



JOB No.: TCS00694/13

**AGREEMENT NO. CE 45/2008 (CE)
LIANTANG/HEUNG YUEN WAI
BOUNDARY CONTROL POINT AND ASSOCIATED WORKS**

**ECOLOGICAL MONITORING REPORT FOR THE
WOODLAND COMPENSATION AREA
(JANUARY TO FEBRUARY 2017)**

**PREPARED FOR
CIVIL ENGINEERING AND DEVELOPMENT
DEPARTMENT (CEDD)**

Date	Reference No.	Prepared By	Certified By
10 March 2017	TCS00694/13/600/R0860v2	 Keith Wong (Ecologist)	 Tam Tak Wing (Environmental Team Leader)

Version	Date	Remarks
1	23 February 2017	First Submission
2	10 March 2017	Amended against the IEC's comment on 6 March 2017



Member of the Surbana Jurong Group

Unit A-C, 27/F Ford Glory Plaza
37- 39 Wing Hong Street
Cheung Sha Wan, Kowloon, Hong Kong
T +852 3995 8100 F +852 3995 8101 E hongkong@smec.com
www.smec.com

13 March 2017

Our ref: 7076192/L21567/AB/AW/MC/rw

AECOM
8/F, Grand Central Plaza, Tower 2
138 Shatin Rural Committee Road
Shatin, N.T.

By Email & Post

Attention: Mr Simon LEUNG

Dear Sirs

Agreement No. CE 45/2008 (CE)
Liantang/Heung Yuen Wai Boundary Control Point and Associated Works
Independent Environmental Checker – Investigation
Bimonthly Ecological Monitoring Report for Woodland Compensation Area (No. 3) – January to February 2017

With reference to the Bimonthly Ecological Monitoring Report for Woodland Compensation Area No. 3 for January 2017 to February (Version 2) certified by the ET Leader, please be noted that we have no adverse comments on the captioned submission. We herewith verify the captioned submission in accordance with Section 8.3.2.2 of the EM&A Manual.

Thank you for your attention and please do not hesitate to contact the undersigned on tel. 3995-8120 or by email to antony.wong@smec.com; or our Mr Man CHEUNG on tel. 3995 8132 or by email to man.cheung@smec.com.

Yours faithfully
for and on behalf of
SMEC Asia Limited



Antony WONG

Independent Environmental Checker

cc	CEDD/BCP	-	Mr Desmond LAM	by fax: 3547 1659
	AECOM	-	Mr Pat LAM / Mr Perry YAM	by email
	CCKJV	-	Mr Vincent CHAN	by email
	AUES	-	Mr TW TAM	by email

Table of Content

1.	INTRODUCTION	1
1.1	General	1
2.	MONITORING REQUIREMENTS	2
2.1	Monitoring Program of the Initial and Enhancement Planting Phases	2
2.2	Monitoring methodology	2
2.3	Quadrat Sampling	2
2.4	Reporting	4
3.	RESULTS	4
3.1	Transect Inspection	4
3.2	Quadrat Sampling	6

LIST OF TABLES

TABLE 1	TRIGGER AND ACTION LEVELS FOR MONITORING AND ACTION PLAN
TABLE 2	HEALTH CONDITION OF THE ESTABLISHED SEEDLINGS NOTED DURING THE TRANSECT INSPECTION
TABLE 3	THE NUMBER OF SEEDLING RECORDED FOR EACH SPECIES WITHIN THE SAMPLING QUADRATS
TABLE 4	SURVIVAL RATE OF THE PLANTED SPECIES (COMPARED WITH THE REFERENCE DATA COLLECTED IN NOVEMBER – DECEMBER 2016)
TABLE 5	SUMMARY OF THE RECOMMENDED REMEDIAL ACTIONS

LIST OF APPENDICES

APPENDIX A	DRAWING NO. 60212563/SK7037 OF THE WOODLAND COMPENSATION PLAN
APPENDIX B	LATEST PLANTING ARRANGEMENT
APPENDIX C	TRANSECT ROUTES AND SAMPLING QUADRATS OF WOODLAND COMPENSATION MONITORING
APPENDIX D	PHOTOGRAPHIC RECORDS

1. INTRODUCTION

1.1 GENERAL

- 1.1.1 The “Liantang/Heung Yuen Wai Boundary Control Point and Associated Works Project” (hereinafter referred to as “the Project”) comprises a new Boundary Control Point (BCP) proposed at Liantang/Heung Yuen Wai (LT/HYW), its connecting road and other associated works; and the Environmental Impact Assessment (EIA) report (Register No.:AEIAR-161/2011) of the Project has identified that ~6.2ha of secondary woodlands will be directly lose due to the construction of the portals of tunnels and some sections of the connecting road. Subsequently, creation of a 18.6 ha compensatory woodland at Cheung Shan has been recommended in the EIA report to avoid residual ecological impacts from the Project.
- 1.1.2 Under the Environmental Permit (EP-404/2011/D), an updated Woodland Compensation Plan (WCP) detailed with the planting strategy and the subsequent maintenance and monitoring requirements of the compensatory woodland has been submitted and approved by the Authority in the 4th Quarter of 2015.
- 1.1.3 The woodland compensation include an initial planting phase and enhancement planting phase over a 6 years period on the grassland and shrubland at Cheung Shan, i.e., the “Woodland Compensatory Area” (WCA) as shown in the **Drawing No. 60212563/SK7037 of the WCP** and included here as **Appendix A**; and the planting works fall within the work scope of Contract No. CV/2013/08 Liantang/ Heung Yuen Wai Boundary Control Point Site Formation and Infrastructure Works - Contract 6.
- 1.1.4 As part of the EM&A’s requirements of the Project, this submission presents the findings of the 3rd session of vegetation monitoring according to the latest status of the initial planting phase (refer to the **Appendix B** for details) and cover the Reporting Period from January to February 2017.

2. MONITORING REQUIREMENTS

2.1 MONITORING PROGRAM OF THE INITIAL AND ENHANCEMENT PLANTING PHASES

2.1.1 According to the implementation program and Section 6.5 of the WCP, the monitoring frequency for the first year of the initial and the enhancement planting phases would be bi-monthly and subsequently reduced to quarterly from the second year onward.

2.1.2 Change of monitoring frequency if needed will be advised by the Project Ecologist of the ET and approved by Environmental Protection Department and Agriculture, Fisheries and Conservation Department before implementation.

2.2 MONITORING METHODOLOGY

2.2.1 An inspection walk monitoring by means of “transect route” and “direct observation” has been undertaken within the WCP as such to provide an overview and observe the general condition of the WCA; After due considerations of the latest planting arrangement within the WCA, the potential trampling damage to the planted seedlings, as well as the limitations in visibility, site access and safety concern when undertaking the monitoring among the steep hillslope, the transect routes has been selected to cover all representative areas where planting has been undertaken within the WCA as far as practicable.

2.2.2 The transect routes are illustrated in **Appendix C**, and the following observations have been made during the inspection walk:

- Weather condition during the time of monitoring
- The general condition of the WCA, including any signs of anthropogenic or natural disturbance/events (such as landslide, lightning strikes, wildlife damage) that has affected the health condition of the planted seedlings, or regeneration or invasive of grassy or self-seeded weedy plants that would or have affected the establishment of the planted vegetation
- The general health condition of each planted species graded in “Good”, “Fair” or “Poor” with the following criteria:
 - i) Phenology – signs of any abnormality in the phenology of the species (such as abnormal flowering/fruitletting/ leaf shedding)
 - ii) Foliage – colour, size and general appearance, signs and severity of insect and fungal infection
 - iii) Branches – presence and extent of die-back, and signs and severity of insect and fungal infection
 - iv) Stem/Trunk - signs and severity of cavities or internal/external decay; signs and severity of insect infection and mechanical damage

2.2.3 Since the monitoring approach adopted for the transect inspection, i.e., “*direct observations*”, would not yield any quantitative information, the survival rate (%) of the planted seedling will be evaluated from the results collected from the quadrat sampling as detailed in next section.

2.3 QUADRAT SAMPLING

2.3.1 A sampling approach has been proposed in the WCP to monitor the survival rate of the planted seedlings by the use of nine 20mx20m quadrats which are to be evenly located within the planted area of the WCA. Based on the latest planting schedule and planting arrangement/pattern provided by the contractor (see **Appendix B**), as well as the local topography of the planted area within the WCA, the practicality in accessing, placing and monitoring nine 20m x 20m fixed quadrats within the planted area of the WCA has been extensively reviewed, 2 of the monitoring quadrats are fixed on the ridgeline of Cheung Shan and 7 of them are located on the north-facing slope of the WCA (see

Appendix C).

2.3.2 Information collected within each sampling unit include:

- General condition of the sampling quadrat especially those factors that would or have found affected the survival rate of the planted vegetation, including biological or environmental factors (such as inter-specific competition as well as signs of stress from water, heat, or pest and disease, etc)
- The total number of established seedlings for each planted tree and shrub species
- Health condition of each planted species graded in “Good”, “Fair” or “Poor” with the following criteria:
 - i) Phenology – signs of any abnormality in the phenology of the species (such as abnormal flowering/fruitletting/ leaf shedding)
 - ii) Foliage – colour, size and general appearance, signs and severity of insect and fungal infection
 - iii) Branches – presence and extent of die-back, and signs and severity of insect and fungal infection
 - iv) Stem/Trunk - signs and severity of cavities or internal/external decay; signs and severity of insect infection and mechanical damage

2.3.3 Since the quantity of seedlings planted for each species within a particular area (including the sampling units) would be varied and subject to the constraints imposed by the local site condition (e.g., the steepness and presence of rocky outcrops or existing woody vegetation); the survival rate of the planted species will be evaluated against the data collected from the first monitoring session in which 20m x 20m quadrats were applied for the initial planting phase; and if needed the implementation of the measures as detailed in the “Trigger and Action Levels” specified in the **Table 3** of the WCP would be recommended (included here as **Table 1** below) .

Table 1 Trigger and Action Levels for Monitoring and Action Plan

Parameters	Trigger and Action Level	Action Plan
General Health Condition of planted species (i.e. good/fair/poor; based on parameters e.g. wilting, insect attack, disease, fungal infection, browsing damage)	Trigger Level: % of individual plant species in poor health condition >20%	- the ET should inform Contractor and IEC immediately; - identify the causes(s) of the exceedance; - advise Contractor the necessity of replanting
	Action Level: % of individual plant species in poor health condition >30%	- the ET should inform Contractor and IEC immediately; - identify the cause(s) of the exceedance; - advise remedial action and work out solution including change of species in re-planting, re-soiling of the target areas; and seek acceptance from AFCD; - once the remedial action has been accepted by AFCD, the Contractor should implement the remedial action.
Survival of Planted Species (i.e. dead)	Trigger Level: Survival rate of individual plant species <80%	- the ET should inform Contractor and IEC immediately; - identify the causes(s) of the exceedance; - advise Contractor the necessity of replanting.

Parameters	Trigger and Action Level	Action Plan
	Action Level: Survival rate of individual plant species <70%	- the ET should inform Contractor and IEC immediately; - identify the cause(s) of the exceedance; - advise remedial action and work out solution including change of species in re-planting, re-soiling of the target areas; and seek acceptance from AFCD; - once the remedial action has been accepted by AFCD, the Contractor should implement the remedial action.

2.3.4 Since most of the planted native species are also naturally grown within the WCA and it would be infeasible and impracticable to differentiate whether the individual plant encountered along the transect or within the quadrat is planted, natural recruited, or regenerated after the pre-planting clearance of the site; and hence all established individuals of the planted species found within the sampling unit has been counted during the monitoring.

2.3.5 The WCA monitoring was undertaken by the Environmental Team (ET) and under the supervision of the Qualified Ecologist of the ET, and the Qualified Ecologist has also undertaken a joint transect inspection with representative of the IEC in the reporting.

2.4 REPORTING

Bi-monthly Woodland Compensation Monitoring Reports

2.4.1 During the first year of the initial planting phase and the first year of the enhancement planting phase, the results and findings of the bi-monthly (i.e., once every two months) monitoring will be recorded in a bi-monthly woodland compensation monitoring reports prepared and submitted by the ET Leader within 10 working days from the end of each reporting month. The details to be included in the report will follow the Section 7.3 of the WCP.

Quarterly Woodland Compensation Monitoring Reports

2.4.2 From the second year of the initial planting phase and the enhancement planting phase, the results and findings of the quarterly monitoring will be recorded in the quarterly woodland compensation monitoring reports prepared and submitted by the ET Leader within 10 working days from the end of each reporting month. The details to be included in the report will follow the Section 7.3 of the WCP.

3. RESULTS

3.1 TRANSECT INSPECTION

3.1.1 The transect inspection was carried out on 13th January 2017 with the ecological specialist of the IEC, an overview of the site condition is presented in Figure 1 of the **Appendix D** and the following presents the observations made during the transect inspection:

- The weather on the day of monitoring was generally cloudy and fairly windy within the WCA.
- Most of the seedlings noted were in fair condition, and re-sprouting was noted in some of the planted native tree species, especially the *Litsea glutinosa*, *Sapium*

discolor and *Mallotus paniculatus*. Moreover, some of the *Acacia mangium* planted on the western ridgeline was found infected by powdery mildew (e.g., Appendix D - Figure 2).

- No sign of additional anthropogenic disturbance besides those reported previously was noted within the planted area of the WCA, except a new trigonometrical station was recently built on the eastern ridgeline of Cheung Shan (Appendix D - Figure 3).
- Signs of disturbance from wild boar, i.e., vegetation trampling, earth ploughing, as well as uprooted seedlings (from planted/self-seeded vegetation) were prominent all over the WCA (Appendix D - Figure 4), in particularly on the north-facing slope of Cheung Shan where the site was densely planted with tree/shrub seedlings; and stray dogs has also been noted wandering within the WCA.
- Vigorous regrowth of herbaceous vegetation cleared/cut during the pre-planting stage was noted in the whole WCA, especially the fern *Dicranopteris pedata* and the grasses *Ischaemum sp.*, *Arundinella setosa* and *Miscanthus sinensis*.
- Colonization, re-sprouting and/or regrowth of the woody vegetation, in particularly the trees *Melicope pteleifolia* and *Cratoxylum cochinchinense*, the shrub *Baeckea frutescens*, *Rhodomyrtus tomentosa* and *Breynia fruticosa*, were found to be generally vigorous; and some have out-grown and shadowed the seedlings planted in their vicinity, and would expect to have a negative impact on the establishment of the planted material because of the inter/intra-specific competition
- In addition, despite the re-growth of the natural vegetation as described above has impeded the range of observation that could made along the transect; the density of the planted seedlings, including both of the tree and shrub species, were found to be poorer and sparser along the ridgeline at the eastern part of the WCA.

3.1.2 The general health condition of the planted species, based on the observations made along the transect, is tabulated in the following table.

Table 2 Health condition of the established seedlings noted during the transect inspection

Species	Health Condition		
	Good	Fair	Poor
Trees			
<i>Acacia confusa</i>		√	
<i>Acacia mangium</i>		√	
<i>Castanopsis fissa</i>		√	
<i>Litsea glutinosa</i>		√ ^{(1),(3)}	
<i>Mallotus paniculatus</i>		√ ⁽¹⁾⁽³⁾	
<i>Phyllanthus emblica</i>			√ ^{(1),(2)}
<i>Sapium discolor</i>		√ ⁽¹⁾⁽³⁾	
<i>Schima superba</i>		√	
Shrubs			
<i>Polyspora axillaris</i>	√		
<i>Melastoma candidum</i>	√ ⁽³⁾		
<i>Melastoma sanguineum</i>	√ ⁽³⁾		
<i>Rhaphiolepis indica</i>		√ ^{(1),(3)}	
<i>Rhodomyrtus tomentosa</i>	√ ⁽³⁾		

Note:

(1) - re-sprouting of planted seedlings was noted and most of the foliage of this species were found to be smaller in size

(2) - chlorosis (leave yellowing) was commonly noted on the tree seedlings

(3) - self-seeded seedlings or wild population of this species was presence within the planting area

of the WCA, and since it is impracticable and sometimes unfeasible to differentiate them from the planted seedlings, the health condition was evaluated as a whole for this species encountered during the transect walk.

3.2 QUADRAT SAMPLING

3.2.1 The nine 20m x 20m sampling quadrats have been placed within the planted area of the WCA, and at area where the majority of the seedlings were planted and considered suitable for long term monitoring; in which 2 of them were located on the ridgeline and the rest are located on the north-facing slope of Cheung Shan (see **Appendix C**). The quadrat monitoring was conducted on 11th, 13th and 16 January 2016.

3.2.2 According to the information provided by the main contractor and the landscaping subcontractor, the distribution of plant seedlings of different species within the WCA are more or less random and usually in small cluster with spacing in accordance with the latest planting arrangement, i.e. group of 3 to 5 with 1.5m spacing for tree and group of 5 to 8 with 0.75m spacing for shrubs, and the planting density of a particular area would also be varied and subject to the site constraints such as local topography and the abundance/coverage of the retained woody vegetation.

3.2.3 The Table 3 below presents the findings of the quadrat monitoring; and a comparison of the no. of seedling recorded for each planted species between the current and reference data collected in November 2016, as well as the computed survival rate, are presented in Table 4.

Table 3 The number of seedling recorded for each species within the sampling quadrats

Species	Quantity* and General Health^ Condition of the Established Seedling Recorded in Each Sampling Quadrat									Total Qty.
	R1	R2	S3	S4	S5	S6	S7	S8	S9	
Trees										
<i>Acacia confusa</i>	6	20	18	8	7	2	9	1	9	80
<i>Acacia mangium</i>	6	21	34	23	21	0	25	11	21	162
<i>Castanopsis fissa</i>	0	1	0	0	0	28	0	0	0	29
<i>Litsea glutinosa</i>	11	5	19	9	4	0	0	4	6	58
<i>Mallotus paniculatus</i>	17	15	13	6	8	19	6	9	5	98
<i>Phyllanthus emblica</i>	2	8	2	3	4	2	2	0	0	23
<i>Sapium discolor</i>	0	3	2	3	0	0	0	0	0	8
<i>Schima superba</i>	5	6	0	2	0	53	0	0	0	66
Sub-Total	47	79	88	54	44	104	42	25	41	524
Shrubs										
<i>Gordonia axillaris</i>	5	16	46	22	30	0	13	5	7	144
<i>Melastoma candidum</i>	8	29	56	20	33	24	32	20	36	258
<i>Melastoma sanguineum</i>	7	50	42	33	44	3	12	4	28	223
<i>Rhaphiolepis indica</i>	50	35	49	62	64	32	15	13	35	355
<i>Rhodomyrtus tomentosa</i>	90	106	192	117	104	33	47	25	102	816

Sub-Total	160	236	385	254	275	92	119	67	208	1796
------------------	------------	------------	------------	------------	------------	-----------	------------	-----------	------------	-------------

Notes: ^ General Health Condition:

- Good - No. in normal font type (e.g., “99”)
 - Fair - No. in Italic font (e.g., “99”)
 - Poor - No. in italic & underlined (e.g., “99”)
- * the quantity include all established individuals of the planted species within the quadrat regardless whether they are self-seeded or planted (see Section 2.3.6)

Table 4 Survival Rate of the planted species (compared with the reference data collected in November – December 2016)

Species	No. of Individual		Survival Rate (%)
	Jan 17	Nov 16	
<i>Acacia confusa</i>	80	113	70.80
<i>Acacia mangium</i>	162	179	90.50
<i>Castanopsis fissa</i>	29	39	74.36
<i>Litsea glutinosa</i>	58	77	75.32
<i>Mallotus paniculatus</i>	98	80	100%
<i>Phyllanthus emblica</i>	23	48	47.92
<i>Sapium discolor</i>	8	18	44.44
<i>Schima superba</i>	66	82	80.49
<i>Gordonia axillaris</i>	144	148	97.30
<i>Melastoma candidum</i>	258	352	73.30
<i>Melastoma sanguineum</i>	223	313	71.25
<i>Rhaphiolepis indica</i>	355	438	81.05
<i>Rhodomyrtus tomentosa</i>	816	824	99.03

3.2.4 Based on the recorded data and observations made within the sampled quadrat and the data presented in Table 3 and Table 4, the following summaries the findings from the quadrat monitoring:

- Health condition: most of the recorded seedlings were found in fair to good condition, and the foliage of the recorded *Mallotus paniculatus*, *Sapium discolor*, *Litsea glutinosa* and *Rhaphiolepis indica* are mostly from re-sprouting and smaller in size. Moreover, powdery mildew was found on some of the *Acacia mangium* planted along the western ridgeline of Cheung Shan.
- Survival Rate: When compared with the reference data collected in November 2016, the overall survival rate for the planted species is ~75%; and except the *Mallotus paniculatus* where the total number of seedlings recorded are higher than the reference data – probably as a result of re-sprouting and/or natural recruitment, the number of seedlings recorded for all the other species are lowered than the reference data, and among which 5 species (*Acacia confusa*, *Castanopsis fissa*, *Litsea glutinosa*, *Melastoma candidum* and *Melastoma sanguineum*) has a survival rate <80% and 2 species (*Sapium discolor* and *Phyllanthus emblica*) has a survival rate <70%. Its should be noted that the latter two species were often found in small size and only covered by a few foliage during the quadrat

monitoring.

3.2.5 The possible cause of the poor survival rate of the 7 planted species including the animal disturbance/trampling, poor vigor of the planted seedling, insufficient maintenance (such as watering/weeding after planting), or the seedlings of those species are out-competed (for light) by the adjacent planted, self-seeded or retained vegetation. Nevertheless, since re-sprouting of the planted seedlings was commonly noted during the monitoring, the necessity for any replanting work should be further reviewed from the findings of next monitoring - which is to be undertaken in early spring time, i.e. March 2017. On the other hand, if replanting to be undertaken, the following remedial actions are recommended to address the possible causes of the poor survival rate of the planted seedlings:

- Animal disturbance: explore the feasibility to install fencing around the WCA and/or discuss with and seek approval from AFCD to set up animal trap (cage) to control the movement of wild boar within the WCA
- Poor vigor of planted seedlings: any replacement tree planting should consider the use of whips instead of seedlings, and preferably the planting work should be undertaken in the early planting season
- Vegetation maintenance: review the maintenance program and strengthen the watering and weeding program if required.
- Inter-specific/intra-specific competition: weeding of herbaceous plants in particularly the fern *Dicranopteris pedata* within the planting area of the WCA; and any replacement planting should be planted strategically to minimize the shading effect from other vegetation.

3.2.6 **Table 5** below summarize the possible cause of the poor survival rate of the 7 species and recommended actions.

Table 5 Summary of the Recommended Remedial Actions

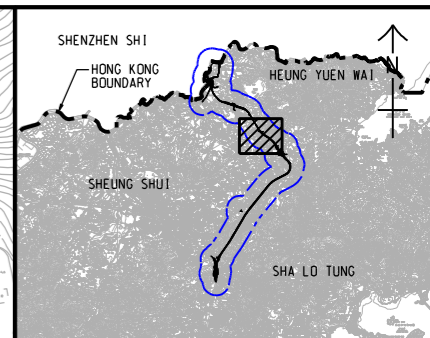
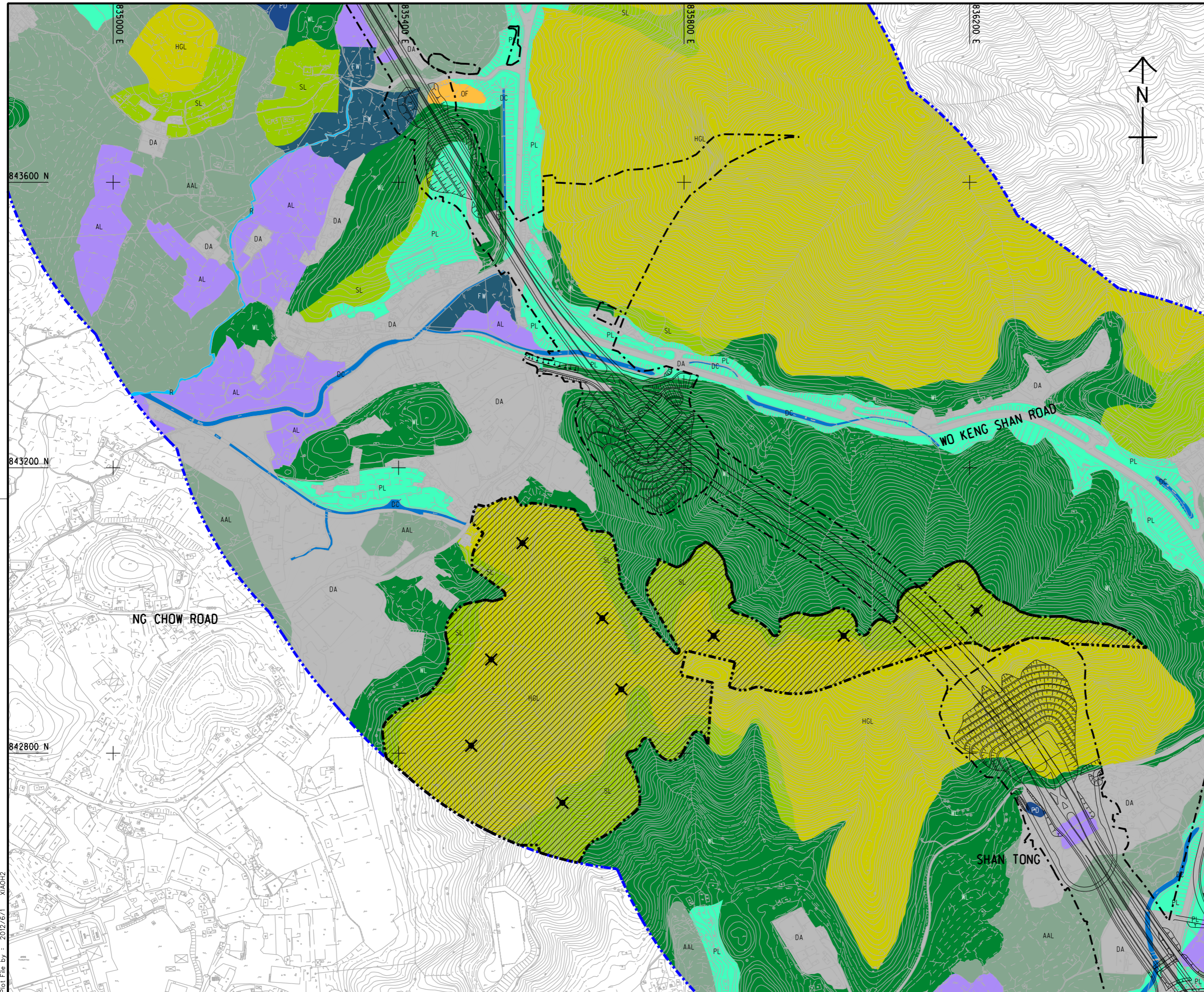
Species	Survival Rate (%)	Possible Cause	Recommended Remedial Action	Replanting
<i>Acacia confusa</i>	70.80	I, III	n/a	To be confirmed
<i>Castanopsis fissa</i>	74.36	I, III	n/a	To be confirmed
<i>Litsea glutinosa</i>	75.32	I, II, III	n/a	To be confirmed
<i>Phyllanthus emblica</i>	47.92	I, II, III	Refer to the bullets in Section 3.2.5	To be confirmed
<i>Sapium discolor</i>	44.44	I, II, III	Refer to the bullets in Section 3.2.5	To be confirmed
<i>Melastoma candidum</i>	73.30	I, II	n/a	To be confirmed
<i>Melastoma sanguineum</i>	71.25	I, II, III	n/a	To be confirmed

I : Animal Disturbance/Trampling
II : Out-competed by adjacent plant
III : Poor vigor of the planted seedling

-End-

Appendix A

Drawing No. 60212563/SK7037 of the Woodland Compensation Plan



KEY PLAN
SCALE 1 : 150000

LEGEND:

- 500m ASSESSMENT AREA
- TENTATIVE WORKS AREA
- TUNNEL SECTION
- WOODLAND
- SHRUBLAND
- PLANTATION
- FRESHWATER WETLAND [NET AGRICULTURAL LAND (ACTIVE/ABANDONED)]
- ACTIVE AGRICULTURAL LAND
- ABANDONED AGRICULTURAL LAND
- HILLSIDE GRASSLAND
- POND
- DRAINAGE CHANNEL
- WATERCOURSE
- OPEN FIELD
- DEVELOPED AREA
- EXTENT OF WOODLAND COMPENSATION PLANTING AREA
- X TENTATIVE WOODLAND MONITORING QUADRAT (THE EXACT LOCATION TO BE DETERMINED BY THE ENGINEER ON SITE)

REV.	DESCRIPTION	D.C.	P.C.	DATE

土木工程拓展署
CEDD
Civil Engineering and
Development Department

LIANTANG/HEUNG YUEN WAI BOUNDARY
CONTROL POINT AND ASSOCIATED WORKS
(SITE FORMATION AND INFRASTRUCTURES)
- DESIGN AND CONSTRUCTION

**PROPOSED WOODLAND
COMPENSATION AREA**

AECOM

DRG.NO. 60212563/SK7037
圖紙編號

DESIGNED BY 設計人: KW	CONTRACT NO. 合約編號: -	P. Dir. APPROVED 批核人: -
------------------------	-------------------------	----------------------------

DRAWN BY 繪圖人: YJP	STATUS 狀態: -	SCALE 比例尺: A1 1 : 2500
----------------------	-----------------	---------------------------

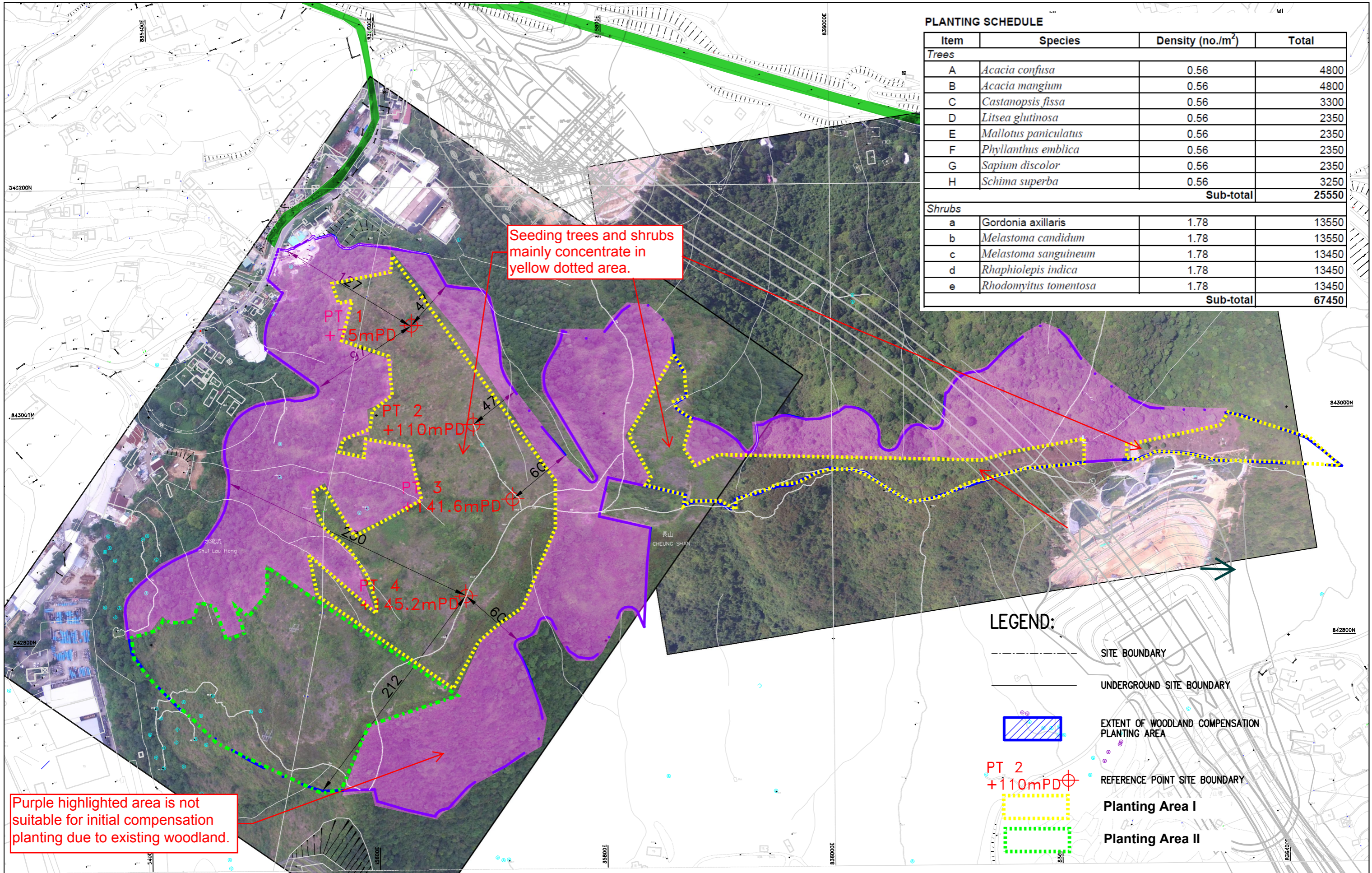
DIMENSIONS ARE IN METRES
尺寸單位: 公尺

© COPYRIGHT RESERVED
版權所有

Plot File by : 2012/6/1 XIAO12

Appendix B

Latest Planting Arrangement



PLANTING SCHEDULE

Item	Species	Density (no./m ²)	Total
Trees			
A	<i>Acacia confusa</i>	0.56	4800
B	<i>Acacia mangium</i>	0.56	4800
C	<i>Castanopsis fissa</i>	0.56	3300
D	<i>Litsea glutinosa</i>	0.56	2350
E	<i>Mallotus paniculatus</i>	0.56	2350
F	<i>Phyllanthus emblica</i>	0.56	2350
G	<i>Sapium discolor</i>	0.56	2350
H	<i>Schima superba</i>	0.56	3250
Sub-total			25550
Shrubs			
a	<i>Gordonia axillaris</i>	1.78	13550
b	<i>Melastoma candidum</i>	1.78	13550
c	<i>Melastoma sanguineum</i>	1.78	13450
d	<i>Rhaphiolepis indica</i>	1.78	13450
e	<i>Rhodomlytus tomentosa</i>	1.78	13450
Sub-total			67450

Seeding trees and shrubs mainly concentrate in yellow dotted area.

Purple highlighted area is not suitable for initial compensation planting due to existing woodland.

LEGEND:

- SITE BOUNDARY
- UNDERGROUND SITE BOUNDARY
- EXTENT OF WOODLAND COMPENSATION PLANTING AREA
- REFERENCE POINT SITE BOUNDARY
- Planting Area I
- Planting Area II

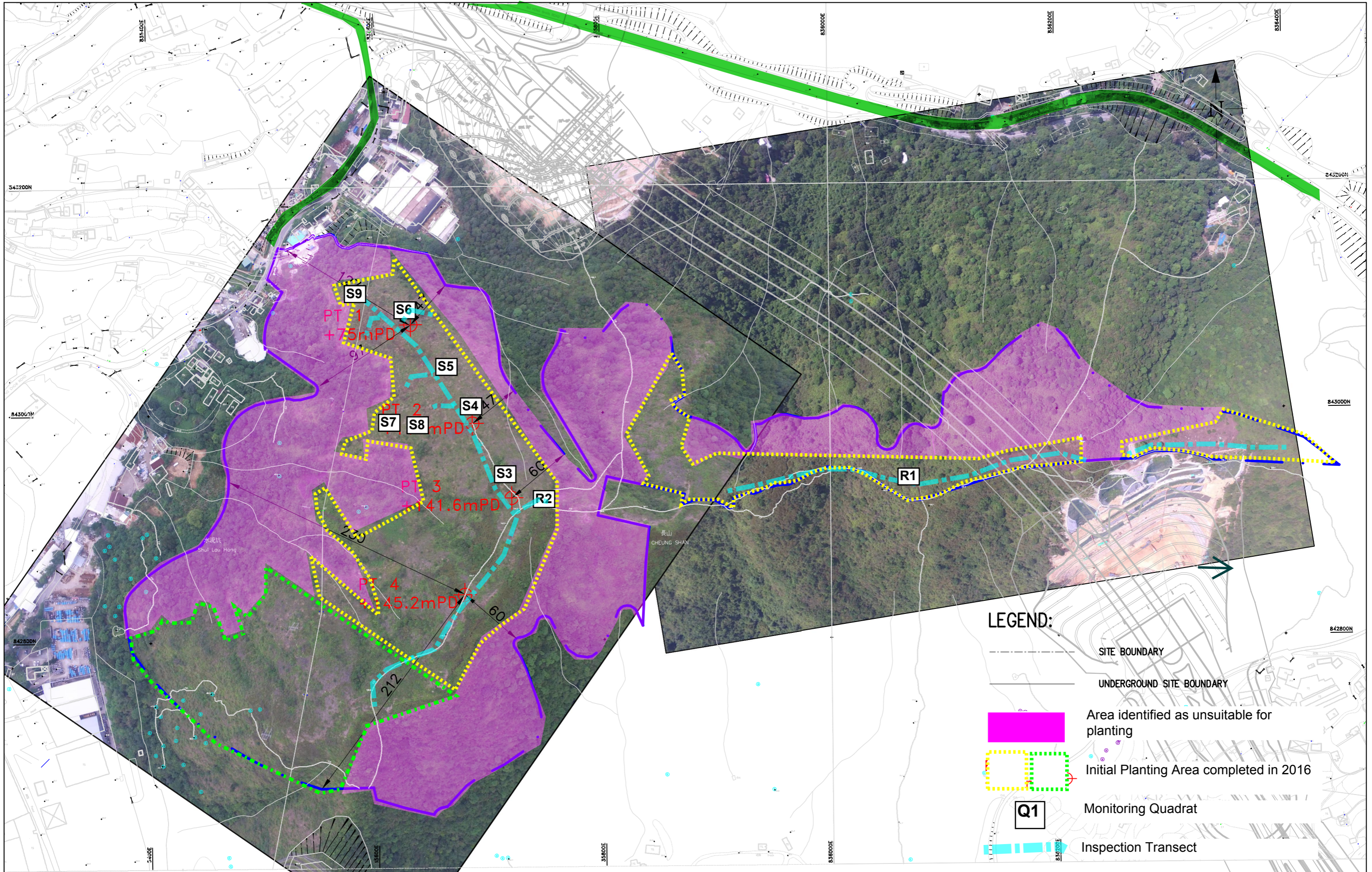
CONTRACT NO. CV/2013/08
LIANTANG/HEUNG YUEN WAI
BOUNDARY CONTROL POINT
SITE FORMATION AND
INFRASTRUCTURE WORKS
- CONTRACT 6

APPENDIX B - SITE CONSTRAINTS AND LATEST PLANTING ARRANGEMENT OF THE INITIAL PLANTING PHASE (2016)




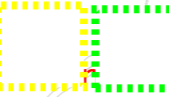


SCALE	1:3000(A3)	SURVEY DATE	8 September 2016
CHECK		DRAWN	K W
JOB NO.		SKETCH NO.	
		REV	-

Appendix C

Transect Routes and Sampling Quadrats of Woodland Compensation Monitoring



LEGEND:

-  SITE BOUNDARY
-  UNDERGROUND SITE BOUNDARY
-  Area identified as unsuitable for planting
-  Initial Planting Area completed in 2016
-  Monitoring Quadrat
-  Inspection Transect

APPENDIX C - LOCATION OF THE THE INSPECTION TRANSECTS AND MONITORING QUADRATS, 2016

CONTRACT NO. CV/2013/08
LIANTANG/HEUNG YUEN WAI
BOUNDARY CONTROL POINT
SITE FORMATION AND
INFRASTRUCTURE WORKS
- CONTRACT 6

SCALE	1:3000(A3)	SURVEY DATE	N/A
CHECK		DRAWN	K W
JOB NO.		SKETCH NO.	WCA_Monitoring Plan-161130
		REV	-

Appendix D

Photographic Records

Contract No. CV/2013/08, Woodland Compensation Area - Vegetation Monitoring



Fig-S6 (2)



Fig-S6 (3)



Fig-S7



Fig-S7 (3)



Fig-S8