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 (SEPTEMBER TO NOVEMBER 2018)

PREPARED FOR
CIVIL ENGINEERING AND DEVELOPMENT DEPARTMENT (CEDD)

Date	Reference No.	Prepared By	Certified By
12 December 2018	TCS00694/13/600/R1911v2	 Keith Wong (Ecologist)	 Tam Tak Wing (Environmental Team Leader)

Version	Date	Remarks
1	5 December 2018	First Submission
2	12 December 2018	Amended according to IEC's comments on 10 December 2018

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local people
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Our ref: 7076192/L23869/AW/MCC/rw

14 December 2018

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

By Email & Post

Attention: Mr Simon LEUNG

Dear Sir

Agreement No. CE 45/2008 (CE)
Liantang/Heung Yuen Wai Boundary Control Point and Associated Works
Independent Environmental Checker – Investigation
Quarterly Ecological Monitoring Report for Woodland Compensation Area (No .5) – September to November 2018

With reference to the Quarterly Ecological Monitoring Report for Woodland Compensation Area No. 5 for September to November 2018 (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 Arthur CHIU on tel. 3995-8144 or by email to arthur.chiu@smec.com.

Yours faithfully

Antony WONG
Independent Environmental Checker

cc	CEDD/BCP	-	Mr LU Pei Yu / Mr William CHEUNG	by fax: 3547 1659
	AECOM	-	Mr Pat LAM / Mr Perry YAM	by email
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Table of Content

LIST OF TABLES

LIST OF APPENDICES

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 lost 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, and a revision of the updated WCP (i.e., WCP Revision 2) has been approved by EPD in 2017.

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 and in accordance with the latest status of the initial planting phase (refer to the "as-built" plan as shown in ***Appendix B*** for details), this submission presents the findings of the 5th quarterly vegetation monitoring after the first year of initial planting, and covers the Reporting Period from September to November 2018.

2. MONITORING REQUIREMENTS

2.1 MONITORING PROGRAM OF THE INITIAL AND ENHANCEMENT PLANTING PHASES

2.1.1 According to the Section 6.5 of the WCP (ver. 2), the frequency of the monitoring is proposed to be bi-monthly during the first year of the initial planting phase and should be reduced to quarterly from the second year.

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 (EPD) and Agriculture, Fisheries and Conservation Department (AFCD) 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, lighting 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/fruiting/ 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 as-built planting plan 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/fruiting/ 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 The survival rate of the planted species during the initial planting phase will be evaluated against the referenced baseline updated for the monitored quadrats after the supplementary planting work undertaken in September 2017, 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.

	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 The results and findings of the bi-monthly (i.e., once every two months) monitoring including the landscape inspection during the first year of the initial planting phase and the first year of the enhancement planting phase 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 Starting from the second year of the initial planting phase and the enhancement planting phase, the frequency of the monitoring is reduced to quarterly basis, the results and findings of the quarterly monitoring as well as the landscape inspection after the first year of the initial planting phase and the first year of the enhancement planting phase shall 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 23rd November 2018 with the ecological specialist of the IEC, an overview of the site condition is presented in ***Appendix D*** and the following presents the observations made during the transect inspection:

- It was sunny with cloudy period during the day of the transect inspection.
- The seedlings planted and established along the ridgeline of the WCA was generally found in fair to good condition, especially those on the eastern ridgeline of the Cheung Shan where the gradient is more gentle.
- The establishment of the exotic tree *Acacia mangium* within the WCA was found to be much better than the other planted species and trees that >2m tall were occasionally noted on the eastern ridgeline of the Cheung Shan. Moreover, the white mildew that has been found on the foliage of this species around the same period in previous year, was also commonly noted on this species.
- The health condition of the replacement planting carried out earlier this year is more or less stable, but saplings of the native tree species *Castanopsis fissa* and *Sapium discolor* were only occasionally spotted along the transect, and their overall abundance appeared to be rather low within the WCA, especially the latter species.
- Signs of disturbance from wild boar, i.e., vegetation trampling and earth ploughing were only occasionally noted on the north-facing slope of Cheung Shan, but quite prominent around the Quadrat S6.
- The growth and establishment of several self-seeded native tree and shrub species, in particularly the trees *Melicope pteleifolia*, *Cratoxylum cochinchinense* and *Glochidion wrightii*, as well as the shrubs *Baeckea frutescens* and *Breynia fruticose*, were found to be vigorous within the planted area (initial planting) of the WCA, and most of those plants have out-grown the planted seedlings
- Vigorous growth of the fern *Dicranopteris pedata*, as mentioned in previous monitoring report, seems to be out-compete the planted seedlings for light and space, especially the planted tree species where they would only be occasionally noted in area densely covered by the Dichotomy Forked Fern.

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			
Acacia confusa		√	
Acacia mangium		√(1)	
Castanopsis fissa		√	
Litsea glutinosa		√(3)	
Mallotus paniculatus		√(3)	
Phyllanthus emblica		√(2)(3)	
Sapium discolor		√(2)(3)	
Schima superba	√(3)		
Shrubs			
Gordonia axillaris		√	
Melastoma candidum		√(3)	
Melastoma sanguineum		√(3)	

Rhaphiolepis indica		√ (2) ,(3)	
Rhodomytus tomentosa		√ (3)	

Note:
(1) – white mildew was commonly found on the foliage of this species
(2) - Most of the foliage of this species was found to be smaller in size
(3) – self-seeded seedlings or wild population of this species was presence within the planting area (initial planting) 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 20th and 23rd November 2018, and the weather were cloudy with sunny period on both days.

3.2.2 The condition of the quadrats during the time of monitoring is shown in ***Appendix D*** and the monitoring result of the reporting period and the survival rate of the planted species since the commencement of the quarterly monitoring (initial planting phase) are shown in ***Table 3*** and ***Table 4*** respectively.

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

	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										
Acacia confusa	*22*	*12*	*12*	*6*	*12*	*3*	*6*	*7*	*20*	**100**
Acacia mangium	*27*	*24*	*23*	*11*	*27*	*0*	*18*	*12*	*29*	**171**
Castanopsis fissa	*1*	*3*	*1*	*2*	*0*	*5*	*1*	*3*	*3*	**19**
Litsea glutinosa	*14*	*4*	*8*	*6*	*4*	*2*	*3*	*6*	*6*	**53**
Mallotus paniculatus	*18*	*7*	*10*	*9*	*11*	*11*	*12*	*14*	*25*	**117**
Phyllanthus emblica	*4*	*4*	*6*	*4*	*10*	*2*	*5*	*3*	*7*	**45**
Sapium discolor	*1*	*1*	*3*	*1*	*2*	*2*	*2*	*2*	*4*	**18**
Schima superba	22	11	7	10	10	56	1	6	0	**123**
Sub-Total	**109**	**66**	**70**	**49**	**76**	**81**	**48**	**53**	**94**	**646**
Shrubs										
Gordonia axillaris	*6*	*15*	*29*	*36*	*46*	*23*	*19*	*8*	*10*	**192**
Melastoma candidum	*26*	*15*	*25*	*27*	*38*	*17*	*21*	*23*	*25*	**217**
Melastoma sanguineum	*10*	*52*	*29*	*33*	*74*	*7*	*17*	*10*	*25*	**257**
Rhaphiolepis indica	*54*	*36*	*41*	*31*	*52*	*24*	*20*	*40*	*34*	**332**
Rhodomyrtus tomentosa	*66*	*86*	*63*	*45*	*97*	*28*	*46*	*64*	*86*	**581**
Sub-Total	**162**	**204**	**187**	**172**	**307**	**99**	**123**	**145**	**180**	**1579**

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 individuals of the planted species within the quadrat regardless whether they are self-seeded or planted (see Section 2.3.4)

Table 4 Survival Rate of the Planted Species since the Commencement of the Quarterly Monitoring of the Initial Planting Phase

Species	Qty. of Seedlings					Survival Rate* (%)			
	Ref. ^	Jan 18	Mar 18	Aug 18	Nov 18	Jan 18	Mar 18	Aug 18	Nov 18
Acacia confusa	113	59	64	77	100	**52.21**	**56.64**	**68.14**	88.50
Acacia mangium	193	190	185	184	171	98.45	95.85	95.34	88.60
Castanopsis fissa	39	13	13	15	19	**33.33**	**33.33**	**38.46**	**48.72**
Litsea glutinosa	79	51	50	53	53	**64.56**	**63.29**	**67.09**	**67.09**
Mallotus paniculatus	80	93	95	128	117	100.00	100	100.00	100
Phyllanthus emblica	64	38	50	48	45	**59.38**	**78.13**	**75.00**	**70.31**
Sapium discolor	39	22	22	22	18	**56.41**	**56.41**	**56.41**	**46.15**
Schima superba	82	79	69	102	123	96.34	84.15	100.00	100.00
Gordonia axillaris	148	195	201	200	192	100.00	100	100.00	100.00
Melastoma candidum	352	214	211	220	217	**60.80**	**59.94**	**62.50**	**61.65**
Melastoma sanguineum	313	269	265	266	257	85.94	84.66	84.98	82.11
Rhaphiolepis indica	438	313	302	289	332	**71.46**	**68.95**	**65.98**	**75.80**
Rhodomyrtus tomentosa	824	558	536	537	581	**67.72**	**65.05**	**65.17**	**70.51**

^ updated in Sep 2017 in accordance with the "as-built" planting plan for the initial planting phase as well as the monitoring findings between Aug 2017 and Nov 2017
** no. in bold denotes the survival rate trigger action listed in Table 1*

3.2.3 Based on the recorded data and observations made within the sampled quadrats and the data presented in ***Table 3*** and ***Table 4***, the following provides a brief account of the findings from the quadrat monitoring:

- Health condition: Generally speaking all of the planted plants were found in fair health condition, except some of the tree saplings may suffer from herbivory (such as *Castanopsis fissa*, *Litsea glutinosa* and *Mallotus paniculatus*) and appeared in poorer condition.
- Survival Rate: As shown in the Table 4, despite replacement planting for the initial planting phase has already been undertaken in the 2nd to 3rd quarter of 2018, the recorded survival rate for the seven species where replanting has been undertaken are more or less similar to the findings of the previous monitoring, or slightly increased but still under the action trigger level, i.e., 70% or 80%. Noteworthy is the further drop of the *Sapium discolor* from (from 56.41% to 46.15%), as well as the significant increase of the *Acacia confisa*, *Castanospsis fissa* and *Rhaphiolepis indica* where the survival rate of the former has been found

bounced back to 88.5.%, and the latter two are increased from 38.46% to 48.72%, and 65.98 to 75.80% respectively.

- Structural pruning or wound trimming for the damaged *Acacia mangium* as noted in previous reporting period has not been undertaken yet, which if not rectified would increase the risk of decay and tree failure from structural defect in long term

3.2.4 The possible causes of poor survival rate has been postulated in previous reports, including

- poor vigor of the planted seedling
- animal disturbance such as herbivory and trampling
- inappropriate horticultural maintenance (such as watering/weeding)
- the seedlings were out-competed (for light and space) by the adjacent planted, self-seeded or retained vegetation

3.2.5 Moreover, since the growing season has already over and the planted seedlings may remain dormant until res-sprouting in the next growing season, it is recommended that the necessity for taking further remedial actions, including but not limited to replanting or species substitution, to be further reviewed from the data collected in next monitoring period.

3.2.6 Meanwhile, the remedial actions recommended to address the possible causes of poor survival rate of the 7 species reported above are presented in ***Table 5***. According to Table 1, the Contractor is responsible for the implementation of replanting and other remedial measures agreed by AFCD.

Table 5 Remedial Actions Recommended for the Poor Survival Rate of the Planted Species

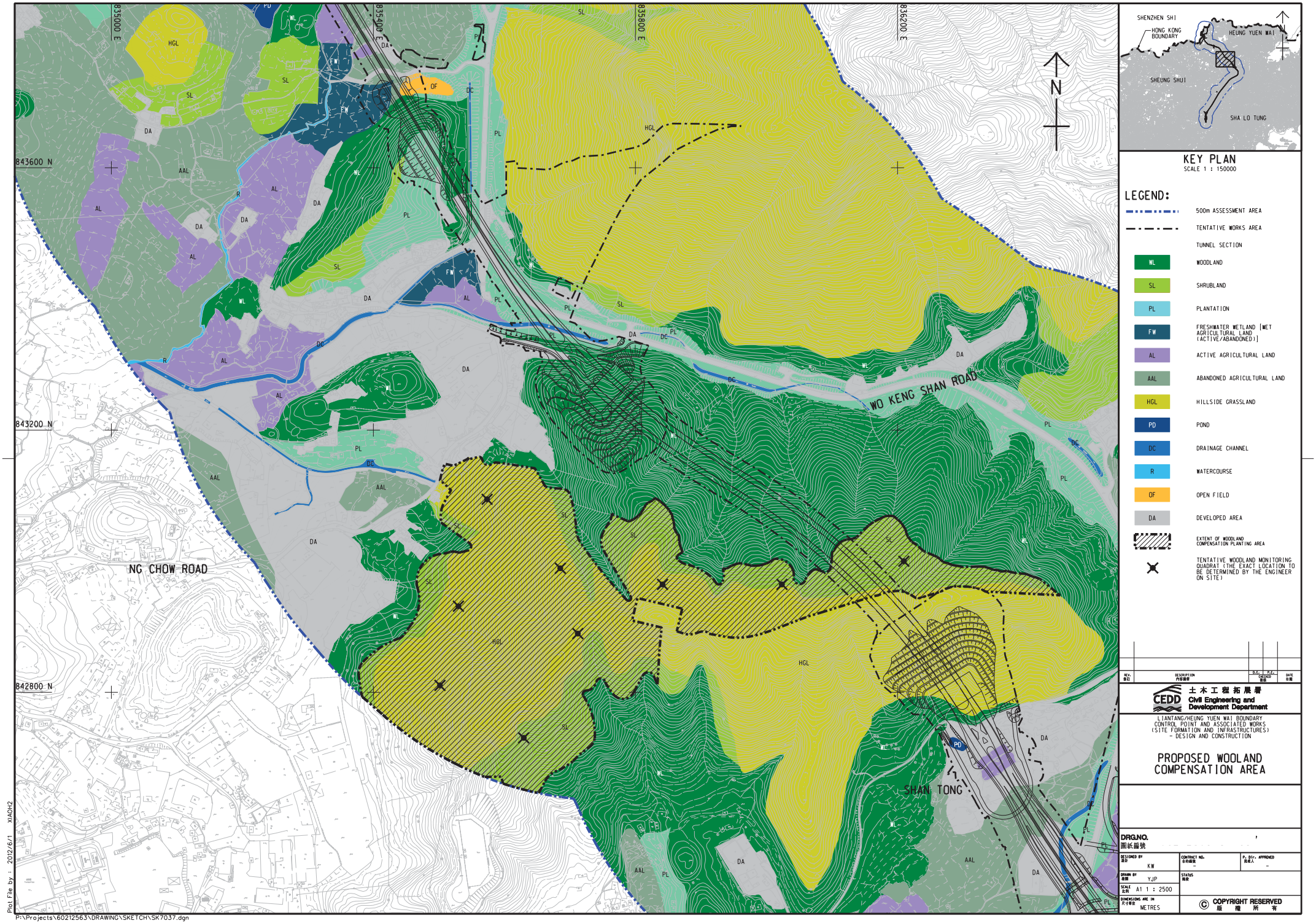
Possible Cause	Remedial Action
Animal disturbance	Prominent signs of disturbance from animal activities, in addition to those previous noted, has not been observed within the WCA as a whole after the replanting conducted, and the necessity for further action to be reviewed
Poor vigor of the planted seedlings	Strengthen the vegetation maintenance (in particularly weeding and if necessary fertilizing) within the WCA, and provide adequate briefing to the maintenance team to avoid/minimize the potential trampling/mechanical damage to the woody plants within the WCA. In addition, the use of motorized weeding equipment in areas densely covered by woody plant should be avoided as far as practicable, and the removed weed should be properly disposed to avoid shadowing of the planted seedlings. In future planting work, nursery stock should conform to the General Specification requirement.
Vegetation maintenance	
Inter-specific competition	

3.2.7 Finally, the Contractor is recommended to undertake restoration/structural pruning and/or bark trimming to rectify the damage noted on the *Acacia mangium* as such to promote woundwood formation and compartmentation process of the damaged trees.

-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
- WL — WOODLAND
- SL — SHRUBLAND
- PL — PLANTATION
- FW — FRESHWATER WETLAND (WET AGRICULTURAL LAND (ACTIVE/ABANDONED))
- AL — ACTIVE AGRICULTURAL LAND
- AAL — ABANDONED AGRICULTURAL LAND
- HGL — HILLSIDE GRASSLAND
- PD — POND
- DC — DRAINAGE CHANNEL
- R — WATERCOURSE
- OF — OPEN FIELD
- DA — DEVELOPED AREA
- EXTENT OF WOODLAND COMPENSATION PLANTING AREA
- TENTATIVE WOODLAND MONITORING QUADRAT (THE EXACT LOCATION TO BE DETERMINED BY THE ENGINEER ON SITE)

REV. 修訂	DESCRIPTION 內容摘要	D.E. 設計	P.E. 核准	DATE 日期

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

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

PROPOSED WOOLAND COMPENSATION AREA

DRG.NO. 圖紙編號

DESIGNED BY 設計	CONTRACT NO. 合約編號	P. Dir. APPROVED 負責人
KW	–	–
DRAWN BY 繪圖	STATUS 狀態	
YJP		
SCALE 比例 A1 1 : 2500		
DIMENSIONS ARE IN 尺寸單位 METRES	© COPYRIGHT RESERVED 版權所有	

Plot File by : 2012/6/1 XIAOH2

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Appendix B

As-built Planting Schedule for Initial Planting Phase

WOODLAND COMPENSATION PLANTING AREA

PLANTING SCHEDULE FOR INITIAL PLANTING PHASE

SPECIES	CHINESE NAME	SIZE (MM)	QUANTITY (NR)	REMARK
TREES				
Acacia confusa	台灣相思	SEEDLING TREE	5,480	TREES TO BE PLANTED IN A GROUP OF 3 NOS. TO 5 NOS. OF THE SAME SPECIES
Acacia mangium	大葉相思	SEEDLING TREE	5,480	
Castanopsis fissa	黧蒴	SEEDLING TREE	3,300	
Litsea glutinosa	潺槁樹	SEEDLING TREE	2,350	
Mallotus paniculatus	白楸	SEEDLING TREE	2,350	
Phyllanthus emblica	餘甘子	SEEDLING TREE	2,350	
Sapium discolor	山烏桕	SEEDLING TREE	2,350	
Schima superba	荷樹	SEEDLING TREE	3,250	
		TOTAL:	**26,910**	
SHRUBS				
Gordonia axillaris	大頭茶	250(H) x 250(S)	15,340	SHRUBS TO BE PLANTED IN A GROUP OF 5 NOS. TO 8 NOS. OF THE SAME SPECIES
Melastoma candidum	野牡丹	250(H) x 250(S)	15,340	
Melastoma sanguineum	毛菶	250(H) x 250(S)	15,240	
Rhaphiolepis indica	車輪梅	250(H) x 250(S)	15,240	
Rhodomyrtus tomentosa	桃金孃	250(H) x 250(S)	15,240	
		TOTAL:	**76,400**	

Seeding trees and shrubs mainly concentrate in yellow dotted area.

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

PT 1 +75mPD

PT 2 +110mPD

PT 3 141.6mPD

PT 4 45.2mPD

LEGEND:

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

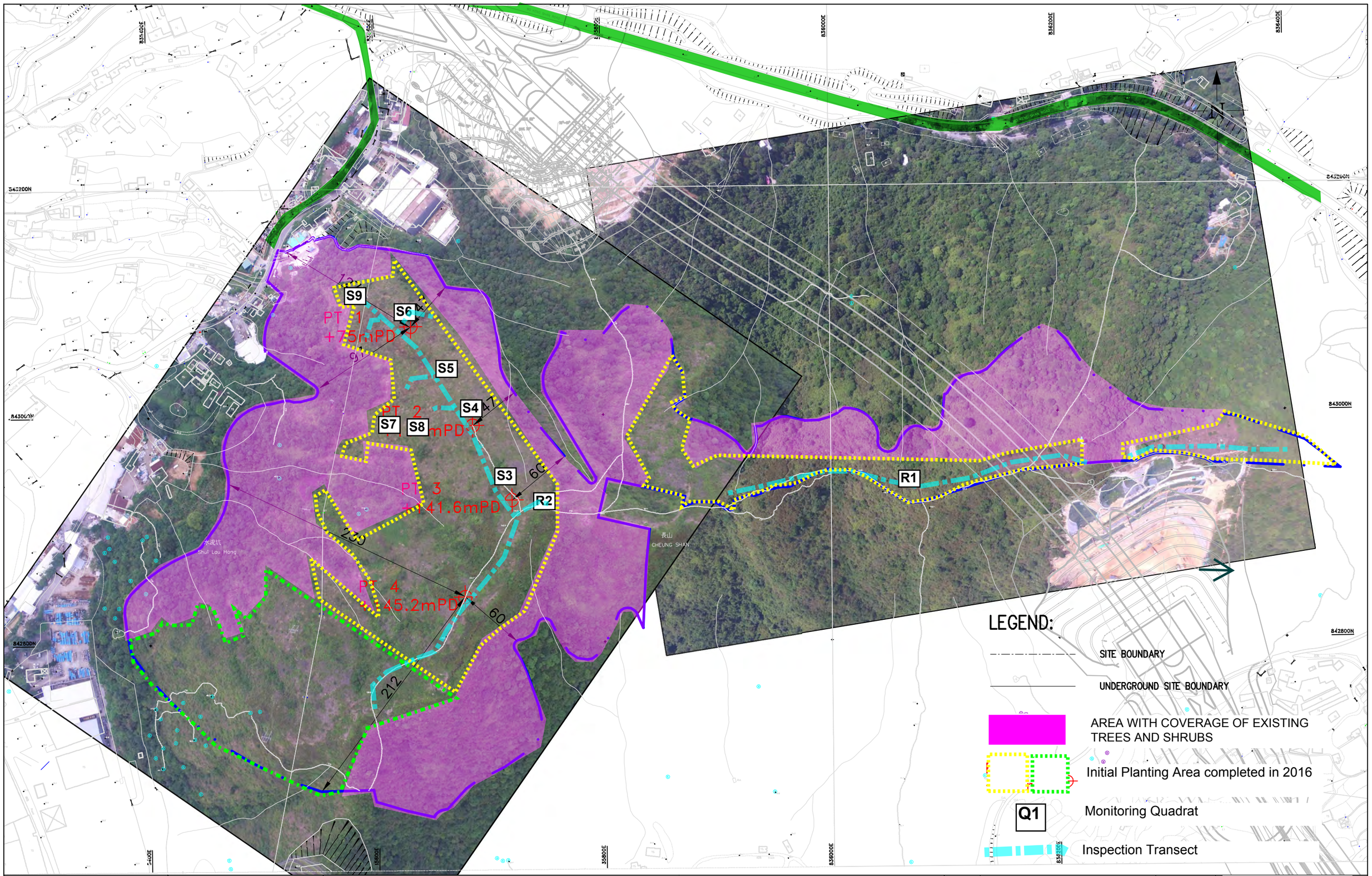
CONTRACT NO. CV/2013/08
LIANTANG/HEUNG YUEN WAI BOUNDARY CONTROL POINT SITE FORMATION AND INFRASTRUCTURE WORKS – CONTRACT 6

APPENDIX B - As-built Planting Schedule for Initial Planting Phase

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



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

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

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

	
R1	**R2**
	
S3	**S4**
	
S5	**S6**

	
S7	**S8**


S9

Eastern ridgeline of Cheung Shan

Northern Slope of Cheung Shan

Western Ridgeline of Cheung Shan

White Mildew on the foliage of Acacia Mangium

Established Acacia mangium seedlings

Appendix E

Replanting Plan

As-built Replanting Quantity for Initial Planting

Species	Chinese Name	Replanting Quantity		Total Qty.
		Outside Monitoring Quadrats	Within Monitoring Quadrats	
Acacia confusa	台灣相思	2327	49	2376
Castanopsis fissa	黧蒴	0	26	26
Litsea glutinosa	潺槁樹	0	29	29
Sapium discolor	山烏桕	0	17	17
Melastoma candidum	野牡丹	2894	141	3035
Rhaphiolepis indica	車輪梅	1486	136	1622
Rhodomyrtus tomentosa	桃金孃	1929	288	2217
				9322