世界自然基金會
香港分會

WWF Hong Kong

香港中環纜車徑一號
No.1 Tramway Path,
Central, Hong Kong

電話 Tel: +852 2526 1011
傳真 Fax:+852 2845 2764
wwf@wwf.org.hk
wwf.org.hk

Our Ref.: SHK/LDD 7/11

27 May 2011

Chairman and Members
Town Planning Board
15/F North Point Government Offices,
333 Java Road, North Point, H.K.
(E-mail: tpbpd@pland.gov.hk)

By E-mail ONLY

Dear Sir/Madam,

Re: Rezone "Agriculture" , "Conservation Area" and "Coastal Protection Area" to "Comprehensive Development Area (1)" and incorporate part of the seabed at Tung O Wan to the east of the northern area of the application site into the OZP and zone it as "Comprehensive Development Area (1)" in Tung O, Lamma Island (Y/I-LI/1)

With serious concerns to the impacts of this large-scale project to the existing natural environment, including important wildlife habitats, WWF would like to lodge an **objection** to the captioned with the following views:

1. General Views

1.1 Violating the general planning Intention as stated in the Approved Lamma Island Outline Zoning Plan No. S/I-LI/9

The proposed development is incompatible with the general planning intention of the Lamma Island. According to the approved Lamma Island Outline Zoning Plan (OZP) No.S/I-LI/9, *"the general planning intention is to conserve the natural landscape, the rural character and car-free environment of Lamma Island … the ecologically and environmentally sensitive areas including the Sham Wan SSSI, the South Lamma SSSI, mountain uplands, woodland and the undisturbed natural coastlines should be protected … Future growth of settlement is limited to the existing villages and development nodes…"*[1]. WWF considers the proposed development, composing of a marina, residential blocks (a total of 900 units), a resort hotel and the associated infrastructures (e.g. access road for cars) are highly incompatible with the existing settings of the application site and its surrounding area, which so far have been kept in its natural state. The proposed rezoning will affect more than 85 ha of area dominated by conservation zonings and the coastal waters, and is in violation of the General Planning Intention of the existing Lamma OZP. The provision of parking spaces also contradicts the intention of maintaining a "car-free" environment of Lamma.

[1] See Section 7.1 to 7.2 of the Explanatory Statement of the approved Lamma Island OZP

1.2 In contradiction with the planning intention of the Conservation Zonings

Since the proposed development will cause a permanent loss of 19.47 ha in "Conservation Area" ("CA") and 3.18 ha in the "Coastal Protection Area" ("CPA"), we opine that the proposed development is not in line with the planning intentions of these conservation zonings. With reference to the approved Lamma Island OZP No.S/I-LI/9, the planning intention of "CA" is "… *to protect and retain the existing natural landscape, ecological or topographical feature of the area for conservation … and to separate sensate natural environment such as SSSI from adverse effects of development*" while the one of "CPA" is "… *to conserve, protect and retain the natural coastlines and the sensitive coastal natural environment…"*. The existing lands of "CA" and "CPA" within the application site are currently serving well their conservation functions of protecting the existing natural landscape, ecological or topographical features of Tung O, the natural habitats for the endemic and globally endangered Romers' tree frog and providing an important buffer for protecting the conservation value of Shum Wan SSSI, which is an important nesting ground for the green turtle. WWF considers the rezoning will compromise the existing functions of the conservation zonings and are incompatible with their existing planning intentions.

1.3 South West New Territories Development Strategy Review

Pursuant to the Recommended Development Strategy for South West New Territories by the Planning Department in 2001 (Figure 1), the application site has been proposed as Conservation Area (Landscape Protection Area/Coastal Protection Area) and Country Park. As the proposed site and its surrounding is home to a number of species of conservation interest (e.g. Romer's tree frog), WWF considers the respective agricultural and conservation zonings of the subject site should not be changed in order to maintain its current state and demonstrate its high ecological value of potentially becoming a country park.

1.4 Plot ratio and land ownership

The applicant should explain if the calculation of the plot ratio takes into account both sea and land areas, such as whether the Marine Portion (~430,000 m^2) is being included in the plot ratio as more than 50% of the site area is on the sea. Since about 351,810 m^2, or 83% of the Landside Portion is Government land, it is important to clarify if any of such Government Land will also be developed for this Project and whether the conservation zonings on Government land will be carefully protected from development threats for public enjoyment and conservation purposes.

2. Terrestrial Impacts

2.1 Habitat loss

According to Figure 7.6a-c of the Terrestrial Ecology Assessment, a large proportion of the Project Site is composed of natural habitats including secondary woodland, tall shrubland, shrubland/grassland mosaic and wet abandoned agricultural land. According to our site visit on 18 May 2011, some of

existing habitats within the Project Site (e.g. secondary woodland – a total of 5.5 ha[2]) are densely vegetated (Figure 2&3). As such, we view that the applicant should clarify with supporting facts the statement "*In view of the generally poor vegetation cover of the Project Site and human disturbance (hill fire), it is believed that the Project Site does not provide optimal habitats for most of the recorded species of conservation interest*"[3] .

2.2 Impacts on the Conservation Area and Coastal Protection Area

A large area of tall shrubland (2.75 ha) which is evaluated as of moderate ecological importance and a relatively smaller area of secondary woodland (0.09 ha) will be permanently lost for the construction of the Northern and Southern Site as well as the access road. In the absence of strong justification, we are highly dubious about the statement "*Potential impacts due to the Project on these sites are therefore not expected to be significant*[4] *,* and the applicant should provide clear justifications to support this statement.

2.3 Romer's tree frog

Lamma is one of the four islands in the world with the natural occurrence of Romer's tree frogs (*Liuixalus romeri*), an endemic species to Hong Kong, while the Project Site will encroach on the southern part of Lamma where the Romer's tree frogs are recorded[5]. Since the Romer's Tree Frog is found and heard in the secondary woodland at Mo Tat Old Village and Tung O Village[6], we consider that the proposed development is likely to cause adverse impacts to the habitats of Romer's tree frog, an endemic species protected under the Wild Animals Protection Ordinance (Chapter 170) and classified as an endangered species of global conservation importance according to the IUCN Red List of Threatened Species. While the Romer's tree frog is a species of conservation importance, the applicant has failed to explicitly evaluate the potential impacts on the species due to the proposed development.

2.4 Plant of Conservation Interest

It is stated that there will be a potential loss of plant species of conservation interest, including Hong Kong Pavetta, Incense Tree and Silver-back Artocarpus within the Project Site. With reference to Figure 7.6a and Table 7.32, some of these plant species are located within the secondary woodland and shrubland within the Project Site. In addition, according to our site visit on 18 May 2011, Hong Kong Pavetta (*Pavetta hongkongensis*) (Figure 4), a protected plant species under the Forests and Countryside Ordinance Cap. 96, was recorded at the edge of the tall shrubland adjacent to the hiking

[2] See Table 7.8 of the Terrestrial Ecology Assessment
[3] See Section 7.8.3 of the Terrestrial Ecology Assessment
[4] *Ibid*
[5] AFCD http://www.afcd.gov.hk/english/conservation/con_fau/con_fau_rom/con_fau_rom_gen/con_fau_rom_gen_eco.html
[6] See Table 7.30 of the Terrestrial Ecology Assessment

trail between Yung Shue Ha and Mo Tat Old Village. Since various plant species of conservation interest are found within the Project Site, we view that adverse impacts on the plant species due to the construction works are anticipated. Nevertheless, the applicant has failed to conduct a detailed baseline vegetation survey to confirm the existence of these species and other plant species of conservation concern, and also to explicitly evaluate the impacts on such plant species due to the proposed development.

2.5 Conservation Corridor

Since the proposed Conservation Corridor in the Northern Area, which mainly consists of secondary woodland, will be largely surrounded by the proposed residential buildings, we consider that wildlife inhibiting in the woodland area will be adversely affected by the significant human disturbance (e.g. noise and glare) during construction and operation phases. As such, we are highly dubious about the effectiveness of the corridor in terms of mitigating the adverse impacts due to the proposed development and maintaining/enhancing its ecological values and connectivity with the surrounding habitats.

2.6 Access road connecting the Southern Site and the Northern Site

It is stated that there will be an access road of approximately 7 m to 12 m in width connecting the Northern and Southern Site[7]. Approximately 6 ha of natural habitats including secondary woodland, tall shrubland, shrubland/grassland mosaic and wet abandoned agricultural land will be permanently lost for building the access road[8]. In addition, the streams at Yung Shue Ha (Figure 5) could also be affected by the proposed road alignments[9]. As such, we consider that habitat loss and human disturbance to the wildlife will be anticipated due to the construction and operation of the road, rendering adverse impacts to the natural environment. Nevertheless, insufficient information has been provided to explicitly identify and address the adverse ecological impacts on the wildlife due to the construction and operation of the proposed access road. A reiteration has to be made that Lamma should be a car-free environment, while the proposed road construction is clearly in violation of the General Planning Intention for Lamma.

2.7 Increased human activities and disturbance

Given ecologically sensitive areas including secondary woodland and natural streams are found within and adjacent to the Project Site, direct disturbance to natural habitats and wildlife due to increased human activities during construction and operation of the Project is anticipated. We are of grave concern that night time lighting, visual and noise disturbance in both construction and operation phases

[7] See Section 7.3 of the Terrestrial Ecology Assessment
[8] See Table 3.1 of the Terrestrial Ecology Assessment
[9] See Figure 1.1 Location of the Project

will incur adverse ecological impacts to the wildlife, in particular the nocturnal species (e.g. Asian Barred Owlet *Glaucidium cuculoides*[10]). Since the number of units (900 units) to be constructed is not small, we are highly dubious that the level of light as well as visual and noise disturbance generated by such a large-scale development can be fully addressed even if mitigation measures matching such a scale is implemented. In addition, the statement "*the Project Site will have ample space for visitors to relax without having to "spill over" to the natural habitats*"[11] needs further explanation as to how such 'spill over' effect will not take place at all.

2.8 Habitat fragmentation

While most of the ecologically sensitive habitats including secondary woodland, streams and wetland habitat will remain untouched[12], a large area of tall shrubland and shrubland/grassland mosaic which surrounds those habitats will be lost for the proposed residential blocks and resort hotel. We consider that the proposed development will likely undermine the ecological linkage of the ecologically sensitive areas (e.g. secondary woodland) to the surrounding habitats and thus lead to habitat fragmentation and isolation. In spite of the large scale of the development proposed and the known existence of the species of conservation interest within and adjacent to the site, the applicant has failed to explicitly evaluate the impacts on the wildlife due to habitat fragmentation and isolation.

3. Marine Impacts

3.1 Finless Porpoise

Inadequate and outdated information to evaluate the habitat importance

The finless porpoise (*Neophocaena phocaenoides*), listed as "Vulnerable" in the IUCN Red List of Threatened Species[13] and CITES Appendix I (i.e. highest protection)[14], is one of the two resident cetaceans inhibiting Hong Kong waters. It is estimated that more than 150 finless porpoises inhabit mainly in the southern and southwestern part of Hong Kong waters[15] during the dry seasons (December to May).

According to the planning statement, the applicant has not used the most up-to-date information to evaluate the impact on porpoise. Referring to the 2008-09 data provided, "*porpoise densities (DPSE values) in this Area are considered to be low*", and hence it was concluded that the ecological importance for porpoise habitat was low within the proposed marina area. However, according to the

[10] The calling of this species is heard near the hiking trail between Yung She Ha and Mo Tat Old Village during our site visit on 18 May 2011
[11] See Section 7.8.3 of the Terrestrial Ecology Assessment
[12] See Section 7.8.3 of the Terrestrial Ecology Assessment
[13] IUCN Red List http://www.iucnredlist.org/apps/redlist/search Accessed on 16 March 2011.
[14] CITES-listed species database. http://www.cites.org/eng/resources/species.html Accessed on 16 March 2011.
[15] AFCD data. http://www.afcd.gov.hk/english/conservation/con_mar/con_mar_fin/con_mar_fin_fin/con_mar_fin_fin_dis_where.html. Accessed on 16 March 2011.

latest AFCD marine mammal monitoring report (2009-2010)[16], although only one porpoise sighting was made near Tung O Wan from eight surveys conducted between April 2009 and March 2010, the calculated SPSE and DPSE values suggested that Tung O Wan is one of the intense porpoise usage locations. In view of this, the report recommended that "*The density estimates of these grids could be seriously biased with the low amount of survey effort, and a longer study period with larger sample size of porpoise sightings and survey effort per grid would be needed to outline important porpoise habitats in Hong Kong*". In addition, "*No porpoise was seen in Lamma waters during those months, but this was somewhat related to the lack of survey effort there in summer and autumn months*". As such, WWF opines that the information used to assess the impacts to finless porpoise is inadequate, whereas a comprehensive porpoise survey specifically at the location of the Project Site and its surrounding waters should be conducted before assessing the impact.

Habitat loss

The marina (plans to accommodate 500 yachts), which includes a yacht club, a watersports centre and a sailing academy, will be built at the Project Site, and it is expected to affect the natural landscape of the existing Coastal Protection Area and a potential marine park. These facilities will bring in a huge number of vessels and boats visiting and mooring inside and outside the marina area, resulting in the escalation of marine traffic in Tung O Wan and its surrounding waters. The increased levels of vessel movement and underwater noise will cause disturbance to the porpoise. The induced avoidance from the obstacles may lead to porpoise's behavioural change as well as preferred habitat displacement. The rise in the number of boat may also increase the risk of porpoise being killed or injured by vessel collisions.

WWF foresees that a large proportion of water areas outside the marina will be used for conducting different water activities (e.g. sailing, windsurfing, yachting training). The porpoise may choose to avoid using such an area of busy traffic, comprising more than the stated 50 ha (both directly and indirectly area) in total. The applicant has not estimated precisely the extent of water areas where water activities will take place outside the marina, and assessed the potential impacts and disturbance to the porpoise to be caused by this extra amount of water activities. Moreover, the applicant has not quantified the habitat loss for the species and the risk of vessel collisions at both the construction and operation phases of the project to species of conservation interest, i.e. finless porpoise and green turtles.

Increase in underwater noise pollution

Marine mammals rely on echolocation, which is similar to sonar, for hunting, communication and navigation. The construction of marina may bring in an additional amount of yachts, vessels and other

[16] AFCD. 2010. Monitoring of Marine Mammals in Hong Kong Waters – Data Collection (2009-10).

watersports boats into the water areas at southern Lamma. The underwater noise pollution from the increased marine traffic will cause acoustic disturbance to the porpoise, which may result in porpoise's behavior alternation due to increased stress and subsequent displacement from important habitats. The applicant has not conducted any underwater acoustic study to quantify and assess the extent of potential impacts to the porpoise from the increased underwater noise.

Mitigation measures and residual impacts

It is important to investigate the effectiveness of the mitigation to ensure there is no residual impact, or the residual impacts being kept at a very low level. WWF's concerns on the effectiveness of some proposed mitigation measures as listed in the planning statement (session 8.15.4), are as follows:

- During the construction and operation phases, a briefing can be provided to all vessel operators and watersports users on the guidelines for safe vessel operation in the presence of cetaceans (e.g. vessel speed restriction). However, WWF has doubts over whether skippers can accurately spot the occurrence of porpoise near their vessels even in normal circumstances. Unlike the Chinese white dolphin, which is pink and light in colour, the finless porpoise is dark grey and relatively more difficult to observe. Furthermore, the finless porpoises usually occur in small group (three individuals or less) which are less easy to spot. In addition, under windy and rough sea conditions, or weather conditions of poor visibility, it is unlikely for boat operators to spot the porpoise and slow down the yachts/ sailing boats. As such, the collision risk of the vessels to the porpoise remains relatively high.
- Although speed restriction can be applied so as to reduce the chance of vessel collision to the porpoise, however it is, to WWF's understanding, sometimes difficult to control the sailing speed of the windsurfers and sailing boats (can go up to >20 – 40 knots), whereas the speed is subject to the wind force and weather condition. The applicant should provide clear guidelines on how to restrict the speed of vessels using the water areas, as well as to define an area/ route where vessel speed restriction shall be implemented.

3.2 Green Turtle

The location of the proposed development is close to the Sham Wan SSSI, the only remaining regular nesting beach for the protected green turtle (*Chelonia mydas*) in Hong Kong. Access to the Sham Wan beach is seasonally restricted under the Wild Animals Protection Ordinance (Chapter 170). Green turtle is classified as an endangered species according to the IUCN Red List of Threatened Species and its population is of significant global concern. Worldwide, the number of green turtles has shown a decline, with habitat degradation being one of the main threats.

There have been regular records of nesting turtles in Sham Wan and this beach therefore represents the most important nesting site in Hong Kong for this endangered species[17]. However the proposed project will pose significant threat to this species, as well as to their use of the Sham Wan beach for nesting.

Light pollution

Scientific studies have revealed that the presence of light on or adjacent to green turtle's nesting sites can seriously alter the behaviour of nesting turtles. Artificial lighting can also cause disorientation of the turtle, which can be fatal to emerging juvenile turtles as they may be attracted to light sources on the landward side, instead of moving to the sea [18]. Although the project development will not be physically located on the Sham Wan beach, any potential increase in artificial lighting at night associated with the development, including but not limited to the construction activities, residential area (in particular the Southern Area), resort area, marina, boats and vessels, will potentially affect the green turtles' return to Sham Wan. Given Sham Wan is the only regular nesting beach for the green turtle in Hong Kong, WWF considers the site is non-replaceable and any potential impacts from light pollution associated with the development should be totally avoided and fully mitigated.

Increased marine traffic

As discussed in the earlier section for the porpoise, the increased marine traffic (from yachts and other watersports activities) will also cause disturbance to the turtles. Speed restriction can be a measure to mitigate the impacts of increased marine traffic to the turtle. However, according to an overseas study on the vessel collision risk for the green turtle[19], turtles would find it extremely difficult to avoid being struck by vessels if the boat speed exceeded 4 km h^{-1} (~2 knots). The faster was the boat speed, the shorter was the detection distance for the green turtles, allowing the turtles insufficient reaction time to avoid and swim away from the approaching boats. The study results therefore suggest a potential increase in collision rate if the boat speed exceeds an acceptable limit.

The marine traffic in south Lamma waters is regarded as busy (i.e. cargo and fishing vessels) and has already been posing threats to the marine mammals and turtles using the water areas. The marine traffic is expected to be much heavier after the construction of marina, hence increasing the chance of this vulnerable marine species being hit. The applicant has not investigated and quantified the baseline marine traffic movement at Tung O Wan and predicted the impacts from the increased traffic to be brought by the marina (e.g. yacht movement, watersports activities and race events) to the turtles and

[17] AFCD. http://www.afcd.gov.hk/english/publications/publications_con/files/hkbonewsletter4.pdf
[18] IUCN. http://www.redlist.org/apps/redlist/details/4615/0
[19] Hazel J, Lawler IR, Marsh H, Robson S (2007) Vessel speed increases collision risk for the green turtle *Chelonia mydas*. Endangered Species Research 3: 105-113

porpoise. There is high risk for the green turtles to abandon the Sham Wan nesting site if the disturbance levels from human activities increase.

3.3 Subtidal Coral Communities

Inadequate survey effort

Corals, the marine sensitive receiver, are vulnerable to various environmental stresses caused from deterioration of water quality, such as elevation of suspended solids in water column. Increased sediment loads on corals will reduce the amount of available light and increase the sedimentation rates, posing adverse effects to the feeding and the growth rates of corals, whereas bleaching, partial and total mortality maybe resulted.

In Hong Kong, most of the recorded octocoral and black coral species could usually be found in deep water areas (8-30 m)[20]. However, according to Figure 8.14, the qualitative dive survey was only conducted along the natural shoreline of Tung O Wan, whereas no spot check was carried out in the entire vicinity of proposed marina. WWF opines that the applicant has not identified all existing coral communities (both hard corals, octocorals and black corals) which could be affected by the work in the Project Site due to the lack of survey effort. WWF sees that the survey effort for the current spot check is clearly inadequate to collect sound information for a thorough sub-tidal benthic impact assessment.

Change in hydrodynamic regime

Octocorals are heterotrophic suspension feeders, they usually feed on small organic food particles in the water column. However, since their nematocysts are small and weak, they cannot actively capture their prey but would depend on water current to bring in their food. Food particles transported to the coral colonies will then be trapped and captured by the tentacles and pinnules of the individual polyps. The intensity and speed of water current may thus affect their feeding rate. The water movement is one of the main factors directly affecting the growth and distribution of octocorals.

A 1.2 km long breakwater proposed to be built for the marina will affect the natural coastal characters of the Coastal Protection Area and is likely to cause changes in the hydrodynamic regime in the nearly enclosed water areas. The decreased current flow rate will affect the food transport rate to the polyps, lower down the food encounter and intake rate, hence affecting the growth rate and health condition of the corals. The applicant has not assessed the impact from the change of current speed to the octocorals (if any) inhabiting inside and near the vicinity of the Project area, and no water modeling has been conducted to investigate the impacts brought by the change in hydrodynamic regime to the health condition of corals inhibit in the vicinity of the Project Site.

Incorrect ecological status cited from a hard coral species

Coscinaraea n. sp. is considered as uncommon in Hong Kong. It has very restricted distribution and has been recorded from a few locations in Hong Kong only. In the planning statement, it is incorrectly classified as “widespread throughout Hong Kong”. Colony(s) of *Coscinaraea* n. sp. is found at Transect no. 3 (Table 8.10), whereas it will be likely affected by the construction work of marina.

3.4 Water Quality

The discharge of sewage/greywater, as well as the surface runoffs from the development site, will cause adverse impact to the water quality in Tung O Wan area. The marina and related recreational facilities will also bring in a large number of vessels visiting and mooring both inside and outside the marina area. Although the marina may impose management control on vessels using the marina area to forbid any discharge from vessels into the seas, WWF questions the effectiveness in implementation, as the sewage and greywater discharged from vessels or recreational boats using the water area outside the marina (but in the close vicinity) may not need to follow the “no-sea-discharge” regulation. The discharge from a large number of boats and vessels will change the water quality such as increasing in the suspended solid concentration, decreasing dissolved oxygen, increasing in *E. coli* concentration and increasing in nutrient level. Such changes will greatly affect the health and growth conditions of the sensitive marine species (e.g. corals, fish eggs and larvae) inhabited in the area, as well as the nearby fish culture zone and artificial reefs. The applicant has not investigated and quantified all the potential impacts to be incurred by the sewage/greywater discharge by the vessels outside the marina.

We hope the substantial concerns raised as above can be seriously considered and respectfully urge the Town Planning Board members to reject this rezoning application.

Thank you for your attention.

Yours faithfully,

Alan S.L. Leung
Conservation Manager, Terrestrial

[20] CUHK (2010) Reference Collection and Study of Octocorals and Black Corals in Hong Kong Waters. Final report submitted to AFCD

Figure 1: The broad land-use proposals and their distribution within the sub-region under the Recommend Development Strategy for South West New Territories

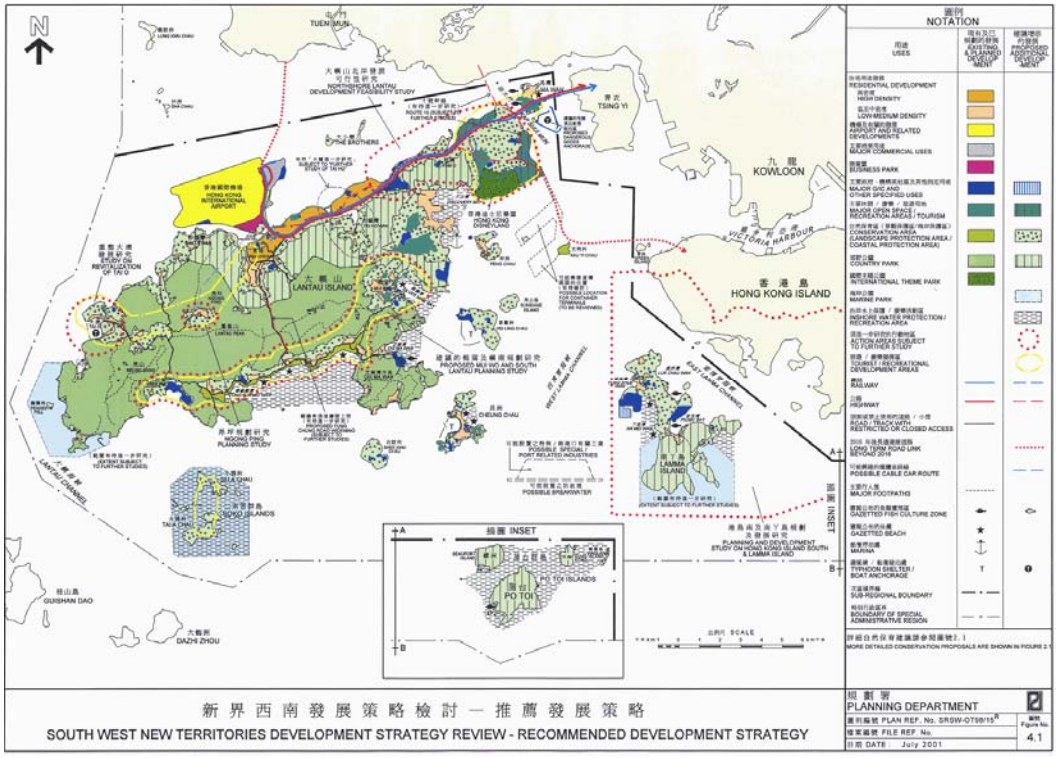

Figure 2 Exiting habitats including secondary woodland surrounding Shek Pai Wan (Photo taken on 18 May 2010)

Figure 3 Exiting habitats including secondary woodland surrounding Mo Tat Old Village (Photo taken on 18 May 2010)

Figure 4: Hong Kong Pavetta (*Pavetta hongkongensis*) was recorded at the edge of the tall shrubland between Yung Shue Ha and Mo Tat Old Village (Photos taken on 18 May 2011)

Figure 5: A natural stream at Yung Shue Ha (Photo taken on 18 May 2011)