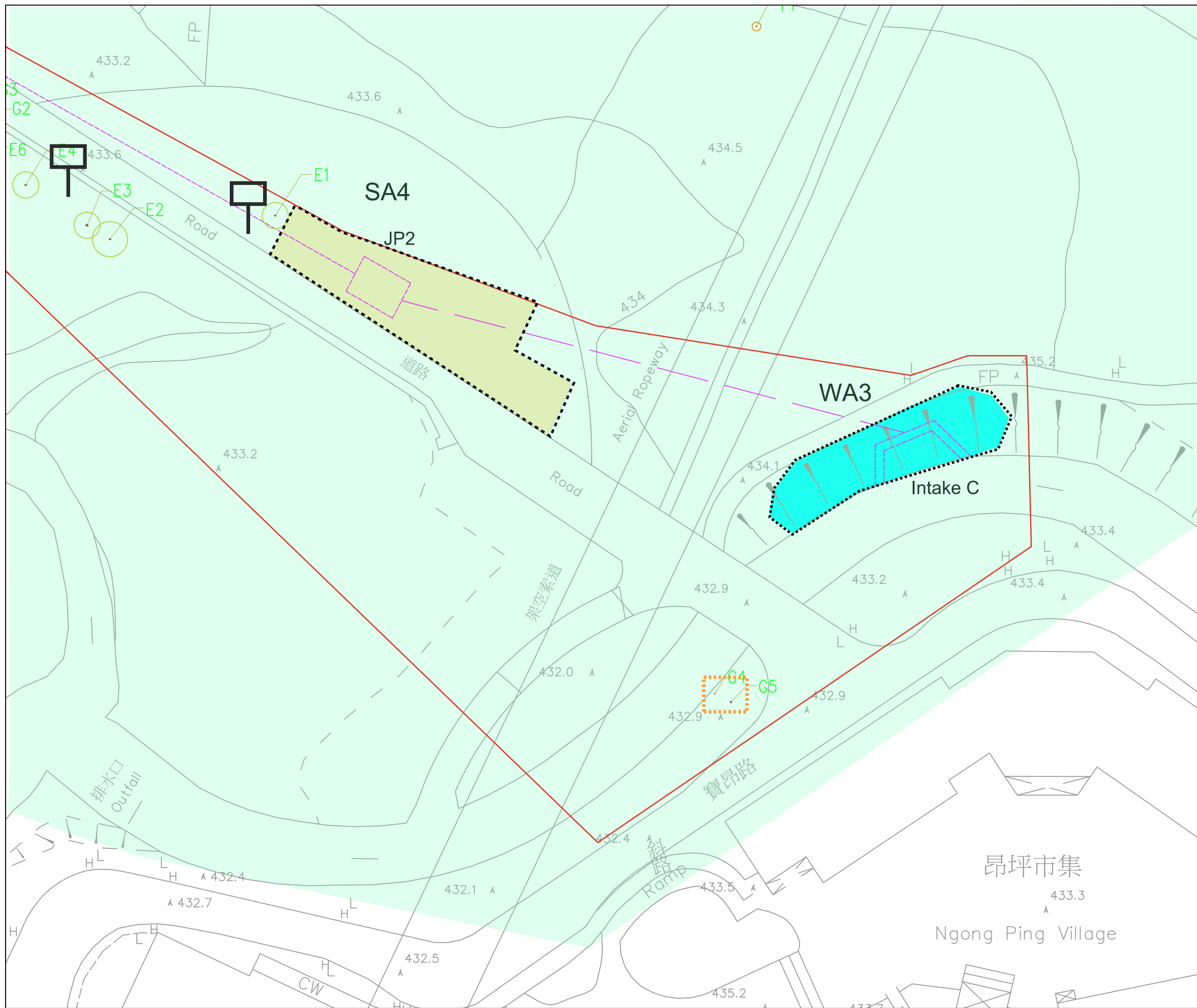
1. MEASUREMENTS ARE BASED ON HONG KONG 1980 METRIC GRID.
2. ALL UNITS ARE IN METRES OR OTHERWISE STATED.
3. BASE MAP SHOWN HEREIN WAS EXTRACTED FROM TOPOGRAPHIC MAP NOS. 9-SE-16C AND 9-SE-21A, LANDS DEPARTMENT.

- LEGEND:
- Project Area
 - Proposed Alignment
 - Proposed Works Area
 - Proposed Stockpiling Area
 - Country Park
 - A1 Species & Species No.
 - 'A' Bulbophyllum ambrosia
 - 'B' Camellia euryoides
 - 'C' Camellia sinensis
 - 'D' Coelogyne fimbriata
 - 'E' Ehretia acuminata
 - 'F' Enkianthus quinqueflorus
 - 'G' Geodorum densiflorum
 - 'H' Gleditsia australis
 - 'I' Rhododendron ferrarae
 - Solid Fence Around Plant Species
 - Warning Sign Post or Label
 - Post Indicating Prohibition of Access
 - Rigid Fence Enclosing Work and Stockpiling Areas
 - Fence at Access Entrance

FIGURE TITLE:
Location of Each Protection Measure
(Sheet 1 of 3)

DATE OF SURVEY 20 October 2020	SCALE AT A3 1:400
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FIGURE NUMBER 1.a	REVISION 2
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KEY PLAN 1:5,000

NOTES :

1. MEASUREMENTS ARE BASED ON HONG KONG 1980 METRIC GRID.
2. ALL UNITS ARE IN METRES OR OTHERWISE STATED.
3. BASE MAP SHOWN HEREIN WAS EXTRACTED FROM TOPOGRAPHIC MAP NOS. 9-SE-16C AND 9-SE-21A, LANDS DEPARTMENT.

- LEGEND:
- Project Area
 - - - Proposed Alignment
 - Proposed Works Area
 - Proposed Stockpiling Area
 - Country Park
 - AI Species & Species No.
 - 'A' *Bulbophyllum ambrosia*
 - 'B' *Camellia euryoides*
 - 'C' *Camellia sinensis*
 - 'D' *Coelogyne fimbriata*
 - 'E' *Ehretia acuminata*
 - 'F' *Enkianthus quinqueflorus*
 - 'G' *Geodorum densiflorum*
 - 'H' *Gleditsia australis*
 - 'I' *Rhododendron farrerae*
 - Solid Fence Around Plant Species
 - Warning Sign Post or Label
 - Rigid Fence Enclosing Work and Stockpiling Areas

FIGURE TITLE:
Location of Each Protection Measure
(Sheet 2 of 3)

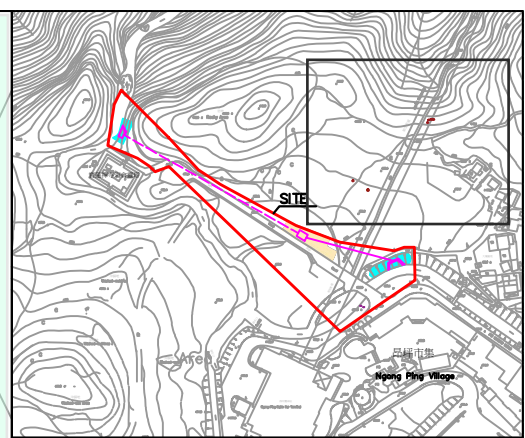
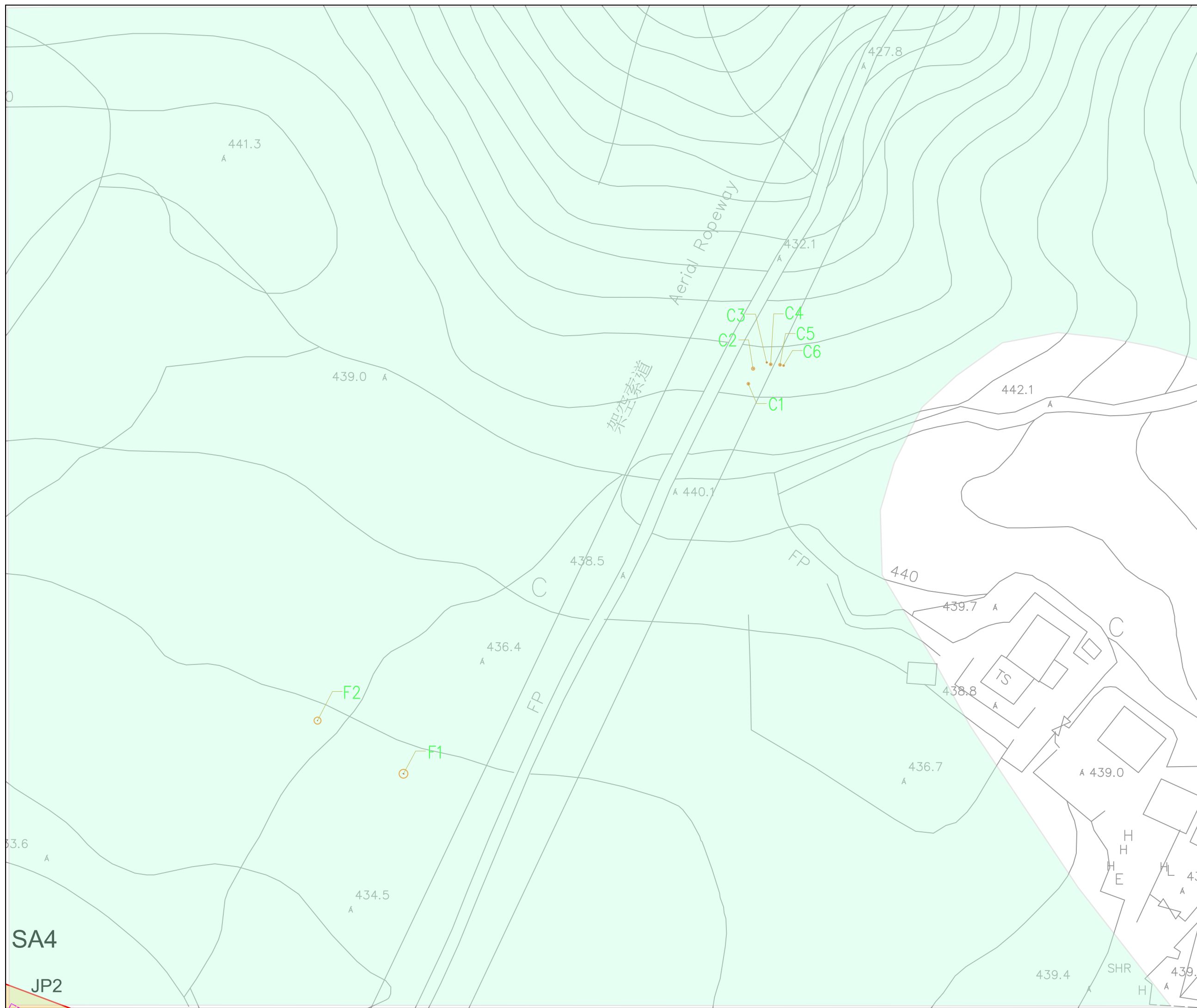
DATE OF SURVEY 20 October 2020	SCALE AT A3 1:400
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FIGURE NUMBER 1.b	REVISION 2
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Drainage Services Department
The Government of the Hong Kong Special Administrative Region





KEY PLAN 1:5,000

NOTES :
 1. MEASUREMENTS ARE BASED ON HONG KONG 1980 METRIC GRID.
 2. ALL UNITS ARE IN METRES OR OTHERWISE STATED.
 3. BASE MAP SHOWN HEREIN WAS EXTRACTED FROM TOPOGRAPHIC MAP NOS. 9-SE-16C AND 9-SE-21A, LANDS DEPARTMENT.

- LEGEND:
- Project Area
 - Proposed Alignment
 - Proposed Works Area
 - Proposed Stockpiling Area
 - Country Park
 - Species & Species No.
 - 'A' Bulbophyllum ambrosia
 - 'B' Camellia euryoides
 - 'C' Camellia sinensis
 - 'D' Coelogyne fimbriata
 - 'E' Ehretia acuminata
 - 'F' Enkianthus quinqueflorus
 - 'G' Geodorum densiflorum
 - 'H' Gleditsia australis
 - 'I' Rhododendron ferrarae
 - Solid Fence Around Plant Species
 - Warning Sign Post or Label
 - Rigid Fence Enclosing Work and Stockpiling Areas

FIGURE TITLE:
 Location of Each Protection Measure
 (Sheet 3 of 3)

DATE OF SURVEY 20 October 2020	SCALE AT A3 1:400
FIGURE NUMBER 1.c	REVISION 2

Drainage Services Department
 The Government of the Hong Kong Special Administrative Region

SA4
 JP2

A.4 Sample Photos of the Protection Measures



Appendix A.4.1: Sample Post Indicating Prohibition of Access



Appendix A.4.2: Sample Photo for Erection of Solid Fencing Around Plant Species



Appendix A.4.3 Sample Solid Fences that can be placed in the Access Entrance (source: https://upload.ecvv.com/upload/Product/201011/China_orange_barrier_fencing_mesh20101121447373.jpg)



Appendix A.4.4: Sample Warning Sign Posts/Label for the Floral Species of Conservation Interest



Appendix A.4.5: Sample Solid/Rigid Fence Enclosing Work and Stockpiling Areas

Appendix B

Environmental Audit Checklist

Contract No. DPW 01/2020 –
 Environmental Team for Drainage Improvement Works at Ngong Ping (DC/2019/06)

Date: _____ Weather: Sunny / Fine / Overcast / Rainy / Hazy Wind: Calm / Light / Breeze / Strong
 Time: _____ Temperature: _____ °C Humidity: High / Moderate / Low

Monthly Environmental Site Audit for Floral Protection Measures

Observations/ Reminders/ Recommendations / Follow-up:

Follow-up of previous observation(s)

Observation(s)

Protection Measures	Location	Actions to be Taken			Remarks
		Retain	Replace	Repair	
Post Indicating Prohibition of Access					
1					
2					
Solid Fencing Around Plant Species					
1					
2					

Solid Fencing at Access Entrance					
1					
2					
3					
4					
Warning Signposts/Labels					
1					
2					
3					
4					

Reminder(s)

Name

Signature

Date

**Inspected by
Representative from ET:**

**Acknowledged by
representatives of the ER:**

Agreed with Main Contractor:

Checked by IEC:

Photo Record (dd/mm/yyyy)

<p>NIL</p>	<p>NIL</p>
<p>NIL</p>	<p>NIL</p>
<p>NIL</p>	<p>NIL</p>

No.	Environmental Protection Measures (Construction Phase) ⁽¹⁾	Location & (Implementation Agent)	Yes (✓), No (×) N/A, N/O	Remark(s)
Floral Protection Plan				
	<p>Based upon the findings of the "Updated Baseline Vegetation Survey", a "Floral Protection Plan" for each species in the pre-construction phase shall be prepared for submission at least one month in advance of the works commencing to specifically define the protection measures required in each case. The possible measures for in-situ preservation include:</p> <ul style="list-style-type: none"> ■ Restricting access to the floral species of conservation interest by mean of fencing, railing or temporary barriers. Enclosing or bunding of the species shall be considered as the last resort. ■ Restricting the works activities to within designated works area by mean of fencing, railing or temporary barrier; and ■ Controlling site-runoff if the species are located downstream of works area. <p>It is recommended that solid fencing be erected at the access entrance to the flora species to be protected before the commencement of works to prevent vehicle movements and encroachment of personnel into adjacent areas where these species are located. All the proposed in-situ preservation measures shall be audited by the ET at least monthly to ensure that the approved "Floral Protection Plan" is properly implemented and that damage does not occur to the flora being protected and, also, the surrounding environment. Environmental briefing/training sessions should be provided and scheduled for site staff to raise their awareness on environmental protection. The ET ecologist(s) shall seek the Engineer, IEC, EPD and AFCD approval on the "Floral Protection Plan" prior to implementing the recommendations</p>	Works Section 6 (Main Contractor)		

Note:

(1) Detailed EIA report and EM&A Manual reference refer to the Appendix A of approved EM&A Manual.

N/A: Not Available, N/O: Not Observed.