Confirmed Minutes of the 254th Meeting
of the Advisory Council on the Environment (ACE)
on 19 August 2022 at 9:30 a.m.

Present:
Mr Stanley WONG, SBS, JP (Chairman)
Prof Nora TAM, BBS, JP (Deputy Chairman)
Ms Carmen CHAN, BBS, JP
Ms Sylvia CHAN, MH
Ms Ada FUNG, BBS
Ir Samantha KONG
Ms LAM Chung-yan, MH
Prof Alexis LAU, JP
Prof LAU Chi-pang, BBS, JP
Ms Julia LAU, JP
Dr Winnie LAW
Mr Andrew LEE
Prof Kenneth LEUNG, JP
Dr MA Kwan-ki
Dr Jeanne NG
Dr SUNG Yik-hei
Ms Christina TANG
Mr Simon WONG, BBS, JP
Prof WONG Sze-chun, BBS, JP
Dr Raymond YAU
Dr Kenneth Leung (Secretary)

Absent with Apologies:
Dr WONG Kwok-yan, MH

In Attendance:

Dr Samuel CHUI, JP	Deputy Director of Environmental Protection (1), Environmental Protection Department (EPD)
Mr Terence TSANG	Assistant Director (Environmental Assessment), EPD
Mr Stanley LAU	Principal Environmental Protection Officer (Strategic Assessment), EPD
Mr Simon CHAN	Assistant Director (Conservation), Agriculture, Fisheries and Conservation Department (AFCD)
Dr Billy MA	Senior Environmental Protection Officer (Strategic Assessment) 6 (Acting), EPD
Mr Felix TAI	Environmental Protection Officer (Strategic Assessment) 63, EPD
Ms Chole NG	Nature Conservation Officer (North), AFCD
Ms Karen CHEK	Chief Executive Officer (CBD), EPD
Miss Sally SHEK	Executive Officer (CBD) 1, EPD
Miss Avynn WONG	Executive Officer (CBD) 2, EPD

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The Chairman welcomed Members for attending the meeting in person or by Zoom. He informed the meeting that apologies of absence had been received from Dr Wong Kwok-yan.

2. The Chairman advised Members that the meeting was a continuation of the closed door session of the 254th meeting held on 8 August 2022 and would not be open to the public.

Item 4 : Report and follow up discussion on the 154th Environmental Impact Assessment Subcommittee Meeting - EIA report on "Technical Study on Partial Development of Fanling Golf Course Site – Feasibility Study"
(ACE Paper 11/2022)

3. The meeting continued to discuss the EIA report on "Technical Study on Partial Development of Fanling Golf Course Site – Feasibility Study". The Chairman recapped that Members had raised questions on the EIA report at the previous meeting and decided that the project proponent (i.e. the Civil Engineering and Development Department (CEDD)) should provide additional written information to address the issues of concern listed at **Annex A** to facilitate the ACE's further deliberation. The supplementary information provided by the project proponent at **Annex B** was circulated to Members on 18 August 2022.

4. The Chairman noted some untruthful media reports which claimed that the ACE had visited the Fanling Golf Course (FGC) site upon the invitation of the Hong Kong Golf Club (HKGC). As mentioned in the last meeting, the Chairman clarified that the site visit was arranged by the project proponent. A Member added that the visit was coordinated upon the request of the ACE to enhance Members' understanding of the project. She explained that it was a common practice for the ACE to visit the project site of controversial and large-scale EIA projects to facilitate the subsequent deliberation.

5. It had also come to the Chairman's attention that some media reports claimed that over half of the ACE Members were inclined to reject the EIA report. The Chairman said that it would be premature to speculate the decision of the ACE as the matter was under deliberation. He took the opportunity to remind Members that they should avoid expressing views on the project in public before the ACE had made a decision.

6. To facilitate Members' discussion, the Chairman invited the EPD representatives to highlight the key responses of the project proponent on the areas of concerns raised by Members at the previous meeting.

Ecological Surveys

7. Mr Terence Tsang gave an overview of the project proponent's responses on the ecological surveys in the EIA report. He re-affirmed that the survey

methodologies adopted by the project proponent were in compliance with the requirements stipulated in the EIA Study Brief as well as the Technical Memorandum on the EIA Process (TM), and approved by the relevant authorities under the EIA Ordinance (EIAO). Mr Tsang explained that the differences in the survey results of the project proponent and the HKGC were attributed to the differences in survey methodologies, survey durations and times.

8. In reply to a Member's question on species of conservation interest in the project site, Mr Simon Chan advised Members that four fauna species of conservation interest as well as some other bird, bat and dragonfly species had been recorded in Sub-Area 1. Mr Chan stressed that the abundance of such species in the sub-area was low while four flora species of conservation interest such as *Aquilaria sinensis* located in the sub-area would be transplanted. As Sub-Area 1 was not the roosting site of those fauna species, the proposed development should not have significant adverse impact on them.

9. A Member opined that the project proponent had failed to fill the information gap as required in the EIA Study Brief as they were unable to record the same fauna species as the HKGC. Without accurate information on the species in the project site, it would not be possible to conduct a proper impact assessment and devise corresponding mitigation measures. While EPD considered it inappropriate to compare the findings of the project proponent with other surveys, another Member pointed out that Members' doubt on the survey methodologies of the project proponent had called for the need to draw reference from other surveys. Another Member reminded Members that the project proponent had already taken into account the findings of the ecological surveys conducted by other parties in their literature review.

(i) Bat Survey

10. With reference to a Member's doubt on the significant difference in the findings between the project proponent and the HKGC, Mr Simon Chan explained that the HKGC recorded more bat species as they had deployed a different methodology and devoted extra survey efforts in the survey. The Member pointed out that the project proponent had yet to respond to his previous questions on the transect details of the bat survey, number of personnel and teams conducting the survey as well as the duration spent on each sub-area.

(ii) Bird Survey

11. According to his bird watching and research experiences in the past decade, a Member shared that the omission of the early morning period was a deviation from the conventional practice of the Hong Kong Bird Watching Society as well as the projects under the Nature Conservation Management Agreement Scheme funded by the Government. While respecting the professional judgment of AFCD, the Member considered that it was more appropriate to conduct surveys on land birds in

the early morning which was supported by oversea studies. Another Member also remarked that the survey time should not deviate from the mainstream practice of birdwatching.

12. Mr Simon Chan explained that the appropriate timing for ecological surveys would depend on the target species and location concerned. As land birds had a bimodal activity pattern, they would be active in both early morning and at dusk. Mr Terence Tsang pointed out that the timing for bird survey could vary from different EIA projects depending on the target species. Being the expert department to provide professional advice and decide whether the ecological surveys were properly conducted as required under the TM and EIA Study Brief, Mr Chan said that the methodology of the project proponent was appropriate. The 12-hour survey efforts from 10 am to 10 pm covering the active period near sunset were also considered adequate for the survey purpose.

13. Referring to Guidance Notes No. 10/2010 which stipulated that early mornings were usually the best time of the day for bird surveys, a Member regretted that it was not an obligatory requirement under the existing EIAO mechanism. He considered the bird survey in the current EIA report unsatisfactory as the early morning period was omitted. Another Member shared the Member's observation. He considered it necessary for the project proponent to fill the information gap on the bird survey.

14. A Member shared that it was a common understanding to conduct ecological surveys on fauna species during their peak activity hours. Though not compulsory in the guidelines or the TM, she considered that the omission of early morning bird survey was a failure to meet the professional requirement. While agreeing peak hours should be included, another Member opined that it would be unfair to the project proponent as the survey was carried out in accordance with the methodology agreed by AFCD. She furthered that the ACE should trust the expertise of the AFCD as the gatekeeper of the EIAO mechanism.

15. To alleviate public concern, a Member suggested and echoed by two other Members that the project proponent should provide additional information on the active time of the fauna species concerned, such as bird survey in the early morning and bat survey after 10 pm. The Chairman enquired whether it would suffice to impose a condition for the project proponent to carry out the additional bird survey for one month to verify the data in the EIA report. Pointing out that some migratory birds might use the habitats in the project site in spring and autumn, another Member was of the view that additional morning bird survey should at least be conducted during those two seasons.

(iii) Moth Survey

16. Regarding the moth survey, a Member was disappointed that the project proponent had only supplemented the professional qualifications of Prof Wang Min,

but his question on the expertise of the personnel involved in the field survey remained unaddressed. The Member reiterated that it was imperative to set a good precedent for future projects given that it was the first moth survey in the EIA projects thus far.

17. A Member suggested that a second opinion on the methodology could be sought from the locally renowned moth expert Dr Roger Kendrick. Another Member doubted why a local moth expert like Dr Kendrick was not engaged for the survey in the first place. Explaining that moth was a relatively less-researched taxa group, Mr Simon Chan remarked that there were insufficient local experts in this field. The project proponent had invited a different moth expert to advise on the methodology including the number and duration of the moth traps as well as to carry out the identification of moth species. He explained that standard sampling method on the set-up of moth traps as well as active search along the transects was adopted. Mr Chan opined that there was no reasonable ground to doubt the methodology of the moth survey given Prof Wang-min who was a leading moth expert in South China.

(A Member left the meeting at this juncture)

Hydrology and Hydrological Impact

18. Mr Terence Tsang briefed Members on the supplementary information provided by the project proponent on hydrological impact assessment. Mr Tsang said that the surface run-off and sub-soil water of Sub-Area 1 flew towards the north side and away from Sub-Areas 2 to 4, based on the site topography and sub-soil profile. Hence, the housing development in Sub-Area 1 would unlikely affect the hydrology of Sub-Areas 2 to 4. According to the supplementary information, he added that the main sources of water supply for the swampy woodland were the catchment to the south at existing hillock and the catchment to the north-west at the New Course. Pointing out that the HKGC was currently deploying reclaimed water for irrigation of the site, Mr Tsang said that similar arrangements could be continued if needed. The Chairman and a Member viewed that whether the water demand of Sub-Areas 2 to 4 could be met by reclaimed water and if there would be insurmountable impact on the hydrology of the site should be the key considerations of the matter.

19. A Member was concerned about the possible adverse hydrological impact of the development on the Chinese Swamp Cypress which was in Category I of the List of Wild Plants under State Protection. The Chairman recalled that the altitude of Sub-Area 4 was higher than that of Sub-Area 1 and thus changes in the underground water level in Sub-Area 1 should not affect Sub-Areas 2 to 4. He added that the project proponent had proposed other mitigation measures such as the use of permeable materials for road pavement to help refill the underground water table in the future.

20. Referring to the additional information submitted by the project proponent, A Member pointed out that not all green coverage, such as green roof or vertical greening, were permeable land surfaces. Thus, it would be inaccurate to assume that 30% of the area would remain permeable due to the greening.

21. Pointing out that the supplementary information on hydrological impact submitted subsequent to the past two meetings was critical to the evaluation of the project, a Member doubted why such important information was not included in the EIA report in the first place. Two other Members shared that it was not uncommon for project proponents to provide supplementary information upon the request of EPD and the ACE. Sharing his experience in academic research, another Member commented and echoed by one of the above Members that it would be impossible to include all details from the start. They said that discussions would naturally lead to questions and additional information. Two of the above Members remarked that the real concern would be those unaddressed issues, such as details of the bat survey.

22. Given the broad range of complicated and technical issues involved in an EIA report, Mr Terence Tsang responded that the project proponent might not be able to include all the details in the report. This notwithstanding, he considered that the details would not affect the overall conclusion in the EIA report. A Member responded that the details were critical to determine the validity of the conclusion in the report. Another Member hoped that EPD would tighten the monitoring and ensure that sufficient details would be included in the EIA reports in future.

23. A Member enquired whether the ACE should take into account the supplementary information in evaluating the EIA report. Mr Terence Tsang confirmed that the supplementary information provided by the project proponent would form part and parcel of the EIA report as long as it was within the scope of the EIAO. Another Member indicated that Members might recommend imposing a condition for the project proponent to provide supplementary information on the hydrological model on floral species, water flow assessment or other follow-up actions subject to the agreement of the relevant authorities prior to the commencement of the project.

Landscape Impact

24. Mr Terence Tsang briefed Members the existing mechanism of tree felling and preservation in government project. The Trees of Particular Interests (TPIs) in the project site would be preserved as far as possible and tree compensation would be provided for the trees felled as appropriate. Mr Tsang shared precedents of larger scale tree preservation and tree removal in other approved EIA projects and other housing development projects.

25. A Member was not pleased with the proposed removal of such a large number of trees in Sub-Area 1. She remarked that it would be a challenge to ensure

the survival of the transplanted trees. The Chairman recapped that the Housing Department (HD) had agreed to explore the possibility of retaining more trees at the detailed design stage. The Member further expressed her disappointment as there had been no attempt to register the TPIs in the project site as Old and Valuable Trees (OVTs) in the past few decades. She considered that follow up actions should be taken for their registration. Another Member considered that this should not be a consideration for rejecting the EIA report. She understood that only trees on unleased government land would be eligible for inclusion in the OVT register and the trees in the FGC site would only be eligible upon the resumption of land by the Government. Another Member opined that there was no reason to wait until the resumption of land to identify the potential OVTs for the purpose of examining the feasibility of accommodating 12,000 public housing units in Sub-Area 1 while retaining those trees. As there were public comments on the inaccuracy of the tree survey, the Member added that the project proponent should review the data accuracy and rectify the information regarding the number and dimension of the trees in the project site.

26. Mr Terence Tsang explained that whether the TPIs would be registered as OVTs would not affect the assessment outcome as the criteria for TPIs had already covered those for the OVTs and the project proponent had proposed to either retain or transplant all healthy TPIs in Sub-Area 1. On a Member's comment that EPD and AFCD seemed more lenient to government projects on tree removal, Dr Samuel Chui stressed that EPD and AFCD had always adhered to the same benchmark in assessing all EIA projects.

27. A Member doubted the project proponent's intention of categorising the woodland as separate zones of woodland and mixed woodland with a view to diminishing the value of the woodlands. In response to the Member's question about the woodland next to the car park in Sub-Area 1, Ms Chole Ng confirmed that it was a woodland of about 0.39 hectares (ha) with the aid of an aerial photo. As for the larger cluster of trees in the southern end of Sub-Area 1, AFCD agreed that it should be classified as mixed woodland as more exotic tree species such as *Lophostemon confertus* were found. The Member opined that the woodland should be of moderate ecological value and the ACE should recommend preserving it. Taking into consideration the fair condition and small size of the woodland, Mr Simon Chan replied that preservation of this particular piece of woodland may not be absolutely necessary.

28. Recapping the project proponent's previous advice on the higher ecological value of woodland than mixed woodland, a Member suggested with the support of five other Members that the v-shaped woodland adjacent to the car park in Sub-Area 1 should be retained. Two of the above Members considered the proposal feasible by adjusting the layout plan. With the concurrence of two Members, a Member held the view that the slightly fragmented pattern of the woodland would not diminish the ecological linkage of the habitats for fauna species. He furthered that the preservation of the woodland should be included as a condition. The Member

opined and echoed by a Member that the 0.39 ha of woodland was not insignificant in terms of size and ecological value. Mr Terence Tsang considered the proposed removal of the 0.39ha woodland and preservation of the mixed woodland on the other side of the car park was acceptable under the EIAO framework. Should Members consider there were any special reasons to retain the woodland over the mixed woodland, it would be feasible to conserve the woodland instead of the mixed woodland with a view to accommodating 12,000 housing units.

29. The Chairman noted Mr Terence Tsang's concern on the feasibility of the project and asked Members if the preservation of the woodland should be incorporated as a suggestion instead of a condition. Two Members opined that the concern of the ACE should be on the environmental impact and mitigation measures rather than on the development need.

30. Two Members were of the view that the ACE should recommend imposing a condition and leave it to the project proponent to adjust the layout plan and work out other details. Another Member and one of the above Members remarked that the ACE had to strike a balance between development and environmental protection. As such, it would be necessary to impose conditions to minimise the environmental impact even if the requirements in the TM were met. While Members might propose conditions or recommendations to further improve the project, Mr Terence Tsang said that ACE Members should consider whether the proposal in the EIA report had insurmountable impact on the environment that could not be accepted.

31. Mr Terence Tsang agreed that important habitats with high ecological value should be preserved, however, he doubted whether it was necessary to preserve the woodland in question as its ecological value did not call for such level of protection as compared with other EIA projects. Unlike the mixed woodland in Sub-Area 1, Mr Simon Chan explained that the 0.39 ha of woodland was assessed to have low ecological value in view of its small size and its fragmented nature.

32. Pointing out that both the woodland and mixed woodland next to the car park had existed since 1945, a Member opined that it would be desirable to preserve both of them given their ecological connectivity as well as historical value. The Member pointed out that native tree woodland was very rare in Hong Kong and its ecological value would normally be higher than that of mixed woodland. Another Member indicated that the size of the woodland or mixed woodland was arbitrary subject to their delineation or grouping. Given their proximity and connectivity, she was of the view that both the woodland and mixed woodland should be preserved from a holistic planning perspective. Another Member reminded that the project proponent should demonstrate the feasibility of accommodating 12,000 flats after preserving the woodland and any other requirements of the ACE.

33. Referring to Attachment 5 of the supplementary information provided by the project proponent before the meeting, two Members noted that the total area of

proposed receptor sites for compensatory trees was approximately 1.7 ha whereas the total area of loss of woodland and mixed woodland mentioned in Table 9.23 of the EIA report would be over 3 ha. One of the above Members opined that the total area of tree compensation should be no less than that of the woodland lost. Pointing out that the survival rate of trees planting would be about 50%, the Member suggested that the compensation ratio in terms of area should be more than 1:1 unless the compensatory tree planting in Sub-Areas 2 to 3 would have adverse impact on the Chinese Swamp Cypress. Mr Terence Tsang clarified that the total area of woodland compensation should be 5.1 ha according to the EIA report and the tree compensation ratio in terms of total area should be more than 1:1.

34. A Member echoed with another Member that tree compensation in terms of number and area should be further increased considering the survival rate of compensatory trees. The Chairman and one of the two Members considered that there would be enough spaces in Sub-Areas 2 and 3 to increase the number of trees to be compensated. The Member furthered that there should be a longer tree maintenance period. In view of one of the above Members' view on the survival rate of planted trees, the Chairman enquired whether it would suffice to impose a condition for the project proponent to increase the tree compensation ratio up to 1:1.5. Mr Terence Tsang considered the Chairman's suggestion agreeable.

Layout and Design Plan

35. A Member observed from the preliminary layout plan that those trees overlapping with the housing blocks would be removed. He pointed out that the project proponent should strive to preserve as many trees as possible. While the 11 TPIs would be retained, the Member enquired about the feasibility to adopt a site-specific approach to adjust the layout plan with a view to retaining more trees, in particular the 324 native trees in satisfactory condition in Sub-Area 1. He questioned if a condition might be imposed to request for the retention of a certain percentage of trees or the specific secondary woodland next to the car park.

36. Based on her previous work experiences in HD, a Member observed that responsible developers would as far as possible avoid encroaching upon sensitive areas of the project site in designing the layout plan. She added that the number of housing units to be accommodated should be determined after identifying the site constraints rather than pre-determined before considering the feasibility issue. Another Member added that if the TPIs were subsequently registered as OVTs, it would pose even more constraints on the housing block layout. Pointing out that the EIA report had not provided a proper tree retention plan, one of the above Members was worried about the feasibility of retaining the trees in the final layout plan. The Chairman reminded that Members should focus on whether the project proponent had fulfilled the requirements under the EIAO framework rather than the feasibility to accommodate the 12,000 flats.

37. Mr Terence Tsang remarked that the assessments were conducted based on the indicative development scheme at the stage of EIA submission, and the layout plan would be further refined at a later stage subject to the conditions or recommendations imposed. While it was the Government's policy to preserve the trees as far as practicable, Mr Tsang indicated that the feasibility would depend on the space available in Sub-Area 1. He reminded Members that a relevant condition or recommendation could be imposed on this aspect.

38. A Member opined that the project proponent should accord priority to utilise the empty spaces to the north of the site near the proposed school site. To achieve the target supply of housing units while retaining the trees, the Chairman and another Member were of the view that the building height restriction might need to be lifted. The Member suggested that the housing estate could be accommodated in the fairway and the tennis court. She further questioned the need of a school within the project site as there were already some in the vicinity.

39. Drawing Singapore as a reference, a Member suggested and echoed by another Member that the project proponent should adopt green design such as urban farming, sky garden, green roof and green wall to strive to achieve carbon neutrality in the proposed housing development. One of the above Members explained that green design would greatly enhance the urban ecology and ecological connectivity of the area. Given the proximity of the housing development to the natural environment of Sub-Areas 2 to 4, another Member considered it a good opportunity to design and showcase the proposed housing estate as an exemplar of smart and green housing estate. The Chairman added that the project proponent might consider developing a thematic public housing estate in this project.

Light Impact

40. Mr Terence Tsang briefed Members on the supplementary information provided by the project proponent on lighting glare assessment and the corresponding mitigation measures proposed for Sub-Areas 2 to 4. Mr Tsang pointed out that there were neither local nor international criteria to assess light glare impact on the ecology. He shared with Members that qualitative assessment approaches were adopted in other approved EIA reports.

41. A Member noted that the project proponent had only focused on the light impact on Sub-Areas 2 to 4 in the supplementary information and questioned whether the impact on the mixed woodland in the south of Sub-Area 1 had been considered. Mr Terence Tsang pointed out the project proponent had provided response that the majority of direct light impact would be screened off by the first row of vegetation in the mixed woodland. Dr Samuel Chui added that the project proponent had taken into account the cumulative impact of lighting sources.

42. With the support of a Member, another Member suggested the project proponent to draw reference from the lighting sources of the two housing estates near

the project site. One of the above Members considered that the proposed mitigation measures such as shade deflector might not be effective and practical. He added that the project proponent had yet to address issues related to the multiple-point of light sources. Given the high density of the housing blocks, another Member suggested and echoed by one of the above Members that a three-dimensional model should be prepared to illustrate the lighting effect of the project. Mr Terence Tsang added that it would be more fruitful for the project proponent to carry out the three-dimensional modelling for illustration only if the layout plan was finalized.

43. A Member was of the view that the building blocks would block the sunlight and undoubtedly had certain shading impact on the flora species as well as habitats nearby. She suggested the project proponent to submit further information to demonstrate that there would be no adverse impact in this respect. Another Member echoed that the shading impact during the operational phase should be considered. Another Member opined that the project proponent should bear in mind the potential shading effect on flora species in considering the design and layout plan. She added that shade tolerant trees should be deployed for tree compensation where appropriate.

Habitat Management Plan

44. Three Members were pleased to see more information on the Habitat Management Plan supplemented by the project proponent before the meeting. Mr Terence Tsang advised Members that Sub-Areas 2 to 4 would be preserved for passive recreation and conservation purposes under the Outline Zoning Plan with priority accorded to the conservation of natural landscape and ecological features. Noting that there were suggestions on developing the site as a park, one of the above Members was concerned about the balance between recreational activities and habitat conservation. He indicated that it was important to set out the layout and visitor control measures in a detailed Habitat Management Plan. Another Member was concerned about the potential adverse impact caused by human disturbances. In response to Members' query, Mr Tsang indicated that a detailed Habitat Management Plan would be devised at a later stage with appropriate visitor management measures for minimising any adverse impact on the ecology.

45. Based on her experiences on other EIA projects, a Member shared that details of the Habitat Management Plan would not be available at this early stage. Instead, approval conditions would be imposed to require the project proponent to submit a detailed plan subject to the approval of the relevant authorities before the commencement of the project. She opined that the lack of details in the Habitat Management Plan should not be a reason for rejecting the EIA report. She suggested Members to deliberate the appropriate recommendations on habitat management of Sub-Areas 2 to 4 for incorporation in the detailed plan at a later stage.

46. Drawing reference from the Long Valley Nature Park project, a Member indicated that it would be more assuring if Sub-Areas 2 to 4 would be managed by a professional department like AFCD instead of the Leisure and Cultural Services

Department. Another Member echoed with the Member that the management mode would determine the effectiveness of habitat conservation. Two Members suggested that appropriate zoning with suitable management measures could be deployed to further enhance the ecological value of the site. For example, Sub-Area 4 could be reserved as a core zone for habitat conservation whereas Sub-Areas 2 to 3 could be a buffer zone with controlled visitor activities. Mr Terence Tsang responded that the management arrangement of Sub-Areas 2 to 4 was yet to be confirmed.

47. While the ecological value of Sub-Area 1 would be lowered by the proposed development, a Member suggested and echoed by another Member that the ecology of Sub-Areas 2 to 4 could be enhanced through tree compensation and other mitigation measures such as plantation of floral species which would enhance the biodiversity of the habitats. One of the two Members further suggested that opportunities could be given to non-governmental organisations or research institutes to experiment on green initiatives for the enhancement and conservation of environment. He remarked that this would yield a win-win situation where the housing demand could be met while the ecological value of Sub-Areas 2 to 4 would be further enhanced.

Cultural and Historical Value

48. A Member pointed out that the removal of the clan grave in Sub-Area 1 would contradict with the Government's overall policy on cultural heritage. Another Member opined that the grave in Sub-Area 1 should be retained as far as possible. The Chairman recalled that the project proponent had indicated previously that the only grave in Sub-Area 1 would be handled in accordance with the established mechanism. One of the two Members was concerned that the clan grave would be damaged once relocated and she was also worried that follow-up actions might not be properly taken in the future.

49. Referring to her comments in the previous meetings, a Member reiterated that the project proponent should obtain the result of the grading impact assessment of the Antiquities Assessment Board (AAB) to facilitate Members' consideration. The Member opined that the landscape of the project site should be considered in totality in the assessment instead of focusing on built heritage alone. Another Member quoted Lai Chi Wo as an example to show the value of landscape in cultural heritage as it had received the UNESCO's prestigious 2020 Special Recognition for Sustainable Development Award for promoting cultural heritage conservation.

50. Based on his former experience in serving the AAB, a Member cautioned that the historical and cultural heritage value of the site would be downgraded by the AAB once the site was tampered with. With reference to the preservation of King Yin Lei and Ho Tung Gardens, the Member opined that no mitigation measures could compensate the damage of a cultural heritage. Considering the aforesaid, the

Member and two other Members were of the view that the cultural and heritage value of the site should be ascertained before the EIA report could be considered for approval. The Member indicated that the AAB had in the past expedited the processing of urgent applications and remarked that it would be feasible for the project proponent to make such a request. While Members' suggestion regarding the AAB's assessment could be relayed to the project proponent, Mr Terence Tsang explained that the EIA report had already included a cultural heritage impact assessment and such assessment should be conducted based on the best information available at the time the report was prepared.

51. With reference to the relevant guidelines in the TM, a Member said that the focus of the cultural heritage impact assessment was on built heritage, but not the landscape. The ACE should note that the project proponent had already conducted a cultural heritage impact assessment in terms of built heritage and desk-top review on archaeology as required, though it might not be up to the satisfaction of Members. As expressed in the previous meeting, another Member reiterated her concern on the cultural heritage impact as the executive summary of the EIA report had only indicated the adoption of appropriate mitigations without any details on the cultural impacts. She thus considered the cultural heritage impact assessment in the EIA report inadequate.

Conclusive Remarks

52. Given that Members had thoroughly expressed their views on different aspects, the Chairman invited each Member to give his/her overall conclusive remarks before the ACE decided its recommendations.

53. A Member recapped her major concerns on the unaddressed details of the bat survey and the shading effect which was not covered in the EIA report. As regards cultural heritage impact assessment, the Member opined that it would be unfair to the project proponent if the project had to be put on hold for the grading assessment of the AAB since it was not a requirement in the TM. She considered that the project proponent had complied with the requirement in the TM and EIA Study Brief and thus the EIA report should not be rejected. While there was room for improvement, she indicated that approval conditions could be imposed to further enhance the project. Another Member agreed with the Member that the EIA report should be endorsed with conditions and recommendations.

54. A Member suggested a resubmission of the EIA report as Members were generally not satisfied with its quality. The Member had reservation in endorsing the report at this juncture and opined that the project proponent should urge AAB to prioritise the grading assessment of the project.

55. While considering the omission of a cultural heritage impact assessment a fundamental flaw, a Member said that she was not inclined to reject the EIA report at this juncture. With reference to Members' earlier discussion, she agreed that the

ACE should request further information from the project proponent on the blocking layout, shading impact, tree survey as well as cultural heritage impact. The Member clarified that she was not against the construction of housing blocks at appropriate locations such as the existing car park. However, according to her professional experience as an architect, she was certain that the construction of 11 housing blocks would pose adverse impact on the ecology of Sub-Areas 2 to 4 and the mitigation measures proposed for blocking the lighting from the housing blocks were not sensible. She opined that there should be a flexibility for downward adjustment of the number of housing units with a view to protecting the environment.

56. A Member recapped her question on whether the ACE was obliged to support the endorsement of the EIA report simply because it had fulfilled the minimum requirements set out in the TM and EIA Study Brief. Referring to the various concerns raised at the meeting, she was of the view that Members were not satisfied with the information provided by the project proponent. In particular, she was not satisfied with the project proponent's response on removing the grave in Sub-Area 1. She also disagreed that man-made habitats were less valuable. The Member aspired that amidst urban development, the society should give weight to the conservation of the nature for the sake of the next generation. Given the overwhelming public concern on the project, the Member considered it prudent to request the project proponent to supplement further information as she was worried that the project would bring irreversible damage to the environment.

57. A Member was of the view that the project proponent, as a government department, should not only fulfil the basic requirements under the EIAO mechanism, but also strive to achieve the highest possible standards to balance between development and environmental protection. The Member was doubtful about the ecological impact and the light glare impact of the project. While indicating she would neither endorse nor reject the EIA report at this stage, the Member considered that further information would be required from the project proponent to facilitate a decision.

58. Highlighting that partial development of the FGC was a consensus achieved from the public consultation exercise in 2018, a Member understood that there was genuine need and public support for the development and it would be unfair to reject the EIA report. Nevertheless, the Member agreed there was room for improvement on the aspects of the AAB grading assessment and details on the bat survey. She opined that the project proponent should determine the number of housing units based on the result of the EIA studies after identifying the site constraints rather than setting a pre-determined target. She added that it was unsatisfactory for the project proponent to supplement the information bit by bit, which highlighted the inadequacy of the report in the first place. Despite the requirements in the TM and EIA Study Brief might have been met, the Member considered that the project proponent should provide further information to alleviate public concerns.

Action

59. A Member remarked that he had maintained the same benchmarks in assessing all EIA reports during his tenure as an ACE Member. He understood that EPD and AFCD would confirm the compliance of the report with the TM, but he considered that the ACE should hold a higher standard than the minimum requirements in the TM. The Member highlighted the importance of the survey methodology which would have knock-on effect on the conclusion drawn. He considered that some aspects of the EIA report, such as the omission of early morning bird survey and the inability to record bat species in the site, had not fulfilled the requirements in the TM and EIA Study Brief. He opined that the project proponent had the responsibility to substantiate the findings based on the earlier suggestions of Members, though he was concerned about the project proponent's implementation of the ACE's recommendations.

60. A Member indicated that he had reservation to endorse the report and suggested the project proponent to provide scientific or research data to substantiate the report in particular on the methodologies of the ecological surveys, the housing layout plan and cultural heritage impact assessment. Given the high ecological value of the site, the Member expected an EIA report of high standard. Pointing out that the supplementary information was provided bit by bit to the ACE upon request with errors often spotted, he doubted whether the project proponent had considered all the issues in their assessment in the first place. He echoed with another Member's worry about the implementation of the ACE's recommendations.

61. A Member agreed with two other Members that the EIA report should be of high standard in view of the public concern and the ecological value of the site. Considering the EIA report flawed and inadequate, the Member suggested the project proponent to make proper submission regarding the supplementary information.

62. A Member remarked that it was important to balance both environmental protection and the development of 12,000 housing units in the FGC site. The Member was of the view that there was no sound reason to reject the EIA report. He supported that further information should be requested from the project proponent for the DEP's decision.

63. A Member highlighted that the project site was the oldest part of the FGC with over 100 years of history where large trees and mature secondary forests were located at. The Member disagreed that the ACE had moved the goal post for this project. Instead, the unclear responses and information from the project proponent had invited questions and doubts on the feasibility of the proposed mitigation measures. Given that the assessment in the EIA report was formed on the basis of the preliminary layout plan, the Member considered it inappropriate to put off the ACE's concerns on the layout plan until a later stage as it might render the assessment invalid. She would neither endorse nor reject the EIA report at this stage. The Member opined that further information on the layout plan and compensation plan would be necessary.

64. While a Member concurred with another Member that the ACE should hold a higher standard than the TM, he highlighted that there was no precedent of rejecting an EIA report by the ACE. He supported the endorsement of the report with conditions including the provision of supplementary information to substantiate the findings.

65. A Member pointed out that the ACE should evaluate all EIA reports in accordance with the relevant guidelines under the EIAO mechanism. She considered that the EIA report should be endorsed with conditions and recommendations given that the project proponent had fulfilled the prevailing requirements.

66. A Member concurred with Members that it was unsatisfactory for the project proponent to supplement information in a bit-by-bit manner. Feeling the project proponent's reluctance to adjust the layout plan as suggested by Members, the Member had reservation in endorsing the EIA report and suggested that further information including the Habitat Management Plan and mitigation measures should be sought. He supplemented that additional information for the bat and moth surveys would set a good precedent for future EIA studies.

67. A Member opined and echoed by another Member that the environmental impact of the EIA project was not insurmountable. Both of them supported the endorsement of the EIA report with appropriate conditions to address the concerns of Members. The Member considered the proposal somewhat restrained given that the area of housing development was only 9 ha out of the whole site. He opined that Sub-Areas 2 to 3 provided a huge space and possibility to make compensation for the loss in Sub-Area 1 and to generate more environmental benefits. In this connection, he was of the view that Members should focus on how to utilise Sub-Areas 2 to 3 for environmental enhancement which would be more productive and meaningful. The other Member concurred with the Member that conditions could be imposed to encourage creative solutions and out-of-the box thinking to enhance the habitats in Sub-Areas 2 to 4 with a view to achieving a win-win situation.

68. A Member recapped his concern on the management plan in Sub-Areas 2 to 4 for the control of human activities with a view to protecting rare mammal species such as red muntjac. The above notwithstanding, the Member was satisfied with the additional information provided by the project proponent and supported the approval of the EIA report with conditions.

69. As declared at the ACE meeting on 8 August 2022, the Chairman reiterated that he was the Chairman of the Task Force on Land Supply which recommended the resumption of 32 ha of land of the FGC to the east of Fan Kam Road for housing development based on the result of public consultation. Notwithstanding his roles in the Task Force and the Subsidised Housing Committee of the Housing Authority, he stressed that he had maintained his professional and objective judgment

throughout the process of handling the current EIA report in his capacity as the Chairman of the ACE.

70. The Chairman was of the view that the ACE had the responsibility to consider whether the EIA report had complied with the requirements under the EIAO mechanism and propose conditions and recommendations to the DEP for further enhancement of the environmental aspect of the project. He remarked that it was imperative to strike a balance between environmental protection and the development of the society. From his point of view, the Chairman considered that the current EIA report had basically fulfilled the requirements set out in the TM and EIA Study Brief. While there was room for improvement, he supported its approval with conditions and recommendations to elevate the standards of the project above the requirements set out in the TM.

Procedural Issues and Possible Recommendations

71. Two Members enquired about the possible recommendations that the ACE might offer and whether further information could be sought from the project proponent before a decision was made. Dr Samuel Chui advised Members that the ACE could make one of the following recommendations to the DEP -

(i) endorse the EIA report with or without conditions;
(ii) reject the EIA report; or
(iii) not to make a decision, but seek further information from the project proponent for the DEP's consideration.

72. Dr Samuel Chui went on to share precedents of the ACE's recommendations on some controversial EIA projects. He highlighted that there was no precedent of rejection. In response to a Member's enquiry on the ACE's recommendation on the Lung Mei Beach project, Mr Terence Tsang indicated that the ACE supported the endorsement of the said Lung Mei Beach EIA report with conditions, including the provision of additional information to the DEP to ascertain the conclusion made in the EIA report. The Member further enquired on the Lung Mei Beach project. Mr Tsang confirmed that the additional information was presented at ACE before formal submission to EPD, and voting was taken at the ACE to decide whether the conclusion in the EIA report could be validated.

73. A Member sought more details about the EIA project on the construction of cycling tracks at Nam Sang Wai. Mr Terence Tsang shared that ACE members held different views on the design of the Nam Sang Wai project and a consensus could not be reached. The ACE did not make a decision on the endorsement of the EIA report and recommended the project proponent to provide further information to the DEP for his consideration.

74. In response to a Member's enquiry, Dr Samuel Chui said that in accordance with Section 7 of the EIAO, the ACE might give any comments it had on the report

to the DEP within 60 days of its receiving a copy of the report. For the current EIA report, the deadline would be 28 August 2022. If further information was considered necessary, the DEP would inform the project proponent within 14 days upon receipt of the ACE's advice. Upon receipt of the further information provided by the project proponent, EPD would have 30 days to decide whether to approve or reject the EIA report. Dr Chui confirmed that it was not an EIAO requirement for the project proponent to return to the ACE for advice before its submission of the further information to the DEP. Nevertheless, the ACE might propose relevant recommendation and ask the project proponent to do so if necessary.

75. Pointing out that an environmental permit (EP) would not be required for this project, a Member enquired about the statutory timeframe for the submission of further information as she was concerned that the project proponent might postpone the submission indefinitely. The Member further suggested to set a timeframe for the submission. Mr Terence Tsang advised Members that there was no statutory time limit for the submission of further information. Based on his experience, Mr Tsang shared that project proponents usually targeted to complete the EIA process as soon as possible in order to proceed with their projects. To address Members' concerns, even though there would not be an EP issued for a Schedule 3 EIA report, Mr Tsang said that approval conditions could be imposed.

76. A Member further enquired about the monitoring mechanism for projects under Schedules 2 and 3, particularly on the submission of regular progress reports. Mr Terence Tsang confirmed that regular reports should be prepared in accordance with the Environmental Monitoring and Audit (EM&A) Programme of the EIA report for both types of projects. To address Members' concerns, he assured that EPD would carry out necessary follow-up actions to monitor the implementation of the measures set out in the EIA report. The Chairman indicated that Members could request the project proponent to report to the ACE regularly on the project, if necessary. As an improvement to the EIAO mechanism, the Chairman suggested EPD to conduct a post-mortem review on the effectiveness and implementation progress of the approval conditions for large-scale projects. Another Member echoed with the Chairman and pointed out that the EIA subcommittee had raised such suggestions in the past.

77. Two Members acknowledged that the project was not required to undergo the EIA process as the proposed development was below the statutory threshold of 20 ha. Dr Samuel Chui remarked that the project proponent had submitted the EIA report as a gesture of goodwill notwithstanding that it was not mandatory for them to do so. As such, Dr Chui and the Chairman trusted that the project proponent would do its best to provide the additional information as requested and to comply with any conditions suggested by the ACE.

78. A Member opined that the area of the proposed development in Sub-Area 1 should be more than 9 ha as the mixed woodland in the sub-area as well as the buffer spaces between the housing blocks should also be taken into account. In view of

the potential impact on the Chinese Swamp Cypress and the ecology of Sub-Areas 2 to 4, the Member was of the view that the EIA process should be necessary notwithstanding the size of the proposed development. Mr Terence Tsang clarified that the current EIA report covered the entire project site of 32 ha and the follow-up actions would cover all the sub-areas.

79. Although the EIA report was not of the best of quality, two Members considered that it had fulfilled the criteria set out in Annex 8 of the TM and there was no good reason to reject the report. Nevertheless, one of the two Members agreed that conditions on additional bird and moth surveys as well as tree compensation should be imposed to enhance the quality of the report. Another Member disagreed that the EIA report had fully met the requirements in the TM as it was unable to address some issues including the effectiveness of the mitigation measures. Another Member considered that the ACE should drive the project proponent to further enhance the quality of its EIA report to a higher standard.

80. While the Chairman agreed that there was a need to update the TM in order to meet the rising standards in environmental protection, he remarked that the ACE should adhere to the prevailing requirements and request the project proponent to fill the information gaps by imposing conditions. A Member added that the deliberation of the current EIA report highlighted the need for EPD to review and improve the TM. Another Member also urged EPD to review and update the TM and Guidance Notes for Ecological Assessment. He opined that some of the issues on the current project could have been avoided if the TM was updated. Dr Samuel Chui noted Members' comments and would take them into consideration in reviewing and updating the TM in future.

81. Two Members expressed that the ACE's comments on the EIA report should not be limited to the EIAO framework. A Member opined and echoed by another Member that advisory bodies such as the ACE were often composed of professionals in different fields to maintain balanced views from different perspectives. While they were not ecologists, two of the above Members shared that they would provide comments based on their professions after understanding the matter. Another Member opined that Members had meticulously deliberated the EIA report against the requirements set out in the TM and EIA Study Brief based on the information provided.

82. Dr Samuel Chui explained that the DEP could only consider comments which were relevant and within the scope of the EIAO. As long as the requirements in the EIA Study Brief and the TM were met, the DEP should approve an EIA report taking into account the comments provided by the public and the ACE during the public inspection period.

83. A Member opined and echoed by another Member that the ACE should maintain its impartiality and professionalism in evaluating the EIA report based on scientific data as well as the requirements set out in the TM and the EIA Study Brief

under the EIAO. If the EIA report was considered insufficient, Members should decided whether the inadequacy could be addressed by additional information. Notwithstanding that some updating should be made to the existing TM and EIAO mechanism, two Members remarked that the ACE should evaluate the EIA report and make decisions based on the prevailing mechanism, instead of adding new requirements which would be unfair to the project proponent. The Member furthered that Members should consider whether the additional information requested would make substantial differences to the outcome. One of the above Members considered that any suggestions beyond the scope of the existing requirements should be proposed as recommendations instead of conditions.

(Another Member left the meeting at this juncture)

84. A Member enquired whether seeking further information would be less stringent than imposing approval conditions. Another Member wondered if it was necessary for the ACE to make a decision as its comments which had no binding effect were only meant for the DEP's consideration. Another Member also doubted if there was any institutional difference to the weight of conditions and further information if they were both only recommendations to facilitate the DEP's decision under the EIAO framework. The Chairman took the view it would be more effective to enforce approval conditions as they were legally binding. While the ACE served its comments to the DEP as advice, Mr Terence Tsang highlighted that the DEP had all along respected the views of the ACE and all the advice given by the ACE were properly considered in the approval of past EIA reports.

85. A Member viewed that the lengthy discussion on the EIA report showed that Members had a lot of concerns and doubts about the project. Should Members had reservation, they should not feel pressured to endorse the report due to concern about the aftermath. Two other Members agreed that Members should feel free to express their opinions as well as make decisions based on their own judgment. One of the above Members pointed out that the meeting minutes would record Members' comments and views irrespective of the ACE's final decision. The Member believed that the DEP would take the ACE's comments recorded in the minutes into consideration.

86. The Chairman and a Member observed that more Members seemed to incline to endorse the EIA report with conditions, while others were yet to make up their minds. The Chairman reminded that should the ACE recommend the rejection of the EIA report, strong justifications should be provided. According to the observation of two other Members, no Member seemed to want to reject the EIA report though there was no clear stance on whether to endorse the report or to seek further information. Another Member considered that the project proponent could prepare supplementary information and return to the ACE when the EIA report was more substantiated. After lengthy discussion, two Members suggested to put the matter to a vote.

Voting

87. Dr Samuel Chui understood from the discussion of the meeting that Members generally considered the EIA report should not be rejected. As such, Members were suggested to consider whether the report could be endorsed with conditions or further information would be required from the project proponent. With the agreement of the meeting, the Chairman announced that the matter would be put to the vote. A Member opined and another Member echoed that Members should be allowed to abstain from voting if they so wished.

88. A Member enquired and the Chairman explained that according to the ACE House Rules, voting should be by secret ballot unless all Members present agreed that it could be taken by a show of hands. The Chairman sought Members' views on the voting arrangements. The Member suggested and echoed by another Member that secret ballot should be adopted and the votes of all Members should be kept confidential.

89. Dr Kenneth Leung explained the voting procedures and reminded all Members to cast their votes. Members understood that the Chairman should have a casting vote in case of an equality of votes. In reply to a Member's question, Dr Leung clarified that the final decision of the ACE should be decided by a majority of the votes cast. Given that there were 18 Members remaining at the meeting, it would require at least 10 votes to pass a motion.

90. Members were invited to cast their votes for endorsing the EIA report with conditions through the anonymous voting function of "Zoom". After voting, eight Members voted for the proposal, six voted against it and four abstained. As the motion was not passed, the meeting went on to vote for seeking further information on the project. In this round, 16 Members voted to request for more information, one against it and one abstained. Based on the voting result, the meeting agreed that the ACE would recommend the DEP to seek further information from the project proponent to facilitate her decision.

List of Additional Information Required

91. The Chairman summarised that while understanding that the EIA report had met the requirements set out in the TM, relevant Guidance Notes under the EIAO as well as the EIA Study Brief, Members still had reservations on various aspects including the ecological impact, hydrological impact, layout plan and tree preservation and compensation of the project. As Members considered the information provided by the project proponent insufficient to allow the Council to support the endorsement of the report, the Chairman suggested Members to deliberate the details of the further information required based on the framework of the above areas of concerns. A Member agreed with the Chairman's proposal and highlighted that the ACE should spell out clearly the areas of insufficiency and the details of the information required.

92. Given the time constraint, a Member suggested and another Member echoed that the Secretariat should draw up a list based on the previous discussions and circulate the draft list to Members for further comment and input. One of the above Members added that a concluding meeting could be held to confirm the list. Another Member was of the view that further discussion would be required to reach an agreement on each item since Members might hold different views on the details. As the ACE would need to submit its views to the DEP by 28 August 2022, Members noted that it might not be feasible to arrange another meeting before the deadline. The Chairman indicated that it was undesirable if the ACE was unable to conclude its views at the current meeting given the length of discussion on the report.

93. Dr Samuel Chui pointed out that the ACE should stipulate the details of the additional information required to avoid any redundant or repetitive work arising from different views on the timing, duration and methodology of the surveys as in the current case where Members opined that there was missing information on morning birds and night bats while EPD considered the survey methodology acceptable. Dr Chui stressed that the information required should be specific, concrete and quantifiable so that EPD could review the relevant assessments scientifically and objectively in the future. He said that it would be unfair to the project proponent if they were still required to carry out additional surveys afterwards. He furthered that it would cause major setbacks to all development projects in Hong Kong if project proponents were required to conduct EIA studies for the purpose of academic research.

94. While Members would stipulate the details for the project proponent, a Member highlighted that the major objectives for seeking further information was to fill the information gaps and to confirm the validity of the assessment made in the EIA report. Another Member enquired if the ACE could propose also a list of conditions with the list of further information for the DEP's consideration. Dr Samuel Chui replied that conditions were to be given at the time of the EIA report approval. At the current stage, Members could provide their views as comments.

i. Bird Survey

95. Two Members suggested that the project proponent should provide survey information on morning birds within two hours after sunrise. Given that different bird species would be active during different seasons, another Member was of the view that a full-year bird survey with coverage from early morning to evening would be ideal. Nevertheless, to minimise the possible delay of the project, it would be acceptable for the additional survey to be carried out monthly from September to March to cover both the wet and dry seasons with reference to Guidance Notes No. 7/2010. The meeting agreed to keep the survey frequency at twice a month to align with the requirements of the TM. Another Member concurred that it would help compare the findings by maintaining the same survey frequency. Dr Samuel Chui said that as the additional survey should address the concern on whether the original

ecological survey and assessment were adequate, the survey should cover both early morning and day time to provide sufficient information for comparison. Another Member added that it would be preferrable for the survey to be conducted under good weather.

96. In response to a Member's enquiry on the arrangement in case the HKGC declined the project proponent's request to access the project site before 10 am, another Member shared that tenants of land leases would usually be required to allow access of the Government upon request. Subject to the reasons involved, Members agreed that the ACE would accept the result in case the project proponent had genuine difficulties in gaining access to the site. Dr Samuel Chui believed that the project proponent would endeavour to arrange for the additional survey to be done as far as practicable. ``

97. The Chairman summarised that an additional bird survey covering early morning to evening (i.e. before sunrise to 10 pm) should be conducted twice a month from September 2022 to March 2023 (covering the wet and dry seasons) to reaffirm that the overall results of the bird survey conducted in the EIA report were valid. Details of the survey methodology including the types of device used, transect of the survey, qualifications of the personnel conducting the survey as well as the locations, frequency and duration of the survey should be included in the further information.

ii. Bat Survey

98. A Member was concerned that handheld detectors were less effective in recording bat species as well as their activity. He suggested the project proponent to carry out an additional bat survey with the use of static detectors to draw up a list of the species present in the site and to reaffirm the findings in the EIA report between half an hour before sunset and half an hour after sunrise. The Member said that it could help fill the information gap and work out the appropriate mitigation measures. Based on the data of past bat surveys, another Member and Mr Simon Chan opined that it might not be necessary to conduct additional bat survey after 10 pm since all the bat species recorded in the project site would be active within a few hours after sunset. Dr Samuel Chui highlighted that the survey conducted by the HKGC with static recorders also did not identify any bat roosting site within the sub-areas. The Member agreed that extra surveys after 10 pm would not be required in such case.

99. A Member doubted if an additional bat survey using a different equipment should be requested for validating the previous survey results. She reminded that such request might have implications to future EIA projects. The Member considered the requirement excessive as the methodology used in the EIA report was reasonable, widely adopted in past EIA projects and agreed by the authorities concerned. In response to the Chairman's question on the appropriateness to deploy other equipment to cross-examine the data in the EIA report, Mr Simon Chan opined that it would not be necessary to use static detectors in EIA studies as the equipment was usually used for academic research while handheld ones were used

for active search of the bats present in the survey area. Given that the purposes of the two methodologies were different, Dr Samuel Chui doubted the need of another bat survey using a different methodology. He further highlighted that handheld bat detectors had always been adopted in EIA studies in the past.

100. A Member asked if it was possible for EPD or AFCD to stipulate the details of the additional survey to be conducted. Mr Simon Chan explained that there were different methods in conducting ecological surveys and AFCD was of the view that the current survey was appropriate and sufficient for the purpose of EIA. Should Members hold a different view or had concerns about the way the survey was conducted, the additional requirements, including the methodology should be clearly stated so that AFCD and EPD could follow up accordingly. The Chairman agreed with Dr Samuel Chui that Members should stipulate clearly the requirements including the survey time, duration, frequency, transect, etc. to avoid future disputes.

101. A Member considered it preferable to carry out the additional bat survey for a longer duration though he understood EPD's concern on the implications to future EIA projects. The Chairman was of the view that it would not be necessary to redo the entire ecological survey and the project proponent would only need to cover the gap period.

102. Noting that AFCD considered the methodology of the HKGC inappropriate for the purpose of EIA, a Member questioned why it would be undesirable to collect more comprehensive record of the bat species which would help devise appropriate mitigation measures for the species concerned. In addition, the Member was concerned that Sub-Area 1 might be the potential roosting or foraging site for bats as revealed in the data of the HKGC. Another Member added that bamboo forest, Chinese Fan-palm and Petticoat Palm might be potential roosting sites for some bat species such as lesser bamboo bats as indicated in the latest information provided by the project proponent. As an alternative to his previous proposal, one of the above Members suggested the project proponent to provide evidence to prove that Sub-Area 1 was not a significant feeding ground for bats and the proposed development would not cause adverse impact to the species. Mr Simon Chan clarified that the project proponent had already conducted thorough active search in Sub-Area 1 and confirmed that there was no bat roosting habitat in the site.

103. While believing the bats might return to the site upon the completion of the project, a Member sought confirmation on whether the proposed development would only have temporary effect to the foraging ground for the bats without detrimental impact to their survival. Dr Samuel Chui highlighted that the project proponent had confirmed that no roosting sites were found in Sub-Area 1 during their active search, which was the most crucial indicator of the ecological value of the site to bats. He remarked that there were other alternative foraging grounds nearby and thus the proposed development would not cause significant impact on the bats. He added that the project proponent had proposed a variety of food plants to enhance the habitat complexity in the preliminary Habitat Management Plan.

104. As the authority to review the ecological findings of the EIA report, Mr Simon Chan assured Members that the survey methodology, efforts and coverage of the current EIA report were appropriate and sufficient under the EIAO mechanism. Bearing in mind that the purpose of the EIA study was not to conduct an extensive search of bat species, he suggested with the support of the Chairman and a Member that it would suffice for the project proponent to elaborate the methodology of the bat survey in the EIA report. Additional bat surveys with prolonged duration were not required given that the bat species recorded in the site would be active within two to three hours after sunset.

105. A Member suggested and another Member echoed that the project proponent should supplement the detailed procedures of the bat survey in the EIA report including the transects of the survey, personnel involved as well as time spent in each sub-area. Another Member agreed that it was reasonable to evaluate if there were enough research efforts in the survey through the details of the transect.

106. The Chairman remarked that the ACE should trust the expert advice of AFCD in the bat survey and their professional judgement on the sufficiency and appropriateness of the methodology in the EIA report. To alleviate Members' concerns, the Chairman proposed with the agreement of Members that it would suffice for the project proponent to provide details of the survey methodology adopted for the bat survey in the EIA report including the coordination of the transects of the surveys, qualifications of the personnel conducting the survey as well as the locations, frequency and duration spent on each sub-area.

iii. Moth Survey

107. A Member recapped his doubt on the accuracy and reliability of the survey data due to the limited participation of Prof Wang-min and the expertise of the personnel involved in the field survey. Another Member suggested with the support of the Member that the project proponent could obtain a second opinion from a local moth expert to verify the data. One of the above Members added that additional information might be required from the project proponent subject to the suggestion of the local moth expert. Given that Dr Roger Kendrick had been engaged by the HKGC for their moth survey, another Member indicated that it would be inappropriate to consult him for a second opinion due to the potential conflict of interests.

108. Pointing out that there were different suitable methodologies to conduct ecological surveys, Mr Simon Chan opined that it would be inappropriate to seek second opinion from another expert since different experts would likely have different views on the methodologies. Dr Samuel Chui added that there was no reason to question the expertise or credibility of Prof Wang-min. A Member clarified that Members had no doubt on the expertise of Prof Wang and their concern was mainly about the expertise and experience of the personnel engaged in the field

survey, which might lead to oversight in the process. Notwithstanding the aforesaid, she considered that there should not be significant deviance of data when the moth traps were properly designed.

109. Explaining that the moth surveys were conducted in a similar way to common surveys for insects which were not complicated, Mr Simon Chan opined that it was not absolutely necessary for Prof Wang-min to carry out the field survey personally. Mr Chan emphasised that the methodology including the number and location of traps as well as the duration of the surveys was designed by Prof Wang and the identification process was also conducted by himself. The Chairman was concerned that it would set an undesirable precedent to ask for a second opinion from another expert for the purpose of verification of survey results.

110. To help verify the data, a Member suggested with the support of two other Members to set up moth traps for a longer duration in dense plantations such as the woodland, which would avoid the attraction of moths from outside the project site. The Chairman opined that it might suffice to place more traps within the woodland without prolonging the duration. The Member indicated that the locations of the traps were proposed by the moth expert and it might not be appropriate to set up more traps. As some moths might be active later during the night, she suggested that the duration of the additional survey in the woodland might be prolonged as it should not attract moths from the outside given the shading of the trees.

111. Mr Simon Chan highlighted that in case the duration of the moth surveys was doubled, more moth species would certainly be recorded given the increase in survey efforts. It would thus not be fair to compare the findings in the EIA report with that of the additional survey. Agreeing with Mr Chan, a Member further suggested carrying out two rounds of survey of the same duration, say one within two hours after sunset and another from 10 pm to midnight. Given that the two rounds of survey would only last for two hours each, it might not be necessary to place the moth traps in the woodland. Dr Samuel Chui indicated that there should be a break between the two rounds of survey to allow the moths to leave the area before commencing the second round. As such, he proposed that the second round of the survey be conducted from midnight to 2 am with the frequency maintained at the same level as in the EIA report.

112. A Member suggested that the additional moth survey be conducted from September to March to cover both the wet and dry seasons to align with the bird survey. Mr Simon Chan pointed out that ecological surveys for insects would only be conducted up to October, i.e. the wet seasons, in accordance with the Guidance Notes. Mr Chan explained that the duration of the survey should be set according to the active period of the species concerned. He said that it would be against AFCD's professional judgment and deviate from the practices of EIA if unnecessary survey was carried out in the dry season while moths were most active in wet seasons. Understanding that the moth survey in the EIA report did not cover a 12-month

period, the Member agreed with the support of another Member that an additional moth survey from September to October 2022 would suffice.

113. A Member further suggested the project proponent to provide detailed log records of the moth survey including the background of the personnel responsible for carrying out the survey to demonstrate their expertise and experiences in the field.

114. The Chairman summarised that an additional moth survey covering both evening and mid-night was to be conducted twice a month from September to October 2022 to reaffirm the overall result of the moth survey conducted in the EIA report. Two rounds of survey with a duration of two hours each (i.e. one at two hours after sunset and the other one at mid-night between 00:00 and 02:00) should be carried out each night. Details of the survey methodology including the types of device used, location/transect of the survey, qualifications of the personnel conducting the survey as well as the locations, frequency and duration of the survey should be included in the further information.

iv. Compensatory Tree Planting and Layout Plan

115. A Member suggested with the support of the Chairman and another Member that the project proponent should provide a tree compensation plan with a ratio of 1:1.5 covering details of the numbers, species, locations and the water demand of the trees to be compensated. With reference to a Member's earlier comment on the 50% survival rate for compensated trees, another Member suggested with the support of one of the above Members to increase the tree compensation ratio to 1:2. Mr Terence Tsang responded that the tree compensation ratio required under the EIAO was 1:1 and there would be a Habitat Management Plan to upkeep the conditions of the compensated trees. As such, he considered the ratio of 1:1.5 sufficient.

116. With reference to his earlier comments, a Member recapped that the total area of tree compensation was less than that of the habitat loss according to the information provided by the project proponent, i.e. 2.85 ha of woodland loss versus 1.7 ha of tree compensation. He suggested the project proponent to provide further information on the tree compensation plan to demonstrate that the number of trees to be compensated was appropriate and at least equivalent to the lost habitat in Sub-Area 1. Mr Simon Chan clarified that about 5.1 ha of woodland compensation would be provided in accordance with the EIA report, which would be more than the loss of woodland and mixed woodland in Sub-Area 1. Mr Terence Tsang said that the project proponent could be requested to provide the detailed number and area of tree compensation.

117. Sharing her experience in previous projects of the Lands Department, a Member suggested that the compensation should not only be based on the number of trees, but also the mass of the trunk size of the trees felled. Another Member echoed that the compensation should match with the girth size of the felled trees. A Member shared that tree seedlings would usually be compensated in EIA projects.

If an excessive number of tree seedlings were planted based on the girth size of the felled trees, the area might become overcrowded which might not be desirable to the ecological system when the seedlings grew into big trees. That said, the Member remarked that compensation of trees with similar girth size might be for EPD's consideration of relevant revision in the TM in the future.

118. A Member stressed the importance of identifying all site constraints before designing a feasible development plan for the project. Referring to her comments expressed in the previous EIASC and ACE meetings, the Member reiterated that the data of the tree survey should be reviewed first to ensure the accuracy of the number of existing trees and their crown dimension. Another Member added that the figures in relation to the TPIs in paragraph 4.1.6 of the executive summary of the EIA report were confusing. One of the above Members furthered that an accurate tree survey plan should be overlaid on the proposed housing layout plan to illustrate the landscape impact as well as the feasibility of the proposed disposition of building blocks. Dr Samuel Chui responded that the project proponent could be invited to clarify the figures in the form of additional information if necessary. Another Member opined that the ACE should clearly point out the exact information required or specific areas of concerns to facilitate the project proponent to verify its data on a necessary basis rather than to redo the whole tree survey.

119. A Member suggested and echoed by the Chairman and three other Members that the layout plan should be revised with reference to the proposed preservation of 0.39 ha of woodland in Sub-Area 1. Two of the above Members pointed out that the project proponent could avoid adverse environmental impacts by adjusting the design of the layout plan in the first place. Mr Terence Tsang indicated that project proponents of EIA projects were required to suggest a feasible layout plan based on which the EIA report was prepared. Further enhancement or review could be made at a later stage if the changes would not bring undesirable environmental impacts.

120. On tree compensation, the Chairman summarised that the project proponent should provide a plan which should include details of planting numbers with a compensation ratio of at least 1:1.5 having regard to the number of trees affected, locations and tree species to be compensated as well as a management plan taking into account the water demand of the compensatory trees.

121. As regards the blocking layout, the Chairman remarked that the project proponent should provide a detailed layout plan of the proposed housing development which should illustrate, with the help of an overlay plan of the proposed housing blocks, the preservation of an additional 0.39 ha of secondary woodland in Sub-Area 1 (on top of those woodland, mixed woodland and TPI recommended for preservation in the EIA report), the locations of the trees to be retained, the location, disposition and design of the proposed housing blocks with a view to minimising adverse ecological impact.

Action

v. Hydrological Impact and Site Permeability

122. A Member suggested that the project proponent should provide further details on the levels and set-out of the subsoil and the bedrock with reference to the site topography as well as the ground water contour plan. Mr Terence Tsang responded that there were difficulties to arrange ground investigation (GI) works to ascertain the soil and bedrock profile before the resumption of the project site. Another Member echoed with Mr Tsang that there might be difficulty for the project proponent to carry out GI works within the site at the moment. One of the above Members opined that GI works around the vicinity of the project site for the collection of soil and bedrock information would be acceptable given the constraint of the existing land ownership.

123. A Member suggested that the concept of sponge city should be incorporated to enhance the permeability and porosity of the project site. Another Member further suggested that the project proponent should incorporate the concept of urban ecology, such as green roof, sky garden and community farming area, in the design of the project.

124. The Chairman summarised that the project proponent should provide a detailed analysis of the hydrological impact to show the flow of water, including available information on the profile of soil and bedrock conditions of the project site. In addition, the design should incorporate sponge city concept to enhance permeability as well as green building designs such as green roof, sky garden and community farmland to enhance urban ecology and ecological connectivity.

vi. Cultural Heritage Impact

125. A Member suggested that the AAB should be requested to expedite the grading assessment of the FGC site. Noting that only desk-based archaeology review had been conducted for the site, the Member further suggested and echoed by another Member that an archaeological field survey should be conducted to ascertain the cultural heritage value of the site. Mr Terence Tsang explained that as archaeological field survey would involve excavation works, it was unlikely for such works to be carried out before the resumption of land. In case significant archaeological findings were discovered at the later stage, appropriate mitigation measures would be implemented in prior agreement with the Amenities and Monument Office (AMO). He added that the cultural heritage impact assessment in the EIA report was agreed by the AMO. Another Member highlighted that only built heritage impact assessment and archaeological impact assessment were required in the EIA process and the AAB grading was outside the scope of EIAO.

126. With reference to Section 7(5) of the EIAO which stipulated that the ACE might give any comments on the EIA report, a Member opined that there should not be restrictions on the kind of comments the ACE should submit to the DEP. She stressed that a cultural heritage impact assessment was important to the evaluation

of the EIA report. Given that it would take time for the project proponent to provide the additional information on other aspects, the Member suggested the project proponent to take the opportunity to prepare more solid information on the archaeological, cultural and heritage aspects of the site to facilitate a comprehensive assessment of the project. Mr Terence Tsang stressed that in case any further information was required, the ACE should indicate clearly the details, assessment standards and criteria involved.

127. With reference to the Park Island development project for which a cultural heritage impact was conducted, a Member concurred with two other Members that the project proponent should solicit public support through addressing the cultural heritage aspects of the project. Two of the above Members considered that the project proponent should supplement as far as possible the information. They considered it undesirable for the ACE to hold back their rightful suggestions simply because of the implementation difficulties.

128. While Members' views were respected, the Chairman reminded that the information requested from the project proponent should be specific and feasible. A Member recapped her views about the requirement of more detailed cultural heritage impact assessment of the project. She stressed that early identification of possible site constraints was essential for planning the design of the development. Another Member said that perhaps this aspect was not discussed in a detailed manner, as a result, it was probably the reason why the project proponent was not requested to provide additional information on this aspect. Notwithstanding that the project proponent was not requested to provide additional information on this aspect after the previous meetings, the Member proposed to incorporate this suggestion in the final list of further information to be sought.

129. A Member pointed out that the assessment referred by two other Members could be understood as the cultural landscape assessment which was under a different concept whereas the one carried out by the project proponent was on heritage impact as required under the TM. The Member said that cultural landscape assessment would be necessary to help work out the appropriate mitigation measures for the project. One of the two Members echoed with the Member and explained that a cultural heritage assessment should be considered in totality including the soft landscapes, instead of focusing only on architectural structures as in the current EIAO mechanism. The Member shared the UNESCO as an example, which acknowledged the value of cultural landscapes by including them in the World Heritage List.

130. Dr Samuel Chui clarified that cultural landscape assessment was not required under the existing EIAO mechanism. As further information on the project was sought under the authority of the EIAO, he explained that only relevant information within the scope of the TM or EIA Study Brief could be included. He cautioned that any procedural injustice might inflict judicial review on the project. Having regard to Dr Chui's advice and considering that cultural landscape

assessment was not a TM requirement, the Chairman and a Member agreed that it should not be incorporated in the list of further information. While suggesting an update of the TM to consider the inclusion of cultural heritage as part of the assessment, the Member considered that the ACE should honour the existing TM and work out a detailed and implementable list for the project proponent to work on.

131. A Member appreciated that only relevant and enforceable information under the existing framework of the EIAO should be included in the list of additional information to be sought from the project proponent. Nevertheless, she echoed with another Member that the conservation of cultural landscapes was a significant international trend and suggested the inclusion of a general comment for the project proponent to consider. The meeting agreed that the project proponent should request the AAB to speed up the review of the grading assessment on the FGC.

(Post-meeting notes: A Member further suggested on 23 August 2022 with the support of two other Members that the project proponent should obtain comments from an expert such as Prof Ho Puay-peng on cultural heritage and coordinate with the HKGC to conduct archaeological impact assessment to verify the feasibility of the proposed layout plan. One of the above Members considered that a cultural landscape assessment should be done to form part of the heritage impact assessment. Given that Members had already confirmed the list of additional information to be sought from the project proponent at the meeting on 19 August 2022, which did not include a cultural landscape assessment, some Members of the ACE agreed that the above suggestion made after the meeting should not be included.)

132. Two Members suggested the project proponent to explore the possibility to retain the grave in Sub-Area 1 as far as possible from the cultural heritage perspective since it was dated from the Ming dynasty. Another Member enquired whether the descendants had agreed to the removal of the grave. Mr Terence Tsang clarified that the initial proposal to remove the only one grave of Qing dynasty in Sub-Area 1 was agreed by the AMO, which was the statutory authority in the conservation of cultural heritage. He added that the project proponent would review and explore the possibility to retain the grave subject to the final layout plan. Should removal be confirmed necessary, the project proponent would liaise with the descendants on the appropriate compensation and translocation arrangements in accordance with the established mechanism. Given Members' views on the grave in Sub-Area 1, Dr Samuel Chui indicated that the project proponent could be invited to provide further information on how the grave situated in Sub-Area 1 would be handled.

vii. Shading Impact

133. A Member suggested with the support of another Member that the project proponent should be required to elaborate on the shading impact on the trees of the project site. One of the two Members explained that it would be feasible to consider the shading impact of the proposed housing development based on the light demand of the tree species concerned. Instead of putting forward a general comment as

suggested by one Member, another Member counter-proposed with the support of the meeting that the project proponent could be requested to provide additional analysis on the shading impact of the proposed housing blocks to the trees in the potential development area taking into account the revised layout plan.

viii. Light Glare Impact

134. A Member suggested that the project proponent should be required to carry out simulation modelling on the light glare impact. Another Member understood there was no established local or international standard on the methodologies for light glare impact assessment on fauna species. She reminded Members that the additional information sought should be specific, feasible and reasonable to uphold the credibility and integrity of the ACE.

135. Although there might not be an universal standard, a Member opined that there were possible ways to assess the light glare impact. For example, a three-dimensional model could be built with the Inverse Square Law with the estimated luminance levels of lighting sources such as housing units and the actual distance between the housing estates and Sub-Areas 2 to 4. While there might not be a scientific assessment on the absolute level of glare discomfort on the fauna species, it could provide insight from the perspective of human perception on the intensity of lighting towards Sub-Areas 2 to 4 with reference to the nearby housing estates. Another Member explained that there were two types of light sources, namely the external environmental and within the buildings. She said that computer models for shading study were commonly available for the assessment of light impact of internal sources. One of the two Members and another Member added that light glare impact assessment was required under BEAM Plus and it would be feasible to require the project proponent to provide additional information in this respect.

136. While light glare models could be prepared, Mr Terence Tsang advised Members that there were neither local nor international criteria to assess light glare impact on the ecology. As such, it would be impractical for EPD to evaluate whether the impact of the estimated luminance level on ecological sensitive receivers would be acceptable in the project. As light glare impact assessment on the ecology was not a TM requirement, he expressed concerns on the knock-on effect for other projects as the EIA requirements should be consistent, clear and objective across-the-board.

137. The Chairman enquired about the possibility to require the project proponent to propose methodologies for conducting an appropriate light impact assessment. A Member was concerned that neither EPD nor the ACE would be able to assess whether the proposed light impact assessment was acceptable in the absence of an established standard. The ACE should clearly set out the methodology to ensure that there would not be disputes about the validity of the methodology afterwards. Another Member further asked whether it would be possible for the project proponent to submit a method statement for the ACE's consideration before carrying

out the modelling or assessment. One of the two Members pointed out that there might not be a Member expert in the relevant field to assess and evaluate the method statement.

138. Two Members suggested adopting the prevailing requirements or standards of BEAM Plus in the current case. One of the above Members added that glare assessment was required for the operation of airports and there must be feasible ways to carry out glare assessment. He added that some Members including himself had some relevant knowledge and could share their views in this regard. Another Member opined that the project proponent could engage relevant experts to conduct an appropriate light glare impact assessment. One of the above Members remarked that she would look for more details and share information regarding light glare impact on the ecology, if any, after the meeting.

139. Dr Samuel Chui clarified that the problem was not the lack of methodology to simulate and calculate the potential luminance level, but the absence of an objective standard to assess the impact of the luminosity on the ecology. Without such standards, EPD would not be able to decide whether the potential luminance level would cause any unacceptable impact on the fauna species of the project site. A Member echoed with Dr Chui and indicated that the project proponent could only provide the estimated attenuation of light intensity over distance, but not the impact on the ecology of Sub-Areas 2 to 4. Referring to another Member's earlier suggestion of in-situ measurement at the nearby housing estates, one of the above Members opined that it might not be appropriate to draw such reference as the ecological environment of the sites were not the same.

140. With reference to the very limited research experiences in light glare impact assessment which focused only on highly light sensitive species such as fireflies, Mr Simon Chan shared that glare impact assessments on fauna species were not feasible. While it might be possible to compare the light intensity of the proposed development with the ambient light level, conclusion on the light impact on the ecology or environment could not be made. Given that different flora and fauna species might have different levels of light sensitivity, it would not be possible to evaluate the light impact of all flora and fauna species in Sub-Areas 2 to 4.

(Post-meeting notes: Two Members shared with Members some examples of local projects with glare simulations and light pollution impact. Noting the limitations arising from the assessment standards, one of the two Members suggested to include a recommendation to minimise the light pollution impact. After consulting EPD, the ACE agreed that the following could be added as a suggestion –

"The project proponent should consider measuring the baseline ambient light level of the site, and use those findings and data for any future planning and monitoring etc., with the objective to minimise the light pollution impact to the ecologically sensitive areas in the site.")

Action

ix. Habitat Management Plan

141. A Member suggested that a more concrete Habitat Management Plan should be provided to facilitate the ACE to assess the environmental impacts of the project as the preliminary plan submitted in the EIA report gave no details on the recreational use of Sub-Areas 2 to 4. Noting that the project proponent had provided a preliminary Habitat Management Plan, another Member sought clarifications on the additional information required. One of the two Members gave an example on details of recreational facilities such as the location and dimension of jogging tracks. Another Member added that the project proponent could beef up information regarding the management mode and responsibility of Sub-Areas 2 to 4, details of the habitat management works as well as visitor control measures.

142. Drawing reference to the EIA project of the Long Valley Nature Park, a Member was concerned that it might not be reasonable to ask for such in-depth operational details for Sub-Areas 2 to 4 given the early stage of the current project. While it might not be clear as to which party would manage Sub-Areas 2 to 4, another Member opined that more details of the habitat management works should be provided. The Chairman enquired if the project proponent could be requested to provide more information on the Habitat Management Plan at a later stage. Considering that details of the plan would unlikely be available until the project had reached the detailed design stage, one of the above Members shared that the Habitat Management Plan would usually be included as a condition for the approval of an EIA report.

143. Mr Terence Tsang shared with Members that project proponents of EIA projects would usually provide a preliminary Habitat Management Plan in the EIA report whereas the final plan would be devised and submitted to EPD and other relevant departments for approval in the detailed design stage. An EM&A Programme would also be put in place to closely monitor the ongoing environmental impact of the project. He indicated that the ACE had in the past required some project proponents to provide regular progress report on the habitat management for sensitive projects and Members could make similar recommendations if necessary.

144. Mr Terence Tsang advised Members that the final layout plan would be a prerequisite for the formulation of a detailed Habitat Management Plan. As such, it would be premature to seek such level of details at the current stage. The meeting agreed that no further information would be required on this aspect. Nevertheless, a comment would be given to suggest the project proponent to enhance the ecological value of Sub-Areas 2 to 3 by planting more trees with a better management plan for public enjoyment. To maintain a balance between nature conservation and public enjoyment, core areas with limited access by the public should be designated for those parts where the Chinese Swamp Cypress were found while the rest could be open to the public.

Action

Conclusion

145. The Chairman concluded that the ACE considered the EIA report should not be rejected, however, further information would be required from the project proponent to facilitate the DEP's consideration of her final decision. The Chairman highlighted that the project proponent should also report the aforementioned supplementary information to the ACE once ready.

146. While the media and members of the public might question the reasons behind the lengthy discussion of the project, the Chairman appreciated Members' comments and hearty discussion on the EIA report. The Chairman added that even though there might be diverse views on the project which was a controversial one, he remarked that the final comments at the meeting represented the stance of the ACE as a whole. He reminded Members to avoid expressing views which would be contradictory to the stance of the ACE in the pubic and respect the collective decision of the Council notwithstanding their personal views on the matter.

147. The Chairman expressed his heartfelt gratitude to all ACE Members for their time and immense effort on this EIA project as well as their professionalism displayed during the process.

*(Post-meeting notes: The ACE's comments on the EIA report were submitted to DEP on 24 August 2022 and attached at **Annex C** of the minutes.)*

Item 5 : Any other business (Closed-door session)

EIA Reports not selected by EIASC for submission to ACE

148. The EIASC Chairperson reported that since the last Council meeting, the EIASC received the Executive Summary of the EIA reports on "Tuen Mun South Extension" and "Drainage Improvement Works in Ta Kwu Ling" which were not selected for discussion. The Executive Summary of the EIA reports had been circulated to EIASC Members upon commencement of the public inspection period, with the relevant hyperlinks copied to non-EIASC Members for information. Members were advised to provide their comments, if any, on the EIA reports directly to the DEP within the respective public inspection period. Given that the EIA reports had not been selected by the EIASC for presentation and discussion, the EIASC Chairperson informed Members that EPD would take that the ACE had no comments on the EIA reports under section 8(3)(b) of the EIAO.

149. There was no other business for discussion at the meeting.

Item 6 : Date of next meeting (Closed-door session)

150. The next ACE meeting was scheduled for 5 September 2022 (Monday). Members would be advised on the agenda in due course.

Action

151. There being no other business, the meeting was adjourned at 6:55 p.m.

(Post-meeting notes: As there was no proposed item for discussion at the ACE meeting, the meeting scheduled for September and October had been cancelled. The next ACE meeting was scheduled for 7 November 2022.)

ACE Secretariat
November 2022

Annex A

The 254th ACE meeting on 8 August 2022
"Technical Study on Partial Development of
Fanling Golf Course Site – Feasibility Study"
Additional information on issues of concern

To facilitate ACE's further deliberation on the above EIA project, the Project Proponent is requested to provide additional information in writing on the following issues with reference to the comments provided by Members at the meeting –

1. **Ecological Impact**

- provide results of ecological surveys for bats and moths after 10 pm and for birds before 10 am in the Fanling Golf Course site with a view to substantiating the assessment on the ecological value of the project site (i.e., Sub-areas 1-4);

- explain the methodology used for moth surveys with reference to the traveling distance and surrounding habitats of moths, such as "the Green" (歌賦嶺) quoted by Professor Min Wang at the meeting;

- provide scientific data to illustrate that the proposed development in sub-area 1 would not pose adverse ecological impact on the other sub-areas, with particular elaboration with supporting data on the potential ecological impact to sub-areas 2 to 4 arising from the anticipated increase in the flow of people and the conservation plan for the relevant sub-areas to minimise any possible adverse ecological impact;

- provide details of the woodland habitat compensation and management plan to illustrate the woodland habitat loss due to the proposed development would not result in significant ecological and ecosystem adverse impact;

2. **Hydrology and Hydrological Impact**

- elaborate with scientific expertise, methodology and data the hydrological impact on the Chinese Swamp Cypress and woodland habitats in sub-areas 3 and 4 with consideration of the change due to the proposed development, tree plantation as mitigation measures, and available water sources in both wet and dry seasons in these sensitive areas;

- provide hydrology impact assessment and mitigation measures to demonstrate the feasibility of the proposed layout of the housing blocks and amenity buildings (with consideration to allow reasonable substructure / foundations and impervious paving areas as well) for the 12,000 residential units;

3. **Layout Plan and Landscape Impact**

- provide a reasonable layout plan in line with sustainable building design guidelines for the proposed housing blocks and amenity buildings such as carpark block, community facilities and podium garden and the buffer area, if any, to illustrate the consideration of conserving both the woodland and mixed woodland in sub-area 1 while retaining and sustaining the existing trees, in particular the 11 trees of particular interests by strategically adjusting the design, disposition, location, density and height of the housing blocks where appropriate;

- elaborate the tree felling plan with the aim to minimise the number of trees to be felled through strategically adjusting the design, disposition and layout for the housing blocks and amenity buildings;

- provide detailed tree compensation plan including the numbers, species and tentative locations of compensatory tree planting to illustrate that the compensation would not result in adverse ecological impacts on sub-areas 2 to 4 while also considering plantation of native fruit trees and trees as habitats for fauna to enhance the ecosystem; and

4. **Light Impact**

- provide detailed assessment of the lighting glare impact with the support of scientific data including the design, disposition, location and layout of the proposed housing blocks and amenity buildings, on the woodland habitat and associated fauna of the project site in both the construction and operational phases.

Agreement No. CE 17/2019 (CE)
Technical Study on Partial Development of Fanling Golf Course Site – Feasibility Study

Request for Additional Information on Issues of Concern
Raised on ACE Meeting on 8.8.2022

To facilitate ACE's further deliberation on the above EIA project, the Project Proponent is requested to provide additional information in writing on the following issues with reference to the comments provided by Members at the meeting. A summary of the Project Proponent's responses to the comments is in **Annex 1**.

No.	Comments	Responses
	1. Ecological Impact - provide results of ecological surveys for bats and moths after 10 pm and for birds before 10 am in the Fanling Golf Course site with a view to substantiating the assessment on the ecological value of the project site (i.e., Sub-areas 1-4);	It must be emphasized that methodologies for undertaking bat, moth and bird surveys under the ecological study have been well determined after thorough review of the literature, achieving the objectives of the ecological survey, 1) to verify information collected from literature review, 2) to fill information gaps after a comprehensive literature review, and 3) to collect updated information, for establishment of ecological baseline with focus on occurrence of important habitats (e.g. breeding and roosting habitats) and species of conservation importance, and in particular the ecological conditions of the 4 Sub-Areas of the PDA for impact assessment. Methodologies for undertaking bat, moth and bird surveys have been incorporated into the Method Statement for the Terrestrial and Aquatic Ecological Impact Assessment submitted to and agreed with AFCD and EPD prior to the assessment. Adequate survey effort has been undertaken in accordance with the agreed Method Statement, which serves to ensure that the ecological assessment including the surveys carried out are in full compliance with the Environmental Impact Assessment Ordinance (EIAO). Considering the above and with justifications below, ecological surveys for bats and moths after 10 pm and for birds before 10 am within Fanling Golf Course are considered as not essential; results of the ecological surveys of the requested periods are not currently available. Please see below the rationales of bird, bat, and moth surveys for this study. **Adequate Survey Efforts for Bird:** **In gist, full day bird survey (10:00 am to 10:00pm) had adequate survey effort to identify bird species potentially found within FGC (i.e. land bird).** Targets of the bird survey include identifying the diversity amongst the 4 Sub-Areas and searching for the presence of colonial roost/nest within the 4 Sub-Areas, in order to establish the ecological baseline for assessment of the impact of the development to birds. Flight line survey was carried out during the active period of breeding egrets (both diurnal egrets and nocturnal egrets were covered). Bird survey near FGC was started from 8:00 am. Bird survey inside FGC was carried out between 10:00 am and 10:00 pm after coordinating with HKGC. As there is no major water body

		within FGC and the assessment area as a whole, the majority of the birds within the assessment area, especially within FGC are land birds (referring birds inhabiting land habitats such as woodland, shrubland or grassland). Different from waterbirds which often travel among different feeding grounds, land birds basically reside inside or stay close to their roosting habitats. Land birds can be recorded if the bird survey is carried out throughout the day. Based on the above site condition, bird survey within FGC between 10:00 am and 10:00 pm and throughout the day, covering the morning, the afternoon and the evening (including the time close to dusk) is adequate for establishing the ecological baseline of birds within FGC, and has met the requirement under EIAO Technical Memorandum (EIAO TM) and the EIAO Guidance Note No. 10/2010. In one of the references listed in the EIAO Guidance Note 10/2010, i.e., "Bird Census Techniques", it states that activity and song output (of bird) is also high close to dusk. Our bird survey within the FGC carried out between 10:00 am and 10:00 pm has already well covered the high activity time of birds close to dusk. It is also reported under a research study (Robbins, C.S. 1981. Effect of Time of Day on Bird Activity. Studies in Avian Biology 6:275-286.) that if the survey time cannot be conducted in the best timing (most active time of birds), a higher survey effort (such as slower walking or longer listening periods in the research, or longer survey time in our survey) can compensate for lower bird activity. Hence, the bird survey period within FGC between 10:00 am and 10:00 pm based on the coordination with HKGC was designed taking account of the bird survey cannot be carried out in the early morning. Further information of the above demonstrates that adequate survey effort has been taken for bird, even though bird survey within FGC was carried out after 10:00 am, as higher survey effort (i.e. longer survey time in our survey) was taken for bird survey for the whole day (including high activity time of bird close to dusk) within FGC. Additional bird survey within FGC covering the period before 10:00 am is considered not necessary. In fact, the key findings from bird monitoring data collected by HKGC between 2015 and 2018 were included in the literature review and used to establish the ecological baseline for impact assessment. The ecological baseline information of the EcoIA has thus been sufficient and comprehensive for assessment purposes. **Adequate Survey Efforts for Bat:** **In gist, bat survey period before 10:00 pm had well covered the active time of bat species potentially found within FGC, according to literature.** It is a common practice to conserve bat roost as direct impact on bat roost would affect the species population level, as supported by relevant publications (鄭錫奇等1999[1]; Sheffield et al. 1992[2]). Hence, attention was paid on bat roost location in local EIA studies

[1] 鄭錫奇，方引平，周政翰。1999。臺灣蝙蝠圖鑑。行政院農業委員會特有生物研究保育中心。

[2]Sheffield, S. R., Shaw, J. H., Heidt, G. A., & McClenaghan, L. R. (1992). Guidelines for the Protection of Bat Roosts. Journal of Mammalogy, 73(3), 707–710.

(e.g. EIA for NENT NDA, Mai Po Nature Reserve Infrastructure Upgrade Project etc.).

Based on the literature review, including the EIA for NENT NDA and the report submitted by HKGC to the Task Force on Land Supply in 2018, 8 species of bat were found in the area and within FGC (see table below). Active search for the presence of bat roosting/breeding sites were carried out in daytime in potential roosting habitats and the survey time has covered the emergence time of all bat species based on the literature review (see table below). The emergence time for all these bat species are all become active within 2-3 hours after sunset. No late emergence bat was reported based on the literature review.

品種 **Name**	**主要群落棲息生境** **Major Roosting habitats**[3,4]	**出現時間** **Emergence time**
Short-nosed Fruit Bat 短吻果蝠	蒲葵、絲葵、建築物 Chinese Fan-palm, Petticoat Palm, building	日落後2-3小時內開始活躍 Become active within 2-3 hours after sunset
Lesser Bamboo Bat 扁顱蝠	竹林 Bamboo forest	
Lesser Yellow Bat 中黃蝠	建築物 Building	
Intermediate Horseshoe Bat 中菊頭蝠	山洞、礦洞、隧道、荒廢建築物 Cave, mine, tunnel, abandoned building	
Himalayan Leaf-nosed Bat 大蹄蝠	荒廢建築物、山洞、礦洞、隧道 Abandoned building, cave, mine, tunnel	
Chinese Noctule Brown Noctule 中華山蝠	建築物、樹林 Building, woodland	
Japanese Pipistrelle 東亞家蝠	建築物、樹林 Building, woodland	
Myotis sp. 鼠耳蝠屬	山洞、礦洞、隧道 Cave, mine, tunnel	

Further information of the above demonstrates that adequate survey effort has been taken for bat, as the bat survey period before 10:00 pm within the FGC had well covered the emergence time of all bat species found within FGC from reviewed literature. No late emergence bat was reported based on the literature review. Additional bat survey within FGC covering the period after 10:00 pm is considered not necessary.

In fact, the bat data collected by HKGC between 2015 and 2018 were

[3] Shek, C.T. (2006) A Field Guide to the Terrestrial Mammals of Hong Kong. AFCD

[4] Kadoorie Farm & Botanic Garden (KFBG) (2006). *Focus on Hong Kong Bats: Their Conservation and the Law*. Retrieved June 20022 from http://www.bio.bris.ac.uk/research/bats/China%20bats/Focus%20on%20Hong%20Kong%20Bats%20%5BA5%20format%5D.pdf

		included in the literature review and used to establish the ecological baseline for impact assessment. The ecological baseline information of the EcoIA has thus been sufficient and comprehensive for assessment purposes. **Adequate Survey Efforts for Moth:** **In gist, moth survey period before 10:00 pm had well covered the active time of moth species potentially found within FGC, according to Moth Expert.** Methodology of moth survey, including moth trap types used, time and duration for setting up the moth traps was based on the recommendation from Professor Wang Min (王敏), who is a renowned moth expert of South China Agricultural University (華南農業大學), after a site visit in January 2020, the CV of Professor Wang in **Attachment 1** was also submitted to AFCD for agreement. According to Professor Wang, most of the moths are active near sunset, which is a common commencing time for other moth studies. Hence, setting up of moth traps near sunset is appropriate according to Professor Wang. It was observed that the PDA is relatively open, moths inside PDA could be attracted to the moth trap in a short period of time. The standardized sampling efforts of 2 hours for each trap used for sampling is thus deemed sufficient to yield objective results for establishing the ecological baseline for the assessment. Setting up moth traps for longer period, however, might collect moth species farther away from the survey location, such as habitats outside the PDA, and may affect the evaluation and impact assessment. Further information of the above demonstrates that adequate survey effort has been taken for moth, as the survey was carried out near the sunset, which is a common commencing time for moth survey and for setting up of moth traps according to Professor Wang. Set-up time of 2 hours is appropriate as per the advice of Professor Wang, to avoid moth species farther away from the survey location are also collected, distorting the purpose of the survey to find out the moth distribution in the 4 Sub-Areas. Additional moth survey within FGC covering the period after 10:00 pm is considered not necessary.
	- explain the methodology used for moth surveys with reference to the traveling distance and surrounding habitats of moths, such as "the Green" (歌賦嶺) quoted by Professor Min Wang at the meeting	The moth survey of the present EIA adopted two approaches to investigate the moth diversity, i.e. moth trapping and active search. While active search covered the PDA were conducted, UV light moth traps were deployed for two hours in all 4 Sub-Areas. The PDA in general is of elongated shape. Along this elongated landscape, open turfgrass occupies the middle part, with woodland/mixed woodland forming a thin belt along boundaries on both sides or elongated patches near the turfgrass. The trap survey commenced at evening near sunset, and the traps was operated for 2 hours. As moths usually roost inside well vegetated areas such as woodlands during daytime and become active when light diminishes near sunset, it is a common practice in other moth studies to commence trapping near sunset. With the relatively open landscape in the PDA, the UV light of the traps could be quickly detected by moths inside the wooded areas in

		the PDA, and the moths could be attracted to the moth trap in a short period of time. This survey timing and duration could collect moths utilizing habitats inside PDA. For moths inhabiting habitats outside the PDA, with the trees along PDA boundary shielding, the chance of those moths to be attracted by the moth trap when they start becoming active is much lower during the survey duration. It is however known that the travelling distances vary among different groups of moths, from a few dozen meters to a few kilometers. If the traps are operated for a longer time duration, when the long traveling distance moths from outside habitats flying near the PDA, these moths originally inhabiting outside habitats might also be attracted to the traps. It is also known that habitat complexity is related to moth diversity, the more complex the habitat type compositions, the higher total diversity of moths could be recorded from trap survey. While the habitat complexity inside the PDA is relatively simple (mainly dominated by turfgrass, mixed woodland and woodland, with the addition of extensive developed area in Sub-Area 1 and swampy woodland and marsh in Sub-Area 4), the habitat complexity to the south and southeast of the PDA is higher, including, east of "The Green (哥賦嶺)", the woodland (which is a large piece of continuous woodland extending to Pak Tai To Yan SSSI and Lam Tsuen Country Park), the AFCD's experimental farm, abandoned and active agricultural lands, and west of "The Green (哥賦嶺)", mixed woodland, active agricultural land, ruderal vegetation and fung shui wood. A plan showing the location of the "The Green (哥賦嶺)", Pak Tai To Yan, & and Lam Tsuen Country Park is shown in **Attachment 2**. A high diversity of moth is expected from these complex habitats. If the moth traps were deployed for a long duration of time, moths from outside the PDA would be attracted and would mix with moths inhabiting the PDA, and thus affect the evaluation and impact assessment.
	- provide scientific data to illustrate that the proposed development in sub-area 1 would not pose adverse ecological impact on the other sub-areas, with particular elaboration with the supporting data the potential ecological impact to sub-areas 2 to 4 arising from the anticipated increase in the flow of people and the conservation plan for the relevant sub-areas to minimise the possible adverse ecological	**Minimal Impact to Fauna:** Sub-Area 1 is consisted of 4 habitats, woodland, mixed woodland, turfgrass, and developed area. These habitats, including the more ecological valuable woodland and mixed woodland are not unique to the PDA, the assessment area or FGC as a whole. Our ecological impact assessment based on the literature review and the ecological survey has shown that none of the 4 habitats are critical/unique to the fauna species identified in Sub-Area 1, as major roosting/breeding site or foraging ground cannot be found in Sub-Area 1. Sub-Area 1 does not consist of important habitat such as pond and wetland neither. Sub-Area 1 is Fragmented. Over 75% of the boundary of Sub-Area 1 adjoins to or in close proximity to existing developments, not only the existing roads of Fan Kam Road, Po Kin, Road, Ping Kong Road, but also North District Hospital to the North, Cheung Lung Wai Estate to the East, Ming Tak Court to the South East, the club house of HKGC to the West and WSD's pumping station to the South West.

	impact;	There are existing carpark, staff quarters, tennis courts & other sports ground with high frequency of human activities and noise within Sub-Area 1. The woodlands to be affected within Sub-Area 1 surrounded by the existing carpark, turfgrass, the tennis courts and the sports ground, as well as Fan Kam Road and Ping Kong Road. It is away from the woodlands in Sub-Areas 2 to 4 and also the preserved mixed woodland in the southern side of Sub-Area 1. The fragmentation, the high proportion of developed area, which is the largest in term of both absolute area and in proportion amongst all the Sub-Areas, as well as higher human activities due to the developed area differentiate Sub-Area 1 (and its associated woodlands) from Sub-Areas 2-4 (and their associated woodlands). In fact, fauna found in Sub-Area 1 is lower than Sub-Areas 2 to 4, in term of both diversity and abundance, which objectively shows that the habitats of Sub-Area 1 is not as important as the habitats of Sub-Areas 2 to 4. Even if fragmentation, scale of the developed area, and human activities are ignored, the woodland to be affected within Sub-Area 1 is very small. In fact, taking account of the 1 ha. of mixed woodland in the southern side of Sub-Area 1 and the additional 0.4 ha. of mixed woodland within the housing development boundary to be preserved, the total area of woodland & mixed woodland lost due to development of Sub-Area 1 is 2.84 ha. only, which is only 1.7% approximately of the 172 ha. of FGC. On the other hand, over 90% of the boundary of Sub-Areas 2 to 4 will be maintained in its current condition. The ecological corridors identified within the PDA will also be preserved. Based on the above, the habitat loss in Sub-Area 1 would not be significant for fauna utilizing Sub-Areas 2 to 4. **Minimal Impact to Flora:** Our hydrological impact assessment has already shown that the groundwater of Sub-Area 1 flows towards the north side, i.e. away from Sub-Areas 2 to 4, based on the geological condition of Sub-Area 1. Given that Sub-Area 1 and Sub-Area 2 is divided by hillocks and woodland with higher general level than both Sub-Area 1 & Sub-Area 2, surface runoff of Sub-Area 1 would not contribute to the groundwater of Sub-Areas 2 to 4. The main water sources of the swampy woodland in Sub-Area 4 are the groundwater and the surface runoff of a hillock in the southeast side of the swampy woodland and the golf course in the west side of the swampy woodland. Contribution of the groundwater and the surface runoff of Sub-Areas 2-3 to the water source of the swampy woodland in Sub-Area 4 is not substantial due to the similar topography of Sub-Area 4 and Sub-Areas 2-3, not to mention Sub-Area 1, which is over 1km from Sub-Area 4 and divided by hillocks and woodland with higher ground level. **Well-Engineered Housing Development Scheme** Key findings of our ecological and the hydrological impact assessments above demonstrate that the housing development in Sub-Area 1 will not induce adverse ecological impact to Sub-Areas 2 to 4. The following has also been considered and incorporated into the

		scheme for the housing development in Sub-Area 1, with a view of increasing the confidence level of no adverse ecological impact. • Setting back the housing development from Sub-Area 2 by preserving the mixed woodland of 1ha. in the southern side within Sub-Area 1. • Exclusion of the nourishing area of turfgrass adjacent to the existing WSD's pumping station. The preserved woodland within Sub-Area 1, the existing turfgrass nourishing site and the existing WSD's pumping station collectively serves as a buffer to further minimize any potential impact due to the housing development in Sub-Area 1 to Sub-Areas 2 to 4 to be preserved. **Active Measures to Man-Access to Sub-Areas 2 to 4:** The Government will consider necessary protective measures, including control on number of visitors, types of activities, operation hours and limitations on visitors in getting access to areas of conservation importance. Subject to the management plan of Sub-Areas 2 to 4, control of access of visitors to Sub-Areas 2 to 4 similar to the existing arrangement implemented by HKGC for the existing Old Course may be considered. For reference, HKGC organized an open day on the Old Course for over 5,000 public participants in July 2022. Active measures will be considered to control the man-access to Sub-Areas 2 to 4. For example, new fencing will be erected along the boundary between the proposed housing development in Sub-Area 1 and Sub-Area 2 to prohibit uncontrolled man-access to Sub-Areas 2 to 4 via Sub-Area 1, while maintaining connection with the preserved mixed woodland inside Sub-Area 1 with Sub-Areas 2 to 4 by providing animal corridors. **Habitat Management Plan for Sub-Areas 2 to 4:** Adverse ecological impact to Sub-Areas 2 to 4 will be avoided by preserving the existing habitats and ensuring that the existing habitats will not be affected by the development. A Habitat Management Plan will be formulated setting the targets, the design and management methods, daily management measures, and monitoring measures to ensure that the existing habitats will be well maintained after the PDA is reverted to the Government. Outlines of the Habitat Management Plan are as follows: - ***Targets: -*** • Target includes protection of existing habitats (e.g., swampy woodland, woodland), enhancement of existing habitats and/or the overall ecological functions of the managed area, and promotion of nature conservation education. • Approach to achieve the targets, such as maintenance of hydrological regime, planting to enhance ecological corridors, expansion of the swampy woodland extent (for example to investigate the feasibility on removal of existing obstacles near its boundary such as hard-paved path, enlarging the waterlogged soil area, etc.), planning of core zone and education zone. • Proposes sizes, locations and species of the compensation

		woodland planting, as well as locations of the transplanted floral species of conservation importance, and if necessary, buffer planting, without affecting hydrological regime and existing habitats. ***Design and Management Methods:*** • Overall planning on the usage of the managed areas • Design/approach for maintaining hydrological regime and water sources for swampy woodland and marsh (such as diversion of rain runoff, contingency water sources) • Propose enhancement planting locations which could increase the connectivity of existing habitats and thus enhance the ecological corridors, and also recommend the floral species with ecological functions (such as larval food plants for butterflies and moths, nectar plants, plants with berries for birds and mammals, etc.) • Propose other habitat enhancement measures such as creation of additional habitat types (for example shrubland, tall grassland, multiple ponds) to increase habitat diversity and structural complexity, provisions of bat boxes, nest box, wood logs, animal passage to connect woodland outside the PDA, etc. • Formulate the management for the compensatory woodland including control on the application of fertilizers, replacement planting, management of understory with the consideration of maintaining biodiversity, etc. • Propose the necessary facilities for habitat management, nature conservation facilities and site security. ***Daily Management:*** • Habitat management works to maintain the habitats (such as contingency irrigation) • Facility Maintenance • Implementation of control on visitor activities such as type of activities, opening hours • Nature conservation education such as guide visits and demonstration activities where appropriate (organised and limited to certain zones, in order to minimise interfering the functions of the habitats). ***Monitoring:*** • Habitat monitoring, including but not limited to, hydrological conditions in particular at swampy woodland; coverage, number and health of Chinese Swampy Cypress, and seedlings if any; vegetation diversity, conditions of the habitats, and fauna usage of the habitats. • Water quality monitoring at wetlands including the existing and created ones • Interface with the other areas of the PDA (i.e. development in Sub-Area 1), the remaining golf course, and the urban area outside the golf course and the PDA

		• Adaptive Management: Adjustments and improvements. The proposed development in Sub-area 1 would not pose adverse hydrology, hydrological and light impacts on the other sub-areas will be further elaborated in the following sections.
	2. Hydrology and Hydrological Impact - elaborate with scientific data the hydrological impact on the Chinese Swamp Cypress and woodland habitats in sub-areas 3 and 4 with consideration of tree plantation as mitigation measures, and available water sources in both wet and dry seasons in these sensitive areas;	**Demonstration of Successful Compensatory Planting in Sub-Areas 2-3 based on Historical Records of Plantation of Woodlands in Old Course after 1945:** According to historical records, including the aerial photos taken since 1945, the existing woodlands within the Old Course, except the Chinese Swamp Cypress within the swampy woodland, were rebuilt from 50's to 80's, as most of the woodlands were destroyed during World War II, though the Chinese Swamp Cypress has been in existence for over a century. The historical records well demonstrate that the swampy woodland in Sub-Area 4 is not affected by the plantation within the Old Course. Plantation of compensated trees within Sub-Areas 2-3 will not produce any threat to the Chinese Swamp Cypress. **Demonstration of Main Water Sources of the Swampy Woodland not to be affected by Housing Development in Sub-Area 1 and Compensatory Woodland in Sub-Areas 2-3 based on the Hydrological Mechanism:** Our hydrological impact assessment has already shown that the groundwater of Sub-Area 1 flows towards the north side, i.e., away from Sub-Areas 2 to 4, based on the geological condition of Sub-Area 1. Given that Sub-Area 1 and Sub-Area 2 is divided by hillocks and woodland with higher general level than both Sub-Area 1 & Sub-Area 2, surface runoff of Sub-Area 1 would not contribute to the groundwater of Sub-Areas 2 to 4. The housing development of Sub-Area 1 will not affect the hydrology of Sub-Areas 2 to 4. The Chinese Swamp Cypress is located within the swampy woodland in Sub-Area 4. The approximate level of the swampy woodland is +22mPD. Based on the existing topography, the existing hillock with minimum catchment area of 1.9 ha. and maximum level of +90mPD approximately in the southeast side of Sub-Area 4 and the New Course of FGC with minimum catchment area of 3 ha. and with approximate level of +34mPD in the north-west side of Sub-Area 4 are much higher than the swampy woodland. The hillock and the New Course are the main water catchments of the swampy woodland. Runoff from these two catchments is discharged into the swampy woodland. The catchment area plan is shown in **Attachment 3**. The general level of Sub-Area 3 is +24mPD approximately, which is only slightly higher than the general level of Sub-Area 4 of +22mPD. Contribution of water to the swampy woodland in Sub-Area 4 is not significant due to the similar topography of Sub-Area 4 as Sub-Areas 2 to 3. Based on our site observation, there is a water channel along the east side of the swampy woodland. The water flows from the south side towards the north side, i.e., towards Sub-Area 3. The water channel is well connected with the swampy woodland and is one of the main water sources of the swampy woodland. Direction of flow of the water channel further demonstrates that the main source of water to

		the swampy woodland in Sub-Area 4 is not from Sub-Areas 2-3. **Irrigation Water Demand for Compensated Trees:** The planation within the PDA is under intensive maintenance. HKGC irrigates the planation within the golf course by reclaimed water supplied from Shek Wu Hui Sewage Treatment Works (SWHSTW). The daily consumption is 3,000m^3 approximately. Based on this ratio, the irrigation water demand for the over 1,000 trees within Sub-Area 1 is 174m^3 per day. It is reasonable to assume that the additional water demand irrigating the 1,000 compensated trees in Sub-Areas 2-3 will also be 174m^3 per day. The additional water demand for irrigating the compensated trees can be satisfied by SHWSTW, which will have reclaimed water capacity of over 73,000 m^3/day, which is 419 times the water demand for irrigating the compensated trees or supplementing the potential groundwater lost of Sub-Areas 2-3 due to the compensated trees, if any. With the Habitat Management Plan to irrigate the compensated trees by the reclaimed water provided by SWHSTW, the hydrology of Sub-Area 4, especially to the swampy woodland and the Chinese Swamp Cypress will not be affected.
	- provide hydrology impact assessment and mitigation measures to demonstrate the feasibility of the proposed layout of the building blocks (with consideration to allow reasonable substructure / foundations as well) for the 12,000 residential units;	**Hydrological Mechanism of Sub-Area 1:** Our hydrological impact assessment has already shown that the groundwater of Sub-Area 1 flows towards the north side, i.e. away from Sub-Areas 2 to 4, based on the geological condition of Sub-Area 1. Given that Sub-Area 1 and Sub-Area 2 is divided by hillocks and woodland with higher general level than both Sub-Area 1 & Sub-Area 2, surface runoff of Sub-Area 1 would not contribute to the groundwater of Sub-Areas 2 to 4. The housing development of Sub-Area 1 will not affect the hydrology of Sub-Areas 2 to 4. **Potential Impact of Housing Development to Hydrology:** Hydrological impact to the trees retained within the housing development during the construction phase has been considered. The housing development for this project does not consist of basement. Deep excavation, which would require drawing down of water level, would not be required. Foundation of the housing development in Hong Kong is usually designed based on large-diameter bored piles. Drawing down of water table will not be required for construction of bored pile, as tremie concrete, i.e., casting of concrete under water, is used for construction of bored pile. **Water Demand due to Increase in Impermeable Surface:** According to the relevant DEVB's Technical Circular (Works) No. 3/2012, public housing development should achieve an overall of 30% green coverage. Given that the proposed development area is 10ha. approximately, area to be reserved for greening would be 3 ha. approximately. The green coverage to be provided will be well sufficient for maintaining the existing trees to be preserved. New fresh water and reclaimed water systems will be provided for the development. Detailed design of the fresh water and reclaimed water system will take into account the water demand based on the greening

		requirement. As suggested by the members of the ACE during the meeting on 8.8.2022, sponge city concept will be considered in the scheme design of the housing development, including adoption of porous materials instead of hard paving as far as practical, to minimize the impact of hard paving to the groundwater lost, if any. Even if there is any groundwater lost due to additional impermeable surface, the potential groundwater lost can be supplemented by the reclaimed water provided by Shek Wu Hui Sewage Treatment Works (SWHSTW). In this regard, we have estimated the water demand required. As approximately 30% of the area shall be reserved for greening, maximum impermeable surface of the housing development will only be 70%, or 7 ha. approximately. Given that there is 1.8 ha. of developed area within Sub-Area 1 for the existing carpark, staff quarters, tennis court and other sports ground etc., the maximum net increase in impermeable surface due to the housing development will be 5.2 ha. approximately. Annual rainfall in Hong Kong is 2,000 mm/year approximately. It is conservatively assumed that 100% of the rainfall will be infiltrated into ground for porous materials and 0% for impermeable materials. In that case, the potential groundwater lost, if any, due to the net increase in impermeable surface, would be 285 m^3/day approximately. The potential groundwater lost of Sub-Area 1 can be supplemented by SHWSTW, which will have reclaimed water capacity of over 73,000 m^3/day, which is 256 times the water demand for supplementing the potential groundwater lost of Sub-Area 1, if any, due to net increase of impermeable surface. **Successful Cases of Preserving Existing Trees:** Preservation of trees, especially TPIs, is common in various housing development projects in Hong Kong. Taking the Queen's Hill as an example, some of the existing trees are preserved successfully within the housing development. Please refer to **Attachment 4** for photos of the preserved trees within the housing development. This shows that, with the various mitigation as described above, tree preservation within housing development would be practical.
	3. Layout Plan and Landscape Impact - provide a reasonable layout plan for the proposed housing units to illustrate the consideration of conserving both the woodland and mixed woodland in sub-area 1 while retaining and sustaining the existing trees, in particular the 11 trees of particular interests by strategically adjusting the design, locations, density and	As discussed during the ACE meeting on 8.8.2022, 11 existing trees of particular interest (TPI) with trunk diameter, i.e., DBH > 1m will be preserved based on the layout of the housing development incorporated into the EIA Report. Preserving the 11 TPI in concern as well as the woodland near the existing carpark and the mixed woodland in the southern side of Sub-Area 1 is assessed to be technically feasible, as: - • According to the relevant DEVB's Technical Circular (Works) No. 3/2012, public housing development should achieve an overall of 30% green coverage. Given that the proposed development area is 10 ha. approximately, area to be reserved for greening would be 3 ha. approximately. The green coverage to be provided will be well sufficient for maintaining the existing trees to be preserved. New fresh water and reclaimed water systems, particularly HD's Zero Irrigation System, will be provided for the development. Detailed design of the fresh water and reclaimed water system will take into account the water

	height of the residential units where appropriate	demand based on the greening requirement. • The housing blocks are set back from the TPIs in concern by about 3m, if possible, in addition to the required tree protection zone, which is defined as the drip line of the tree crowd in accordance with the Greening, Landscape and Tree Management Section of Development Bureau' guidelines. • Root survey can be undertaken to examine the extent of the tree to be preserved. The housing block layout can be adjusted to avoid the major roots of the preserved trees to be affected. • Tree well or tree island can be designed to avoid affecting ground level of the tree protection zone and the additional buffer zone of the preserved trees, in case ground level outside the tree protection zone and the additional buffer zone shall be raised or lowered to suit the site formation and the housing development layout. • The mixed woodland in the southern part of Sub-Area 1 will be excluded from the boundary of the housing development. Preservation of trees, especially TPIs, is common in various housing development projects in Hong Kong. Taking the Queen's Hill and Kai Tak developments as examples, the existing trees intended to be retained are preserved successfully within the housing developments. Please refer to **Attachment 4** for photos of the preserved trees within the housing developments. This shows that, with the various mitigation as described above, tree preservation within the housing development would be practical.
	- elaborate the tree felling plan with the aim to minimise the number of trees to be felled through strategic design and layout plan for the residential housing units while considering the possibility that the total number of buildings could be reduced by extending the height and number of floors in each building;	**Balancing Development and Conservation Needs:** It is the Government policy to preserve the existing trees as far as practical. When the existing trees cannot be retained due to conflict between the development and the existing trees to a greater extent, the affected trees may be transplanted or felled with suitable compensation, with a view of balancing development and conservation. The housing block layout incorporated into the EIA Report is formulated taking account of the Government policy to preserve the existing trees as far as practical. For examples: - • All the existing trees with total number of 3,090 within Sub-Areas 2 to 4 will be retained; • The 1ha of mixed woodland in the southern part of Sub-Area will be preserved; 0.4 ha. of woodland between the carpark building and the podium garden will also be preserved. As a result, amongst the total number of trees of 1,255 within Sub-Area 1, 267 trees will be retained, 34 trees will be transplanted, and 954 trees proposed to be removed, which is only 22% out of the total number of trees of 4,345 within the PDA. Out of the 954 trees proposed to be felled, there are 63 trees of undesirable species such as *Leucaena leucocephala* 銀合歡[5], and

[5] According to TC(W) No.4/2020 Tree Preservation, *Leucaena leucocephala*, which is invasive, exotic and self-seeding, is an undesirable species. According to TC(W) No.4/2020 Tree Preservation, there is no need to consider transplanting for trees of poor

		279 trees assessed to be poor in health condition, poor in structural condition and/or poor in form. Out of the remaining 612 trees with satisfactory health/structural condition/form, there are 288 trees of exotic species which have relatively lower conservation value. Hence, out of the 954 trees proposed to be removed, there are only 324 trees of native species with satisfactory health/structural condition/form will be affected by the proposed housing development, that is only 7.5% of the total 4,345 trees within the PDA. **Further Effort to Preserve Existing Trees:** The tree felling plan based on the statistics above is formulated based on the housing block layout in the EIA Report. The housing block layout will be subject to further review in the subsequent design phase of this project. With respect to the tree felling, a further and detailed tree survey will be carried out in the subsequent phase of this project. The further detailed tree survey will provide a complete inventory and reexamine the condition of all the existing trees within Sub-Area 1. The housing block layout will be reviewed and revised based on, amongst others aspects, findings of the further detailed tree survey, with a view of preserving the existing trees as far as practical as the Government tree preservation policy. By reviewing the housing block layout, active measures will be taken to minimize the impact to the existing trees. The active measures may include adoption of non-standard housing blocks, relocation of the housing blocks, reducing the number of housing blocks without affecting the targeted flat yield by increasing the number of flats for each floor, taking account of the visual impact, air ventilation impact etc. Intensive effort will be taken for ensuring the housing block layout scheme will be technically feasible and balancing different technical aspects, including preserving the existing trees as far as practical. Tree preservation and removal proposal (TPRP) will be prepared based on the recommended housing block layout with tree preservation as a major consideration. The TPRP will be subject to vetting by the relevant departments of the Government. Justifications shall be provided for any tree felling. Approval by the relevant departments will only be given upon the Government policy of tree preservation is satisfied. **Tree Felling in Other Similar Housing Development Projects:** Based on various constraints of project sites, tree felling is inevitable for many developments even with huge efforts to follow the Government policy to preserve trees as far as practicable. Examples include the following. • Housing development project in Po Fu Lam South (PFLS): The project site is 8 ha. approximately (less than 10 ha of this project), 4,080 trees have been felled, including 29 trees with DBH > 1m (well over 954 trees to be felled, including 11 trees with DBH > 1m for this project). The average tree felling ratio for PFLS housing development is 510 tree/ha. of development, which is much higher than 95 tree/ha. of development for this

health, structure or form.

project.

- Housing development project in Pik Wan Road (PWR): The project site is 2.6 ha. approximately (much less than 10 ha of this project), over 1,288 trees have been felled, (well over 954 trees to be felled for this project). The average tree felling ratio for PWR housing development is 495 tree/ha. of development, which is much higher than 95 tree/ha. of development for this project.

Low Ecological Value of Fragmented Woodland in Sub-Area 1:

As noted from the examples above, total number of trees of 954 to be affected by this project is relatively smaller in quantity than other similar housing development projects, as over 60% of Sub-Area 1 is developed area of existing carpark, staff quarters, tennis courts & other sports ground.

Except the preserved mixed woodland in the southern part of Sub-Area 1, all the existing trees within Sub-Area 1 are fragmented, i.e., no interconnection with other woodlands. Ecological value of these fragmented woodlands is not high, as compared with the existing woodlands in Sub-Areas 2 to 4 interconnected with each other, functioning as ecological corridors for the various fauna species.

This further demonstrates that intensive effort has been taken to preserve the existing trees/woodlands with higher ecological value, echoing with the strategy of this project of balancing development and conservation needs.

- provide detailed tree compensation plan including the numbers, species and tentative locations of compensatory tree planting to illustrate that the compensation would not result in adverse ecological impacts on sub-areas 2 to 4 while also considering plantation of native fruit trees and trees as habitats for fauna to enhance the ecosystem;

A plan showing the location of the compensated trees are incorporated into the EIA. A blow-up plan showing in detail the arrangement of the tree compensation, including the recommended species and the quantity for each species of compensated trees are also attached in **Attachment 5**.

As shown on the plans, the compensated trees will be located in Sub-Area 3, as the area of the turfgrass is more abundant in Sub-Area 3 as compared with Sub-Area 2. The compensated tree will be planted to extend the existing woodlands, enhancing the habitats for the wildlife. A detailed list of species and the quantity of compensated trees are tabled as follows.

Botanical Name	**Ecological Function**	**Quantity**
Adenanthera microsperm 海紅豆*	Flower nectar attractive to wildlife; larval food plant of butterfly	10%
Cinnamomum camphora 樟*	Fruits are attractive to wildlife; larval food plant of butterfly	10%
Sterculia lanceolata 假蘋婆*	Larval food plant of butterfly	10%
Cinnamomum burmannii 陰香*	Larval food plant of butterfly	10%
Cratoxylum cochinchinense	Flowers nectar attractive to wildlife; larval food	10%

		黃牛木	plant of butterfly	
		Sapium sebiferum 烏桕	Fruits, flower nectar and seeds attractive to wildlife	10%
		Celtis sinensis 朴樹	Fruits attractive to wildlife; larval food plant of butterfly	10%
		Acronychia pedunculata 山油柑	Larval food plant of butterfly	10%
		Viburnum odoratissimum 珊瑚樹	Larval food plant of butterfly	10%
		Machilus chekiangensis 浙江潤楠*	Fruits attractive to wildlife	10%
			Total	**100%**

The recommended species are in accordance with the Recommended Tree List for North District GMP based on "Street Tree Selection Guide" promulgated by DEVB, based on the principle of "Right Tree, Right Place". All the recommended species are native. Most of the species are also the existing species within the Old Course or affected by the housing development in Sub-Area 1.

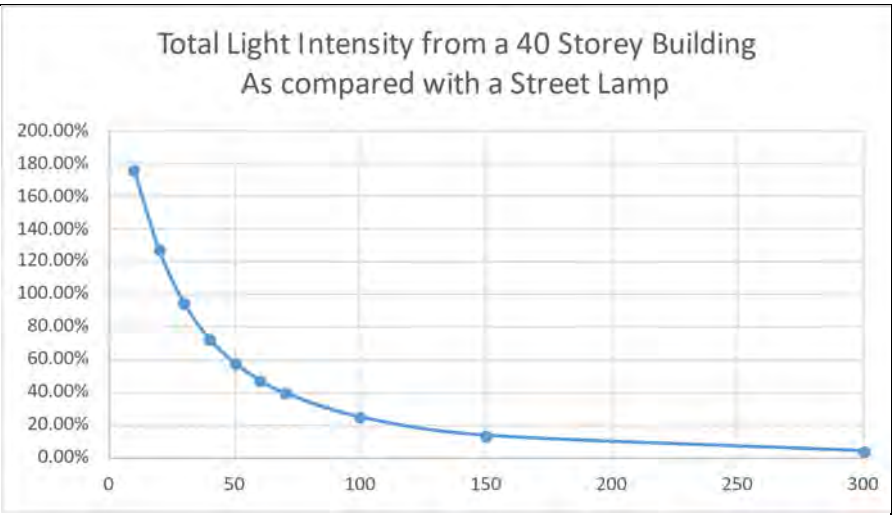
Besides the above tree species with ecological functions for wildlife, enhancing the complexity of a habitat by planting different growth forms (e.g. shrub, herb, climber etc.) is recommended. In general, microhabitats increase with habitat complexity, the more microhabitats can be provided, the higher the biodiversity including moth and bat.

For example, larval food plants for the four butterfly species under the EIA Study Brief, fig trees for Short-nosed Fruit Bat and fruit-eating mammals such as Masked Palm Civet are also recommended:

- *Aristolochia tagala* 印度馬兜鈴 (climber) for *Troides Helena* 裳鳳蝶 and *Pachliopta aristolochiae* 紅珠鳳蝶;
- *Abrus precatorius* 相思子 (shrub) and *Desmodium heterocarpon* 假地豆 (shrub), *Dunbaria podocarpa* 長柄野扁豆 (herb) for *Catochrysops strabo* 咖灰蝶;
- *Mallotus apelta* 白背葉(tree), *Mallotus paniculatus* 白楸 (tree) for *Megisba malaya* 美姬灰蝶;
- *Ficus variegata* 青果榕 (tree) for Short-nosed Fruit Bat and Masked Palm Civet.

	4. Light Impact - provide detailed assessment of the light glare impact with the	**1. INTRODUCTION** Impact due to lighting glare of the proposed development has been assessed under Chapter 9 and Chapter 11 of the EIA for this project. It was concluded by the assessment that by adopting various

	support of scientific data including the positioning, design and layout of the proposed blocking of residential units, on the woodland habitat and associated fauna of the project site in both the construction and operational phases	mitigation measures such as lighting control during the construction and the operation phases, the lighting glare impact would be acceptable. There is no objective assessment criteria or guideline in Hong Kong with respect to glare impact assessment, nor established international standard providing acceptance limits for assessing lighting glare impact on habitat and associated fauna. The commonly adopted practice for lighting glare impact assessment includes identification of lighting sources and recommendations the way of minimizing lighting glare impact. Examples of EIA projects adopting qualitative assessment approach for lighting glare assessment include: - • Housing sites in Yuen Long South; • Hung Shui Kiu New Development Area; • Tai Shue Wan Development at Ocean Park; • Development of Lok Ma Chau Loop. While it is not a requirement under the EIAO TM nor EIA SB for detailed quantitative lighting glare assessment, further supplementary information is given below to address ACE members' concern, and to justify the conclusion in the EIA with the support of scientific data. **2. MECHANISM TO MINIMIZE LIGHTING GLARE** **Inverse Square Law of Lighting** According to "inverse square law" ($I=P/4\pi r^2$), lighting intensity will be decreased with the distance between the light source and the light receiver (as shown in the below graphical plot for general indication). The distance from the nearest woodland within Sub-Area 1 and Sub-Area 2 to the building is about 20 – 40 m away. That means the light intensity of the nearest building to the woodland will be decreased by 4 – 16 times. For building of 50 m from the woodland, the light intensity will be reduced by 25 times. For Sub-Area 3, which is 300 – 400 m away from Sub-Area 1, the light intensity will be decreased by about 1000 times. Hence, even if there is a direct light path without any screening measures, the light intensity is negligible. As an example, the total light intensity of a 40-storey residential building (with a platform of 3-storey) as compared with a 10m tall street-lamp will diminish quickly in the first 50m; See the graphical plot below. In fact, the total light intensity of a 40-storey residential building will be comparable with a street-lamp when the building is set back from the lighting sensitive receiver by 30 m approximately, which is the case for the nearest housing blocks in the southern side of Sub-Area 1 and the nearest woodland in the northern side of Sub-Area 2.



3. AVOIDANCE APPROACH

Lighting glare impact is one of the considerations in formulating the block layout of the housing development. Most of the lighting glare from housing development has been **avoided in the first place**.

Strong light from Community Facilities

Compared to indoor lighting of residential flats, community facilities (e.g. public transport interchange, retails facilities and restaurants) are provided with more lighting parts, so that adequate lighting could be provided for public usage at evening & nighttime. As avoidance approach, these facilities could be located at the centre part of the site, rather than near the southern side of the housing development. Residential blocks would also provide effective screening between the community facilities and the woodlands in Sub-Area 2. Such design would provide effective screening of direct light to the woodlands at southern part of housing site. Above concepts are shown in **Attachment 6**. Further review on housing layout would be carried out in detailed design stage with a view to provide an optimum design that could balance the housing development and impact to the environment.

4. AT SOURCE MITIGATION

Public Lighting

As for the public lighting of the housing development, potential lighting glare impact can be controlled via adjustment of lighting intensity, installation of lighting shield to block the light towards the sensitive receivers, and using warm white light / long wavelength lights[6] such as amber lamps (which are visible to human but invisible to most animals).

Indoor Lighting from Residential Flats

Various measures would be considered at detailed design stage to mitigate as far as practicable the potential lighting glare impact due to the indoor light of the residential flats. These include:
(a) set back of domestic blocks from the site boundary facing Sub-Area 2 as far as practicable;
(b) minimize openings at gable end walls of domestic blocks facing light sensitive area;
(c) explore the use of architectural features to shade/ minimize light

[6] One of the mitigation measures adopted in Hung Shui Kiu New Development Area EIA

impact.

Lighting from construction activities

No nighttime construction works will be carried out according to Noise Control Ordinance. The remaining potential lighting impact would be due to the security light, which would be properly controlled via adjustment of the lighting intensity, installation of lighting shield to block the light towards the sensitive receivers, and using warm white light etc. as far as practicable.

5. BUFFER ZONE BY EXISTING TREE CLUSTER

Within Sub-Area 1, it is designed to preserve some mixed woodland at southern part of housing site (about 1ha). As shown in **Attachment 7**, the preserved mixed woodland together with the woodland at northern part of Sub-Area 2, existing WSD's pumping station would serve as a **Landscape Buffer Area** (about 35m in width) to screen off most human disturbance (e.g. lighting) from the housing development. The average height of mixed woodland (with the tree clusters) within the Buffer Zone is about +40mpD, which is approximately 15m (about 5 floors) higher than the general ground level in the southern side of Sub-Area 1. As shown in **Attachment 8**, for housing flats at lower floors (below 20 floors), residual indoor lighting would be shielded off by the first layer of tree leaves. For housing flats at higher floors, the slant distance between the indoor lights to the woodland outside the Buffer Zone is about 70m (35m width and 60m height), implying light intensity of the nearest building to the woodland after Landscape Buffer Area will be decreased by 49 times. The light further diminishes quickly to the other part of woodland, pond, swampy woodland (over 1km away) in Sub-Areas 2 to 4, and its impact would be negligible based on "Inverse Square Law".

6. RECOMMENDATIONS OF MINIMIZATION OF ARTIFICIAL LIGHT

The mitigation as explained above have taken account of the recommendations as follows given by International Dark Sky Association (IDA, a non-profit making organization promoting eco-friendly outdoor lighting).

- Use only fully shielded, dark sky friendly fixtures for all outdoor lighting, so lights shine down, not up.
- Use only the right amount of light needed. Too much light is wasteful, harms wildlife and creates glare.
- Install timers and dimmer switches and turn off lights when not in use. If you must have security lighting, use motion sensors.
- Turn off lights in office buildings and homes when not in use.
- Use only lighting with a color temperature of 3000K and below. This means that there is less blue (cool) light that is more harmful to many animal species.
- Work with your neighbors and local governments to ensure outdoor lighting isn't harming the wildlife in your area.

		Recommendations from IDA will be considered and incorporated into the design of the housing development and the works contract documents for the contractors to be in compliance with as far as practicable. **7. MONITORING UNDER HABITAT MANAGEMENT PLAN** As part of the Habitat Management Plan, ecological monitoring will be carried out to ensure effectiveness of the proposed mitigation measures for potential lighting glare impact. The Habitat Management Plan can be reviewed and further mitigation measures can be implemented if necessary to avoid long-term impact.

ACE Issues of Concern	CEDD response
Additional ecological surveys for bats, moths and birds	• Survey methodologies approved by the authority under the EIAO as per submitted Method Statement • EPD/AFCD agreed that the methodologies comply with SB and TM requirements • Findings of bird, bat and moth surveys conducted by the Hong Kong Golf Club since 2015 and released in 2018 have been included in the literature review and used to establish the baseline • Surveys conducted have served the purpose to fill the information gap and hence the findings of the EcoIA are comprehensive
Methodology for moth surveys	• Moth trapping and active search were used • Methodology advised by a moth expert, Prof. Wang • Travelling distances vary among different groups of moths, from a few dozens of meters to a few kilometers • Sample collection time of 2 hours is considered appropriate to avoid trapping moths from outside the Potential Development Area.
Impacts from Housing Development on other Sub-Areas	• Potential light impact from Sub-Area 1 to other Sub-Areas will be minimized through appropriate mitigation measures and the impact should be minimal with the distance attenuation • There should be no impact on flora in Sub-Areas 2 to 4 as from the hydrological assessment, surface run-off and sub-soil water in Sub-Area 1 will not flow towards Sub-Area 2. Water supply to the swampy woodland will be replenished through the HMP when necessary • Public access to Sub-Areas 2 to 4 will be controlled to protect the natural habitats • The tree compensation will further minimise the ecological impact to Sub-Area 2 to 4
Hydrological Impact Assessment	• Surface run-off and sub-soil water in Sub-Area 1 will not flow towards Sub-Area 2. • Main sources of water supply to the swampy woodland are the catchments to the south-east and north-west. • Historical records showed that the Chinese Swamp Cypress would not be affected by the plantation in Sub-Areas 1 to 3. • Water supply to the swampy woodland will be replenished when necessary, which is also being arranged by the Golf Club now

Layout Plan and Landscape Impact	• **30%** green coverage requirement • Preserving the 11 TPIs (Tree of Particular Interest) is technically feasible • There are plenty of examples of successful cases in preserving trees within a housing development
Tree felling and compensation plans	• No registered OVT (Old and Valuable Tree) in the Potential Development Area • TPI were identified and preserved as far as practicable and compensation for the affected trees will be provided • Detailed tree survey and TPRP (Tree Preservation and Removal Proposal) submission at next stage ➔ Chance to review housing block layout
Light Impact	• Qualitative assessment in EIA report meets the EIA SB requirement. • Literature review indicated that there are no objective assessment criteria locally and internationally • Assessment is conducted by using the Inverse Square Law of Lighting – attenuation over distance • Most of the lighting glare from housing development has been **avoided in the first place** as far as practicable • At source mitigation measures of lighting (Public Lighting, Indoor Lighting from Residential Flats, Lighting from construction activities) • With light source mitigation measures, the reduction of light due to the inverse square law, and that the first layer of trees/ leaves will screen off any light, it is expected that the light impact is minimal.

附件1 Attachment 1

飛蛾調查 Moth Survey

香港哥爾夫球會2018的報告列出整個高球場具存護價值飛蛾累積有29種，但未有提供具潛力發展區所有不同分區的資料 ➔ 調查主要目標包括，了解飛蛾在具潛力發展區內不同分區的分布。

According to HKGC 2018 report, cumulative moth species of conservation importance from the whole FGC was 29, but no specific data for each Sub-Area were provided ➔ Main target includes, find out moth distribution in different Sub-Areas of the PDA.

- 由於**從未在環境影響評估內包括飛蛾影響評估**，因此，本環評研究邀請了**華南農業大學王敏教授(飛蛾專家)**參與。
  As **moth assessment has not been carried out under any previous EIAs**, involvement of **Professor WANG Min of South China Agricultural University (Moth Expert)** was invited.

- 王敏教授的個人簡歷已跟據環評研究概要的要求連同陸地及水生生態影響評估方法說明書一併呈交。
  CV of Professor WANG submitted with Methodology Statement for the Terrestrial and Aquatic Ecological Impact Assessments under the requirement of EIA Study Brief.

王敏教授：

- 1982年毕业于新疆职业技术学院农学专业；
- 1993和1996年毕业于西北农林科技大学昆虫学专业，分别获硕士学位和博士学位；
- 1998年任华南农业大学昆虫学系副教授；
- 2004年12月至今年，任昆虫学系教授；
- 2000年4月至2001年3月，日本九州大学访问学者。
- 兼任中国昆虫学会蝴蝶分会副理事长。

飛蛾調查 Moth Survey

王敏教授的個人簡歷CV of Professor WANG

王敏 華南農業大學農學院 ***昆蟲學系教授***

職位 昆蟲學系教授
任職資歷： 16 年

學術 及 專業資格學會

- 西北農林科技大學博士學位（1988）
- 西北農林科技大學碩士學位（1983）
- 新疆農業技術學院農學專業（1982）
- 中國昆蟲學會蝴蝶分會副理事長
- 生態環境部全國蝴蝶觀測專家組成員
- 《中國生物多樣性紅色名錄·昆蟲卷》鱗翅目組組長

主要資歷

- 研究昆蟲系統學和保護生物學
- 主講城市昆蟲學，經濟昆蟲，生物多樣性，普通昆蟲學等
- 共在國內外學術刊物上發表論文 43 篇，其中國外刊物 30 餘篇
- 已經發表蝶、蛾類新種 200 餘種

工作經驗

- 2004 年至今 ***華南農業大學昆蟲學系教授***
- 1998 年至 2003 年 ***華南農業大學昆蟲學系副教授***

獎項

- 周堯昆蟲分類學獎勵基金（三等獎）
- 日本蝴蝶學會第 11 屆林氏優秀學術著作獎
- 周堯昆蟲分類學獎勵基金（一等獎）

發表文獻及學術報告

- 王敏，岸田泰則，& 枝惠太郎，(2018)．廣東南嶺國家級自然保護區蛾類增補．香港鱗翅目學會．
- 莊海玲，徐海明，& **王敏**．(2012)．中國波紋蛾科一新紀錄屬，種．華南農業大學學報，33(4)，589-590．
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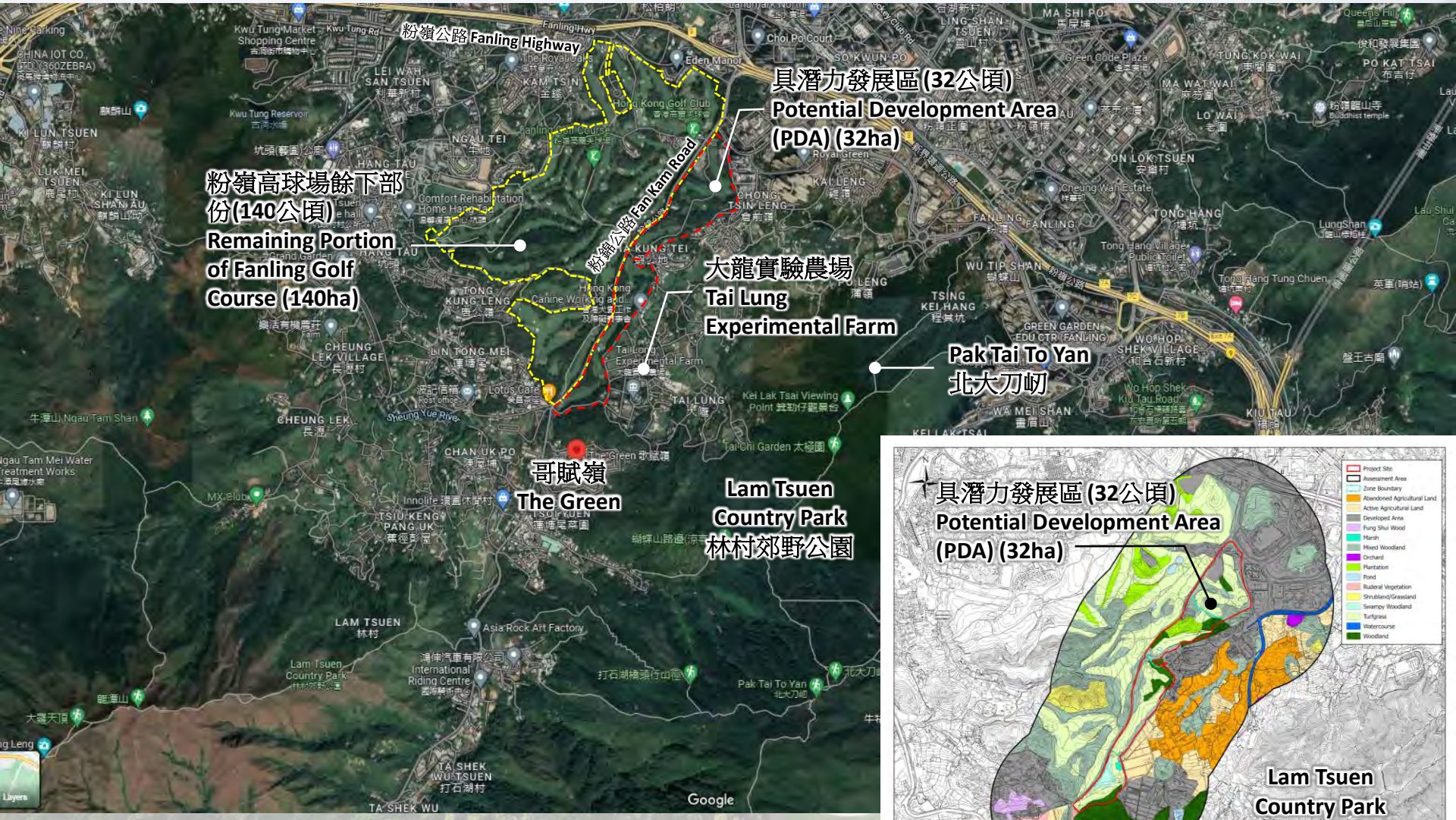
- 方毅，陳劍生，& **王敏**．(2010)．艷卷蛾屬一中國卷蛾科（鱗翅目）新記錄．華南農業大學學報，31(3)，121-122．
- 陳炳旭，董易之，陳劍生，陸恆，成家寧，王安勇，& **王敏**．(2010)．荔枝紐脛翠尺蛾的鑑定及生物學特性研究．果樹學報，27(2)，261-264．
- 陳劍生，& **王敏**．(2009)．中國夜蛾科優夜蛾屬（鱗翅目：夜蛾科）新記錄．華南農業大學學報，30(2)，57-58．
- 陳劍生，韓紅香，& **王敏**．(2009)．亞美尺蛾屬-灰尺蛾亞科-中國新記錄屬．昆蟲分類學報，31(1)，62-63．
- 林紅，& **王敏**．(2005)．中國後資網蛾屬一新記錄種（鱗翅目：網蛾科）．華南農業大學學報，(3)．

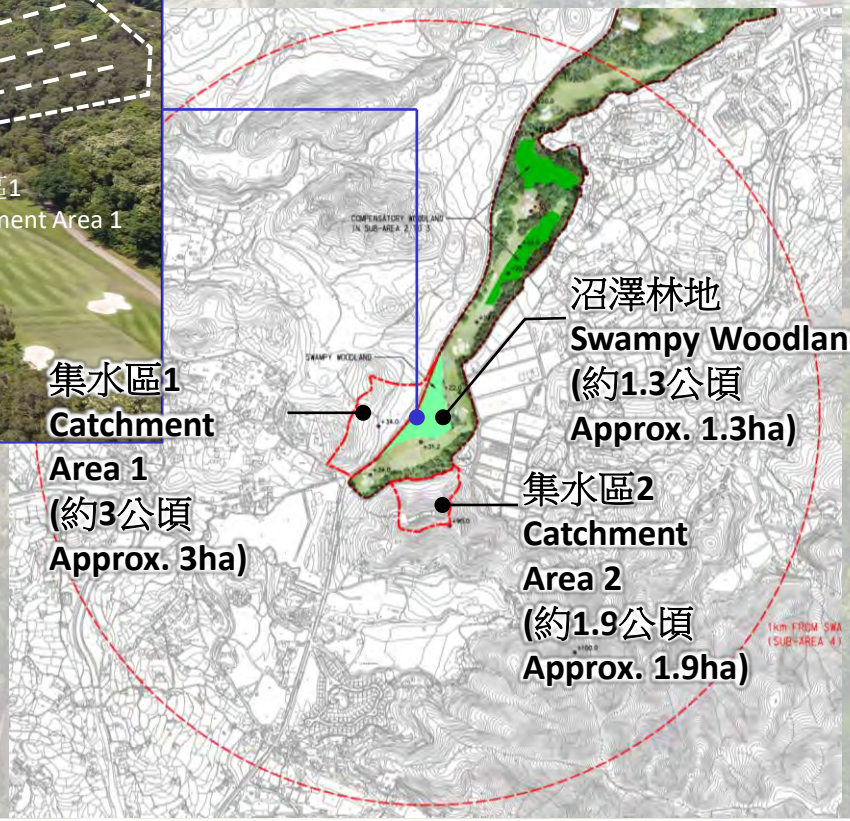
附件2 Attachment 2

哥賦嶺 The Green



土木工程拓展署
Civil Engineering and Development Department

沼澤林地的主要水源分析
Main Water Sources of Swampy Woodland



樹木保護方法
Tree Protection Methodology

附件4 Attachment 4

樹木保育
Preservation of Tree

方法1 METHOD 1:
建立有額外緩衝區(例如外加3米)的優化樹木保護區
Establish Optimized Tree protection zone, with additional buffer zone (e.g. 3m extra space)

例子 Example: 在太子道東的大樹 Big Tree in Prince Edward Road East

樹木保護方法
Tree Protection Methodology

方法2 METHOD 2:
建立樹島/樹井 Establish Tree Island / Tree Well

例子 Example:
皇后山邨Queen's Hill Estate

樹島 Tree Island

樹井 Tree Well

附件5 Attachment 5

香港高爾夫球會
HONG KONG
GOLF CLUB

FAN KAM ROAD 粉錦公路

T158 T137 T176 T725 T185

FOR CONTINUATION
SEE FIGURE 2.2

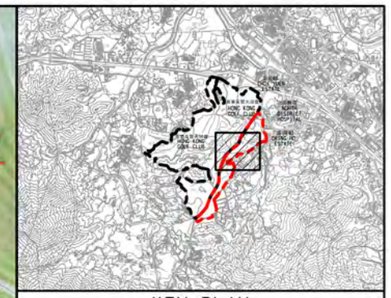
MATCH LINE

PLANTING MATRIX

Botanical Name	Chinese Name	Origin	Size	Spacing (m)	Approx. Ratio	Quantity (no.)	Remarks
Adenanthera microsperma	海紅豆	Native	Standard Tree	5m Stagger	10%	100	Refer to Planting Matrix Each species to be planted in cluster Each cluster contains 6-12 nos. of plants
Cinnamomum camphora	樟	Native			10%	100	
Sterculia lanceolata	假蘋婆	Native			10%	100	
Cinnamomum burmannii	陰香	Native			10%	100	
Cratoxylum cochinchinense	黃牛木	Native			10%	99	
Sapium sebiferum	烏桕	Native			10%	99	
Celtis sinensis	朴樹	Native			10%	99	
Acronychia pedunculata	山油柑	Native			10%	99	
Viburnum odoratissimum	珊瑚樹	Native			10%	100	
Machilus chekiangensis	浙江潤楠	Native			10%	100	
					100%	**996**	

Remarks:
(i) The total area of proposed receptor sites for compensatory trees is approx. 17,000sqm, which is able to accommodate the amount of compensatory trees with 5m spacing of staggered pattern.
(ii)The total area of proposed receptor sites for transplanted trees is approx. 1,500sqm, which is able to accommodate the amount of transplanted trees with 5m spacing of staggered pattern.
(iii)In addition to the above, 2 nos. of These trees are proposed to be removed. 2 additional trees will be compensated subject to further review and the implementation programme of Sub-areas 2 to 4,

0 10 20 30 40 50
METRES
1 : 2000



KEY PLAN

NOTES :

1. ALL DIMENSIONS ARE IN MILLIMETRES UNLESS OTHERWISE STATED.
2. ALL LEVELS ARE IN METRES (M) AND RELATIVE TO HONG KONG PRINCIPAL DATUM (mPD).

LEGEND :

- POTENTIAL DEVELOPMENT AREA
- SUB-AREA 1 OF POTENTIAL DEVELOPMENT AREA
- SUB-AREA 2 OF POTENTIAL DEVELOPMENT AREA
- SUB-AREA 3 OF POTENTIAL DEVELOPMENT AREA
- SUB-AREA 4 OF POTENTIAL DEVELOPMENT AREA
- EXISTING TREES OTHER THAN TREES OF PARTICULAR INTEREST TO BE REMOVED
- TREES OF PARTICULAR INTEREST (MATURE TREES WITH DBH≥1m) TO BE RETAINED
- TREES OF PARTICULAR INTEREST (MATURE TREES WITH DBH≥1m) TO BE REMOVED
- AQUILARIA SINENSIS TO BE RETAINED
- AQUILARIA SINENSIS TO BE TRANSPLANTED
- GLYPTOSTROBUS PENSILIS TO BE RETAINED
- PROPOSED RECEPTOR SITE FOR COMPENSATORY TREES
- COMPENSATORY TREE PLANTING

Rev	Description	By	Date

Consultant

wsp

Project title

AGREEMENT NO. CE17/2019 (CE)
TECHNICAL STUDY ON PARTIAL DEVELOPMENT OF FANLING GOLF COURSE SITE
– FEASIBILITY STUDY

Drawing title

PLANTING PALETTE (1)

Drawing no.		Rev.
FIGURE 2.1		–
Drawn: CAD	Date: 02/22	Checked: SF	Approved: EW
Scale: 1:2000 (A3)		Status:	

CEDD 土木工程拓展署
CIVIL ENGINEERING AND DEVELOPMENT DEPARTMENT
北拓展處
NORTH DEVELOPMENT OFFICE

Date : 12/10/2021
Filename : X:\25143\31A CE17-2019 (FL GOLF COURSE)\02_Drawing\Sketch\WSP_CE17_SK_122.dgn

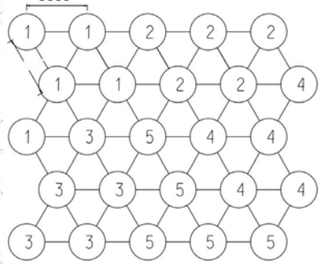
FOR CONTINUATION
SEE FIGURE 2.1
MATCH LINE

FAN KAM ROAD 粉錦公路

安圃
ON PO

T224
T1861
T1860
T183
T182
T332
T334
T335
T342
T362

5000



PLANTING MATRIX

Botanical Name	Chinese Name	Origin	Size	Spacing (m)	Approx. Ratio	Quantity (no.)	Remarks
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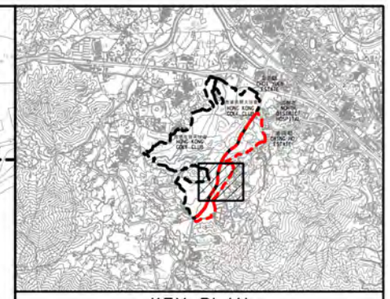
0 10 20 30 40 50
METRES
1 : 2000



KEY PLAN

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- SUB-AREA 3 OF POTENTIAL DEVELOPMENT AREA
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- TREES OF PARTICULAR INTEREST (MATURE TREES WITH DBH≥1m) TO BE REMOVED
- AQUILARIA SINENSIS TO BE RETAINED
- AQUILARIA SINENSIS TO BE TRANSPLANTED
- GLYPTOSTROBUS PENSILIS TO BE RETAINED
- PROPOSED RECEPTOR SITE FOR COMPENSATORY TREES
  - COMPENSATORY TREE PLANTING
- PROPOSED RECEPTOR SITE FOR TRANSPLANTED TREES/PLANTS
  - TRANSPLANTED TREE PLANTING

Rev	Description	By	Date

Consultant

Project title
AGREEMENT NO. CE17/2019 (CE)
TECHNICAL STUDY ON PARTIAL DEVELOPMENT OF FANLING GOLF COURSE SITE
– FEASIBILITY STUDY

Drawing title
PLANTING PALETTE (2)

Drawing no. FIGURE 2.2 Rev. –

Drawn	Date	Checked	Approved
CAD	02/22	SF	EW

Scale 1:2000 (A3) Status –

土木工程拓展署
CIVIL ENGINEERING AND DEVELOPMENT DEPARTMENT
北拓展處
NORTH DEVELOPMENT OFFICE

Date : 12/10/2021
Filename : X:\2514331A CE17-2019 (FL GOLF COURSE)\02_Drawing\Sketch\WSP_CE17_SK_123.dgn

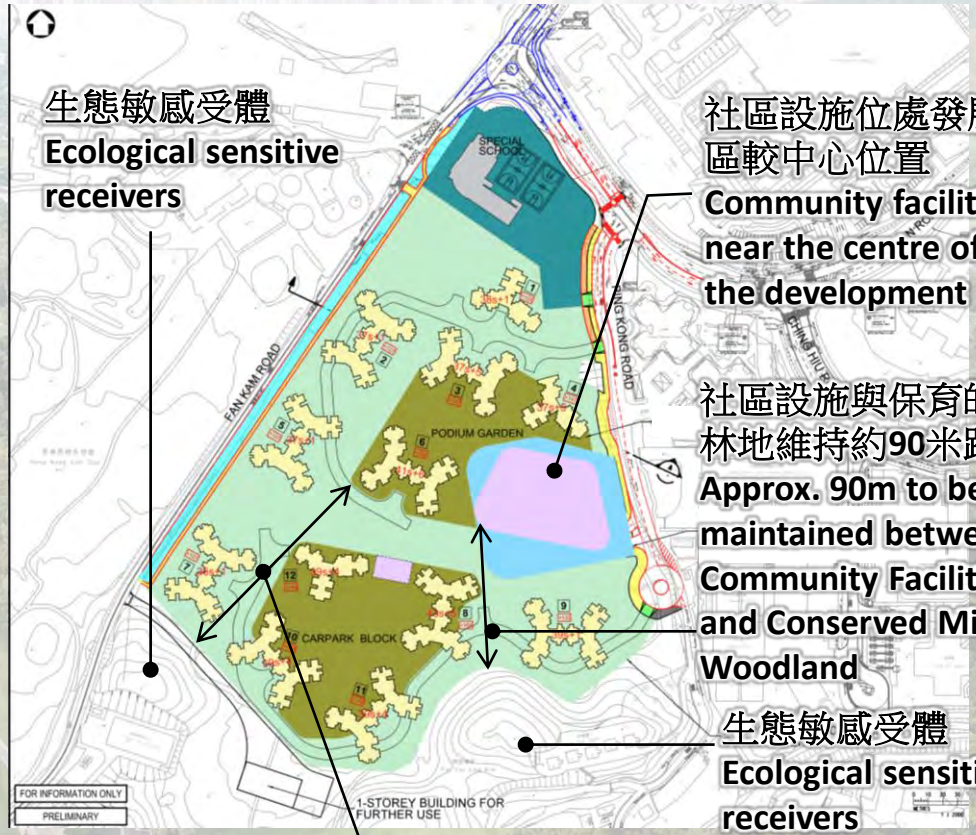
照明眩光評估
Lighting Glare Assessment

反平方定律 Inverse Square Law

- 參考反平方定律，會嘗試在發展圖上維持在樓宇和生態敏感受體之間盡量長的距離
  With reference to Inverse Square Law, the layout would try to maintain distances between buildings and ecological sensitive receivers as far as possible

以一般街燈在距離地面10米作基準計算:
With a typical street lamp at 10 m from ground as the basis:

地點 Location	最短距離 (米) Nearest Distance (m)	光線強度的減少 (倍) Reduction in Light Intensity (times)
社區設施至保留的混合林地 Community Facilities to Preserved Mixed Woodland	90	1/81
社區設施至分區2 Community Facilities to Sub-Area 2	150	1/225



照明眩光評估
Lighting Glare Assessment

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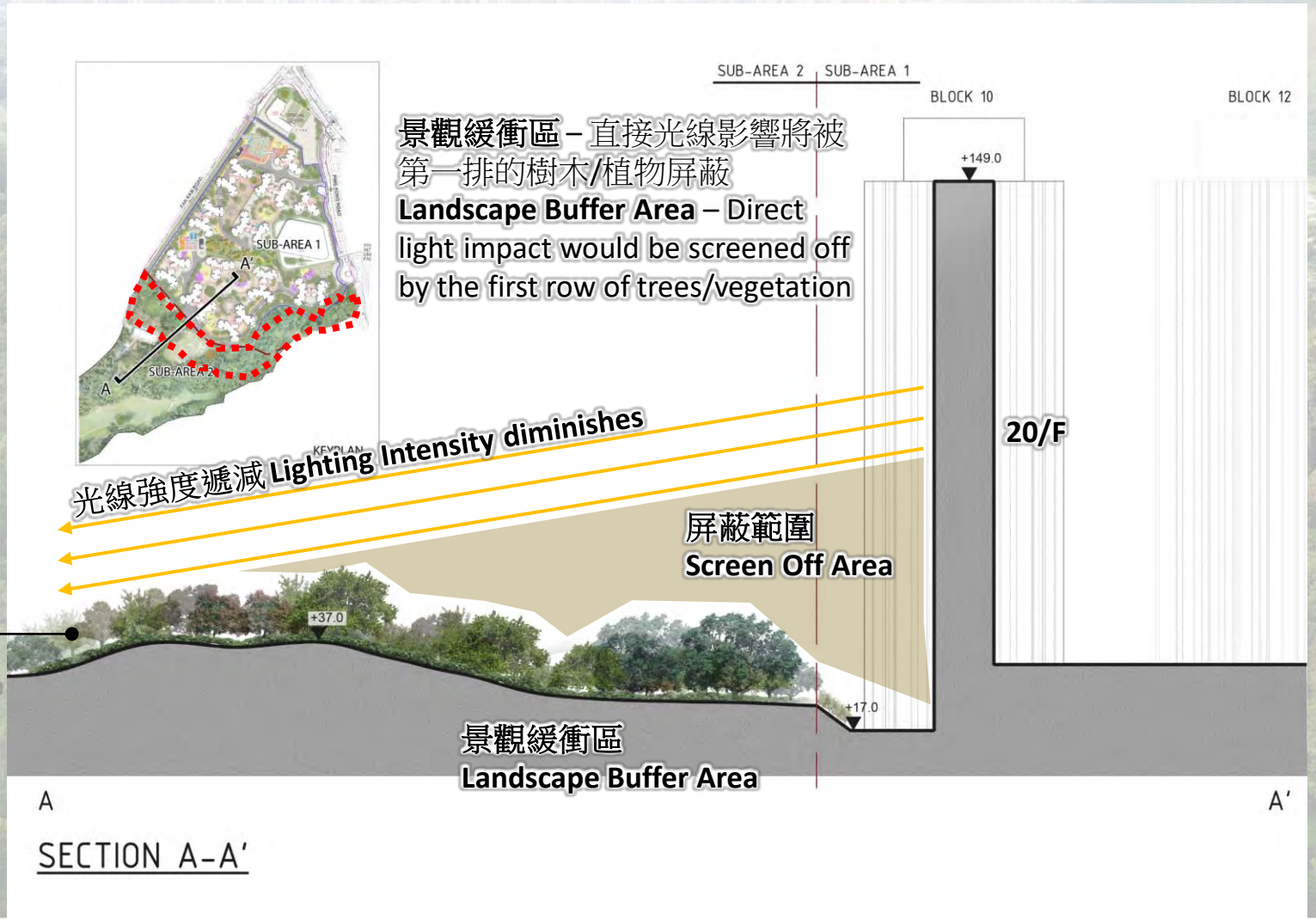

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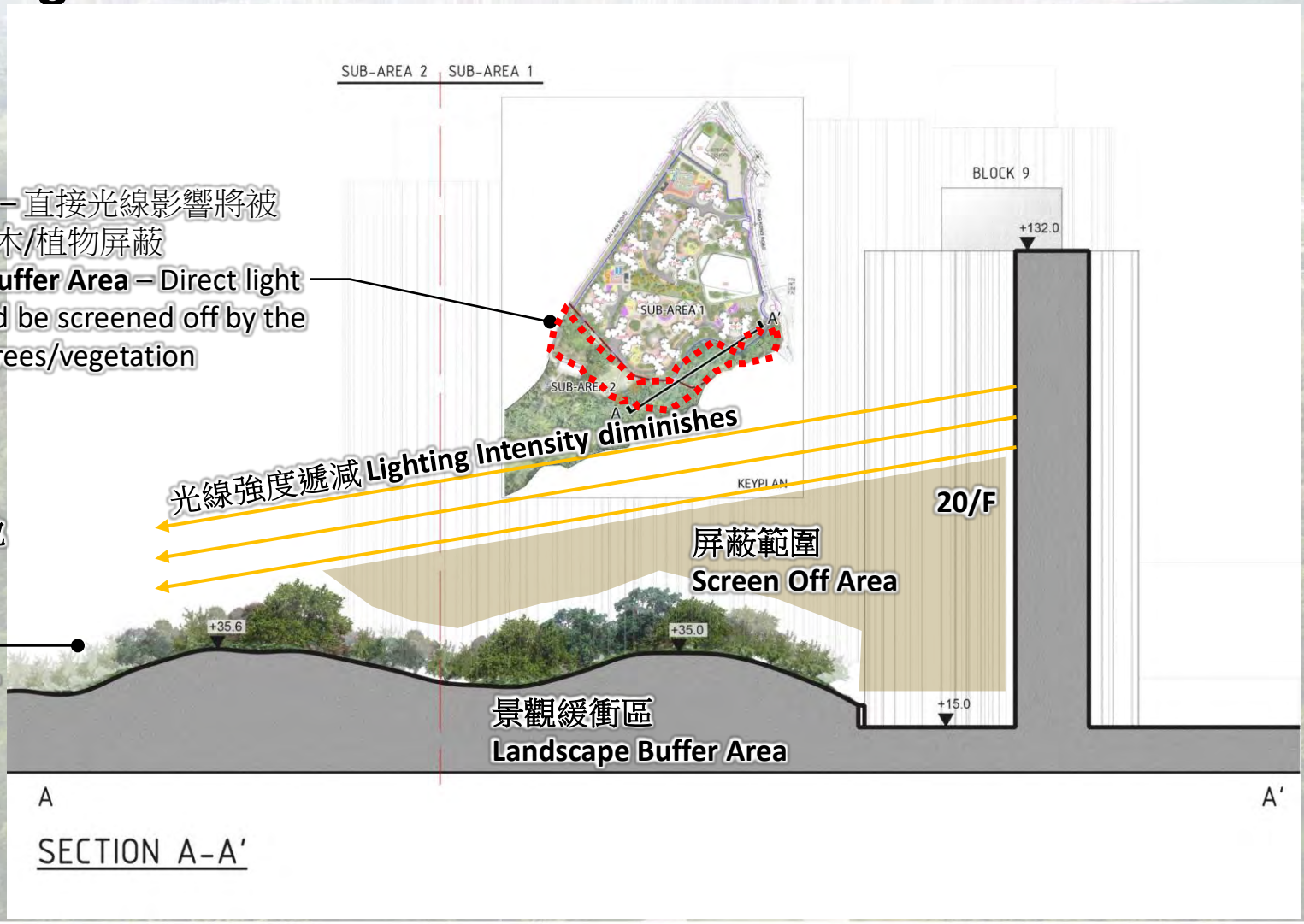


Annex C

EIA Report on "Technical Study on Partial Development of Fanling Golf Course Site – Feasibility Study"

Additional information to be provided to the Director of Environmental Protection to facilitate the conclusion of a decision –

(a) Additional Bird Survey covering early morning to evening (i.e. before sunrise to 10 pm) to be conducted twice a month from September 2022 to March 2023 (covering the wet and dry seasons) to reaffirm that the overall results of the bird survey conducted in the EIA report are valid. Details of the survey methodology including the types of device used, transect of the survey, qualifications of the personnel conducting the survey as well as the locations, frequency and duration of the survey shall be included in the further information;

(b) Additional Moth Survey covering both evening and mid-night to be conducted twice a month from September to October 2022 to reaffirm the overall result of the moth survey conducted in the EIA report. Two rounds of survey with a duration of two hours each (i.e. one at two hours after sunset and the other one at mid-night between 00:00 and 02:00) should be carried out each night. Details of the survey methodology including the types of device used, location/transect of the survey, qualifications of the personnel conducting the survey as well as the locations, frequency and duration of the survey shall be included in the further information;

(c) Details of the survey methodology adopted for the Bat Survey in the EIA report including the coordination of the transects of the surveys, qualifications of the personnel conducting the survey as well as the locations, frequency and duration spent on each Sub-Area;

(d) Tree compensation plan which shall include details of planting numbers with a compensation ratio of at least 1:1.5 having regard to the number of trees affected, locations and tree species to be compensated as well as a management plan taking into account the water demand of the compensatory trees;

(e) A detailed layout plan of the proposed housing development which shall illustrate, with the help of an overlay plan of the proposed housing blocks, the preservation of an additional 0.39 hectares of secondary woodland in Sub-Area 1 (Annex 1) (on top of those woodland, mixed woodland and Trees of Particular Interest (TPI) recommended for preservation in the EIA report), the locations of the trees to be retained,

the location, disposition and design of the proposed housing blocks with a view to minimising adverse ecological impact;

(f) A detailed analysis of the hydrological impact to show the flow of water, including available information on the profile of soil and bedrock conditions of the project site;

(g) Additional analysis on the shading impact of the proposed housing blocks to the trees in the potential development area taking into account the revised layout plan; and

(h) Further information on how the grave situated in Sub-Area 1 will be handled, with consideration of the view that many members of the Council have recommended to retain the grave as far as possible.

Other comments and observations of ACE on the report –

(a) The Project Proponent should request the Antiquities Advisory Board to speed up the review of the grading assessment on the Fanling Golf Course;

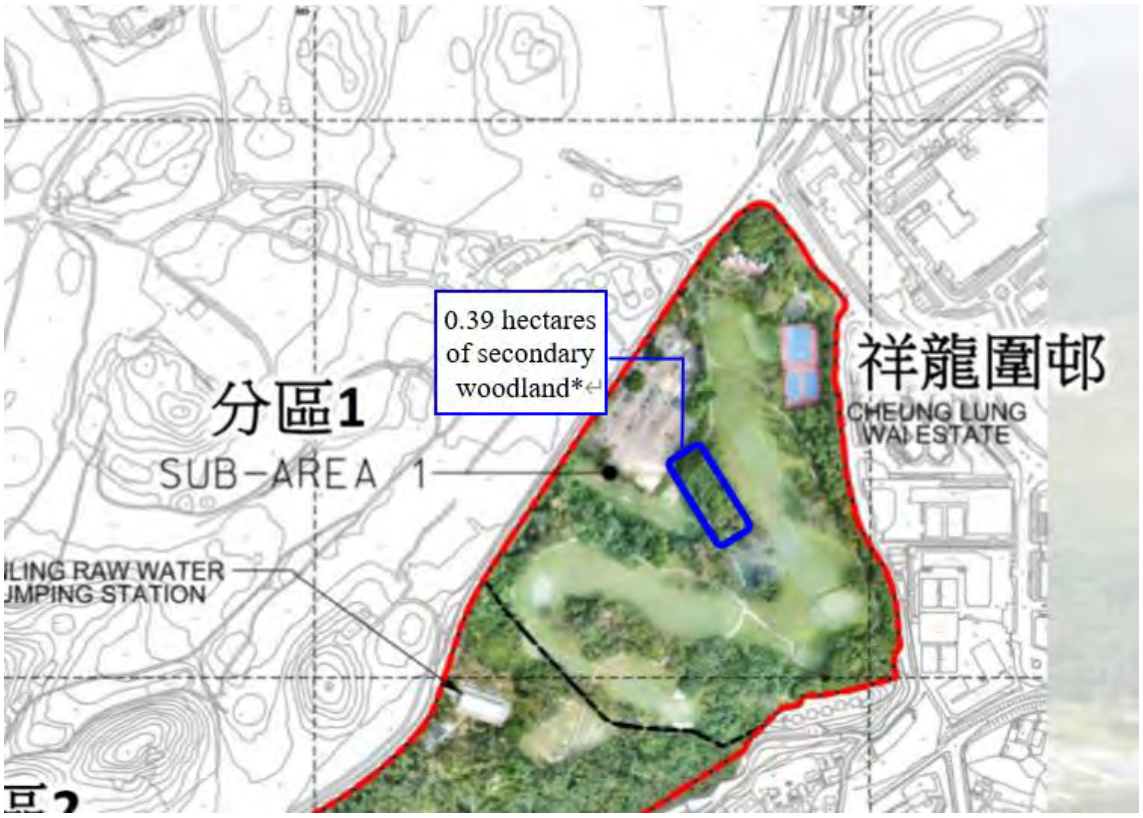
(b) The Project Proponent should enhance the ecological value of Sub-Areas 2 to 3 by planting more trees with a better management plan for public enjoyment. To maintain a balance between nature conservation and public enjoyment, core areas with limited access by the public should be designated for those parts where the Chinese Swamp Cypress are found while the rest can be open to the public;

(c) The design shall incorporate sponge city concept to enhance permeability as well as green building designs such as green roof, sky garden and community farmland to enhance urban ecology and ecological connectivity; and

(d) The Project Proponent should consider measuring the baseline ambient light level of the site, and use those findings and data for any future planning and monitoring etc., with the objective to minimise the light pollution impact to the ecologically sensitive areas in the site.

Annex 1

Aerial Photo of Sub-Area 1



* The location is indicative. Please refer to EIA report Figure 9.5a for the exact location.