

Our Ref. : T4/(ED/2022/02)/M45/220/B00504

10 January 2025

By Post

Environmental Protection Department
Environmental Assessment Division
Territory South Group
27th Floor, Southern Centre,
130 Hennessy Road,
Wan Chai, Hong Kong

Dear Sir / Madam,

Environmental Permit No. EP-593/2021
Revised Trunk Road T4 in Sha Tin

Contract No. ED/2022/02
Trunk Road T4 and Associated Works

EP Condition 2.21 (i) – Detailed Vegetation Survey Report (DVSr) (Package 1) (Ver. 1.2)

Further to your comments, provided on 6 January 2025 via email, on my previous submission ref. T4/(ED/2022/02)/M45/220/B00487 dated 3 January 2025, I hereby submit the following document on behalf of the Permit Holder, CEDD, of the captioned EP for your approval:

1. Detailed Vegetation Survey Report (DVSr) (Package 1) (Ver. 1.2): 4 hard copies and 1 electronic copy of the DVSr for Contract No. ED/2022/02 certified by the ET Leader and verified by the IEC.

Should you have any enquiries, please feel free to contact my Senior Resident Engineer Mr. Kelvin Leung at tel. 3844 7321.

Yours faithfully,



Jackie Ng
Project Manager's delegate
AECOM Asia Co. Ltd.

Encl.

c.c. CE/E1, EDO/CEDD	- Attn.: Mr. Horace CK Ng	} w/ encl. (1 set of soft copies only)
The Project Manager, AECOM	- Attn.: Mr. Ivan Tsang	} w/ encl. (1 set of soft copies only)
Cinotech, ET	- Attn.: Mr. K. S. Lee	} w/ encl. (1 set of soft copies only)
Lam, IEC	- Attn.: Ms. Serena Shek	} w/ encl. (1 set of soft copies only)
CRBC-Build King JV	- Attn.: Mr. Dickey Yau	} w/ encl. (1 set of soft copies only)

JCWN/KSLL/HWHC/nmhc



Our ref.: LES/J2024-08/CS/L020
Date : 10 January 2025

By Email

Civil Engineering and Development Department
8/F, South Tower,
West Kowloon Government Offices
11 Hoi Ting Road, Yau Mei Tei,
Kowloon, Hong Kong

Attn: Mr. NG Chou Keen, Horace (Ch Engr / E1)

Dear Sir,

Agreement No. EDO 11/2023
Trunk Road T4 and Associated Works – Independent Environmental Checker
Detailed Vegetation Survey Report (DVSR) (Package 1)

Reference is made to the Detailed Vegetation Survey Report (Package 1) (version: 1.2) prepared by qualified ecologist and certified by the ET Leader. We hereby verify the captioned for submission in accordance with the approved EIA Report (Register No. AEIAR-231/2021) under Condition 2.21(i) of Environmental Permit No.: EP-593/2021 of the Project.

Yours faithfully,
For and On Behalf Of
Lam Environmental Services Limited

Serena Shek
Independent Environmental Checker

c.c.:	AECOM	Mr. Stephen GO	By Email
	AECOM	Mr. Howard Chong	By Email
	Cinotech Consultants Limited	Mt. KS Lee	By Email

Our Ref: MA24127/Corres/Out/kc250110

Civil Engineering and Development Department
East Development Office
East Division 1
8/F, South Tower, West Kowloon Government Offices,
11 Hoi Ting Road,
Yau Ma Tei, Kowloon

By E-Mail

10th January 2025

Attn: Mr. NG Chou Keen, Horace

Dear Mr. Ng,

Service Contract No. EDO 10/2024
Environmental Team for Trunk Road T4 and Associated Works
Works Contract No. ED/2022/02 Trunk Road T4 and Associated Works
Environmental Permit (EP) No. EP-593/2021
Conditions 2.21-Certification of Detailed Vegetation Survey Report (Package 1) (v1.2)

We refer to the Detailed Vegetation Survey Report (Package 1) (v1.2), prepared by the appointed Qualified Ecologist, dated 9th January 2025, for the captioned Project.

We have no further comment on the report and I hereby certify it in accordance with the titled EP Condition.

Should you have any queries, please contact our Ms. Karina Chan at 2157 3880 or the undersigned at 2151 2091.

Yours faithfully,
Cinotech Consultants Limited



Mr. KS Lee
Environmental Team Leader

c.c.

AECOM

AECOM

Lam Environmental Services Limited

Mr. Stephen Go

Mr. Howard Chong

Ms. Serena Shek

By E-mail

By E-mail

By E-mail

Civil Engineering and Development Department

Contract No. ED/2022/02
Trunk Road T4 and Associated Works
Detailed Vegetation Survey Report
(Package 1)
(Version 1.2)

Prepared By



(Qualified Ecologist: Ms. Betty Choi)

REMARKS:

The information supplied and contained within this report is, to the best of our knowledge, correct at the time of printing.

CINOTECH accepts no responsibility for changes made to this report by third parties

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1 INTRODUCTION

Background

- 1.1 The proposed Revised Trunk Road T4 is part of the strategic road network connecting Sha Tin Road with Tsing Sha Highway (TSH) and Shing Mun Tunnel Road (SMTR). The Project, as a strategic route, would serve as a bypass route providing a direct connection for through traffic between Ma On Shan area and Tsuen Wan / West Kowloon areas without the need of travelling along the existing major roads in Sha Tin Central, for example, Tai Po Road (Sha Tin Section) (TPR-ST), Tai Chung Kiu Road, etc., which are already very busy especially in peak hours. The Project will not only help to relieve traffic congestion on TPR-ST and other major roads in Sha Tin area but also improve the capacity of major local road junctions by directing traffic between Ma On Shan area and Tsuen Wan / West Kowloon areas away from the local road network.
- 1.2 An Environmental Impact Assessment (EIA) study for the Project was conducted in accordance with the EIA Study Brief No. ESB-315/2019 (hereafter referred as “approved EIA”). The EIA Report and Environmental Monitoring and Audit (EM&A) Manual (Register No.: AEIAR-231/2022) were approved under the Environmental Impact Assessment Ordinance (EIAO), with an Environmental Permit (EP) granted on 08 November 2021 (EP No: EP-593/2021) to the Civil Engineering and Development Department (CEDD) to construct and operate the designated project for “Revised Trunk Road T4” (“The Project”).
- 1.3 The Project provide a direct connection for through traffic between Ma On Shan area and Tsuen Wan / West Kowloon areas bypassing the busy at-grade road network of Sha Tin Central. As per the approved EIA, the construction of the Project alignment would result in loss of terrestrial habitats and associated vegetation, including flora species of conservation importance such as *Ailanthus* (*Ailanthus fordii*) and *Butulang Canthium* (*Canthium dicoccum*). Mitigation measures suggested in the approved EIA includes deployment of qualified ecologist/botanist to conduct tree/vegetation surveys to identify any individuals of flora species of conservation importance located within or near the Project footprint prior to site clearance, and recommendation of proper protective measures, transplantation plan and subsequence monitoring programme.
- 1.4 Pursuant to Conditions 2.21 of EP-593/2021, a detailed vegetation survey report (DVSR) is required to present the methodology as well as survey results, including the updated conditions, number and locations of the individuals of flora species of conservation importance identified within the works boundary confirming whether any individuals of these species would be directly affected by the proposed works, recommending protective measures for identified individuals of each species where in situ preservation is feasible, and assessing the suitability and/or practicality of the transplantation of those individuals to be directly affected. The DVSR would be submitted to the Director of Environmental Protection (DEP) for approval no later than one month prior to commencement of site clearance works.

Construction Work Scope and Programme

- 1.5 Site clearance works of all the area within site boundary except the southern side of Sha Tin Road (Package 1) are tentatively scheduled to commence on 16 January 2025 (Figure 1 refers). In Package 1, the construction work scope is as follows:
- (a) construction of single/two lane viaducts of a total length of 1.4 km, connecting the flyovers to Tsing Sha Highway, Shing Mun Tunnel Road, Lion Rock Tunnel Road and Sha Tin Road, including a section of about 150 m long viaduct across Shing Mun River Channel;
 - (b) construction of dual 2-lane depressed roads and underpass of about 0.6 km partly under and partly adjacent to Lion Rock Tunnel Road near Sha Tin Tau Village;
 - (c) construction of a slip road of about 300 m near Tsang Tai Uk connecting Lion Rock Tunnel Road and Sha Tin Road;
 - (d) construction of a slip road of about 80 m near The Riverpark connecting the depressed road and Lion Rock Tunnel Road across Shing Mun River Channel;
 - (e) widening of about 150 m of Sha Tin Road near Pok Hong Estate from dual 2-lanes to dual 4-lanes;
 - (f) construction of a pedestrian footbridge across Shing Mun River Channel near the Hong Kong Heritage Museum and The Riverpark;
 - (g) construction of an elevated walkway over the depressed roads near Sha Tin Tau Village connecting to the existing subway under Lion Rock Tunnel Road;
 - (h) demolition of the existing subway across Che Kung Miu Road near its junction with Lion Rock Tunnel Road, and construction of a footbridge with lifts and staircases near this existing subway;
 - (i) demolition of the existing pedestrian cum cyclist subway across Lion Road Tunnel Road near The Riverpark, and construction of a pedestrian cum cyclist footbridge with ramp and staircases;
 - (j) installation of noise barriers/enclosures, and associated road, street furniture, traffic aids, sign gantry, traffic control & surveillance system drainage, sewerage, water, utilities, lighting, electrical and mechanical works, geotechnical and landscaping works; and
 - (k) construction/reconstruction of retaining walls, slope improvement, mitigation works for natural terrain hazard near Shing Mun Tunnel Road (northern area).
- 1.6 The site clearance within the Package 2 area will commence 1 month after submission of the DVSR for Package 2 to EPD for approval. The construction works within the Package 2 area would be commenced not earlier than 2027 Q3 (according to the latest approved programme), and the construction works would only involve construction/reconstruction of retaining walls, slope improvement, mitigation works for natural terrain hazard near Shing Mun Tunnel Road (southern area) and within Lion Rock Country Park.

Justification for Packaging

- 1.7 As per the approved EIA for T4, it is noted that numbers of flora species of conservation importance (CI) was recorded in the Package 2 area, in particular the natural terrain above the existing slopes features to be affected. As vegetation composition may change overtime due to adverse weather, natural death or new recruitment, a detailed vegetation survey at the Package 2 area should be conducted not long before site clearance in early 2027 to obtain up-to-date ecological baseline on the presence of flora species of CI, and

to recommend proper mitigation measures accordingly. Site clearance work in the Package 1 area will not encroach into the Package 2 area due to physical separation by 25m-wide Sha Tin Road with heavy traffic.

- 1.8 As the EIA expected loss of flora species of CI, the aim of conducting a detailed vegetation survey at potentially impacted areas prior to site clearance is to confirm the condition of CI within the works area so that effective implementation of suitable mitigation measures (e.g. preserve in-situ, transplantation) can be formulated for the identified plant. The survey in the Package 2 area is to facilitate adjustment of the footprint of slope stabilization work (e.g. anchors and footing) to avoid/minimize impacts on trees and vegetation as far as possible. As the slope work is still under design, the impact on any CI recorded cannot be confirmed at this stage. The overall ecological impact due to site formation and construction on loss of habitats (including the whole slope at the south of Sha Tin Road) was assessed to be minor in the EIA as the affected areas are relatively small and highly disturbed. As the target of the vegetation survey is on individual plant instead of habitat, it is justifiable to separate surveys in different areas depending on the construction programme.

Report Aim

- 1.9 This Detailed Vegetation Survey Report will cover the survey results for Package 1.

2 METHODOLOGY

Findings in EIA Report

- 2.1 The detailed vegetation project boundary required under the Project is shown in **Figure 1**. With reference to Figures 8.2.1, 8.2.2 and 8.2.3 of the EIA Report, four flora species of conservation importance were found within or in the proximity to the project boundary of Package 1 (**Table 2-1**).

Table 2-1 Flora Species of Conservation Importance Found within or near Project Boundary of Package 1 in the EIA

Chinese Name (Species Name)	Distribution in Hong Kong#	Observations in Appendix 8.2 of the EIA	Conservation Statuses
土沉香 Incense Tree (<i>Aquilaria sinensis</i>)	Common	<ul style="list-style-type: none"> Woodland Mixed Woodland Plantation Developed Area 	<ul style="list-style-type: none"> Protected under Protection of Endangered Species of Animals and Plants Ordinance (Cap.586); Status in China: Near Threatened; Listed in Wild Plants under State Protection: Category II; China Plant Red Data Book: Vulnerable; IUCN Red List: Vulnerable; Rare and Endangered Plants and National Key Protected Plants in Guangdong: Near Threatened
魚骨木 Butulang Canthium (<i>Canthium dicoccum</i>)	Common	<ul style="list-style-type: none"> Woodland Mixed Woodland Plantation Developed Area 	<ul style="list-style-type: none"> Listed as "Vulnerable" by the IUCN Red List
常綠臭椿 Ailanthus (<i>Ailanthus fordii</i>)	Rare	<ul style="list-style-type: none"> Plantation 	<ul style="list-style-type: none"> Threatened Species List of China's Higher Plants: Near Threatened Protected under the Forests and Countryside Ordinance (Cap. 96)
香港大沙葉 Hong Kong Pavetta (<i>Pavetta hongkongensis</i>)	Common	<ul style="list-style-type: none"> Woodland Mixed Woodland 	<ul style="list-style-type: none"> Protected under the Forests and Countryside Ordinance (Cap. 96)

Corlett, R., Xing, F., Ng, S. C., Chau, L., Wong, L. (2000). Hong Kong Vascular Plants: Distribution and Status. Memoirs of the Hong Kong Natural History Society. 23:1-3.

Survey Requirement

- 2.2 This DVSR provides the methodology for the detailed vegetation survey as well as survey results, including the updated conditions, number and locations of the individuals of flora species of conservation importance identified within the works boundary, if any, and confirming whether any individuals of these species would be directly affected by the proposed works. In case any flora species of conservation importance is identified during

the survey, proper protective measures would be recommended for identified individuals of each species where in situ preservation is feasible. For those individuals to be directly affected, the suitability and/or practicality of transplantation would be assessed and submitted to the DEP for approval.

- 2.3 Definition of “species of conservation importance” follows the Technical Memorandum of Environmental Impact Assessment Ordinance (EIAO-TM) Annex 16: Guidelines for Ecological Assessment, criteria related to plants include:

1. listed in IUCN Red Data Books or those of the South China region;
2. listed in international conventions for conservation of wildlife;
3. endemic to Hong Kong or South China;
4. listed under local legislation :
 - (1) Forestry Regulation (under Forests and Countryside Ordinance Cap. 96);
 - (2) Protection of Endangered Species of Animals and Plants Ordinance (Cap. 586);
 - (3) Other relevant Ordinances or Regulations such as Marine Parks and Marine Reserves Regulation (under Marine Parks Ordinance Cap. 476);
(References shall also be made to species protected by legislation in China, especially the Guangdong Province.)
5. considered as rare in the territory or having special conservation importance by scientific studies other than those listed above.

Survey Method and Equipment

- 2.4 Detailed vegetation surveys were conducted during November 2024 by active searching for flora species of conservation importance such as Ailanthus, Butulang Canthium and Incense Tree. The surveyed area is indicated in **Figure 1**. Should any flora species of conservation importance be encountered during the detailed vegetation survey, their number, locations and condition were also recorded. Proper protective measures and / or transplantation for identified individuals of each species shall be recommended.

Personnel

- 2.5 The detailed vegetation survey was carried out by a qualified ecologist of the first ET (AECOM) and this report was prepared by a qualified ecologist of the current ET (Cinotech). Both ecologists have more than 5 years of relevant experience in accordance with Condition 2.21 of the EP. The qualifications of the qualified ecologists have been certified by Environmental Team (ET) Leaders and verified by the Independent Environmental Checkers as conforming to the information and recommendations contained in the approved EIA Report.

3 SURVEY RESULT

- 3.1 Four flora species of conservation importance (*Aquilaria sinensis*, *Ailanthus fordii*, *Canthium dicoccum* and *Pavetta hongkongensis*) were recorded during the current vegetation survey within the Package 1 project boundary.
- 3.2 A total of 51 plants of conservation importance were recorded during the current vegetation survey, including 24 individuals of Incense Tree *Aquilaria sinensis*, 17 individuals of Butulang Canthium *Canthium dicoccum*, 2 individuals of Ailanthus *Ailanthus fordii*, and 8 individuals of Hong Kong Pavetta *Pavetta hongkongensis*.
- 3.3 The number and location of the plants of conservation importance recorded during the current vegetation survey are illustrated in **Figure 2a-2f**. Updated conditions of the plants of conservation importance recorded are shown in **Appendix A**.

Summary

- 3.4 The following table summarized the current findings:

Table 3-1 Flora Species of Conservation Importance Found within Package 1 Project Boundary in the Current Study

Chinese Name (Species Name)	Distribution in Hong Kong #@	Conservation Statuses	Observation in EIA	No. of Individuals observed within Package 1 Project Boundary in Current Study
土沉香 Incense Tree (<i>Aquilaria sinensis</i>)	Common	<ul style="list-style-type: none"> Protected under Protection of Endangered Species of Animals and Plants Ordinance (Cap.586); Status in China: Near Threatened; Listed in Wild Plants under State Protection: Category II; China Plant Red Data Book: Vulnerable; IUCN Red List: Vulnerable; Rare and Endangered Plants and National Key Protected Plants in Guangdong: Near Threatened 	Found in: <ul style="list-style-type: none"> Woodland Mixed Woodland Plantation Developed Area 	24
魚骨木 Butulang Canthium (<i>Canthium dicoccum</i>)	Common	<ul style="list-style-type: none"> Listed as "Vulnerable" by the IUCN Red List 	Found in: <ul style="list-style-type: none"> Woodland Mixed Woodland Plantation Developed Area 	17

Chinese Name (Species Name)	Distribution in Hong Kong #@	Conservation Statuses	Observation in EIA	No. of Individuals observed within Package 1 Project Boundary in Current Study
常綠臭椿 Ailanthus (<i>Ailanthus fordii</i>)	Rare	<ul style="list-style-type: none"> Threatened Species List of China's Higher Plants: Near Threatened Protected under the Forests and Countryside Ordinance (Cap. 96) 	n/a	2
香港大沙葉 Hong Kong Pavetta (<i>Pavetta hongkongensis</i>)	Common	<ul style="list-style-type: none"> Protected under the Forests and Countryside Ordinance (Cap. 96) 	Found in: <ul style="list-style-type: none"> Woodland Mixed Woodland 	8

Corlett, R., Xing, F., Ng, S. C., Chau, L., Wong, L. (2000). Hong Kong Vascular Plants: Distribution and Status. Memoirs of the Hong Kong Natural History Society, 23:1-3.

@ Pang K.S., Yip J.K.L., Lai P.C.C.. (2011) A Review of the Status of the IUCN Red List of Threatened Plants in Hong Kong. Hong Kong Biodiversity Issue No. 20. AFCD.

4 IMPACT ASSESSMENT AND RECOMMENDATIONS

Impact Assessment

- 4.1 The Package 1 works area required under the Project covers areas with both road and slope works and temporary storage areas. Vegetation clearance will be carried out within the works area, while vegetation outside the works area will be preserved. The following table summarizes the impact on flora species of conservation importance recorded during the detailed vegetation survey.

Table 4-1 Flora Species of Conservation Importance affected by the Project

Chinese Name (Species Name)	No. of Individuals <u>outside</u> Works Area to be Retained	No. of Individuals <u>within</u> Works Area affected by the Project
土沉香 Incense Tree (<i>Aquilaria sinensis</i>)	17	7
魚骨木 Butulang Canthium (<i>Canthium dicoccum</i>)	4	13
常綠臭椿 Ailanthus (<i>Ailanthus fordii</i>)	-	2
香港大沙葉 Hong Kong Pavetta (<i>Pavetta hongkongensis</i>)	8	-

- 4.2 Details of the survey result and the assessment of the plants of conservation importance recorded during current vegetation survey are shown in **Appendix A**.

Recommendations

Avoidance

- 4.3 While the design of the slope works has yet been finalized, the vegetation survey was assigned to cover all potentially affected areas within project boundary. The works area has been refined in accordance with the latest design and survey works to minimize vegetation clearance coverage and to avoid flora species of conservation importance as far as possible. The location of the retained plants outside of works area is shown in **Figure 2a-2f**. A total of 29 plants of conservation importance are proposed to be retained (**Figure 2a**). As all vegetation (including those of conservation importance) outside the works area will be preserved, a robust, bright-coloured fencing of 1.5m in height or hoarding should be erected around works area to remind workers not to trespass before site clearance (bullet 2 of **Section 4.8**). Individual tree protection zone for plant species of conservation importance is not proposed.

Minimization

4.4 Plants that fall within the works area are prone to damage during site clearance. If impact on the flora species of conservation importance cannot be avoided, the suitability and /or practicality of transplantation will be assessed according to Condition 2.21(i) of the EP. Considerations include health condition, site condition, transplantation feasibility, conservation value and availability of receptor site. With reference to the *Guidelines on Tree Transplanting* issued by the Development Bureau, the suitability of transplantation of affected individuals was reviewed based on the following considerations:

- **Health, form and structural condition** – Healthy individual has higher chance to survive the transplant shock and recover after transplantation. Plants with poor form or structure (e.g. inclining, multiple trunk) have imbalanced shape that is difficult to grow well in new environment. Therefore, only healthy individuals with good to fair form and structural conditions will be considered for transplantation.
- **Formation of root ball** – A balanced root ball of suitable size is essential to support the transplanted plant and to re-grow for water and nutrient absorption. In general, the ratio between root ball diameter:trunk diameter is 8:1 to 10:1. Also, plants growing on steep slope develop roots that adapt to the existing gradient. If there is hindrance in the root growing direction (e.g. rocks and concrete structure), the root ball will be in unbalanced form and hard to support the plant in new environment. Mature plant needs larger root ball, implying that higher chance of imbalanced root ball formation on the sloped environment. Therefore, transplantation of herbs and young trees is recommended.
- **Site remoteness, accessibility, technical feasibility and cost effectiveness** – Unless the plant is located near road network, mobilization of powered mechanical equipment on the slope for large tree transplant is technical impractical and not cost-effective. In addition, there is safety concern for working in location with steep topography.
- **Conservation value** – While all plants considered in this proposal have certain conservation statuses, the commonness of the species in Hong Kong should be considered in evaluating the impact of removing the affected plant in a wider perspective (population survival).
- **Availability of Suitable Receptor Site** – Areas within the project boundary but outside the works area will be the receptor site of the affected plants. Habitat similar to the existing growing environment will be chosen to enhance the survival rate after transplant.

4.5 Based on the above, healthy plants with good to fair Form and Health conditions, high to medium Amenity Value and Tree Survival Rate after Transplanting, were recommended to be transplanted. A total of 6 individuals of *Aquilaria sinensis* (CI-22 to 27) which were rated as having fair Form and Health, high Amenity Value and Medium Survival Rate after Transplanting, were recommended to be transplanted. These 6 plants are found on flat planting area and can be easily accessed as they are located next to Man Lam Road.

- 4.6 A total of 16 plants (CI-01 to 15, 28) are recommended to be felled. Although some of the plants have good Health and Form conditions, they are growing on slopes or next to concrete structures which make formation of a good root ball difficult, therefore hard to be transplanted. 1 *Aquilaria sinensis* (CI-28) is found on flat ground. However, it is rated as having poor Form and Health conditions and low survival rate after transplanted and therefore is recommended to be felled.

Compensation

- 4.7 The potential of compensatory planting for the 16 plants of conservation importance recorded during current vegetation survey that cannot be transplanted is reviewed and explained in a separate Plant Preservation and Transplantation Proposal. For any plant species of conservation importance felled, compensatory planting of the same species by the same quantity lost is proposed. The planting location will also be indicated in the Plant Preservation and Transplantation Proposal.

Table 4-2 Summary of Recommendations

Common Name	Species Name	Total (in Project Boundary)	Recommendations		
			Retain	Transplant	Fell
土沉香 Incense Tree	<i>Aquilaria sinensis</i>	24	17	6	1
魚骨木 Butulang Canthium	<i>Canthium dicoccum</i>	17	4	0	13
常綠臭椿 Ailanthus	<i>Ailanthus fordii</i>	2	0	0	2
香港大沙葉 Hong Kong Pavetta	<i>Pavetta hongkongensis</i>	8	8	0	0
Total		51	29	6	16

Protective Measures

- 4.8 The following guidelines should be followed to protect retained trees and flora species of conservation importance within and in the vicinity of the work area:

Prior to Site Clearance

- Trees/flora species of conservation importance within project boundary should be clearly marked on site with a tag, preferably by printed numbers consistent with the Tree Survey Report and Detailed Vegetation Survey Report for the Project. A location plan with the tagged numbers should be available for the Contractor.
- All vegetation, including those of conservation importance, outside the works area shall be preserved onsite. Therefore, the works area should be clearly demarcated with bright-coloured fencing of 1.5m in height or hoarding to remind workers not to trespass to the area to be preserved. The works area is shown in **Figures 2a-2f**.
- The Contractor must be aware which trees/plants are to be transplanted/felled inside the works area.

During Construction

- The construction works should be overseen by a resident site supervisor to ensure that the preservation measures are implemented and effective.
- All works should be confined within the works area.
- Access of site staff should be controlled to avoid damage to the vegetation outside the works area.
- Equipment or stockpile should be placed in the existing disturbed / urbanized land within the works area of the Project to minimize disturbance to vegetated areas.
- As a general rule the majority of a tree's roots lies within an area just greater than the spread of its crown and are at a depth of approximately 600mm. This may be less on heavy soils and greater on drier soils. Therefore, the following precautions should be undertaken in order to prevent damage to the trunks, roots and crowns of trees during constructions.
- Heavy equipment, supplies, ditches and underground utility lines should be placed within works area only.
- Care should be taken to prevent trees/plants outside the works area from being damaged by mechanical equipment both during site clearance works and construction works.
- No fixings should be driven into trees/plants.
- No workshop, canteens, or similar should be installed beneath trees/plants, nor will equipment maintenance etc. be carried out under trees/plants.
- No excavation, including that for services or changes in ground level will take place within the spread of the crown of the trees/plants.
- No change of ground level around preserved trees/plants is permitted.
- No soil, debris or construction materials should be deposited around and against the trunk of a tree/plant as this causes bark damage and compaction of the soil.
- No fire should be lit below the branches and no petrol, oil or caustic substances stored near the trees/plants.
- No trees/plants should be used for anchoring or winching purposes or for the display of signs.
- Regular inspection should be conducted to ensure the integrity of the protection zone and the plant condition.
- If trees are wounded or stressed during construction, they are more susceptible to insect and disease attack. Any wounds to the bark should be cleaned to sound wood by removing loose bark and wood, leaving a smooth edge around the wound. No application of a wound dressing is necessary.

Review of Residual Ecological Impacts

4.9 Although flora species of conservation importance will be affected by the project, mitigation measures have been proposed to minimize the impact based on the hierarchy in EIAO-TM Annex 16:

- Avoidance, by reducing works area to minimum
(The survey area was designed to cover all potential works area. The extent of works area was reviewed and reduced to light-blue-hatched area shown in **Figures 2a-2f** based on the actual site condition with an aim to avoid the impact on the flora species as far as possible.)

- Minimization, by transplanting individuals of high survival rate (6 *Aquilaria sinensis*)
- Compensation, by planting felled flora species of conservation importance of the same species in at least 1:1 ratio in terms of quantity

4.10 These measures will minimize the loss of flora species of conservation importance. Together with the fact that all species identified are common in Hong Kong, no adverse residual ecological impacts are expected from the Project with the proper implementation of mitigation measures.

Implementation Schedule

Table 4-3 Implementation Schedule of Mitigation Measures

Recommended Mitigation Measures	Who to implement the measure?	Location of the measure	When to implement the measure?	Environmental performance
In-situ preservation of flora species of conservation importance (Sections 4.8)	Contractors	Outside works area (Figure 2a-2f refers)	During construction phase	Survival of flora species of conservation importance
Transplanting of flora species of conservation importance	Contractors	From existing location (Figure 2d refers) to proposed receptor sites for transplantation*	Before site clearance	Survival of flora species of conservation importance
Compensatory planting for the loss of flora species of conservation importance	Contractors	Proposed receptor sites for compensatory planting*	During construction phase	Survival of flora species of conservation importance

* Plant Preservation and Transplantation Proposal refers

5 CONCLUSION

- 5.1 Four flora species of conservation importance were recorded within the project boundary. For individuals located outside works area, robust and bright-coloured fencing of 1.5m in height should be erected at the edge of the works area to remind workers not to trespass before site clearance. All identified individuals should be labelled. In case of unavoidable loss, mitigation measures such as transplantation should be implemented to minimise impact.
- 5.2 The works area has been refined to minimize vegetation clearance coverage and to avoid species of conservation importance as far as possible. Plants outside the works area shall be preserved and protected on-site, which include 17 individuals of *Aquilaria sinensis*, 4 individuals of *Canthium dicoccum*, and 8 individuals of *Pavetta hongkongensis*.
- 5.3 Plants that are prone to removal due to vegetation clearance will be transplanted as far as possible, which include 6 individuals of *Aquilaria sinensis*.
- 5.4 Compensatory planting is proposed to minimize the loss of 2 individuals of *Ailanthus fordii*, 13 individuals of *Canthium dicoccum* and 1 individual of *Aquilaria sinensis*. The above measures will minimize the loss of flora species of conservation importance. Together with the fact that most species identified are common in Hong Kong, no adverse residual ecological impacts are expected from the Project with the proper implementation of mitigation measures which concurs with the findings and recommendations from the approved EIA for the Project.

FIGURES

[illegible]STATISTICS

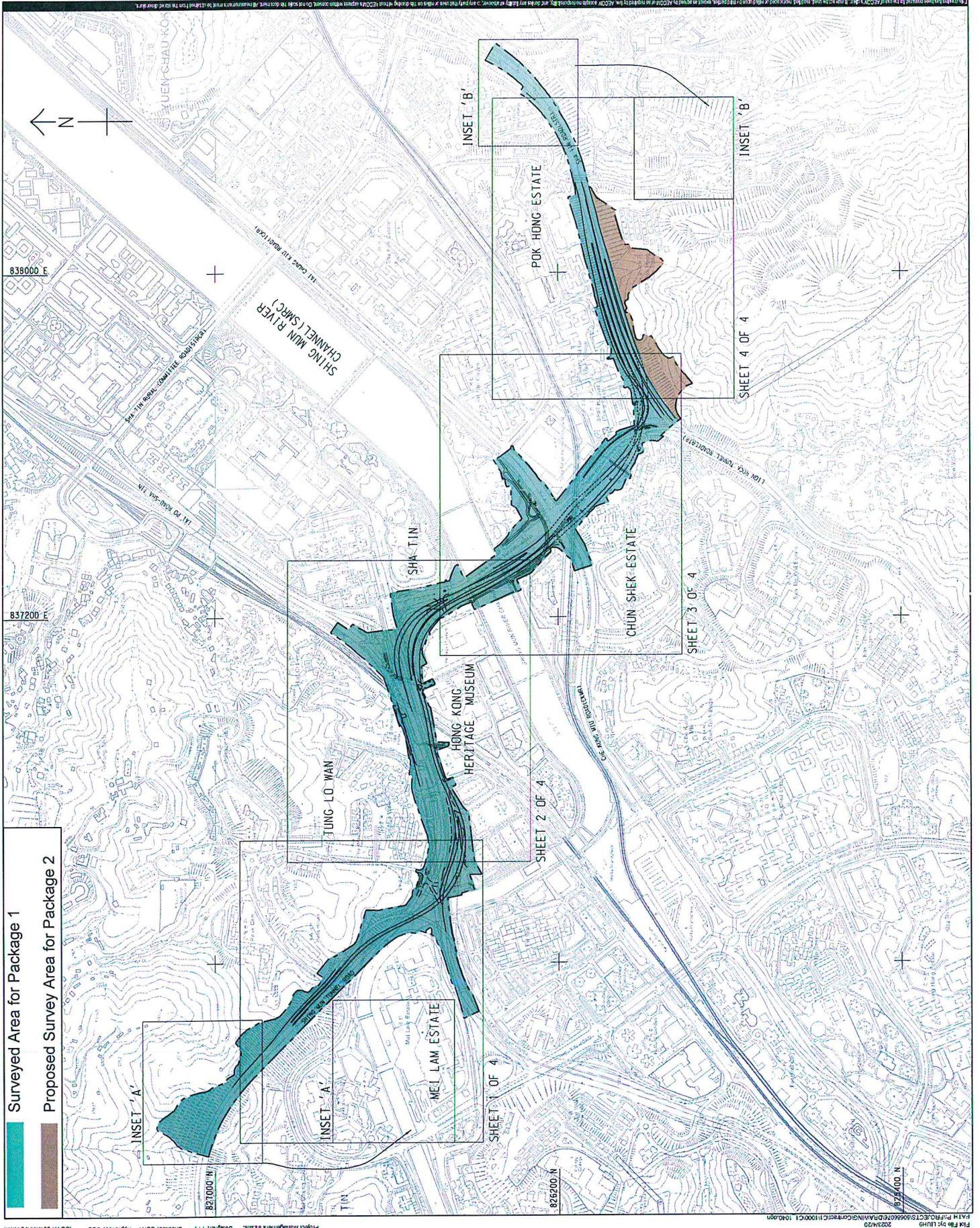
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A1 1 : 4000	METRES

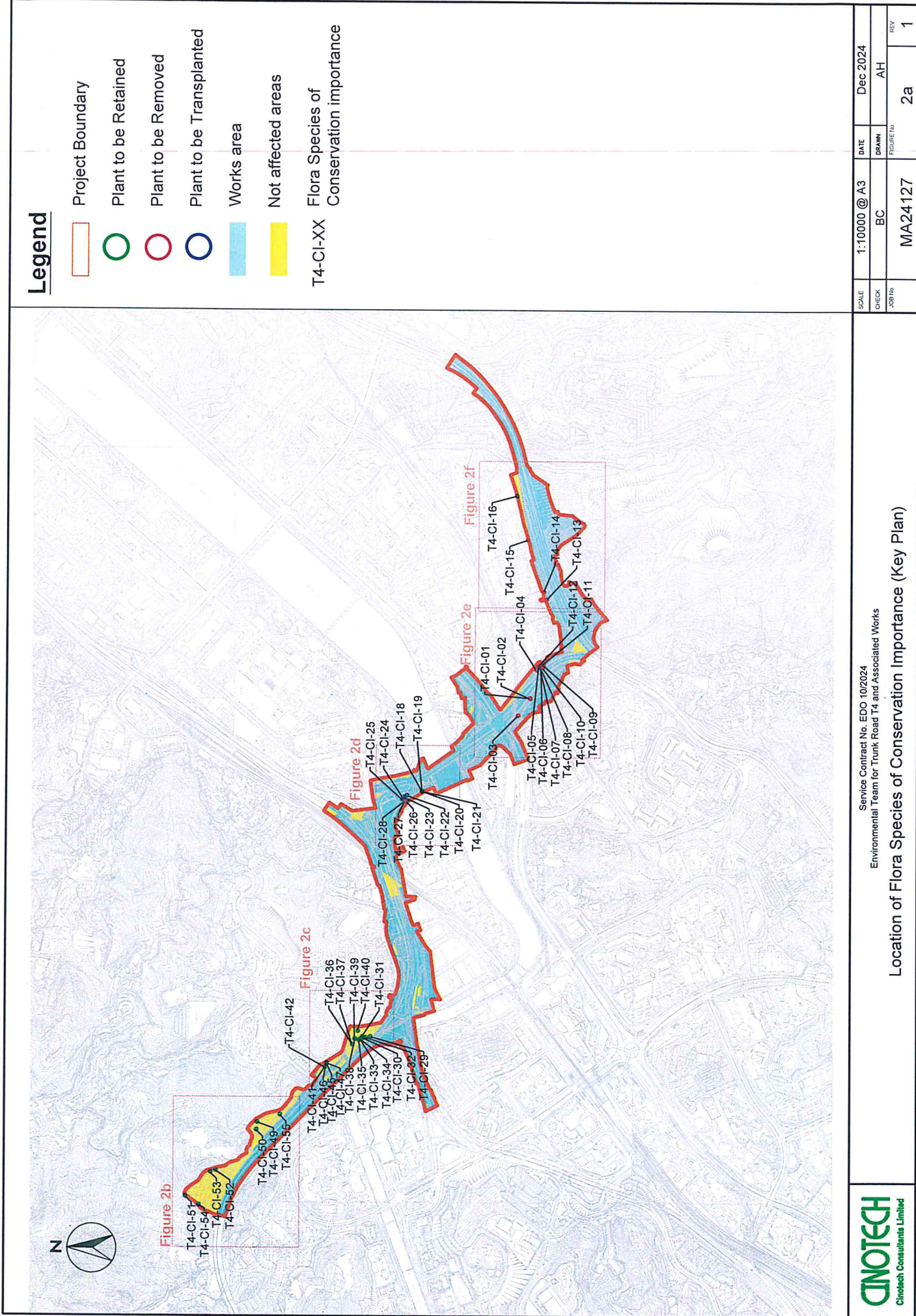
KEY PLAN

PROJECT NO. 为川製薬	CONTRACT NO. 新川製薬
60686076	FD/2022/02

SHEET TITLE FPORTION OF SITEFIGURE NO.: 1

SHEET NUMBER

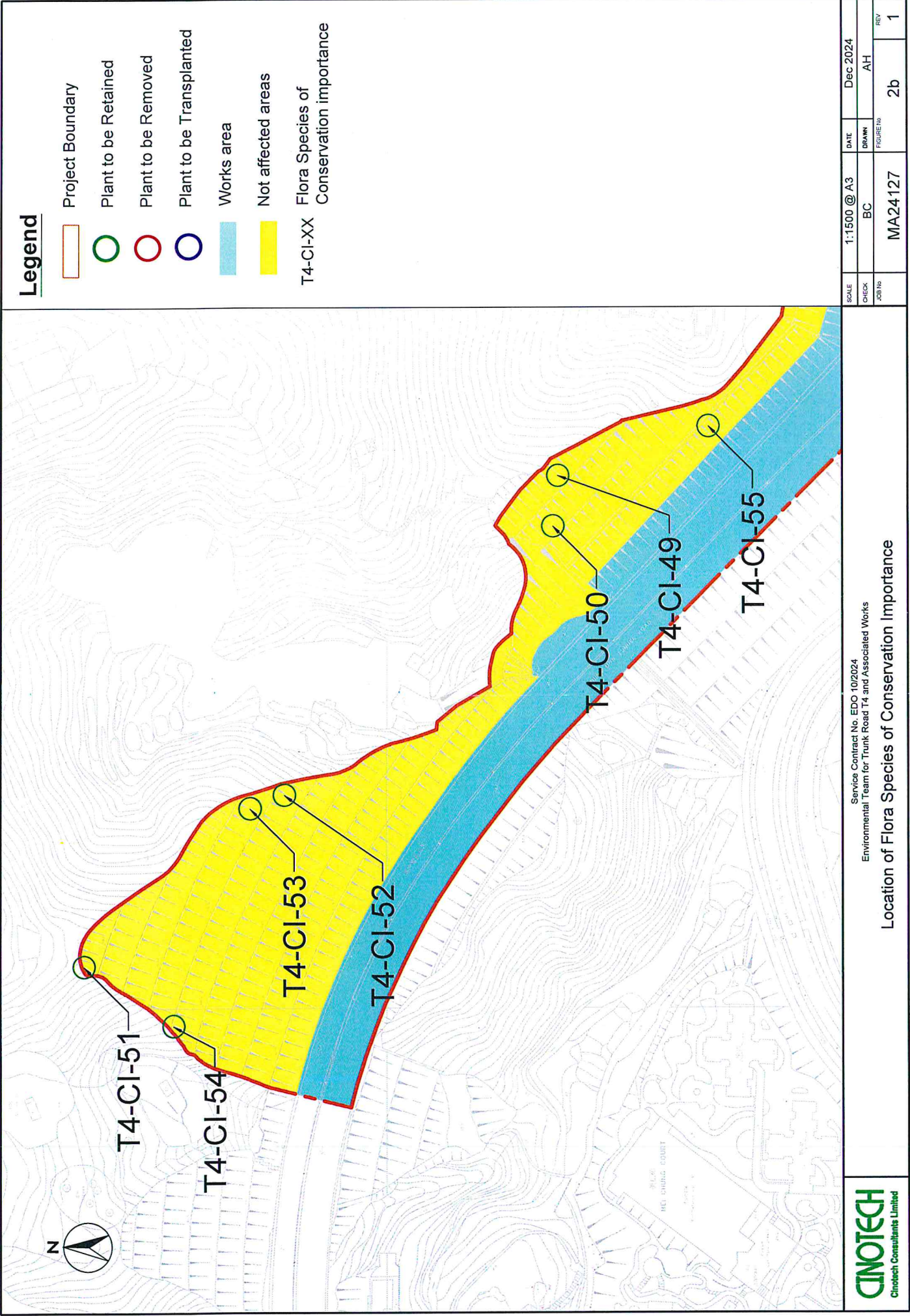
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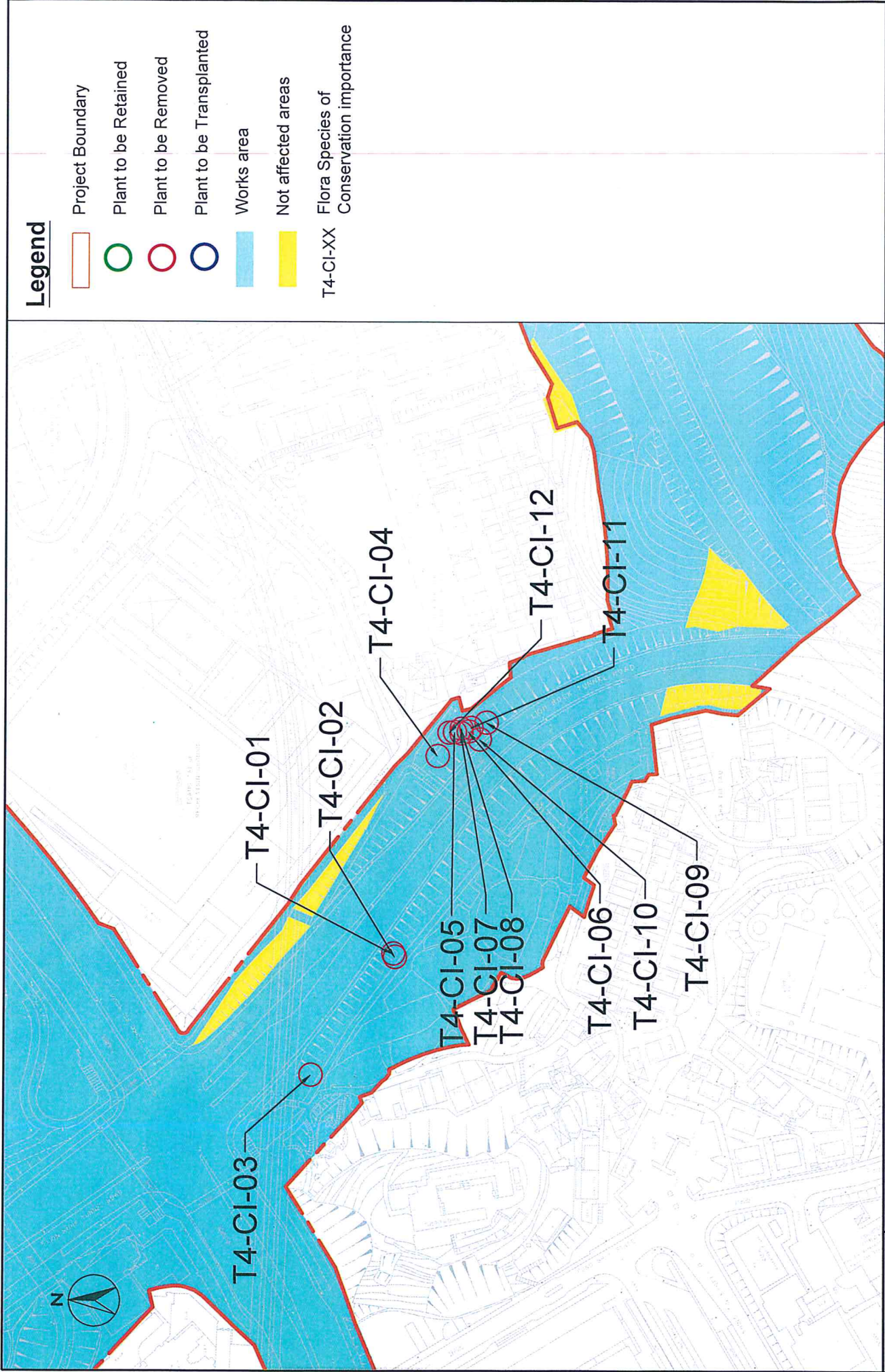


Legend

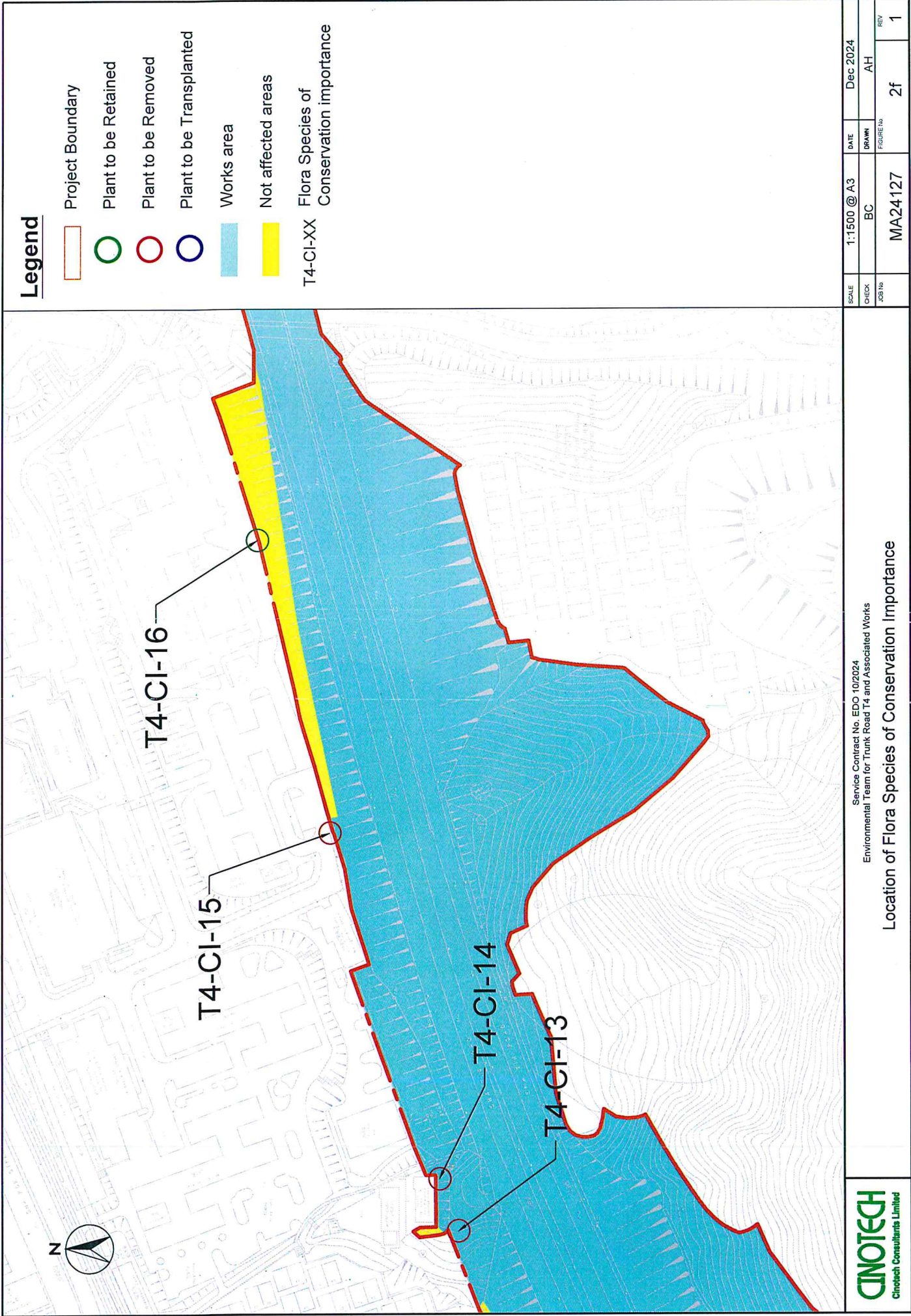
- Project Boundary
- Plant to be Retained
- Plant to be Removed
- Plant to be Transplanted
- Works area
- Not affected areas
- Flora Species of Conservation importance
- T4-CI-XX

CINOTECH Cinotech Consultants Limited		Location of Flora Species of Conservation Importance (Key Plan)				Service Contract No. EDO 10/2024 Environmental Team for Trunk Road T4 and Associated Works		SCALE CHECK	1:10000 @ A3	DATE Dec 2024	REV 1	
								FIGURE No	MA24127	FIGURE No	2a	1
								DRAWN	BC	DRAWN	AH	





Service Contract No. EDO 10/2024		1:1500 @ A3		DATE	Dec 2024
Environmental Team for Trunk Road T4 and Associated Works		CHECK	BC	DRAWN	AH
Location of Flora Species of Conservation Importance		JOB No	MA24127	FIGURE No	2e
CINOTECH Cinotech Consultants Limited		REV		1	



**APPENDIX A
VEGETATION SURVEY RESULTS**

Appendix A - Details of Flora Species of Conservation Importance Recorded

Tag No.	Botanical Name	Chinese Common Name	Multi-trunk (Y/N)	Size			Growth Form	Form (G/F/P) ⁽¹⁾	Health (G/F/P) ⁽¹⁾	Amenity Value ⁽²⁾ (H/M/L)	Tree survival rate after transplanting (H/M/L) ⁽²⁾	Suitability for Transplanting (H/M/L) ⁽²⁾	Potentially hazardous	Proposed Action (R/T/F) ⁽³⁾	Additional Remarks
				DBH (m)	Height (m)	Spread (m)									
T4-CI-01	<i>Ailanthus fordii</i>	常綠臭椿	N	0.34	12	6	Tree	G	G	H	L	L	No	F	
T4-CI-02	<i>Canthium dicoccum</i>	魚骨木	Y	0.35	6	8	Tree	F	F	L	L	L	No	F	
T4-CI-03	<i>Ailanthus fordii</i>	常綠臭椿	N	0.68	14	8	Tree	G	G	H	L	L	No	F	
T4-CI-04	<i>Canthium dicoccum</i>	魚骨木	Y	0.33	9	6	Tree	F	F	L	L	L	No	F	
T4-CI-05	<i>Canthium dicoccum</i>	魚骨木	Y	0.21	7	4	Tree	P	F	L	L	L	No	F	
T4-CI-06	<i>Canthium dicoccum</i>	魚骨木	Y	0.25	6	5	Tree	F	F	L	L	L	No	F	
T4-CI-07	<i>Canthium dicoccum</i>	魚骨木	N	0.18	6	5	Tree	F	F	L	L	L	No	F	
T4-CI-08	<i>Canthium dicoccum</i>	魚骨木	N	0.29	9	6	Tree	F	F	L	L	L	No	F	
T4-CI-09	<i>Canthium dicoccum</i>	魚骨木	Y	0.34	9	8	Tree	F	F	L	L	L	No	F	
T4-CI-10	<i>Canthium dicoccum</i>	魚骨木	N	0.01	0.5	-	Tree	F	F	L	L	L	No	F	
T4-CI-11	<i>Canthium dicoccum</i>	魚骨木	N	0.11	5	5	Tree	F	F	L	L	L	No	F	
T4-CI-12	<i>Canthium dicoccum</i>	魚骨木	N	0.22	7	5	Tree	F	F	L	L	L	No	F	
T4-CI-13	<i>Canthium dicoccum</i>	魚骨木	N	0.03	3.5	-	Tree	F	G	L	M	M	No	F	
T4-CI-14	<i>Canthium dicoccum</i>	魚骨木	Y	0.16	7	4	Tree	F	F	M	L	L	No	F	
T4-CI-15	<i>Canthium dicoccum</i>	魚骨木	N	0.13	7	4	Tree	F	G	M	L	L	No	F	
T4-CI-16	<i>Canthium dicoccum</i>	魚骨木	N	0.12	7	5	Tree	F	G	M	L	L	No	R	Asymetrical tree crown
T4-CI-18	<i>Aquilaria sinensis</i>	土沉香	N	0.13	4.5	5	Tree	F	F	H	M	M	No	R	
T4-CI-19	<i>Aquilaria sinensis</i>	土沉香	N	0.14	5	4	Tree	F	F	H	M	M	No	R	
T4-CI-20	<i>Aquilaria sinensis</i>	土沉香	N	0.15	5	4	Tree	F	F	H	M	M	No	R	Co-dominant trunk
T4-CI-21	<i>Aquilaria sinensis</i>	土沉香	N	0.11	4.5	3.5	Tree	F	F	H	M	M	No	R	Asymetrical tree crown
T4-CI-22	<i>Aquilaria sinensis</i>	土沉香	N	0.10	5	3	Tree	F	F	H	M	M	No	T	Asymetrical tree crown
T4-CI-23	<i>Aquilaria sinensis</i>	土沉香	N	0.05	2.5	2	Tree	F	F	H	M	M	No	T	
T4-CI-24	<i>Aquilaria sinensis</i>	土沉香	N	0.10	4	3.5	Tree	F	F	H	M	M	No	T	Slight leaning
T4-CI-25	<i>Aquilaria sinensis</i>	土沉香	N	0.05	3.5	2	Tree	F	F	H	M	M	No	T	Slight leaning
T4-CI-26	<i>Aquilaria sinensis</i>	土沉香	N	0.06	2.5	2	Tree	F	F	H	M	M	No	T	Slight leaning, Asymetrical tree crown
T4-CI-27	<i>Aquilaria sinensis</i>	土沉香	N	0.07	3	2	Tree	F	F	H	M	M	No	T	Asymetrical tree crown
T4-CI-28	<i>Aquilaria sinensis</i>	土沉香	N	0.09	3	1.5	Tree	P	P	L	L	L	No	F	Topped
T4-CI-29	<i>Pavetta hongkongensis</i>	香港大沙葉	N	0.01	0.9	0.5	Shrub/Small Tree	G	G	L	H	H	No	R	
T4-CI-30	<i>Aquilaria sinensis</i>	土沉香	N	0.01	0.8	0.8	Tree	G	G	L	H	H	No	R	
T4-CI-31	<i>Pavetta hongkongensis</i>	香港大沙葉	N	0.01	1.5	0.7	Shrub/Small Tree	G	F	L	L	L	No	R	Next to a tree

Appendix A - Details of Flora Species of Conservation Importance Recorded

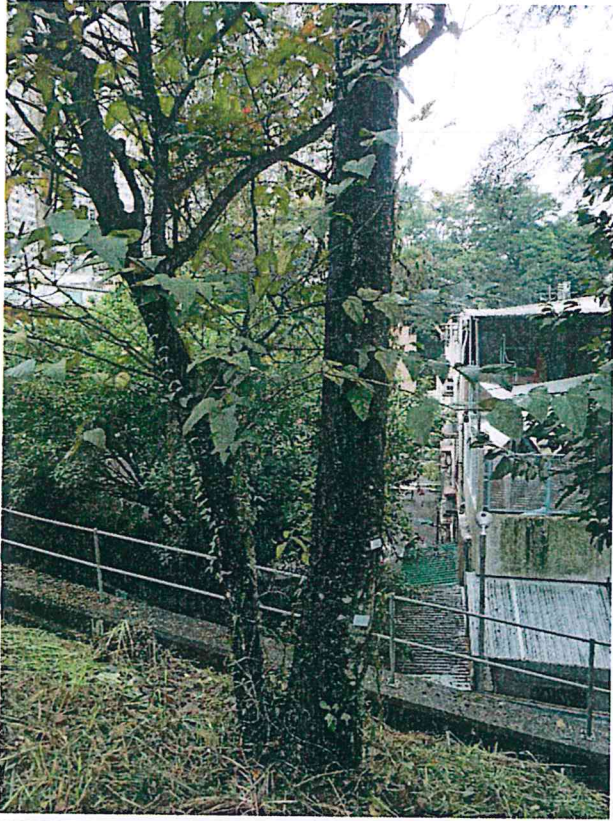
Tag No.	Botanical Name	Chinese Common Name	Multi-trunk (Y/N)	Size			Growth Form	Form (G/F/P) ⁽¹⁾	Health (G/F/P) ⁽¹⁾	Amenity Value ⁽²⁾ (H/M/L)	Tree survival rate after transplanting (H/M/L) ⁽²⁾	Suitability for Transplanting (H/M/L) ⁽²⁾	Potentially hazardous	Proposed Action (R/T/F) ⁽³⁾	Additional Remarks
				DBH (m)	Height (m)	Spread (m)									
T4-CI-32	<i>Pavetta hongkongensis</i>	香港大沙葉	N	0.01	0.9	0.6	Shrub/Small Tree	G	G	L	H	H	No	R	Recorded in T4 EIA
T4-CI-33	<i>Aquilaria sinensis</i>	土沉香	N	0.01	1.5	1.2	Tree	F	G	L	H	H	No	R	
T4-CI-34	<i>Pavetta hongkongensis</i>	香港大沙葉	N	0.01	0.6	0.5	Shrub/Small Tree	F	F	L	H	H	No	R	
T4-CI-35	<i>Pavetta hongkongensis</i>	香港大沙葉	N	0.01	1.1	0.6	Shrub/Small Tree	G	F	L	H	H	No	R	Climbers observed
T4-CI-36	<i>Pavetta hongkongensis</i>	香港大沙葉	N	0.01	1.2	0.5	Shrub/Small Tree	G	G	L	H	H	No	R	Climbers observed
T4-CI-37	<i>Pavetta hongkongensis</i>	香港大沙葉	N	0.01	0.4	0.3	Shrub/Small Tree	G	G	L	H	H	No	R	
T4-CI-38	<i>Canthium dicoccum</i>	魚骨木	N	0.01	0.6	0.4	Tree	G	F	L	L	L	No	R	Next to a tree
T4-CI-39	<i>Canthium dicoccum</i>	魚骨木	N	0.01	0.8	0.4	Tree	G	G	L	H	H	No	R	
T4-CI-40	<i>Pavetta hongkongensis</i>	香港大沙葉	N	0.01	0.9	0.8	Shrub/Small Tree	G	F	L	L	L	No	R	Next to concrete structure
T4-CI-41	<i>Aquilaria sinensis</i>	土沉香	N	0.07	4.5	2.5	Tree	F	F	L	L	L	No	R	
T4-CI-42	<i>Aquilaria sinensis</i>	土沉香	N	0.06	8.3	2.1	Tree	F	F	L	L	L	No	R	
T4-CI-43	<i>Aquilaria sinensis</i>	土沉香	N	0.01	0.5	0.7	Tree	G	G	L	H	H	No	R	
T4-CI-44	<i>Aquilaria sinensis</i>	土沉香	N	0.01	1.6	1	Tree	G	G	L	H	H	No	R	
T4-CI-45	<i>Aquilaria sinensis</i>	土沉香	N	0.01	1.1	0.6	Tree	G	G	L	H	H	No	R	
T4-CI-46	<i>Aquilaria sinensis</i>	土沉香	N	0.01	1.1	0.6	Tree	G	G	L	H	H	No	R	
T4-CI-47	<i>Aquilaria sinensis</i>	土沉香	N	0.01	9	4.3	Tree	G	F	M	L	L	No	R	
T4-CI-48	<i>Canthium dicoccum</i>	魚骨木	N	0.13	1.2	0.4	Tree	P	P	L	L	L	No	R	Recorded in T4 EIA
T4-CI-49	<i>Aquilaria sinensis</i>	土沉香	N	0.02	1.2	0.4	Tree	G	F	L	L	L	No	R	Next to a tree
T4-CI-50	<i>Aquilaria sinensis</i>	土沉香	N	0.05	3.5	2	Tree	G	F	L	L	L	No	R	
T4-CI-51	<i>Aquilaria sinensis</i>	土沉香	N	0.01	1.6	0.6	Tree	G	G	L	L	L	No	R	
T4-CI-52	<i>Aquilaria sinensis</i>	土沉香	N	0.03	2.3	1.5	Tree	G	F	L	L	L	No	R	Next to a tree
T4-CI-53	<i>Aquilaria sinensis</i>	土沉香	N	0.04	2.4	2.5	Tree	F	G	L	L	L	No	R	
T4-CI-54	<i>Aquilaria sinensis</i>	土沉香	N	0.03	4	2.2	Tree	G	F	L	L	L	No	R	Next to T1330

Notes:

⁽¹⁾ Form and health condition of trees are denoted as follows: "G" = Good, "F" = Fair, and "P" = Poor.⁽²⁾ Amenity value, suitability for transplanting and survival rate after transplanting are denoted as follows: "H" = High, "M" = Moderate, and "L" = Low.⁽³⁾ Proposed actions are denoted as follows: "R" = Retain, "T" = Transplant, and "F" = Fell.

APPENDIX B
PHOTOGRAPHIC RECORD

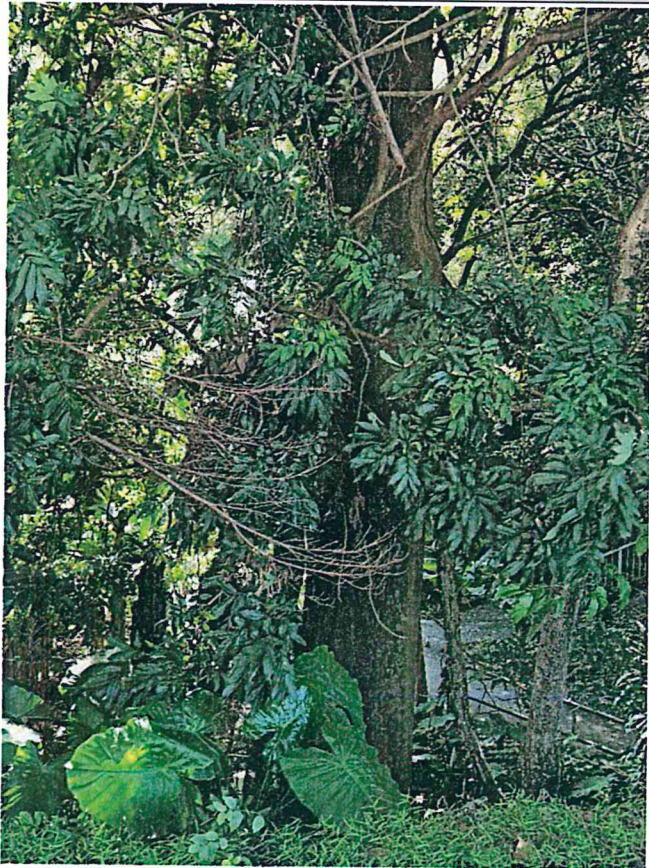
Appendix B – Photographic Records of Flora Species of Conservation Importance



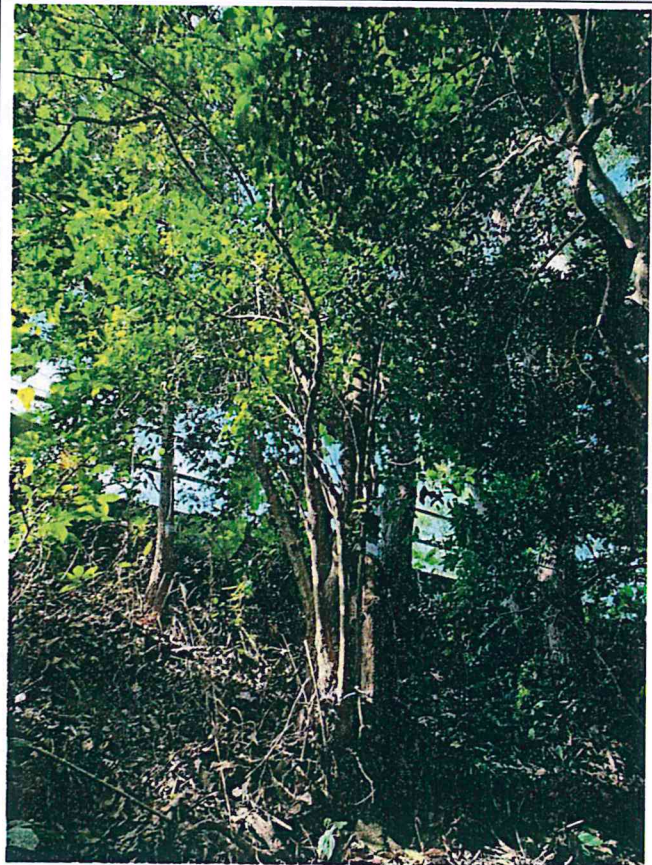
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CI-02



CI-03

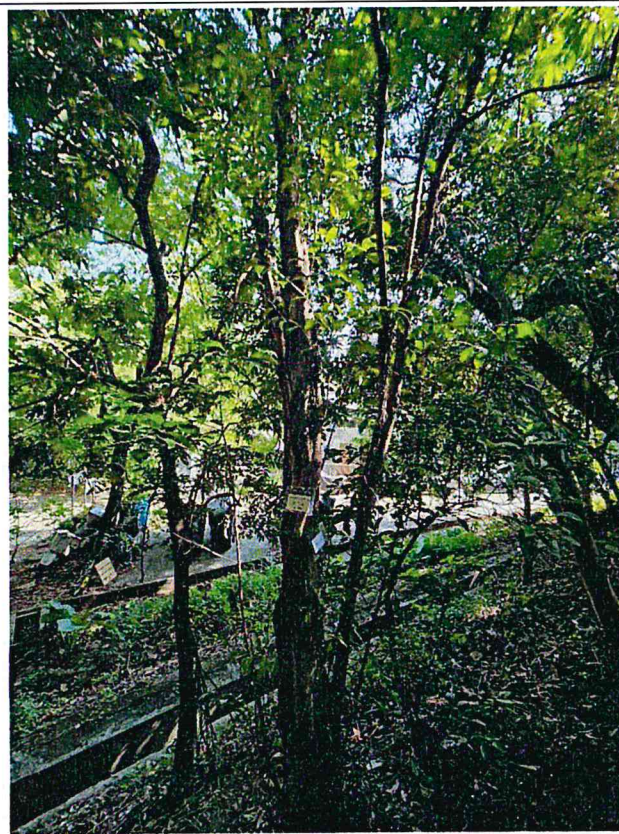


CI-04

Appendix B – Photographic Records of Flora Species of Conservation Importance



CI-05



CI-06



CI-07



CI-08

Appendix B – Photographic Records of Flora Species of Conservation Importance



CI-09



CI-10

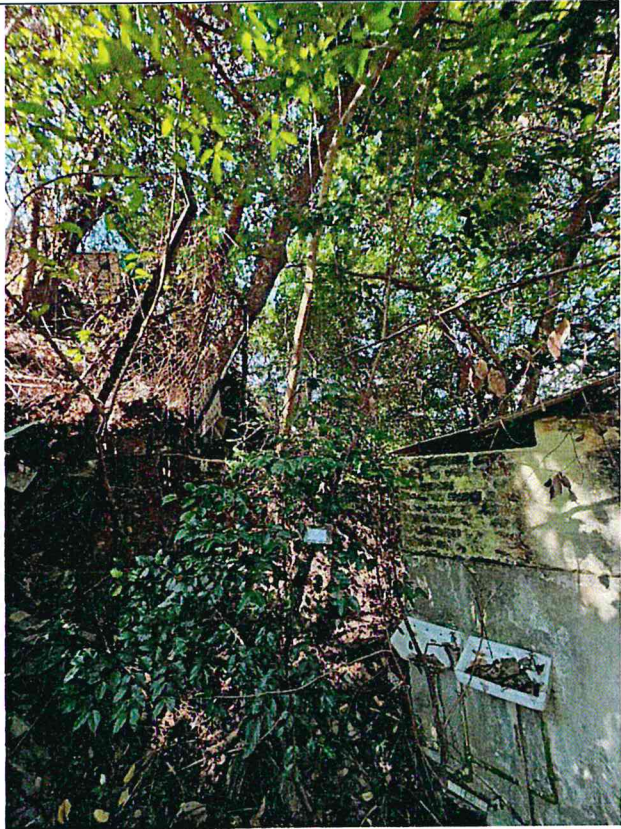


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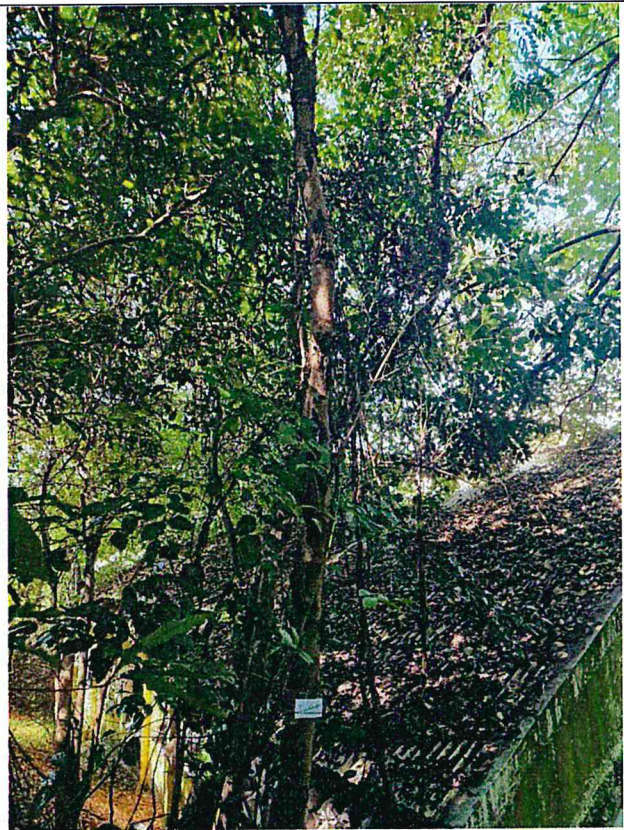


CI-12

Appendix B – Photographic Records of Flora Species of Conservation Importance



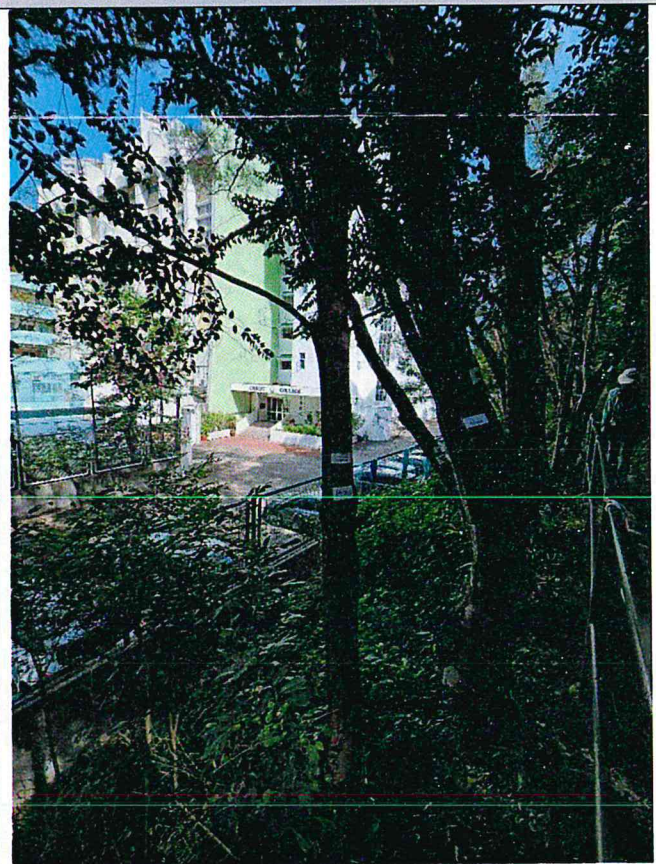
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CI-14

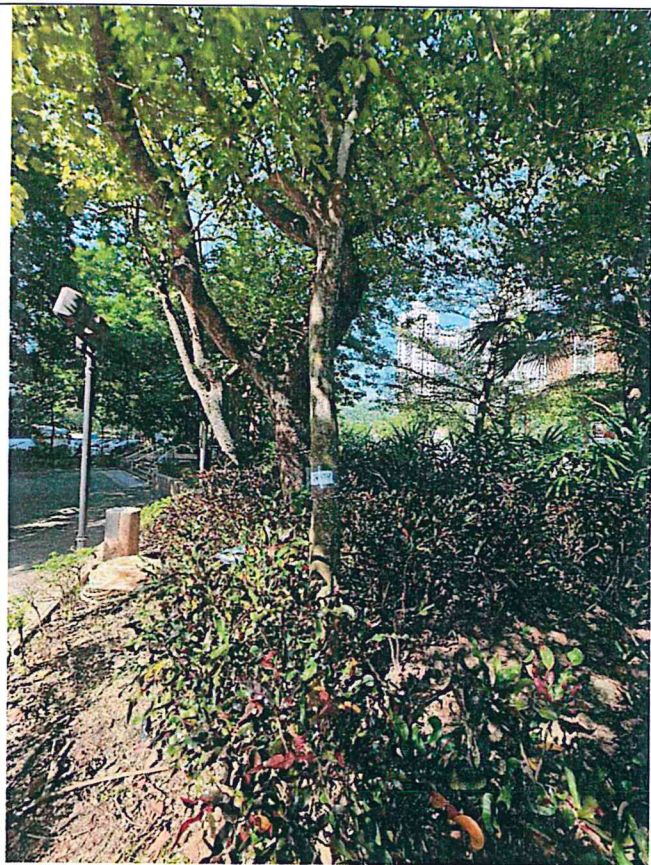


CI-15



CI-16

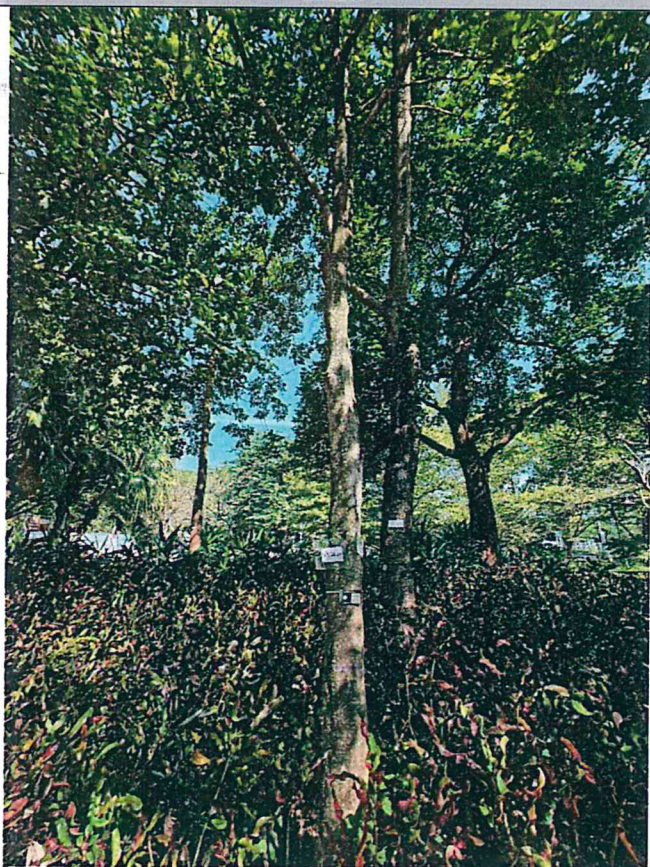
Appendix B – Photographic Records of Flora Species of Conservation Importance



CI-18



CI-19



CI-20

Appendix B – Photographic Records of Flora Species of Conservation Importance



CI-21



CI-22

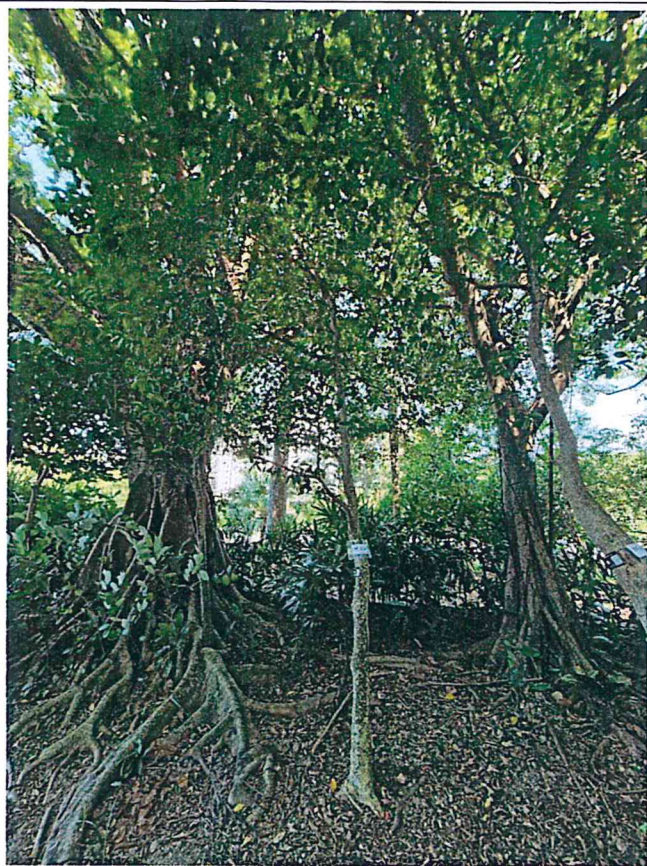


CI-23



CI-24

Appendix B – Photographic Records of Flora Species of Conservation Importance



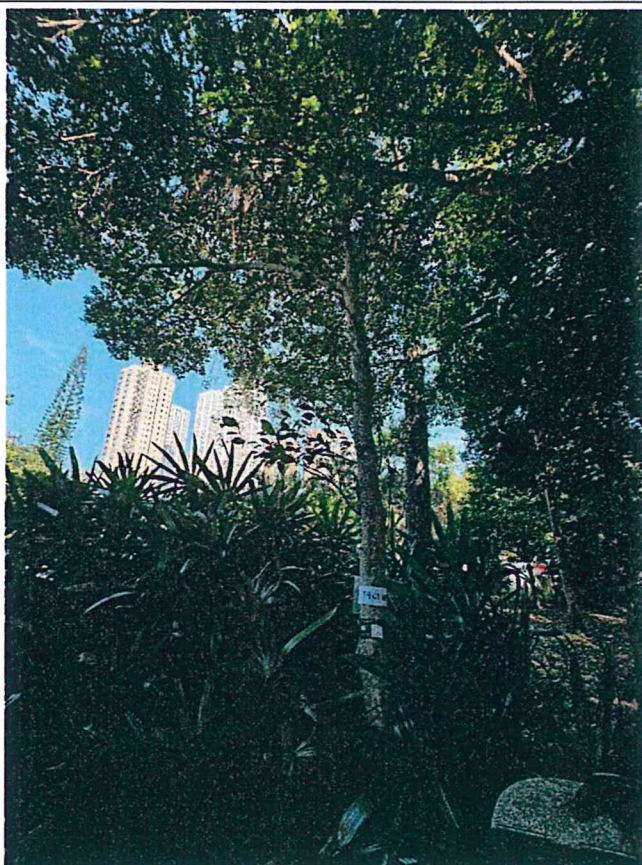
CI-25



CI-26







CI-27



CI-28

Appendix B – Photographic Records of Flora Species of Conservation Importance

	
CI-29	CI-30
	
CI-31	CI-32

Appendix B – Photographic Records of Flora Species of Conservation Importance



CI-33



CI-34



CI-35



CI-36

Appendix B – Photographic Records of Flora Species of Conservation Importance



CI-37



CI-38



CI-39



CI-40

Appendix B – Photographic Records of Flora Species of Conservation Importance



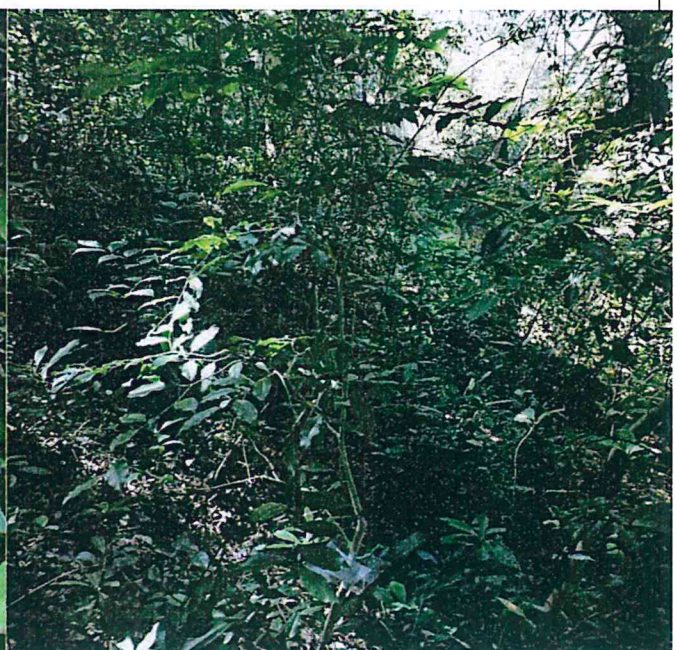
CI-41



CI-42



CI-45



CI-46

Appendix B – Photographic Records of Flora Species of Conservation Importance



CI-47



CI-49



CI-50



CI-51

Appendix B – Photographic Records of Flora Species of Conservation Importance



CI-52



CI-53



CI-54



CI-55